# AVRCIS

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FINAL

# ANTELOPE VALLEY REGIONAL CONSERVATION INVESTMENT STRATEGY


Desert and Mountain Conservation Authority

Transition Habitat Conservancy

The Nature Conservancy

California Department of Transportation

California Energy Commission

U.S. Fish and Wildlife Service


ICF

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**FINAL**

# ANTELOPE VALLEY REGIONAL CONSERVATION INVESTMENT STRATEGY

**PREPARED FOR:**


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# Acronyms and Abbreviations

| | |
|---|---|
| °F | degrees Fahrenheit |
| AB | Assembly Bill |
| Area Plan | Antelope Valley Area Plan |
| BLM | Bureau of Land Management |
| BLM | Bureau of Land Management |
| CDFW | California Department of Fish and Wildlife |
| CEQA | California Environmental Quality Act |
| CESA | California Endangered Species Act |
| CFGC | California Fish and Game Code |
| CFR | Code of Federal Regulations |
| CNDDB | California Natural Diversity Database |
| cores | core habitat areas |
| DMCA | Desert and Mountains Conservation Authority |
| DRECP | Draft Desert Renewable Energy Conservation Plan and Environmental Impact Report/Environmental Impact Statement |
| EEMS | Environmental Evaluation Modeling System |
| EOA | Economic Opportunity Area |
| ESA | Endangered Species Act |
| GAP | Gap Analysis Project |
| General Plan | Los Angeles County General Plan 2035 |
| GIS | geographic information systems |
| Guidelines | Regional Conservation Investment Strategies Program Guidelines |
| HCP | habitat conservation plan |
| km/km2 | kilometer per square kilometer |
| Legislature | California State Legislature |
| MCA | mitigation credit agreement |
| NCCP | natural community conservation plan |
| NMFS | National Marine Fisheries Service |
| NVCS | National Vegetation Classification Standard |

| | |
|---|---|
| OHV | off-highway vehicle |
| Program Guidelines | Regional Conservation Investment Strategies Program Guidelines |
| RCIS | Regional Conservation Investment Strategy |
| SCE | Southern California Edison |
| SEA | Significant Ecological Area |
| SWAP | State Wildlife Action Plan |
| TRTP | Tehachapi Renewable Transmission Project |
| USFWS | U.S. Fish and Wildlife Service |

Chapter 1
# Introduction

## 1.1 Background

In 2016, the California State Legislature (Legislature) worked with the California Department of Fish and Wildlife (CDFW) and a variety of other entities and stakeholders to find creative ways to guide voluntary conservation actions and mitigation actions for the state's most vulnerable species and resources, in conjunction with public infrastructure or forest management. This collaboration resulted in Assembly Bill 2087 (AB 2087), which outlines a program for identifying and prioritizing the conservation needs of vulnerable species and resources at a regional scale. The program includes actions to address the impacts of climate change and other stressors and pressures that influence the resiliency of those species and natural resources. AB 2087, signed by the Governor on September 22, 2016, amends the California Fish and Game Code (CFGC) Division 2, Chapter 9, to add Sections 1850–1861, which create the regional conservation investment strategy (RCIS) program.

The program allows for CDFW or any public agency to develop an RCIS to guide protection of focal plant and wildlife species and other important conservation elements. A regional approach to advance mitigation planning can ensure that compensatory mitigation actions ultimately provide conservation benefit for affected species. A regional approach can also facilitate faster environmental review for development projects (Thorne et al. 2009). The RCIS must include specific information about conservation actions necessary to reduce stressors and negative pressures on those species, including identifying conservation priorities within the region, where appropriate. Once approved by CDFW, an RCIS can be used to identify areas of highest conservation priority for conservation investments by public agencies or conservation organizations. An approved RCIS can also be used voluntarily by public infrastructure agencies or private developers to help with their selection of appropriate mitigation sites or actions.

To support and guide development of RCISs, CDFW released the *Regional Conservation Investment Strategies Program Guidelines* (Program Guidelines) in April 2017. These Program Guidelines were updated in June 2017, again in February and to the current version in September 2018 (California Department of Fish and Wildlife 2017a, 2018a). This Antelope Valley RCIS was developed to be consistent with CFGC Sections 1850–1861, as well as the September 2018 Program Guidelines. As allowed by the September 2018 Program Guidelines, this Antelope Valley RCIS is exempt from some requirements in the September 2018 Program Guidelines[1] and in those cases is subject instead to the June 2017 Program Guidelines because this RCIS was initiated in March 2016.[2]

A key component of the Program Guidelines is Section 2, *Standard Terminology*, which contains a detailed list of terms, abbreviations, and definitions applicable to RCISs. Appendix A, *Glossary*, includes those terms used in this Antelope Valley RCIS.

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[1] See Section 4.1 of the September 2018 Program Guidelines for exemptions to the September 2018 Program Guidelines.

[2] The Antelope Valley RCIS Steering Committee held a public meeting on March 7, 2017, at the Antelope Valley Transit Authority Offices, 42210 6th Street W., Lancaster, California. Written documentation that the Antelope Valley RCIS was initiated prior to January 1, 2017, can be found at the end of Appendix C, *Stakeholder Involvement and Public Outreach*.

By authorizing CDFW to approve RCISs, it is not the intent of the Legislature to regulate the use of land, establish land use designations, or to affect, limit, or restrict the land use authority of any public agency. Nothing in this RCIS is intended to, nor shall it be interpreted to, conflict with controlling federal, state, or local law, including CFGC Sections 1850–1861, or any Guidelines adopted by CDFW pursuant to Section 1858. Therefore, actions carried out as a result of this RCIS will be in compliance with all applicable state and local requirements.

In addition, this Antelope Valley RCIS does not conflict with the following requirements of CFGC Section 1855(b)).

1. This RCIS does not modify in any way the standards for issuance of incidental take permits or consistency determinations pursuant to Section 2081 or 2080.1, issuance of take authorizations pursuant to Section 2835, issuance of lake or streambed alteration agreements pursuant to Section 1602, or any other provision of this code or regulations adopted pursuant to this code.
2. This RCIS does not modify in any way the standards under the California Environmental Quality Act (CEQA) (Division 13 [commencing with Section 21000] of the Public Resources Code), or in any way limit a lead agency's or responsible agency's discretion, in connection with any determination of whether a proposed project may or may not result in significant environmental effects or in any way establish a presumption in connection with any determination of whether a proposed project may or may not result in significant environmental effects or whether a proposed project's impacts would be mitigated.
3. This RCIS does not prohibit or authorize any project or project impacts.
4. This RCIS does not create a presumption or guarantee that any proposed project will be approved or permitted, or that any proposed impact will be authorized, by any state or local agency.
5. This RCIS does not create a presumption that any proposed project will be disapproved or prohibited, or that any proposed impact will be prohibited, by any state or local agency.
6. This RCIS does not alter or affect, or create additional requirements for, the general plan of the city, county, or city and county, in which it is located.
7. This RCIS does not constitute any of the following, for the purposes of CEQA (Division 13 [commencing with Section 21000] of the Public Resources Code):
    a. A plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.
    b. A local policy or ordinance protecting biological resources.
    c. An adopted local, regional, or state habitat conservation plan (HCP).

Once an RCIS is approved by CDFW, a sponsor may prepare a mitigation credit agreement (MCA) and request its approval by CDFW. An MCA identifies the type and number of credits a person or entity proposes to create by implementing one or more conservation actions or habitat enhancement actions, as well as the terms and conditions under which those credits may be used. MCAs enable advance mitigation, which is compensatory mitigation for estimated impacts on ecological resources (species and their habitat) and other natural resources that contributes to the fulfillment of regional conservation priorities and that is implemented prior to impacts occurring. The MCA can be designed to satisfy a range of state wildlife laws, including the California Endangered Species Act, CEQA, and lake or streambed alteration requirements of the CFGC.

# 1.2 Purpose and Need

As stated in CFGC Section 1852(b), the purpose of an RCIS is to provide voluntary guidance for one or more of the following, in ways that will enhance the long-term viability of native species, habitat, and other natural resources.

8. Identification of wildlife and habitat conservation priorities, including actions to address the impacts of climate change and other wildlife stressors.
9. Investments in natural resource conservation.
10. Infrastructure planning.
11. Identification of areas for compensatory mitigation for impacts on species and natural resources.

The RCIS encourages a voluntary, nonbinding, non-regulatory regional planning process intended to result in higher-quality conservation outcomes. An RCIS establishes conservation goals and objectives and describes conservation actions that may be used as a basis to provide advance mitigation or to inform other conservation planning processes and investments.

This Antelope Valley RCIS was selected as a pilot RCIS in part because of the substantial available scientific data to support development of a robust RCIS in a short period. Much of these data were developed as part of the *Draft Desert Renewable Energy Conservation Plan and Environmental Impact Report/Environmental Impact Statement* (DRECP) (California Energy Commission et al. 2014), which presented a range of alternative conservation strategies and conservation actions on public and private lands to address the effects of renewable energy and associated development. The body of information underlying the DRECP was published in the California Desert Biological Conservation Framework (California Energy Commission et al. 2016) and is used to inform the foundational biological components of this Antelope Valley RCIS.

This Antelope Valley RCIS was also selected as a pilot RCIS because of the rapid growth anticipated in the region over the next 10 years, including a number of large transportation, renewable energy, and housing projects that will be designed and proposed for construction. Currently, there is no HCP or natural community conservation plan (NCCP) in the Los Angeles County portion of Antelope Valley (i.e., the RCIS area) to meet the species mitigation needs of these projects. This RCIS can support the mitigation needs for these projects, including ongoing development in the two cities within the RCIS area (Lancaster and Palmdale) and other development in unincorporated Los Angeles County.

Additionally, this Antelope Valley RCIS can support regional conservation investments by informing where organizations, such as land trusts, can focus acquisition, restoration, or enhancement where it will have the largest benefit for focal species and other conservation elements. This RCIS also provides information on the different organizations that are active in the RCIS area, with the intent that agencies or organizations using this RCIS will consider sharing information beyond that contained in this RCIS or partnering in implementation of conservation actions and conservation investments.

# 1.3 Potential RCIS Users

There are no limits to who can use the RCIS. RCIS users can include any public or private entity or party interested in understanding the conservation needs of the RCIS area for focal species and natural communities for the sake of biological mitigation, development of advance mitigation, and all other activities that further the conservation goals and objectives of the RCIS, including acquisition and easements for conservation purposes; restoration, enhancement, and other conservation-oriented management; monitoring; and additional habitat conservation planning. Further information on the potential and appropriate uses of the RCIS can be found in Section 1.1 of the Program Guidelines.

The biological resource information and guidance in this RCIS is intended to improve the coordination, cost-effectiveness, and efficiency of conservation investments of any kind throughout the Antelope Valley RCIS area. The biological information and conservation goals and objectives to conservation priorities in the RCIS area may be implemented independently, or through coordination and conservation partnerships that are established and/or sustained through the RCIS implementation process. Section 3.5 of this RCIS (*Applying Actions and Conservation Priorities*) provides a Four)-Step Process for how to use the RCIS to develop mitigation credits or conservation investments, including a focal species example (Joshua tree).

# 1.4 Overview

## 1.4.1 Building Blocks for Conservation Planning

The building blocks for conservation planning of the Antelope Valley RCIS include the best available science and modeling tools, existing and planned land use information, and stakeholder involvement and guidance.

The Antelope Valley RCIS is based on the best available biological and land use planning information, including empirical biological resource data (e.g., mapping of habitats and species occurrences), current scientific literature, state-of-the-art modeling and mapping of biological resources and climate change effects, and existing and future planned land use and ownership.

This Antelope Valley RCIS was developed in concert with other key planning efforts that overlap in the RCIS area. Primarily, it builds on existing information provided in the State Wildlife Action Plan (SWAP), DRECP, California Desert Biological Conservation Framework, and the Significant Ecological Areas identified in the *Los Angeles County 2035 General Plan*.

This Antelope Valley RCIS presents conservation goals and objectives for the RCIS area (Chapter 3, *Conservation Strategy*) that were developed for the focal species of the RCIS and the natural communities and other conservation elements that support the biological diversity and ecological processes. Incorporated into those goals and objectives are conservation actions for land acquisition, restoration, enhancement, management, and monitoring.

The conservation actions are intended to be used in multiple ways. First, conservation organizations can use these priorities to inform the work they do to align their efforts with the conservation goals and objectives of the RCIS. This alignment includes the pursuit of funding for land acquisition, restoration, and enhancement. Second, the conservation actions presented in this RCIS can also support project permitting and regulatory processes by providing project proponents, regulatory agencies, and agencies that have local land use authority with information to identify conservation actions that can be used to meet project mitigation needs. Guidance on how this RCIS can be used voluntarily to support various state and federal permits that typically require mitigation can be found in Appendix B, *Regulatory Processes*.

#### 1.4.1.1 Primary Steps to Determine Conservation Priorities

The following 12 steps describe the sequence of information collection, analysis, and stakeholder input that has resulted in the conservation priorities for the Antelope Valley RCIS area.

1. **Determine RCIS Area:** The Antelope Valley RCIS area was determined in collaboration with the Steering Committee and Advisory Committee by evaluating ecoregional boundaries, jurisdictional boundaries, and major ownership boundaries. The RCIS boundary is intended to capture the natural transitional boundaries between natural communities as well as reflect the jurisdictional and ownership boundary considerations for RCIS implementation.
2. **Selection of Focal Species:** The focal species were selected in collaboration with the Steering Committee and Advisory Committee, and are intended to represent species that typically require mitigation in the RCIS area, as well as those species that are representative of sensitive communities, characteristic of the biodiversity of the RCIS area, are potentially sensitive to the effects of climate change, or are otherwise of local conservation interest.
3. **Identification of Natural Communities and Other Conservation Elements:** The identification of natural communities and other conservation elements was based on the land cover mapping and conservation status sensitivity ranking.
4. **Mapping of Biological Value:** Mapping of biological value was based on the distribution of focal species and natural communities; modeling of habitat connectivity; modeling of climate stability, climate resilience, and climate refugia; and species occurrence data.
5. **Mapping of Landscape Intactness:** Intactness is an estimate of naturalness, and is based on the level of human disturbance for an area. Terrestrial intactness is high in places where anthropogenic impacts such as urban development and natural resource extraction are low and native vegetation fragmentation is low.
6. **Mapping of Conservation Value:** Conservation value was mapped by combining the mapping of biological value with landscape intactness. Areas with moderate to high biological value and moderate to high landscape intactness were identified as areas with higher conservation value. The conservation value mapping was combined with each species habitat distribution to produce maps of relative conservation value for each species.
7. **Mapping of Habitat Cores Areas and Landscape Linkages:** The conservation value mapping for species and natural communities was used to identify large patches of habitat core areas where biological value and landscape intactness are higher. Habitat connectivity modeling results were used to identify the landscape linkages between these areas that provide important connectivity for species dispersal (wildlife movement and plant dispersal) as well as long-term shifting of habitat distributions in response to climate change.
8. **Gap Analysis:** A Gap Analysis was conducted by overlaying the protected lands with the distribution of habitat for each species relative to the habitat core areas and landscape linkages to determine the amount of habitat of higher conservation value for each species that occurred

on protected lands and the amount lacking any current level of protection. Gaps in protection were determined relative to quantitative conservation target acreages for each focal species.

9. **Identification of Conservation Goals, Objectives, and Actions:** The Conservation Goals and Objectives were selected in collaboration with local experts and representatives from the Steering Committee and Advisory Committee. Conservation goals and objectives were determined based on an understanding of the distribution of the high conservation value habitat for each species relative to the known threats and stressors for each species. Conservation goals and objectives provide the guidance for identifying potential conservation actions for each species.
10. **Mapping of Foreseeable Potential Future Urbanization:** Areas of known or foreseeable potential future urbanization and infrastructure development are generally not suited for achieving long-term conservation goals and objectives due to the difficulty, increased cost, and decreased effectiveness of conservation actions in an increasingly developed and fragmented landscape. Foreseeable potential future urbanizing areas were mapped based on local land use planning resources (including designated Economic Opportunity Areas and Opportunity Zones) and known planned future development and infrastructure projects.
11. **Identification of Conservation Priority Areas:** Conservation priority areas are those areas where the higher conservation values occur for species, natural communities, and other conservation elements, and where the least potential conflict with foreseeable potential future urbanization is likely to occur. All else being equal, implementation of conservation actions will be most effective in priority conservation areas that avoid or minimize overlap with future urbanization. Some overlap of conservation priority areas with potential future urbanization is likely to occur (e.g., when there are no other viable alternatives for conservation actions for a given species).
12. **RCIS Implementation:** The Antelope Valley RCIS is a dynamic conservation planning tool that serves to unify and coordinate conservation investments and conservation actions implemented to achieve the goals and objectives of the RCIS. Any entity or individual may use the RCIS to identify conservation priorities and implement conservation actions to meet their own conservation and mitigation needs and interests. Implementation may occur independently, or through coordination and conservation partnerships that are established and/or sustained through the RCIS implementation process.

### 1.4.2 Development Team

The Antelope Valley RCIS development process began in March 2016. The process was initiated by the Desert and Mountains Conservation Authority (DMCA) in collaboration with the California Energy Commission. ICF was the lead technical consultant on the RCIS document, working under the direction of a Steering Committee and with input from an active Advisory Committee, both of which are described below. The RCIS process benefited from public outreach, briefings, and opportunities for input from the Antelope Valley community; non-profit organizations including environmental, conservation, and community organizations; business interests; regulatory agencies; and federal, state, and local governments.

The goals of the public outreach were as follows.

- Provide partners and the public with information on this RCIS planning effort.

- Receive information regarding the region's ecological values, planning, and conservation priorities.

This coordination is described in more detail below and in Appendix C, *Stakeholder Involvement and Public Outreach*.

#### 1.4.2.1 RCIS Proponent

As the RCIS proponent, DMCA, directed the preparation of this RCIS with generous funding from the Stephen D. Bechtel, Jr. Foundation. DMCA is a public entity created in July 2006 through a Joint Powers Authority Agreement between the Antelope Valley Resource Conservation District and the Santa Monica Mountains Conservancy. DMCA has been established to identify, acquire, and manage open space lands within the boundaries of the two founding agencies for long-term conservation benefits. DMCA is one of the leading entities in Antelope Valley acquiring open space for conservation and on behalf of project proponents for mitigation.

DMCA collaborated with the other agencies and entities on the Steering Committee to prepare this RCIS consistent with AB 2087 and with the goals stated above.

#### 1.4.2.2 Steering Committee

The coordination and development of this Antelope Valley RCIS were guided by a Steering Committee. The Steering Committee, led by DMCA, was composed of representatives from DMCA, the Nature Conservancy, California Department of Transportation (Caltrans), California Energy Commission, U.S. Fish and Wildlife Service (USFWS), and Transition Habitat Conservancy. The Steering Committee met eight times throughout 2016 and 2017 to provide guidance on the development of this RCIS, including identification of the RCIS area and focal species; conservation goals, objectives, actions, and priorities; and implementation structure. The Steering Committee supported engagement with the Advisory Committee, other stakeholders, and the public (Appendix C, *Stakeholder Involvement and Public Outreach*). The Steering Committee also reviewed a complete administrative draft RCIS.

#### 1.4.2.3 Advisory Committee

The Advisory Committee comprised a broad group of stakeholders in Antelope Valley, including representatives from other nonprofit organizations including conservation, environmental, and community; federal and state agencies; local jurisdictions; and businesses. The Advisory Committee met in person and online throughout the development of this RCIS. The Advisory Committee provided important information concerning ecological resources in the region. It reviewed and commented on interim RCIS work products, including the RCIS area and focal species list. The Advisory Committee also reviewed a complete administrative draft RCIS.

#### 1.4.2.4 Technical Subcommittee

The Steering and Advisory Committees formed a Technical Subcommittee to analyze key technical and conservation planning issues and make recommendations. The Technical Subcommittee was composed of conservation specialists with local knowledge of the species, habitats, and natural communities throughout the RCIS area. The Technical Subcommittee met eight times via conference calls and online presentations during the preparation of the technical components of the RCIS.

## 1.4.3 Sponsoring State Agency

CFGC Section 1852(a) requires that, in order for CDFW to approve an RCIS, one or more state agencies must sponsor the RCIS by requesting approval of the strategy through a letter to CDFW indicating that the proposed RCIS would contribute to meeting state goals for conservation or public infrastructure or forest management. As the Antelope Valley RCIS's state agency sponsor, the Santa Monica Mountains Conservancy has requested approval of this RCIS through a state agency sponsor letter sent to the Director of CDFW, as required by CFGC Section 1852(a). The letter is included in Appendix D, *Letters of Support.*

Additionally, Caltrans sent a letter to the Director of CDFW requesting approval of this RCIS and stating that the information contained in the RCIS will aid in the development of advance mitigation for future transportation projects within the RCIS area. The letter is included in Appendix D, *Letters of Support.*

## 1.4.4 RCIS Area

The RCIS area for this Antelope Valley RCIS covers approximately 707,076 acres and is largely defined by the Los Angeles County portion of the DRECP plan area (California Energy Commission et al. 2014) (Figure 1-1). The southern boundary includes the full extent of the Petersen Ranch, an important protected area and mitigation bank in the RCIS area. Keeping the RCIS area largely within the DRECP plan area maintains consistency with the latest data and models from DRECP, many of which are used to inform this Antelope Valley RCIS. For the small portions of the RCIS area that extend beyond the DRECP boundary, data were augmented with best available existing data. The Antelope Valley within Los Angeles County represents a large portion of the jurisdiction of the DMCA, the RCIS proponent. The RCIS area is limited to Los Angeles County because the County's Significant Ecological Areas will form important cornerstones to the RCIS conservation priority areas.

## 1.4.5 Focal Species

Focal species are species whose conservation needs are addressed through the RCIS. Chapter 2, *Environmental Setting*, describes all focal species addressed in this Antelope Valley RCIS, along with the selection process. Conservation priorities, including permanent protection, enhancement, and restoration of habitats, are described in the context of their importance for contributing to the conservation and recovery of focal species and their habitats, as well as for other conservation elements in the RCIS area (Chapter 3, *Conservation Strategy*).

## 1.4.6 Strategy Term

After finding that the RCIS meets the requirements of CFGC Section 1852, CDFW may approve an RCIS for an initial period of up to 10 years. CDFW may extend the duration of an approved or amended RCIS for additional periods of up to 10 years after the RCIS proponent updates the RCIS with new scientific information and evaluates the effectiveness of the RCIS (CFGC Section 1856(b)(2)), and a new finding that the RCIS continues to meet the requirements of Section 1852. DMCA requests approval of this Antelope Valley RCIS for 10 years.

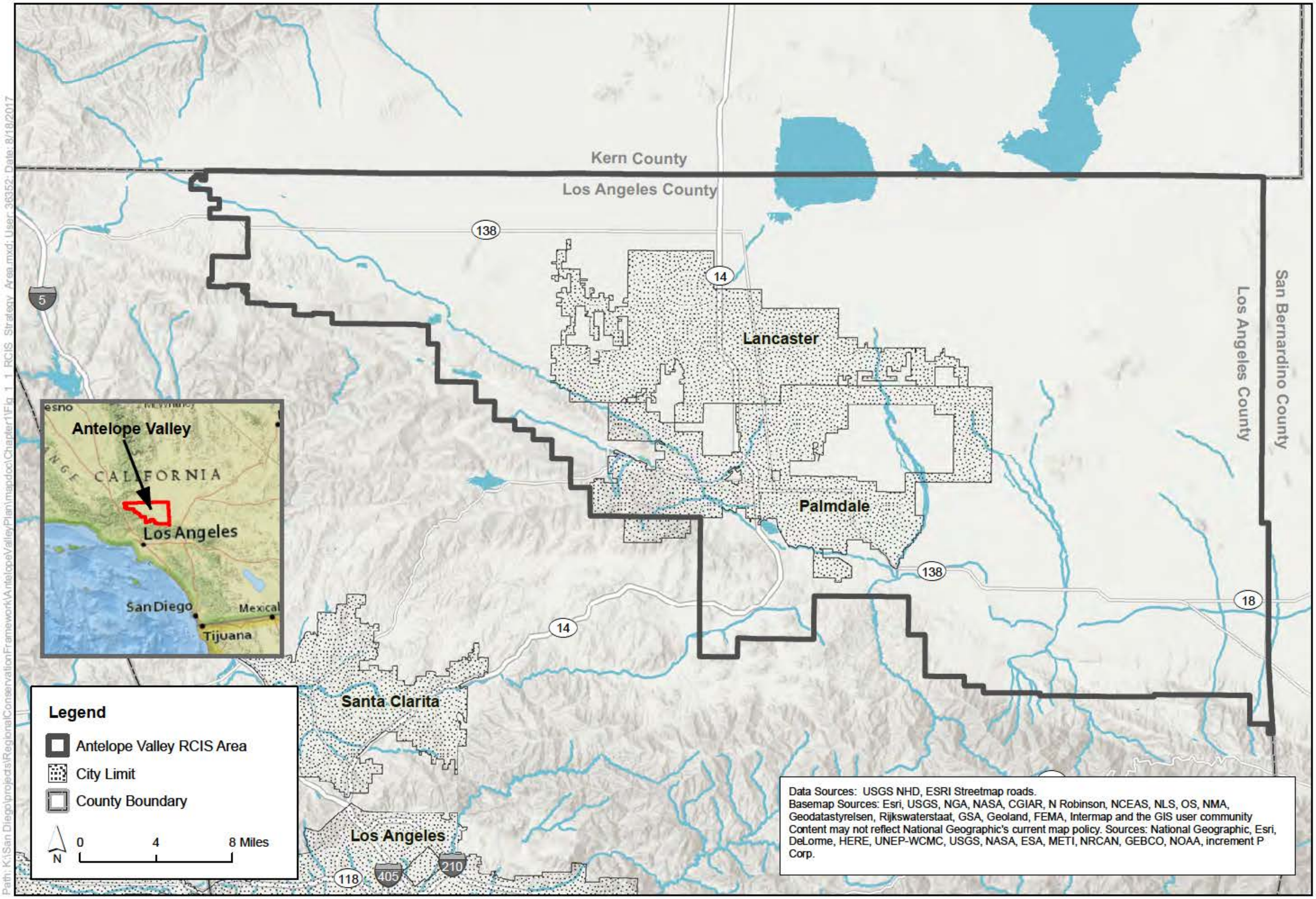


**Figure 1-1**
**Antelope Valley RCIS Area**

## 1.4.7 Requirements

To approve this RCIS, CDFW must find that it meets all of the requirements in the CFGC for an RCIS. To assist CDFW with these findings, Table 1-1 lists the requirements in the order they appear in the CFGC and their correlated sections in this RCIS.

As indicated in Fish and Game Code Section 1855(b), neither this RCIS nor any Mitigation Credit Agreement adopted pursuant to it modifies in any way: (a) the standards for issuance of incidental take permits (ITPs) or consistency determinations (CDs) under CESA; (b) the standards for issuance of lake and streambed alteration (LSA) agreements under Section 1600, et seq.; or (3) the standards under CEQA. In addition, nothing in this RCIS or in any MCA adopted pursuant to it relieves a project proponent of the obligation to obtain all necessary permits, including but not limited to ITPs, CDs, and LSA agreements, and to fulfill all avoidance, minimization, and mitigation measures required by those permits. For these reasons, CDFW and any other relevant regulatory agencies should be consulted prior to implementing any actions in this RCIS that have any potential for impacts to regulated resources (such as CESA-listed species or streambeds), to determine if any permits are needed.

**Table 1-1. California Fish and Game Code Requirements for an RCIS**

| California Fish and Game Code Section | Required Element | Relevant RCIS Section(s) |
|---|---|---|
| 1852(a) | The department may approve a regional conservation investment strategy pursuant to this chapter. A regional conservation investment strategy may be proposed by the department or any other public agency, and shall be developed in consultation with local agencies that have land use authority within the geographic area of the regional conservation investment strategy. The department may only approve a regional conservation investment strategy if one or more state agencies request approval of the regional conservation investment strategy through a letter sent to the director indicating that the proposed regional conservation investment strategy would contribute to meeting both of the following state goals:<br>(1) Conservation.<br>(2) Public infrastructure or forest management. | Section 1.5, *Stakeholder and Public Outreach and Involvement* |
| 1852(c) | The department may approve a regional conservation investment strategy pursuant to this chapter. A regional conservation investment strategy may be proposed by the department or any other public agency, and shall be developed in consultation with local agencies that have land use authority within the geographic area of the regional conservation investment strategy. The department may only approve a regional conservation investment strategy if one or more state agencies request approval of the regional conservation investment strategy through a letter sent to the director indicating that the proposed regional conservation investment strategy would contribute to meeting both of the following state goals: | Section 1.4.3, *Sponsoring State Agency* |

| California Fish and Game Code Section | Required Element | Relevant RCIS Section(s) |
|---|---|---|
| | (1) Conservation.<br>Public infrastructure or forest management. | |
| 1852(c)(2) | An explanation of the conservation purpose of and need for the strategy. | Section 1.2, *Purpose and Need* |
| 1852(c)(2) | The geographic area of the strategy and rationale for the selection of the area, together with a description of the surrounding ecoregions and any adjacent protected habitat areas or linkages that provide relevant context for the development of the strategy. | Section 1.4.4, *RCIS Area* |
| 1852(c)(3) | The focal species[3] included in, and their current known or estimated status within, the strategy. | Section 1.4.5, *Focal Species* |
| 1852(c)(4) | Important resource conservation elements within the RCIS area, including, but not limited to:<br>• Important ecological resources and processes.<br>• Natural communities.<br>• Habitat.<br>• Habitat connectivity.<br>• Existing protected areas.<br>• An explanation of the criteria and methods used to identify those important conservation elements. | Section 2.1, *Natural Environment* |
| 1852(c)(5) | A summary of historic, current, and projected future stressors and pressures in the RCIS area, including climate change vulnerability, on the focal species, habitat, and other natural resources, as identified in the best available scientific information, including, but not limited to, the State Wildlife Action Plan. | Section 2.3, *Pressures and Stressors on Focal Species and on other Conservation Elements* |
| 1852(c)(6) | Consideration of major water, transportation and transmission infrastructure facilities, urban development areas, and city, county, and city and county general plan designations that accounts for reasonably foreseeable development of major infrastructure facilities, including, but not limited to, renewable energy and housing in the RCIS area. | Sections 2.1.5.2, *Working Lands,* 2.2, *Built Environment,* and 2.2.3, *Major Infrastructure* |
| 1852(c)(7) | Provisions ensuring that the strategy will comply with all applicable state and local requirements and does not preempt the authority of local agencies to implement infrastructure and urban development in local general plans. | Section 1.4, *Overview* |
| 1852(c)(8) | Conservation goals and measurable objectives for the focal species and important conservation elements identified in the strategy that address or respond to the identified stressors and pressures on focal species. | Section 3.4, *Conservation Strategy for Focal Species and Conservation Elements* |
| 1852(c)(9) | Conservation actions, including a description of the general amounts and types of habitat that, if preserved or restored and permanently protected, could achieve the conservation goals and objectives, and a description of how the conservation actions and habitat enhancement actions were | Section 3.4, *Conservation Strategy for Focal Species and Conservation Elements* |

[3] Focal species are species whose conservation needs are addressed through the RCIS (Section 1.4.5, *Focal Species*).

| California Fish and Game Code Section | Required Element | Relevant RCIS Section(s) |
|---|---|---|
| | prioritized and selected in relation to the conservation goals and objectives. | |
| 1852(c)(10) | Provisions ensuring that the strategy is consistent with and complements any administrative draft natural community conservation plan, approved natural community conservation plan, or federal habitat conservation plan that overlaps with the RCIS area. | Section 1.7, *Relevant Conservation Plans and Policies* |
| 1852(c)(11) | An explanation of whether and to what extent the strategy is consistent with any previously approved strategy or amended strategy, state or federal recovery plan, or other state or federal approved conservation strategy that overlaps with the RCIS area. | Section 1.7, *Relevant Conservation Plans and Policies* |
| 1852(c)(12) | A summary of mitigation banks and conservation banks approved by the department or USFWS that are located within the RCIS area or whose service area overlaps with the RCIS area. | Section 2.2.4, *Protected Areas* |
| 1852(c)(13) | A description of how the strategy's conservation goals and objectives provide for adaptation opportunities against the effects of climate change for the strategy's focal species. | Sections 2.3*, Pressures and Stressors on Focal Species and other Conservation Elements,* and 3.2, *Identifying Areas of High Conservation Value* |
| 1852(c)(14) | Incorporation and reliance on, and citation of, the best available scientific information regarding the RCIS area and the surrounding ecoregion, including a brief description of gaps in relevant scientific information, and use of standard or prevalent vegetation classifications and standard ecoregional classifications for terrestrial and aquatic data to enable and promote consistency among regional conservation investment strategies throughout California. | Section 2.1, *Natural Environment* |
| 1852(d) | A regional conservation investment strategy shall compile input and summary priority data in a consistent format that could be uploaded for interactive use in an Internet Web portal and that would allow stakeholders to generate queries of regional conservation values within the RCIS area. | *Data Basin Web Portal: Antelope Valley RCIS* https://databasin.org/ |
| 1852(e) | In addition to considering the potential to advance the conservation of focal species, regional conservation investment strategies shall consider all of the following:<br>• The conservation benefits of preserving working lands for agricultural uses.<br>• Reasonably foreseeable development of infrastructure facilities.<br>• Reasonably foreseeable projects in the RCIS area, including, but not limited to, housing.<br>• Reasonably foreseeable development for the production of renewable energy. | Sections 2.1.5.2, *Working Lands*, 2.2, *Built Environment*, and 1.6, *Relevant Conservation Plans and Policies* |

| California Fish and Game Code Section | Required Element | Relevant RCIS Section(s) |
|---|---|---|
| | • Draft natural community conservation plans within the area of the applicable regional conservation investment strategy. | |
| 1854(a) | The department may prepare or approve a regional conservation investment strategy, or approve an amended strategy, for an initial period of up to 10 years after finding that the strategy meets the requirements of Section 1852. | Section 1.4.6, *Strategy Term* |
| 1854(c)(1) | A public agency shall publish notice of its intent to create a regional conservation investment strategy. This notice shall be filed with the Governor's Office of Planning and Research and the county clerk of each county in which the regional conservation investment strategy is found in part or in whole. If preparation of a regional conservation investment strategy was initiated before January 1, 2017, this notice shall not be required. | Section 1.5, *Stakeholder and Public Outreach and Involvement* |
| 1854(c)(3)(*A*) | A public agency proposing a strategy or amended strategy shall hold a public meeting to allow interested persons and entities to receive information about the draft regional conservation investment strategy or amended strategy early in the process of preparing it and to have an adequate opportunity to provide written and oral comments. | Section 1.5, *Stakeholder and Public Outreach and Involvement* |
| 1854(c)(3)(*B*) | In a draft regional conservation investment strategy or amended strategy submitted to the department for approval, the public agency shall include responses to written public comments submitted during the public comment period. | Section 1.5, *Stakeholder and Public Outreach and Involvement* |
| 1854(c)(3)(*D*) | If preparation of a regional conservation investment strategy was initiated before January 1, 2017, and a public meeting regarding the strategy was not held before January 1, 2017, the public meeting required under this section may be held after January 1, 2017, if it is held at least 30 days before the strategy is submitted to the department for approval. | Section 1.5, *Stakeholder and Public Outreach and Involvement* |
| 1854(c)(3)(*D*) | If preparation of a regional conservation investment strategy was initiated before January 1, 2017, and a public meeting regarding the strategy was not held before January 1, 2017, the public meeting required under this section may be held after January 1, 2017, if it is held at least 30 days before the strategy is submitted to the department for approval. | Section 1.5, *Stakeholder and Public Outreach and Involvement* |
| 1854(c)(4) | At least 30 days before holding a public meeting to distribute information about the development of a draft regional conservation investment strategy or amended strategy, a public agency proposing a strategy shall provide notice of a regional conservation investment strategy or amended strategy public meeting as follows:<br>(A) On the public agency's Internet Web site and any relevant LISTSERV.<br>(B) To each city, county, and city and county within or adjacent to the regional conservation investment RCIS area. | Section 1.5, *Stakeholder* and *Public Outreach and Involvement* |

| California Fish and Game Code Section | Required Element | Relevant RCIS Section(s) |
|---|---|---|
| | (C) To the implementing entity for each natural community conservation plan or federal regional habitat conservation plan that overlaps with the RCIS area.<br>(D) To each public agency, organization, or individual who has filed a written request for the notice, including any agency, organization, or individual who has filed a written request to the department for notices of all regional conservation investment strategy public meetings. | |
| 1854(c)(5) | At least 60 days before submitting a final regional conservation investment strategy or amended strategy to the department for approval, the public agency proposing the investment strategy or amended strategy shall notify the board of supervisors and the city councils in each county within the geographical scope of the strategy and provide the board of supervisors and the city councils with an opportunity to submit written comments for a period of at least 30 days. | Section 1.5, *Stakeholder and Public Outreach and Involvement* |
| 1854(e) | The department shall require the use of consistent metrics that incorporate both the area and quality of habitat and other natural resources in relation to a regional conservation investment strategy's conservation objectives to measure the net change resulting from the implementation of conservation actions and habitat enhancement actions. | Section 3.3, *Gap Analysis for Focal Species,* Table 3-9, *Gap Analysis Results and Quantitative Conservation Priorities* |
| 1856(b) | For a conservation action or habitat enhancement action identified in a regional conservation investment strategy to be used to create mitigation credits pursuant to this section, the regional conservation investment strategy shall include, in addition to the requirements of Section 1852, all of the following:<br>(1) An adaptive management and monitoring strategy for conserved habitat and other conserved natural resources.<br>(2) A process for updating the scientific information used in the strategy, and for tracking the progress of, and evaluating the effectiveness of, conservation actions and habitat enhancement actions identified in the strategy, in offsetting identified threats to focal species and in achieving the strategy's biological goals and objectives, at least once every 10 years, until all mitigation credits are used.<br>(3) Identification of a public or private entity that will be responsible for the updates and evaluation required pursuant to paragraph (2). | Sections 3.6, *Monitoring and Adaptive Management Framework,* and 4.2, *Required Regional Conservation Investment Strategy Implementation to Create Mitigation Credit Agreements* |

RCIS = Regional Conservation Investment Strategy; USFWS = U.S. Fish and Wildlife Service

# 1.5 Stakeholder and Public Outreach and Involvement

Public outreach and involvement have been an important part of the process of developing this RCIS. The Steering Committee led the public outreach and involvement process to ensure that CFGC public meeting requirements were met and to engage potential users of this RCIS throughout the RCIS development process.

CFGC Section 1852(a) and the Program Guidelines require that an RCIS "shall be developed in consultation with local agencies that have land use authority (i.e., a city, a county, or a city and county) within the geographic area of the RCIS." This RCIS area includes one county (Los Angeles) and two cities (Lancaster and Palmdale). Early in the RCIS initiation process input and participation was solicited from a large number of agencies and organizations, as described below. A notice to attend the public meeting was sent to the county and both cities, and an article in a local newspaper was published providing background on the RCIS development process and inviting interested members of the public to attend the public meeting. The Los Angeles County Board of Supervisors and city councils in Palmdale and Lancaster were notified of the availability of the public review draft Antelope Valley RCIS and were given an opportunity to review the draft and provide comments.

The net was cast as wide as possible to ensure that all entities and individuals interested in participating in the RCIS development process were aware of the initiation of the RCIS and of the public and agency participation process. An email listserver containing 200 email addresses was obtained from the Los Angeles County Advanced Planning Division, which included all individuals and entities that had expressed previous interest in the Antelope Valley Area Plan (AVAP) and the revision process for the Los Angeles County Significant Ecological Areas (SEAs) in the Antelope Valley portion of Los Angeles County. This listserver was supplemented with the email listserver maintained by DMCA and an email blast was sent to nearly 350 individuals and organizations in late 2016.

The March 2017 issue of the Lakes and Valleys Gazette, a local news publication, published an article about the beginning of the Antelope Valley RCIS process and included information for attendance at the public meeting on March 7, 2017 (described below), as well as contact information for the plan preparers and the website address for DMCA where announcements, meeting minutes, memos, reports and documents were made available throughout the RCIS development process.

The Steering Committee, Advisory Committee, and Technical subcommittee were developed based on interest and response to these initial announcements and in coordination with the DMCA. Individuals and organizations continued to be added to the email lists and to the RCIS committees throughout the process to ensure that all voices were heard during the RCIS development process.

To date the RCIS development team has been in direct contact with and provided information to 20 environmental groups, five Federal agencies and organizations, three Tribal governments, 11 State agencies and organizations, 10 local agencies and jurisdictions, and 10 private businesses and organizations. A list of these agencies, organizations, and entities is included in Appendix C along with the list of individuals serving on each of the committees.

The requirements for public involvement prior to the approval of an RCIS, as described in CFGC Section 1854, are presented in Table 1-1 and summarized here, along with a description of how the Steering Committee met these requirements.

CFGC Section 1854(c)(1) requires a public agency to publish notice of its intent to create an RCIS. If preparation of the RCIS was initiated before January 1, 2017, however, this notice is not required. Because development of this Antelope Valley RCIS began in June 2016, a notice of intent to create an RCIS was not published.

CFGC Section 1854(c)(3)(A) requires that the public agency preparing an RCIS (in the case of this RCIS, DMCA) hold a public meeting to allow interested persons and entities to receive information about the RCIS early in the preparation process and to have adequate opportunity to provide written and oral comments. As required in CFGC Section 1854(c)(4), at least 30 days before holding the public meeting, the Steering Committee provided notice of the development of the draft Antelope Valley RCIS on DMCA's website to each city, county, and city and county within and adjacent to the RCIS area. The public meeting was also broadly noticed through DCMA's listserv, the County of Los Angeles, and by many of the Steering Committee participating organizations. No public agency, organization, or individual filed a written request for the notice, so no additional notices were sent.

Consistent with this requirement, the Steering Committee held a public meeting on March 7, 2017, at the Antelope Valley Transit Authority Offices, 42210 6th Street W., Lancaster, California. The meeting provided opportunity for interested parties to receive preliminary information about a non-regulatory planning effort underway to prepare an Antelope Valley RCIS and to provide comments. Interested persons were invited to provide written comments to the Steering Committee. The public meeting notice, agenda, PowerPoint presentation, and handouts provided at the public meeting are included in Appendix C, *Stakeholder Involvement and Public Outreach*.

CFGC Section 1854(c)(5) requires that, at least 60 days before submitting a final RCIS to CDFW for its review and approval, the RCIS proponent (i.e., DMCA) must notify the board of supervisors and the city councils in each county within the RCIS area and provide the board of supervisors and the city councils an opportunity to submit written comments for at least 30 days. DMCA notified the Los Angeles County Board of Supervisors and the city councils in Palmdale and Lancaster on December 13, 2019, consistent with this requirement (see Appendix C)..

CFGC Section 1854(c)(3)(B) requires that in the RCIS submitted to CDFW for approval, the public agency must include responses to written public comments submitted during the public comment period. Responses to written public comments are included in Appendix C.

In addition to the required public outreach measures described above and the stakeholder engagement described for the Steering Committee, Advisory Committee, and Technical Subcommittee in Section 1.4.2, *Development Team*, outreach and engagement efforts were conducted with the Association of Rural Town Councils. Refer to Appendix C for a summary of all stakeholder and public outreach and involvement efforts, including lists of participants.

# 1.6 Tribal Coordination and Involvement

Native American tribes are important stakeholders in the RCIS development and implementation process. As stakeholders the tribes are unique in that their interests and history on the landscape stretches back for many centuries. While protecting and enhancing the natural values of species and ecosystems is an important component of tribal interests, so too is the protection of tribal cultural resources associated with prehistoric and historic village sites and culturally significant landmarks important for cultural, ceremonial, medicinal, and traditional practices.

Protecting the landscape for habitat conservation provides the opportunity to also protect the important tribal cultural resources on the landscape. Tribal coordination and involvement in the planning and implementation of habitat conservation actions is important to ensure the tribal cultural resources are protected and access to culturally significant sites is maintained.

The two main tribes of the Antelope Valley RCIS are the Fernandeño Tataviam Band of Mission Indians and the San Manuel Band of Mission Indians. A series of correspondences and meetings with tribal representatives from both tribes occurred throughout the summer and fall of 2020 to ensure that concerns of the tribal members were addressed and that the RCIS accurately reflected the tribes' interest and support for the Antelope Valley RCIS. Both tribes have a vested interest in supporting the successful implementation of the RCIS and in participating as members of the Antelope Valley RCIS Implementation Committee (see Section 4.3.1.1). The following sections describe the history of these two tribes in the Antelope Valley and the importance of protecting their tribal cultural resources in the RCIS area.

## 1.6.1 Fernandeño Tataviam Band of Mission Indians

The distinct community of the present-day Fernandeño Tataviam Band of Mission Indians originated in the lineages, villages, and cultures of the period preceding the establishment of Mission San Fernando, from which the native people received the name Fernandeño. Mission San Fernando was established on September 8, 1797, at the village of Achoicominga, and, for years following, the mission enslaved Native Americans from the lineages in the geographically surrounding areas, ranging from present-day Simi Valley, San Fernando Valley, Santa Clarita Valley, and Antelope Valley. Today, the Fernandeño Tataviam Band of Mission Indians consists of a voluntary coalition of those lineages bound together by the Fernandeño Tataviam Band of Mission Indians Tribal constitution.

Traditionally, there was no collective tribal entity above the lineage. Before the founding of Mission San Fernando, each lineage was autonomous and self-governing, living within villages that were associated with regional areas, or territories, defined culturally by the regional group. Each lineage held territory and maintained political and economic sovereignty over its local area but was also linked through social exchange to neighboring villages and lineages. The lineages consisted of speakers from the Takic branch of the Uto-Aztecan language, who intermarried with natives from other linguistic groups within the area, and strengthened economic, social, and cultural relations with those outside of their language and lineage groups by practicing exogamy. The Fernandeño Tataviam Band of Mission Indians uses the term *regional groups* to represent a group of politically independent lineages where people spoke one or more dialects of a language but did not create a new political entity.

The Fernandeño Tataviam Band of Mission Indians uses Fernandeño as an all-encompassing term to represent the native people of diverse territories who were forced into indentured servitude by Mission San Fernando during the Spanish period. The distinct regional groups associated with Mission San Fernando are the Tataviam, Kaivitam, Sivavitam, Mohineyam, Serrano, Chumash, Atsōkajam, Amutskajam, Pipimaram, and Akwakwajam.

The Fernandeño Tataviam Band of Mission Indians' Tataviam lineages are affiliated with the southern Antelope Valley area, a landscape encompassing a variety of tribal cultural resources historically and ethnographically associated with the Tataviam regional group. Several other groups, including the Serrano and Kitenamuk, affiliated with neighboring tribes, also frequented this area through networks of exchange and seasonal resource acquisition. Tribal cultural resources associated with the area include prehistoric and historic villages and seasonal habitation settlements, food production sites with bedrock mortars and manos, earth ovens and ash middens, tool production sites, sites with rock shelters containing petroglyphs and pictographs, sites containing human burial, as well as various isolated artifacts.

There are also culturally significant landmarks such as unique geological formations, streams and lakes, and places with natural resources where people gathered to harvest plants for food and medicine, hunted local game, and quarried stone material for tool production. These landmarks are culturally significant due to the oral stories, traditions, and memories tied to the physical spaces to which Native peoples have been drawn to since time immemorial. Many of the tribal cultural resources in this region were connected through a network of trails used by native peoples and formed through game trails and paths of least resistance. Trails also linked to neighboring villages that were connected to one another through a complex political, social, and kinship network.

Occupying the valleys, foothills, and mountains around Antelope Valley, the Tataviam incorporated a diverse array of plants and wild animals into their diet. Plant resources managed and gathered included of a variety of grass seeds, acorns, yucca, chia, berries, sage seeds, and buckwheat. They also trapped and hunted numerous types of small mammals, reptiles, birds, deer, and occasionally antelope (King and Blackburn1978). Studies suggest that plant foods such as acorns and young stalks from yucca, major staples in the Tataviam diet, were processed using stone bowls or bedrock mortars while manos, metates, and milling slicks commonly found throughout the region were used to grind small seeds (see King and Blackburn 1978). Family groups would travel across the landscape in an annual cycle, moving up and down in elevation with the changing seasonal availability of different plant resources. The types of flora and fauna that comprised Tataviam knowledge and how they were prepared have been passed down through generations. The Tataviam maintain today a strong connection to the land in the Antelope Valley RCIS area. Protection of the native plants and animals and sites supporting tribal cultural resources is an important objective of the Fernandeño Tataviam Band of Mission Indians.

### 1.6.2 San Manuel Band of Mission Indians

For millennia before the arrival of European settlers, the Serrano have been a people indigenous to Southern California in the areas encompassing Antelope Valley, San Bernardino Valley, the San Bernardino and Eastern San Gabriel Mountains, and the Southern Mojave Desert. Each of these areas provided unique sets of resources to the Serrano at different times of the year. The Serrano would cyclically rotate across their homelands on a seasonal basis in anticipation of desired water, plant, and animal resources. Serrano socio-political structure centered on clan-affiliated villages composed of family networks united by a common leader. Numerous Serrano settlements were located in the Antelope Valley, particularly in proximity to mountain foothills and buttes, and water features such as springs, lakes, riverways, and seasonal wetlands. Their placenames are remembered in bird songs, oral histories, and ethnographic accounts. The archaeological signatures evincing millennia of widespread occupation of the Antelope Valley represent important tribal cultural resources to the Serrano, who maintain a close tie with their ancestral territory.

A variety of plant and animal species were used as food and medicine by the Serrano, including acorns, piñon nuts, yucca, and chia, rabbit, deer, pronghorn, and bighorn sheep. Plant materials, including juncus, deer grass, and yucca fiber were also harnessed to create items such as baskets, clothing, and houses. Granite manos, metates, stone bowls, and pestles were used for processing materials into finer grades. Bedrock mortars and metates produced from rocky outcrops were also used, and speak to the continued, long-term use of these sites. Other lithic materials such as rhyolite, jasper, chert, chalcedony, and quartz were used to create blades, drills, and projectile points. Petroglyphs and pictographs found on outcrops are some indicators of the rich ceremonial life of the Serrano. The Antelope Valley was a place of long-term interaction and exchange between multiple Native tribes, including the Tataviam and the Kitanemuk. The archaeological presence of non-local materials such as shell and obsidian illustrates the presence of long-distance trade.

The Serrano's first encounter with Spanish colonists emerged with the Spanish Mission System. In the late eighteenth and early nineteenth centuries, many Serrano were forcibly sent to the San Gabriel Mission and its Asistencia in present-day Redlands to work on the Mission's extensive landholdings in the San Bernardino Valley. The Mission System was characterized by a period of forced assimilation into Spanish ways of living accompanied by unhealthy living conditions. While many died as a result of disease and the changes in their diet, other Serrano were able to evade the Mission System by retreating to the San Bernardino Mountains and high desert regions, the more environmentally challenging areas of their homelands. Indeed, the name "Serrano" emerged as the name Spanish settlers used to identify the indigenous people of the San Bernardino highlands, passes, valleys, and mountains who shared a common language and heritage.

More radical changes to Serrano lands and ways of life occurred when new settlers came to California for ranching, farming, and logging following the passage of the Treaty of Guadalupe Hidalgo in 1848 and the California Gold Rush of 1849. Serrano people were violently removed from their homes to make way for these activities. For example, among the citizens of the San Manuel Band of Mission Indians are the descendants of the Yuhaaviatam clan. In 1866, they survived a 32-day genocidal campaign intended to kill the remaining Native American men, women, and children in the San Bernardino Mountains. Their tribal leader, Santos Manuel, safely led the remaining Yuhaaviatam from their ancient homelands in the mountains to the valley floor.

With the passage of the Act for Relief for Mission Indians, the San Manuel reservation was established in 1891 and recognized as a sovereign nation with the right of self-government. The San Manuel reservation was named in honor of its courageous leader, Santos Manuel, and subsequently, the tribe was recognized as the San Manuel Band of Mission Indians. From the 1700s to the present time, the San Manuel Band of Mission Indians underwent many years of change and hardship to live as a sovereign and self-sufficient nation. The San Manuel Band of Mission Indians maintain a strong connection to the land in the region surrounding the Antelope Valley RCIS area, and protection of the native plants and animals and sites supporting their tribal cultural resources is important to them.

# 1.7 Relevant Conservation Plans and Policies

The Program Guidelines require that an RCIS be consistent with any approved state or federal recovery plan, or other state or federal approved conservation strategy that overlaps with the RCIS area. In addition, an RCIS must be consistent with and complement any administrative draft NCCP, approved NCCP, or federal HCP. The RCIS must take into account and be consistent with the SWAP

(California Department of Fish and Wildlife 2015). This section identifies NCCPs, HCPs, state or federal recovery plans, or other state or federal approved conservation strategies that overlap the RCIS area.

CFGC Section 1852 also requires that the RCIS consider major water, transportation, and transmission infrastructure facilities; urban development areas; and city, county, and city and county general plan designations that account for reasonably foreseeable development in the RCIS area. Relevant plans and policies in the RCIS area include local government general plans and major infrastructure development plans for transportation, water, and renewable energy; these are described in Section 2.2, *Built Environment*,

## 1.7.1 Natural Community Conservation Plans and Habitat Conservation Plans

There are no approved NCCPs in the RCIS area. The DRECP (a proposed HCP/NCCP) was released as a public draft in 2014 but there is no intention by its applicants to complete it. Instead, the Bureau of Land Management (BLM) completed a land use plan amendment in 2015 consistent with the DRECP. The conservation components of the DRECP were published in 2016 as the California Desert Biological Conservation Framework (described below). There is one approved HCP in the RCIS area, the *Statewide Electrified Fence Project HCP* (California Department of Corrections 1999). This HCP covers 29 state prison sites throughout California, one of which is found in the RCIS area, California State Prison—Los Angeles, in Lancaster.

## 1.7.2 Existing Recovery Plans and Other Conservation Plans

Several state or federal recovery plans overlap the RCIS area, and many state and local conservation plans address the RCIS area (Table 1-2 and Figure 1-2). Because much of the biological foundation components (e.g., focal species distribution models, land cover mapping) and conservation goals and objectives of this Antelope Valley RCIS are based on the California Desert Biological Conservation Framework and the SWAP, a more detailed description of these plans is included in the subsections below.

**Table 1-2. Existing Recovery and Other Conservation Plans**

| Plan Type | Plan Name | Responsible Entity and Year Published | Incorporation into RCIS |
|---|---|---|---|
| Multispecies Recovery Plans | Recovery Plan for Vernal Pools of Southern California | U.S. Fish and Wildlife Service 1998a | Focal species; critical habitat included in prioritization. |
| Single Species Recovery Plans | Revised Recovery Plan for the Mojave Population of the Desert Tortoise | U.S. Fish and Wildlife Service 2011 | Focal species; critical habitat included in prioritization. |
| | Draft Recovery Plan for Least Bell's Vireo | U.S. Fish and Wildlife Service 1998b | Focal species; critical habitat included in prioritization. |

| Plan Type | Plan Name | Responsible Entity and Year Published | Incorporation into RCIS |
|---|---|---|---|
| | Recovery Plan for the California Condor | U.S. Fish and Wildlife Service 1996 | Focal species; critical habitat included in prioritization. |
| | Recovery Plan for the Southwestern Willow Flycatcher | U.S. Fish and Wildlife Service 2002 | Included under the willow flycatcher focal specie; suitable habitat included in prioritization. |
| | Recovery Plan for the Arroyo Southwestern Toad | U.S. Fish and Wildlife Service 1999 | Species not included; however, habitats are addressed under other species needs. |
| State-Wide or Regional Conservation Assessments | California Desert Biological Conservation Framework | California Energy Commission et al. 2016 | The Conservation Framework (born out of the DRECP; see below in table) land cover dataset is used by this RCIS; as such, it is a component of the species habitat models and descriptions of natural communities and land cover types, and the basis for developing the conservation strategy. The RCIS goals, objectives, conservation priorities, and actions are designed to complement the Conservation Framework and are incorporated into this RCIS. |
| | Audubon Important Bird Areas | Audubon 2016 | Included in biological value area mapping and considered for focal species selection. |
| | State Wildlife Action Plan | California Department of Fish and Wildlife 2015 | Included in focal species selection process, land cover mapping, and identification of stressors and pressures to focal species and other conservation elements. |
| | Fire Resource and Assessment Program | CAL FIRE Resource and Assessment Program 2015 | Land cover data incorporated. |
| | Riparian Bird Conservation Plan | Riparian Habitat Joint Venture 2004 | Focal species conservation goals and objectives. |
| Regional Conservation Strategies | DRECP Land Use Plan Amendment and Record of Decision | Bureau of Land Management 2016 | Included the development of the biological foundational elements of the California Deserts Biological Conservation Framework (see above in table). |
| | West Mojave Plan and Record of Decision[1] | Bureau of Land Management 2005a, 2006 | The RCIS goals, objectives, conservation priorities, and actions are designed to complement the plan and are incorporated into this RCIS. |
| Critical Habitat | Desert Tortoise, Mojave Population | U.S. Fish and Wildlife Service 1994 (50 CFR Part 17) | Focal species; critical habitat areas included in prioritization. |
| Wildlife Linkage Analyses | California Essential Habitat | Spencer et al. 2010 | Linkages considered in prioritization. |

| Plan Type | Plan Name | Responsible Entity and Year Published | Incorporation into RCIS |
|---|---|---|---|
| | Connectivity Project | | |
| | A Linkage Network for the California Deserts | Penrod et al. 2012 | Linkages considered in prioritization. |

[1] BLM's draft West Mojave Plan was published in 2005 jointly with the draft West Mojave HCP. Although many jurisdictions, including Kern County, participated in the development of BLM's West Mojave Plan, only San Bernardino County and the City of Barstow signed on to the draft West Mojave HCP. The HCP portion of the document was never completed by the local jurisdictions.
BLM = Bureau of Land Management; CAL FIRE = California Department of Forestry and Fire Protection; DRECP = Desert Renewable Energy Conservation Plan; HCP = habitat conservation plan; RCIS = Regional Conservation Investment Strategy

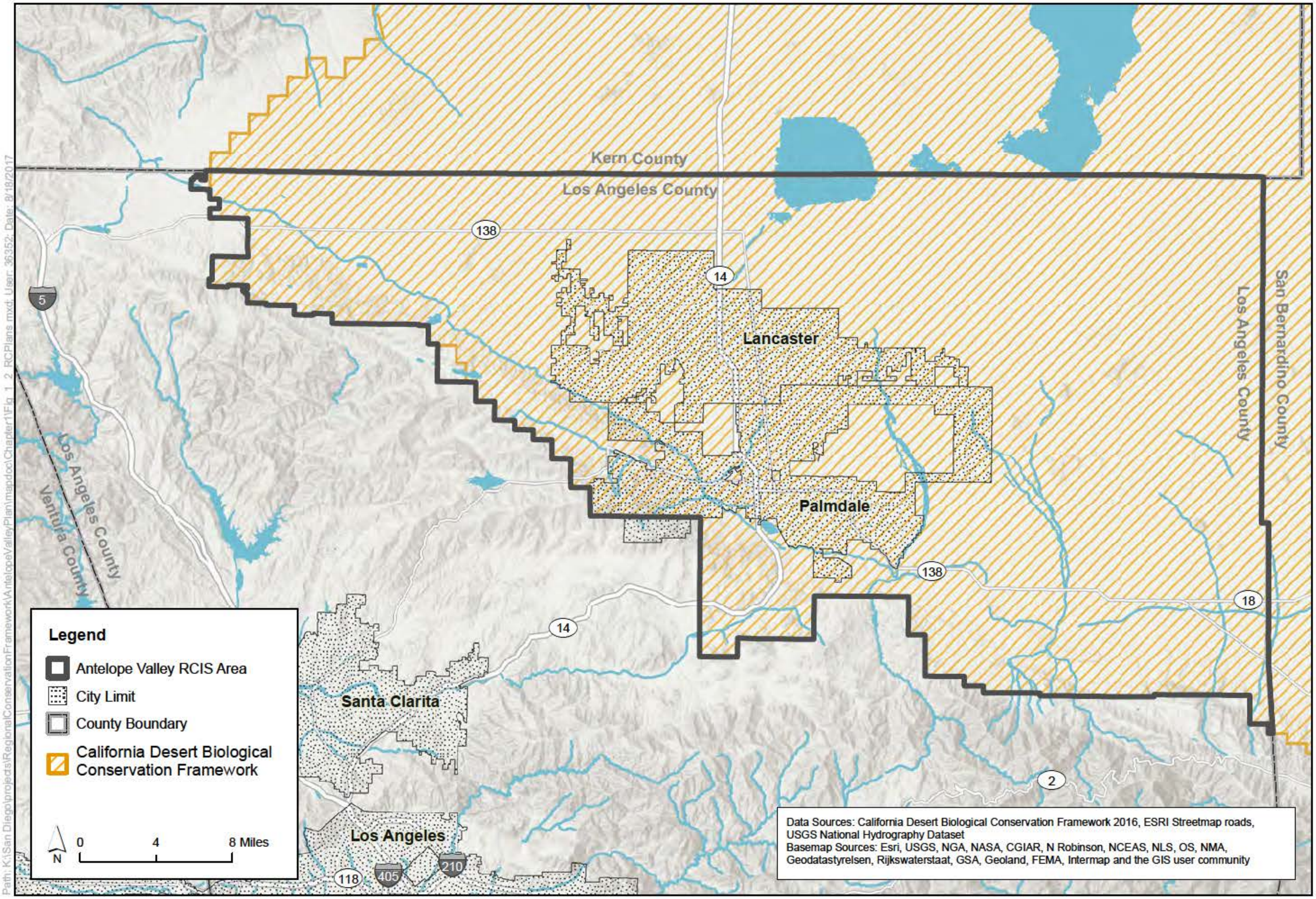


**Figure 1-2**
**California Desert Biological Conservation Framework Area**

### 1.7.2.1 California Desert Biological Conservation Framework

The California Desert Biological Conservation Framework, published in December 2016, was born out of the DRECP as a purely informational (i.e., non-regulatory) conservation planning document. The DRECP, a major component of California's renewable energy planning efforts, was intended to help provide effective protection and conservation of desert ecosystems while allowing for the appropriate development of renewable energy projects. The DRECP area included 22.5 million acres in the desert regions and adjacent lands of seven California counties—Imperial, Inyo, Kern, Los Angeles, Riverside, San Bernardino, and San Diego—including almost all of the RCIS area.

The DRECP process resulted in a BLM land use plan amendment, which was finalized in September of 2016. The amendment had minimal effect on the RCIS area because only a very small portion of the RCIS area is administered by BLM. However, the California Desert Biological Conservation Framework includes all of the conservation planning data and results developed for the DRECP, including biological goals and objectives for the landscape, natural communities, and 37 species covered under the plan. Elements developed for the DRECP, including species distribution models, natural community mapping, and biological goals and objectives, provide much of the broader biological context from which this Antelope Valley RCIS was developed.

Key elements of the biological conservation framework are the biological conservation focus, framework biological goals and objectives, and biological conservation actions. As envisioned by the interagency team that developed the framework, conservation strategies and decisions made by federal, state, and local planners would incorporate elements of the conservation strategy established in this framework. Using these elements, a framework-level analysis of conservation potential was conducted for landscape and ecological processes, natural communities, and focal species. The framework-level analysis demonstrated that conservation on both public lands and private lands is necessary for protecting and maintaining biodiversity in California.

Additionally, the biological conservation framework follows federal and state policy guidance provided by the national climate adaptation strategy, USFWS's Strategic Habitat Conservation approach, California Natural Resources Agency's 2009 California Climate Adaptation Strategy, and the implementation strategies identified in *Safeguarding California: Reducing Climate Risk* (National Fish Wildlife and Plants 2012; U.S. Geological Survey and U.S. Fish and Wildlife Service 2006; California Natural Resources Agency 2009, 2014). Among other actions, these plans call for increased monitoring across California's natural and working lands (e.g., agricultural fields) and for direct integration of a series of species-based vulnerability assessments into the landscape conservation planning process. Many of the vulnerability assessments identified in the California climate implementation plans are for desert species. The framework document describes biological conservation actions that can provide climate change adaptation and resiliency.

For counties, cities, and other entities on non-BLM lands in the California deserts, the framework provides a foundation from which land use plans, policies, and decisions can be developed, including this Antelope Valley RCIS. Furthermore, the framework is intended to support more specific and actionable planning.

### 1.7.2.2 State Wildlife Action Plan

California recently completed an update of its SWAP, which is a comprehensive plan for conserving fish and wildlife across the state (California Department of Fish and Wildlife 2015). For each region of California, the SWAP identifies a set of Species of Greatest Conservation Need; sets conservation targets for natural communities, fish, and wildlife; and outlines conservation strategy categories. The SWAP examines the health of wildlife and prescribes actions to conserve wildlife and vital habitat before they become rarer and more costly to protect. The plan also promotes wildlife conservation while furthering responsible development and addressing the needs of a growing human population. SWAP 2015 is a flexible, but scientifically grounded, plan. Employing an ecosystem approach to conserve and manage diverse habitats and species, SWAP 2015 provides a blueprint for actions necessary to address the highest priorities for conserving California's aquatic, marine, and terrestrial resources. Its implementation relies on making important and helpful conservation information more accessible to resource managers and the public, and on developing lasting partnerships with a broad array of governments, agencies, organizations, businesses, and citizens.

California's SWAP 2015 establishes a strategic vision of the integrated conservation efforts needed to sustain the globally important diversity of fish and wildlife resources found in the state. Although SWAP 2015 is not a specific work plan for CDFW or any other organization, it is meant to visualize, support, complement, and unite the plans of the multiple conservation and management entities within California. SWAP 2015 is an adaptive plan that will continually be updated, revised, and improved based on the input and deliberations of all those involved in wildlife conservation.

Three statewide goals to enhance California ecosystems have been identified for SWAP 2015. These overarching goals represent the desired ecological outcomes of SWAP 2015 implementation.

- **Goal 1. Abundance and Richness:** Maintain and increase ecosystem and native species distributions in California, while sustaining and enhancing species abundance and richness.
- **Goal 2. Enhance Ecosystem Conditions:** Maintain and improve ecological conditions vital for sustaining ecosystems in California.
- **Goal 3. Enhance Ecosystem Functions and Processes:** Maintain and improve ecosystem functions and processes vital for sustaining ecosystems in California.

Components of the SWAP described above, including its goal to help integrate conservation planning efforts, flexibility, and scientific foundation, are all congruent to the RCIS program. The SWAP, and specifically the Deserts Province-Specific Conservation Strategy, were relied upon in formulating the components of this RCIS, including the following.

- Species of Greatest Conservation Need considered for focal species in the RCIS (Section 2.1.4, *Focal Species*).
- Key Aquatic Habitats conservation element based on conservation targets identified in the SWAP for the Deserts Province (Section 2.1.5.4, *Key Aquatic Habitats*)
- The land cover data and natural community classifications are consistent with the classification used for the SWAP (Section 2.1.3, *Natural Communities and Land Cover*)
- Many pressures and stressors identified for the RCIS area are based on those identified in the Deserts Province-Specific Conservation Strategy of the SWAP (Section 2.3, *Pressures and Stressors on Focal Species and on other Conservation Elements*)

- Various conservation actions identified in this RCIS are consistent with conservation actions identified in the SWAP (Section 3.4, *Conservation Strategy for Focal Species and Conservation Elements*)

#### 1.7.2.3 Statewide Advance Mitigation Needs Assessment and Mojave Regional Advance Mitigation Needs Assessment

Caltrans administers the Advance Mitigation Program (AMP), which was created through a 2017 amendment to Section 800 of the California Streets and Highways Code. The AMP is intended to accelerate transportation project delivery and protect natural resources through the implementation of mitigation in advance of the transportation projects. In 2019, Caltrans developed the Statewide Advance Mitigation Needs Assessment (SAMNA), which reviewed and identified the potential need for mitigation for the projects included in the *State Highway Operations and Protection Program Ten Year Project Book for the Second Quarter of the 2017/2018 Fiscal Year* (Caltrans 2019). During development of the Mojave Regional Advance Mitigation Needs Assessment (RAMNA), Caltrans coordinated with natural resources regulatory agencies, the Federal Highway Administration, metropolitan planning organizations, regional transportation planning agencies, Native American Tribes, other public agencies with responsibility for transportation improvements, interested parties, and the public. The Mojave RAMNA (Caltrans 2020) assesses the feasibility of advance mitigation options for the needs identified within the SAMNA within the Mojave region as well as three Statewide Transportation Improvement Projects identified as occurring within the region and likely requiring natural resources mitigation. Caltrans District 8 will select mitigation options based on results of the Mojave RAMNA to submit to the Caltrans Director for approval and funding. If approved, these advance mitigation projects will provide mitigation required by several transportation projects through the 2027 fiscal year (ending June 2028).Sustainable Groundwater Management Act

The Sustainable Groundwater Management Act (SGMA), is a combination of three bills passed by State Legislature and signed by California Governor Jerry Brown in 2014: Assembly Bill 1739, and Senate Bills 1168 and 1319. SGMA provides a framework for locally planned and implemented sustainable groundwater management. SGMA requires medium- and high-priority basins to develop groundwater sustainability agencies and groundwater sustainability plans, and manage groundwater to achieve sustainability while avoiding undesirable results. The Antelope Valley Basin has been adjudicated (Adjudication ID: A26) and is not subject to SGMA.

## 1.8 Document Organization

This RCIS and supporting information are presented in the chapters and appendices listed below.

- Chapter 1, *Introduction*, discusses the background, purpose of, and need for the RCIS, the planning process, strategy term, RCIS area, and relevant plans in the RCIS area.
- Chapter 2, *Environmental Setting*, provides an overview of the natural and built environment in the RCIS area, including land cover, protected lands, habitat linkages, and relevant plans and policies.

- Chapter 3, *Conservation Strategy*, discusses stressors and pressures to focal species and other resources, and outlines conservation goals, objectives, actions, and priorities.
- Chapter 4, *Implementation Strategy*, discusses the practical elements for how this RCIS will be implemented, including coordination with other resource agencies, and development of mitigation credit agreements.
- Chapter 5*, References*, is a bibliography of documents, data sources, and personal communications cited in this RCIS.
- Appendix A, *Glossary*
- Appendix B, *Regulatory Processes*
- Appendix C, *Stakeholder Involvement and Public Outreach*
- Appendix D, *Letters of Support*
- Appendix E, *Focal Species Assessment*
- Appendix F, *Focal Species Habitat Models*
- Appendix G, *Modeling Methodology*
- Appendix H, *Species Conservation Value Maps and Graphs*
- Appendix I, *Land Cover Conservation Values Maps and Graphs*

# Chapter 2
# Environmental Setting

This chapter presents an overview of the natural resources and built environment in the Regional Conservation Investment Strategy (RCIS) area to provide context for the voluntary conservation and habitat enhancement actions (Chapter 3, *Conservation Strategy*). This overview consists of the best available information on existing land cover, other natural resources, existing and future infrastructure, and relevant plans and policies in the RCIS area.

This chapter describes the natural setting of the RCIS area for the following topics.

- Ecoregions
- Hydrology
- Natural communities and land cover
- Focal species
- Other conservation elements

Biological resources in the RCIS area that were directly considered in developing the RCIS, including focal species, natural communities, and other important conservation elements, are described further in Chapter 3, *Conservation Strategy*.

This chapter describes the built environment in the RCIS area for the following topics.

- Local government planning boundaries and plans
- Major infrastructure
- Protected areas

This chapter also describes the following pressures and stressors on focal species and on other important conservation elements.

- Airborne pollutants
- Annual and perennial non-timber crops
- Climate change
- Commercial and industrial areas
- Groundwater pumping
- Fire and fire suppression
- Housing and urban areas; roads and railroads
- Industrial and military effluents
- Invasive plants and animals
- Livestock, farming, and ranching
- Military activities

- Mining and quarrying
- Recreational activities
- Renewable energy
- Utility and service lines

# 2.1 Natural Environment

This section characterizes in the natural environment in the RCIS area.

## 2.1.1 Ecoregions

This section provides a description of the ecoregions that overlap and surround the RCIS area, as required by the *Regional Conservation Investment Strategies Program Guidelines* (Program Guidelines) (California Department of Fish and Wildlife 2018a). California Fish and Game Code (CFGC) 1852(c)(2) states that an RCIS shall include "a description of the surrounding ecoregions…that provide relevant context for the development of the strategy." Furthermore, CFGC 1852(c)(14) states that an RCIS shall include "incorporation and reliance on, and citation of, the best available scientific information regarding the strategy area and the surrounding ecoregion, including a brief description of gaps in relevant scientific information, and use of standard or prevalent vegetation classifications and standard ecoregional classifications for terrestrial and aquatic data to enable and promote consistency among regional conservation investment strategies throughout California."

Ecoregions are areas of general similarity based on major terrain features such as a desert, plateau, valley, mountain range, or a combination thereof. They provide a spatial framework for the research, assessment, management, and monitoring of ecosystems and ecosystem components. Ecoregions can be effective units for setting regional conservation goals, as well as developing biological criteria and water quality standards.

Ecoregions are hierarchical and are identified based on patterns of biotic and abiotic phenomena, including geology, physiography, vegetation, climate, soils, land use, wildlife, and hydrology. North America is divided into different ecological units from coarsest to finest (ecoregions [i.e., provinces], subregions [i.e., sections], landscapes, and land units). The RCIS area overlaps with two ecoregions, each of which contains one subregion that overlaps the RCIS area (Figure 2-1). The ecoregions and subregions that overlap the RCIS area are described in the following sections based on the descriptions provided by the U.S. Department of Agriculture (McNab et al. 2007).

### 2.1.1.1 American Semi-Desert and Desert Province

The American Semi-Desert and Desert Province overlaps with the majority of the RCIS area. This province includes the Mojave Desert (overlaps with RCIS area), Sonoran Desert, and Colorado Desert sections of the California desert. The American Semi-Desert and Desert Province is characterized by extensive plains with isolated low mountains and buttes. Vegetation is typical of desert environments and includes cacti (including many pricklypear [genus *Opunti*] species, and cholla [genus *Cylindropuntia*] species), creosote brush (*Larrea tridentata*), brittlebrush (*Encelia* spp.), and various species of saltbush (*Atriplex* spp.).

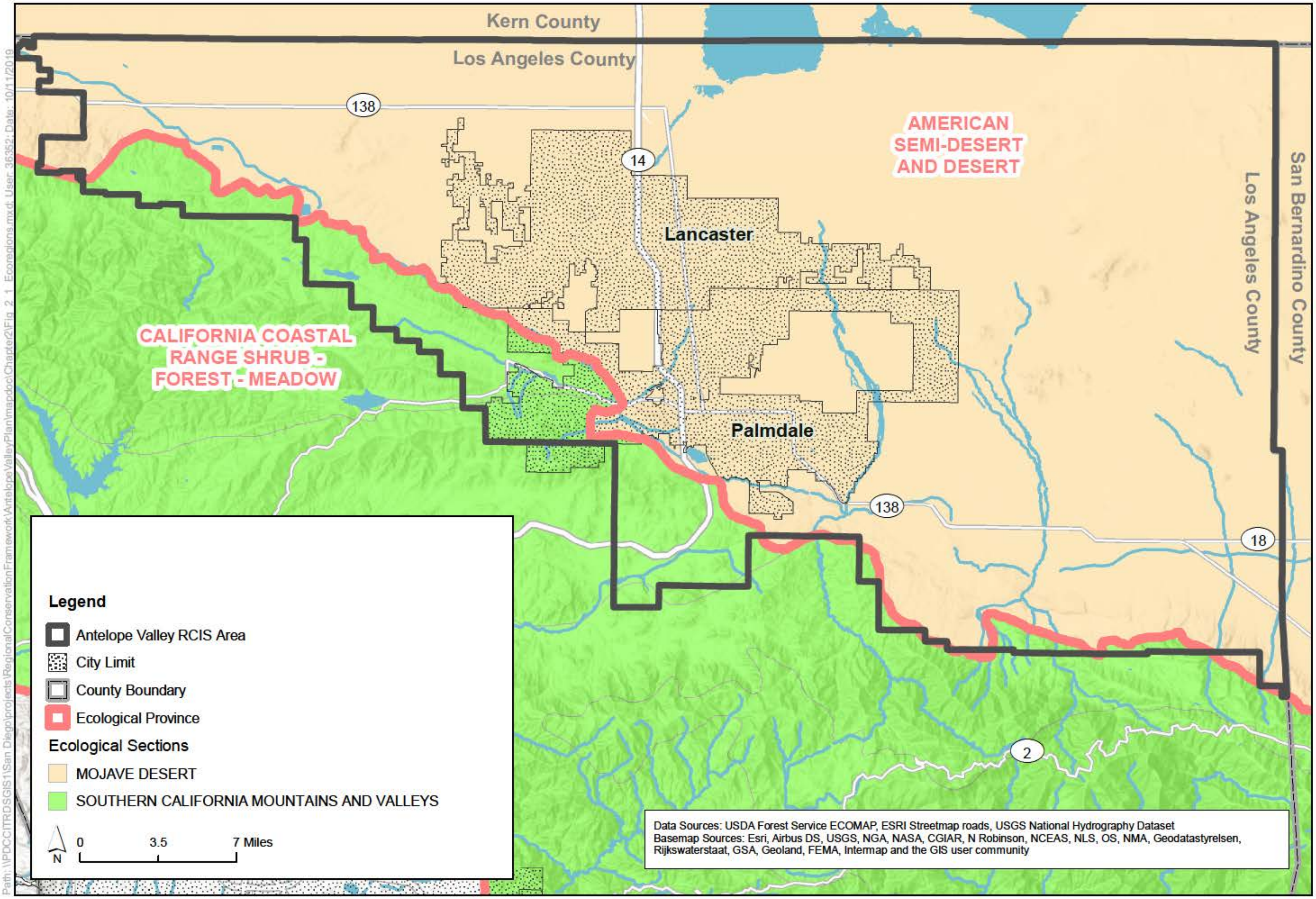


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**Figure 2-1**
**Ecoregions in the Vicinity of the RCIS Area**

### Mojave Desert Section

The Mojave Desert Section consists of desert plains and contains isolated mountains, plateaus, alluvial fans, playas, basins, and dunes. Elevation ranges from 300 feet below sea level to 11,000 feet above sea level. Predominant natural communities found within this province include creosote bush, blackbrush (*Coleogyne ramosissima*), greasewood (*Sarcobatus vermiculatus*), and saltbush (*Atriplex* spp.) communities on basins, plains, and hills; Joshua tree (*Yucca brevifolia*) communities on plains and hills; and Great Basin sagebrush (*Artemisia tridentata*), California juniper (*Juniperus californica*), and pinyon pine (*Pinus monophylla*) communities on mountains. Climate is characterized by desert conditions with minimal annual rainfall (3 to 10 inches) with temperatures averaging from 50 to 75 degrees Fahrenheit (°F).

## 2.1.1.2 California Coastal Range Open Woodland—Shrub—Coniferous Forest—Meadow

The California Coastal Range Open Woodland—Shrub—Coniferous Forest—Meadow Province overlaps with portions of the RCIS area along the area's southern border. This province contains two sections, the Central California Coast Ranges and Southern California Mountain and Valleys (overlaps with RCIS area). Vegetation communities include chaparral, sclerophyll communities such as madrone and several species of oak (*Quercus* spp.), and sagebrush (*Artemisia* spp.) and grasslands in the valleys. Climate tends to be more temperate than in the eastern and northern portions of the RCIS area that overlaps with the American Semi-Desert and Desert Province.

### Southern California Mountains and Valleys Section

The Southern California Mountains and Valleys Section contains narrow ranges and broad fault blocks, alluviated lowlands, and dissected westward-sloping granitic uplands. This section is in both the Transverse and Peninsular Ranges geomorphic provinces and elevation ranges from 500 to 11,500 feet. Predominant natural communities include chamise (*Adenostoma fasciculatum*), ceanothus (*Ceanothus* spp.), mixed chaparral, various scrub oaks, coast live oak (*Quercus agrifolia*), black oak (*Quercus velutina*), Tucker's oak (*Quercus john-tuckeri*), needlegrass (*Stipa* spp.), Jeffrey pine (*Pinus jeffreyi*), canyon oak (*Quercus chrysolepis*), and big cone Douglas-Fir (*Pseudotsuga macrocarpa*) series. Precipitation ranges from 10 to 40 inches annually with temperatures averaging between 45 and 64°F.

## 2.1.2 Hydrology

There are two main watersheds within the RCIS area (Figure 2-2): the Northern Mojave River watershed, which covers approximately 98 percent of the RCIS area, and the Ventura–San Gabriel Coastal watershed, which overlaps with small portions of the RCIS area along the western border. The Northern Mojave River watershed is the main watershed for most of the streams and rivers in the RCIS area. The Mojave River, which is outside of the RCIS area, runs approximately 100 miles from the northern slope of the San Bernardino Mountains at Summit Valley near Cajon Pass, north through Victorville, to the northeast through Barstow, then east through the Mojave Valley and Camp Cady to a closed basin sink near Baker. The Ventura–San Gabriel Coastal Basin overlaps with small areas of the RCIS area along the western border and delivers water to the Pacific Ocean.

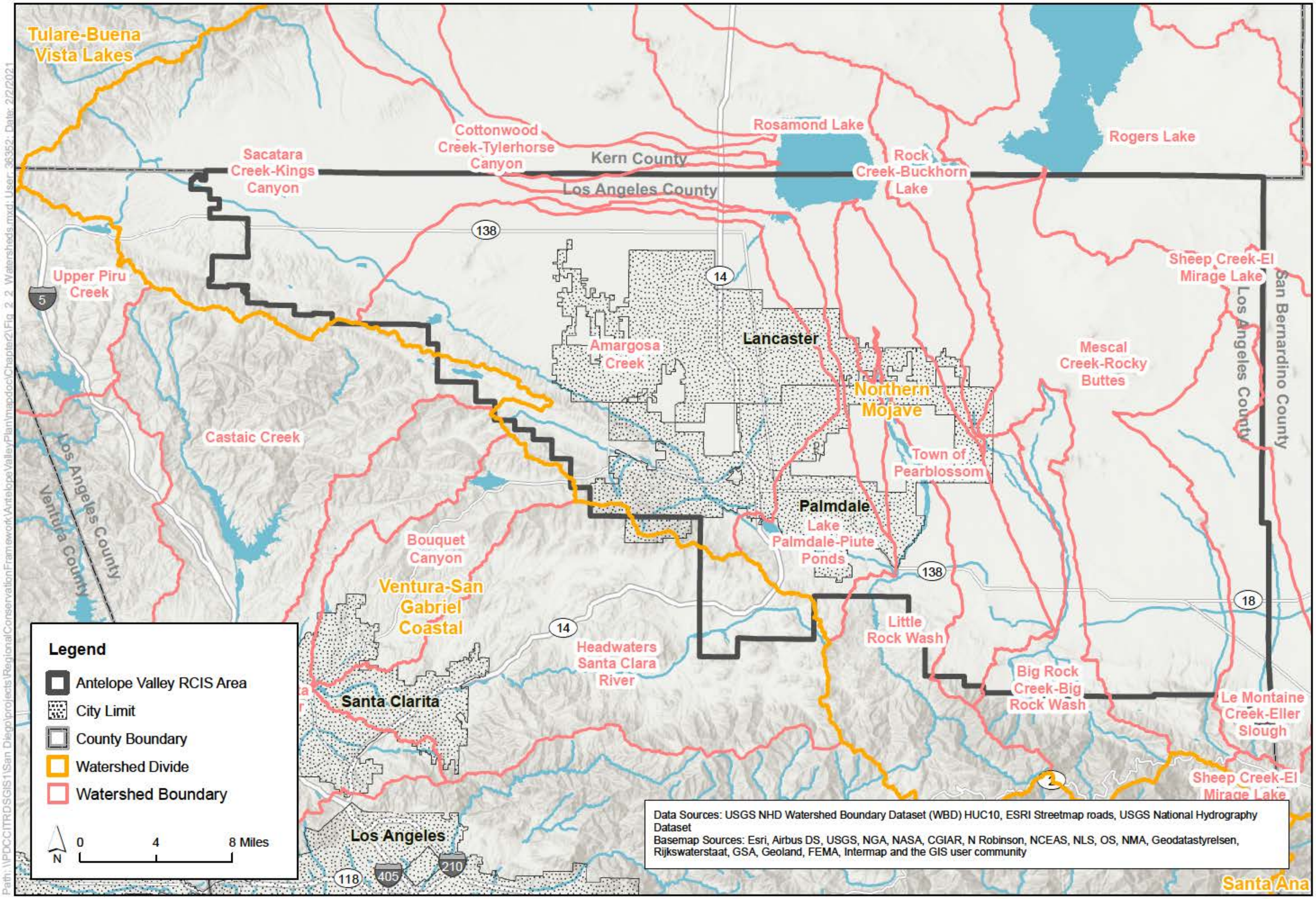


**Figure 2-2**
**Major Watersheds and Groundwater Basins in the RCIS Area**

The RCIS area falls within the Antelope Valley Groundwater Basin, which is part of the 21.2 million-acre South Lahontan Hydrologic Region, composed of 76 groundwater basins/subbasins (California Department of Water Resources 2004). Antelope Valley Groundwater Basin underlies an extensive alluvial valley in the western Mojave Desert. The elevation of the valley floor ranges from 2,300 to 3,500 feet above sea level. The basin is bounded on the northwest by the Garlock fault zone at the base of the Tehachapi Mountains and on the southwest by the San Andreas fault zone at the base of the San Gabriel Mountains (California Department of Water Resources 2004). The basin is bounded on the east by ridges, buttes, and low hills that form a surface and groundwater drainage divide. It is bounded on the north by Fremont Valley Groundwater Basin at a groundwater divide approximated by a southeastward-trending line from the mouth of Oak Creek through Middle Butte to exposed bedrock near Gem Hill, and by the Rand Mountains farther east. Runoff in Big Rock and Little Rock Creeks from the San Gabriel Mountains and in Cottonwood Creek from the Tehachapi Mountains flows toward a closed basin at Rosamond Lake (California Department of Water Resources 2004). Average annual rainfall in the RCIS area ranges from 5 to 10 inches.

### 2.1.3 Natural Communities and Land Cover

All RCISs are required to identify "important resource conservation elements within the RCIS area, including, but not limited to, important ecological resources and processes, natural communities, habitat, habitat connectivity, and existing protected areas, and an explanation of the criteria, data, and methods used to identify those important conservation elements" (CFGC Section 1852(c)(4)). This Antelope Valley RCIS uses a detailed geographic information system (GIS) to characterize spatially the distribution of natural communities and habitat.

A *natural community* is defined as a group of organisms living together and linked together by their effects on one another and their responses to the environment they share (Sawyer et al. 2009). A *land cover* is the dominant feature of the land surface defined by vegetation, water, or human uses. Land cover types are the units most widely used in conservation planning to analyze a variety of landscape characteristics, including natural communities, wetlands and streams, species' habitat, ecosystem function, and biological diversity. Land cover is often a function of a variety of physical and biological factors such as plant and animal associations, soil type, topography, climate, and land uses.

The land cover data set is an important tool for developing the RCIS conservation strategy (Chapter 3, *Conservation Strategy*). Among its many uses, the land cover data were used to model focal species' habitat, identify gaps in conservation of habitat and other natural resources, set measurable conservation goals and objectives, and develop conservation actions to achieve the goals and objectives.

#### 2.1.3.1 Natural Communities and Land Cover Data Sources

A composite natural community and land cover dataset for the RCIS area was created from the following layers, representing the best available information in the RCIS area in terms of mapping accuracy, resolution, and consistency within and outside the RCIS area.

- California Department of Fish and Wildlife (CDFW) VegCAMP ds735[1] for the majority of the West Mojave Ecoregional Subsection (subecoregion). This vegetation map was created for the

[1] https://map.dfg.ca.gov/metadata/ds0735.html

Desert Renewable Energy Conservation Plan (DRECP). This dataset is the most recent large-scale mapping for the western Mojave. It was created by the CDFW VegCAMP group and was used in this RCIS in part to be consistent with the DRECP conservation planning for the region, and because many of the available habitat models for focal species are constructed with this vegetation dataset. This vegetation map follows the National Vegetation Classification Standards (NVCS) and incorporates CDFW's Natural Communities List (Table 2-1) (California Department of Fish and Wildlife 2020a).

- U.S. Forest Service Calveg[2] product cross-walked (Table 2-1) to the attributes for the area in the Antelope Valley study site southwest of the West Mojave subecoregion.

The crosswalk for U.S. Forest Service Calveg to the NVCS attributes of the DRECP land cover was coordinated with CDFW VegCAMP staff in 2015 for the preparation of land cover data for the California High Speed Rail Bakersfield to Burbank segment. VegCAMP staff also supported the crosswalk of the macrogroups in this land cover to the vegetation communities included in the State Wildlife Action Plan (SWAP) for the Mojave Desert Ecoregion as a part of the preparation of this RCIS. (Yacoub pers. comm. 2017.)

**Table 2-1. Crosswalk of Antelope Valley RCIS Natural Communities and Land Cover Types to Other Classification Systems**

| Antelope Valley RCIS Natural Community and Land Cover Type | California Department of Fish and Wildlife Natural Communities List | U.S. Forest Service Calveg |
|---|---|---|
| **California scrub** | | |
| California chaparral | Chamise chaparral (*Adenostoma fasciculatum*) alliance | Chamise |
| | Eastwood manzanita chaparral (*Arctostaphylos glandulosa*) alliance | Manzanita chaparral |
| | | Chamise |
| | Bigberry manzanita chaparral (*Arctostaphylos glauca*) alliance | Manzanita chaparral |
| | | Chamise |
| | Hoary leaf ceanothus chaparral (*Ceanothus crassifolius*) alliance | Lower montane mixed chaparral |
| | Birch leaf mountain mahogany chaparral (*Cercocarpus montanus*) alliance | Birchleaf mountain mahogany |
| | | California buckwheat |
| | Cup leaf ceanothus – California flannelbush chaparral (*Ceanothus greggi – Fremontodendron californicum*) alliance | Ceanothus chaparral |
| | | Great Basin – mixed chaparral transition |
| | Scrub oak chaparral (*Quercus berberidifolia*) alliance | Scrub oak |
| California coastal scrub | Narrowleaf goldenbush – bladderpod scrub (*Ericameria linearifolia – Cleome isomeris*) alliance | Not treated |

[2] https://www.fs.usda.gov/detail/r5/landmanagement/resourcemanagement/?cid=stelprdb5347607

| Antelope Valley RCIS Natural Community and Land Cover Type | California Department of Fish and Wildlife Natural Communities List | U.S. Forest Service Calveg |
|---|---|---|
| | Thick leaf yerba santa scrub (*Eriodictyon* [*crassifolium*, *trichocalyx*]) provisional alliance | Not treated |
| | California buckwheat scrub (*Eriogonum fasciculatum*) alliance | California buckwheat |
| | | Chaparral yucca |
| | Central and South Coastal California coastal sage scrub group | N/A |
| **California grassland and meadow** | | |
| California annual and perennial grassland | Fiddleneck-phacelia fields (*Amsinckia menziesii, tessellata*) alliance | Annual grasses and forbs |
| | | Perennial grasses and forbs |
| | Upland mustards or star-thistle fields (*Brassica nigra – Centaurea* [*solstitalis, melitensis*]) semi-natural alliance | Annual grasses and forbs |
| | | Non-native/invasive forb |
| | | Non-native/ornamental grass |
| | California poppy-lupine fields (*Eschscholzia [californica] – Lupinus [nanus]*) | Annual grasses and forbs |
| | California goldfields – dwarf plantain – small fescue flower fields (*Lasthenia californica – Plantagao erecta – Vulpia microstachys*) | Annual grasses and forbs |
| | Mediterranean California naturalized annual and perennial grassland group | Annual grasses and forbs |
| | California annual herb/grass group | Annual grasses and forbs |
| **Semi-desert scrub and grassland** | | |
| Madrean warm semi-desert wash woodland/scrub | Cheesebush – sweetbush scrub (*Ambrosia salsola – Bebbia juncea*) alliance | Cheesebush |
| | | Desert mixed scrub |
| | Big sagebrush (*Artemisia tridentata*) alliance | Great Basin mixed scrub |
| | | Big sagebrush |
| | | Great Basin- mixed chaparral transition |
| | | Great Basin – desert mixed scrub |
| | | Big basin sagebrush |
| | | Wyoming sagebrush |
| | Scale broom scrub (*Lepidospartum squamatum*) alliance | Scalebroom |
| | | Riversidean alluvial scrub |

| Antelope Valley RCIS Natural Community and Land Cover Type | California Department of Fish and Wildlife Natural Communities List | U.S. Forest Service Calveg |
|---|---|---|
| | Mesquite thickets (*Prosopis glandulosa-Prosopis velutina – Prosopis pubescens*) alliance | Mesquite |
| | Desert almond – Mexican bladdersage scrub (*Prunus fasciculata – Salazaraia mexicana*) | Desert mixed Scrub |
| | | Desert mixed wash scrub |
| | | High desert mixed scrub |
| | Acton's and Virgin River brittle brush – net-veined goldeneye scrub (*Encelia [actonii, virginensis] – Viguiera reticulata*) alliance | Desert mixed Wash Scrub |
| Mojavean-Sonoran desert scrub | White alder groves (*Alnus rhombifolia*) alliance | White alder |
| | | Riparian mixed shrub |
| | White bursage scrub (*Ambrosia dumosa*) alliance | White bursage |
| | Allscale scrub (*Atriplex polycarpa*) alliance | Alkaline mixed scrub |
| | | saltbush |
| | Creosote bush scrub (*Larrea tridentata*) alliance | Creosote bush |
| | Creosote bush – white bursage scrub (*Larrea tridentata – Ambrosia dumosa*) alliance | Creosote bush |
| | | Ocotillo |
| | Joshua tree woodland (*Yucca brevifolia*) alliance | Joshua tree |
| **Western North American cool semi-desert scrub and grassland** | | |
| Cool semi-desert wash and disturbance scrub | Rubber rabbitbrush scrub (*Ericameria nauseosa*) alliance | Rabbitbrush |
| Intermountain dry shrubland and grassland | Indian rice grass grassland (*Achnatherum hymenoides*) alliance | Perennial grasses and forbs |
| | Nevada joint fir – Anderson's boxthorn – spiny hop sage scrub (*Ephedra nevadensis – Lycium andersonii – Grayia spinosa*) alliance | Great Basin – desert mixed scrub |
| | | Shadscale |
| | | Desert mixed scrub |
| | | Ephedra |
| | | Alkaline mixed scrub |
| | Needleleaf rabbitbrush scrub (*Ericameria teretifolia*) alliance | Rabbitbrush |
| | | High desert mixed scrub |
| | Winterfat scrubland (*Krascheninnikovia lanata*) alliance | Saltbush |
| | | Winterfat |

| Antelope Valley RCIS Natural Community and Land Cover Type | California Department of Fish and Wildlife Natural Communities List | U.S. Forest Service Calveg |
|---|---|---|
| | Bitter brush scrub (*Purshia tridentata – Artemisia tridentata*) alliance | Bitterbrush |
| | | Great Basin mixed scrub |
| | | Great Basin-mixed chaparral transition |
| | | Great Basin – desert mixed scrub |
| | | Bitterbrush-sagebrush |
| | | High desert mixed scrub |
| Western North America tall sage shrubland and steppe | Big sagebrush (*Artemisia tridentata* ssp. *parishii*) provisional association | Great Basin mixed scrub |
| | | Big sagebrush |
| | | Great Basin-mixed chaparral transition |
| | | Great Basin-desert mixed scrub |
| | | Big Basin sagebrush |
| | | Wyoming sagebrush |
| Western North American cool semi-desert shrubland, shrub-steppe | Fourwing saltbush scrub (*Atriplex canescens*) alliance | Saltbush |
| **Vancouverian and Rocky Mountain grassland and shrubland** | | |
| Western Cordilleran montane-boreal wet meadow | N/A—only mapped to Western Cordilleran montane-boreal wet meadow macrogroup | N/A |
| Western North American temperate grassland and meadow | Cheatgrass – medusahead grassland (*Bromus tectorum – Taeniatherum caput-medusae*) alliance | Non-native/ornamental grass |
| | Vancouverian and Rocky Mountain naturalized perennial grassland group | Non-native/ornamental grass |
| **Western North America interior sclerophyllous shrubland** | | |
| Warm interior chaparral | Tucker oak chaparral (*Quercus john-tuckeri*) alliance | Muller-Tucker scrub oak |
| | | Scrub oak |
| | Western Mojave and Western Sonoran Desert borderland chaparral group | |
| Lower montane chaparral | California pre-montane chaparral group | |
| **Madrean forest and woodland** | | |
| California forest and woodland | California buckeye groves (*Aesculus californica*) alliance | California buckeye |

| Antelope Valley RCIS Natural Community and Land Cover Type | California Department of Fish and Wildlife Natural Communities List | U.S. Forest Service Calveg |
|---|---|---|
| | Californian broadleaf forest and woodland group | |
| | California juniper woodland (*Juniperus californica*) alliance | California juniper (shrub, tree) |
| | Coulter pine woodland and forest (*Pinus coulteri*) alliance | Coulter pine |
| | Foothill pine woodland (*Pinus sabiniana*) alliance | Gray pine |
| | Coast live oak woodland and forest (*Quercus agrifolia*) alliance | Coast live oak |
| | | Coastal mixed hardwood |
| | Canyon live oak forest and woodland (*Quercus chrysolepis*) alliance | Canyon live oak |
| | Blue oak woodland and forest (*Quercus douglasii*) alliance | Blue oak |
| | California black oak forest and woodland (*Quercus kelloggi*) alliance | California black oak |
| | Valley oak woodland and forest (*Quercus lobata*) alliance | Valley oak |
| | Interior live oak woodland and forest (*Quercus wislizeni – Quercus parvula*) alliance | Interior live oak |
| Californian-Vancouverian montane and foothill forest | Bigcone Douglas-fir forest (*Pseudotsuga macrocarpa*) alliance | Bigcone Douglas-fir |
| **North American intermountain basins scrub woodland** | | |
| Intermountain basins pinyon-juniper woodland | Singleleaf pinyon-Utah juniper woodlands (*Pinus monophylla – Juniperus osteosperma*) alliance | Ultramafic mixed conifer |
| | | Singleleaf pinyon pine |
| **Western North America warm temperate flooded and swamp forest** | | |
| Southwestern North American riparian, flooded and swamp forest | White alder groves (*Alnus rhombifolia*) alliance | Riparian mixed shrub |
| | | White alder |
| | Mulefat thickets (*Baccharis salicifolia*) alliance | Cheesebush (burrobush) |
| | | Baccharis (riparian) |
| | Basket bush – river hawthorn – desert olive patches (*Rhus trilobata – Crataegus rivularis – Forestiera pubescens*) shrubland alliance | Desert mixed wash scrub |
| | California sycamore woodlands (*Platanus racemosa – Quercus agrifolia*) alliance | California sycamore |

| Antelope Valley RCIS Natural Community and Land Cover Type | California Department of Fish and Wildlife Natural Communities List | U.S. Forest Service Calveg |
|---|---|---|
| | Fremont cottonwood forest and woodland (*Populus fremontii – Fraxinus velutina – Salix gooddingii*) alliance | Fremont cottonwood |
| | Sandbar willow thickets (*Salix exigua*) alliance | Willow (riparian scrub) |
| | | Riparian mixed shrub |
| | Goodding's willow – red willow riparian woodland and forest (*Salix gooddingii – Salix laevigata*) alliance | Riparian mixed hardwood |
| | | Willow |
| | | Willow-alder |
| | Arroyo willow thickets (*Salix lasiolepis*) alliance | Riparian mixed shrub |
| | | Willow |
| | | Willow-alder |
| | Southwestern North American riparian/wash scrub group | N/A |
| | Tamarisk thickets (*Tamarix* spp.) alliance | Tamarisk |
| **Western North American freshwater marsh** | | |
| Western North America wet meadow and low shrub carr | Baltic and Mexican rush marshes (*Juncus arcticus* [var. *balticus, mexicanus*]) alliance | Perennial grasses and forbs |
| Western North American freshwater marsh | Arid West freshwater emergent marsh group | N/A |
| | Cattail marshes (*Typha* [*angustifolia, domingensis, latifolia*]) alliance | Tule-Cattail |
| **Western North American interior alkali-saline wetland** | | |
| Cool semi-desert alkali-saline wetlands | Shadscale scrub (*Atriplex confertifolia*) alliance | Shadscale |
| | | Alkaline mixed scrub |
| | Greasewood scrub (*Sarcobatus vermiculatus*) alliance | Saltbush |
| | | Greasewood |
| | | Alkaline mixed scrub |
| Warm semi-desert/Mediterranean alkali-saline wetland | Spinescale scrub (*Atriplex spinifera*) alliance | Saltbush |
| | | Alkaline mixed scrub |
| | Salt grass flats (*Distichlis spicata*) alliance | Alkaline flats |
| | | Alkaline mixed grasses and forbs |
| | | Pickleweed-Cordgrass |
| | | Wet grasses and forbs |
| | Southwestern North American alkali marsh/seep vegetation group | N/A |

| Antelope Valley RCIS Natural Community and Land Cover Type | California Department of Fish and Wildlife Natural Communities List | U.S. Forest Service Calveg |
|---|---|---|
| | Bush seepweed scrub (*Suaeda moquinii*) alliance | Alkaline mixed scrub |
| | | Soft scrub-Mixed Chaparral |
| | North American Warm Desert Alkaline Scrub and Herb Playa and Wet Flat Group | N/A |
| **North American Mediterranean rock outcrop, scree, and talus nonvascular and sparse vascular vegetation** | | |
| California cliff, scree, and other rock vegetation | N/A—only mapped to California cliff, scree, and other rock vegetation macrogroup | |
| **North American warm semi-desert cliff, scree, and other rock vegetation** | | |
| North American Warm semi-desert cliff, scree, and other rock vegetation | North American warm desert bedrock cliff and outcrop group | N/A |
| **Agriculture** | | |
| Deciduous orchard, vineyard | N/A | Agriculture |
| Irrigated row and field crops | N/A | Grain and crop agriculture |
| **Urban and developed** | | |
| Urban and developed | N/A | Urban or developed |
| **Water** | | |
| Lacustrine | N/A | Water |

### 2.1.3.2 Natural Communities and Land Cover in the RCIS Area

Natural communities are the broadest level of mapping of the natural landscape in this Antelope Valley RCIS and are mapped according to the Division level in the NVCS hierarchy. Land cover types are mapped based on the Macrogroup level of the NVCS. More detailed land cover mapping occurs at the Group level and Alliance level of the hierarchy, which are used for the mapping of unique, rare, or imperiled communities (Section 3.2, *Identifying Areas of High Conservation Value*). Table 2-1 shows the relationship between the natural communities, land cover types, and groups and alliances, as defined by CDFW's Natural Communities List[3] (California Department of Fish and Wildlife 2020a).

Natural communities in the RCIS area are shown on Figure 2-3, and land cover types are shown on Figures 2-4 through 2-8. Table 2-2 summarizes the RCIS area acreage by natural communities and

[3] https://wildlife.ca.gov/Data/VegCAMP/Natural-Communities/List

land cover types. The natural community and land cover types and locations in the RCIS area are described in the sections that follow.

**Table 2-2. Extent of Natural Communities and Land Cover Types in the RCIS Area**

| Natural Community Land Cover | Acres in RCIS Area | Percentage of RCIS Area[1] |
|---|---|---|
| **California scrub** | **46,077** | **6.7** |
| California chaparral | 16,145 | 2.4 |
| California coastal scrub | 29,932 | 4.4 |
| **California grassland and meadow** | **96,558** | **14.1** |
| California annual and perennial grassland | 96,558 | 14.1 |
| **Semi-desert scrub and grassland** | **225,216** | **32.9** |
| Madrean warm semi-desert wash woodland/scrub | 7,427 | 1.1 |
| Mojavean-Sonoran desert scrub | 217,789 | 31.9 |
| **Western North American cool semi-desert scrub and grassland** | **65,916** | **9.6** |
| Cool semi-desert wash and disturbance scrub | 43,049 | 6.3 |
| Intermountain dry shrubland and grassland | 8,381 | 1.2 |
| Western North America tall sage shrubland and steppe | 1,693 | 0.2 |
| Western North American cool semi-desert shrubland, shrub-steppe | 12,793 | 1.9 |
| **Vancouverian and Rocky Mountain grassland and shrubland** | **10,627** | **1.6** |
| Western Cordilleran montane-boreal wet meadow | 30 | <0.1 |
| Western North American temperate grassland and meadow | 10,598 | 1.5 |
| **Western North America interior sclerophyllous shrubland** | **6,311** | **0.9** |
| Warm interior chaparral | 6,202 | 0.9 |
| Lower montane chaparral | 109 | <0.1 |
| **Madrean forest and woodland** | **36,758** | **5.4** |
| California woodland and forest | 36,646 | 5.4 |
| Californian-Vancouverian montane and foothill forest | 113 | <0.1 |
| **North American intermountain basins scrub woodland** | **1,968** | **0.3** |
| Intermountain basins pinyon-juniper woodland | 1,968 | 0.3 |
| **Western North America warm temperate flooded and swamp forest** | **1,525** | **0.2** |
| Southwestern North American riparian, flooded and swamp forest | 1,525 | 0.2 |
| **Western North American freshwater marsh** | **56** | **<0.1** |
| Western North America wet meadow and low shrub carr | 15 | <0.1 |
| Western North American freshwater marsh | 41 | <0.1 |
| **Western North American interior alkali-saline wetland** | **64,045** | **9.4** |
| Cool semi-desert alkali-saline wetlands | 45,086 | 6.6 |
| Warm semi-desert/Mediterranean alkali-saline wetland | 18,959 | 2.8 |
| **North American Mediterranean rock outcrop, scree, and talus nonvascular and sparse vascular vegetation** | **1,030** | **0.2** |
| California cliff, scree, and other rock vegetation | 1,030 | 0.2 |

| Natural Community Land Cover | Acres in RCIS Area | Percentage of RCIS Area[1] |
|---|---|---|
| **North American warm semi-desert cliff, scree, and rock vegetation** | **5,892** | **0.9** |
| North American Warm semi-desert cliff, scree, and other rock vegetation | 5,892 | 0.9 |
| **Agriculture** | **36,716** | **5.4** |
| Deciduous orchard, vineyard | 1,796 | 0.3 |
| Irrigated row and field crops | 34,920 | 5.1 |
| **Urban and developed** | **80,854** | **11.8** |
| Urban and developed | 80,854 | 11.8 |
| **Water** | **4,183** | **0.6** |
| Lacustrine | 4,183 | 0.6 |

Sources: California Energy Commission et al. 2014; VegCAMP ds735; Calveg
[1] Percentages may not add exactly due to rounding methods.

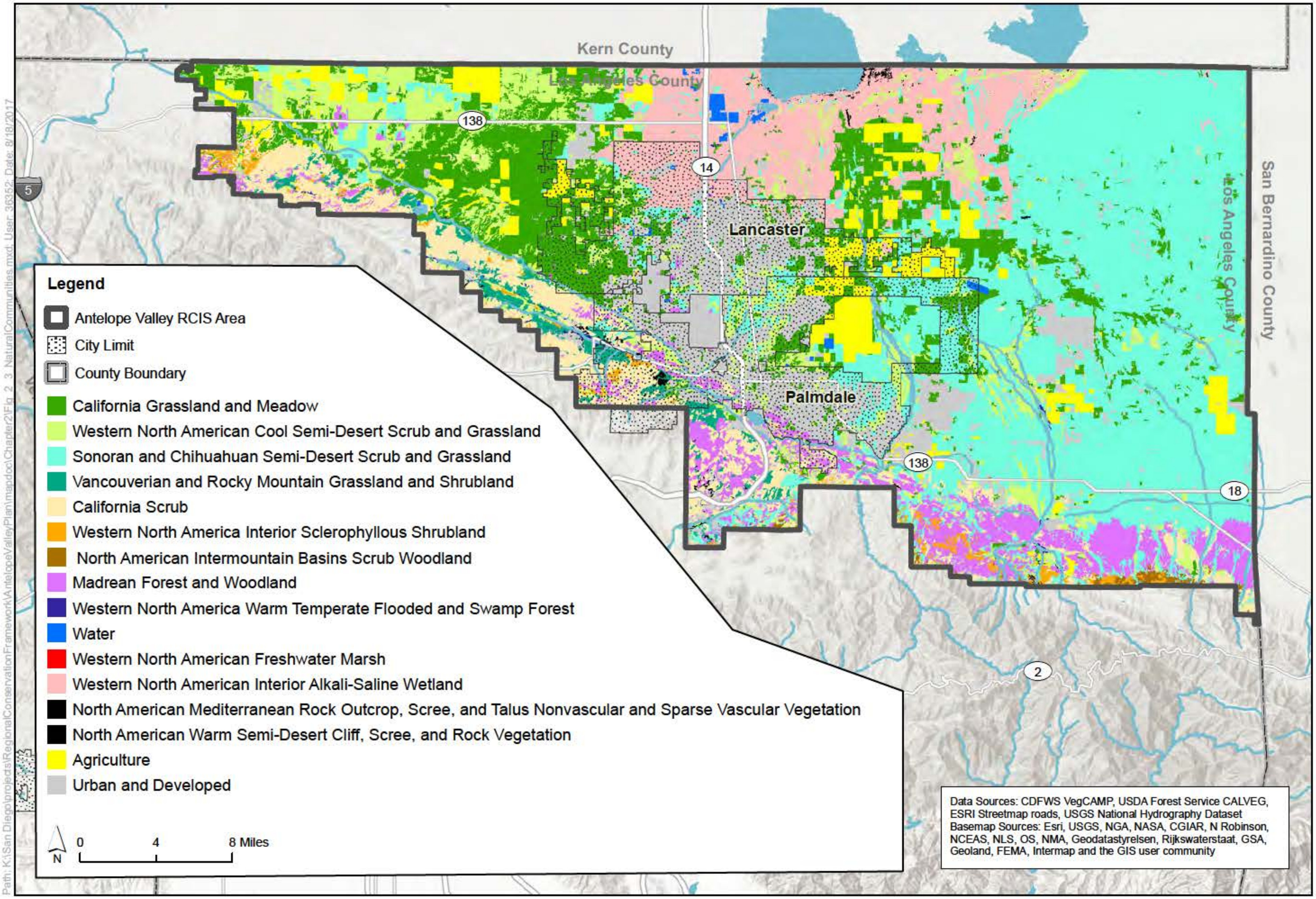


**Figure 2-3**
**Natural Communities of the Antelope Valley RCIS Area**

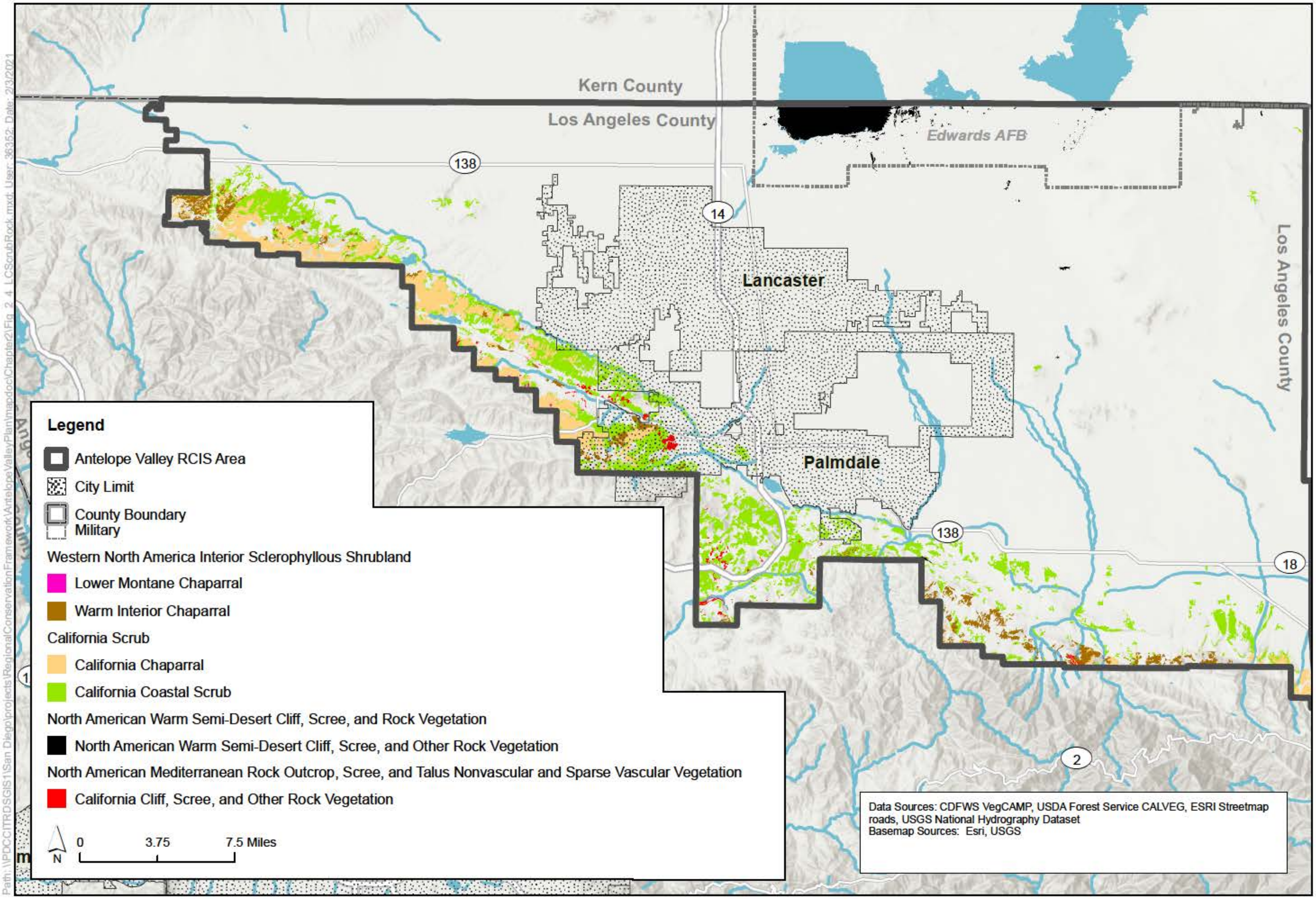


**Figure 2-4**
**Scrub and Rock Outcrop Land Cover in the Antelope Valley RCIS Area**

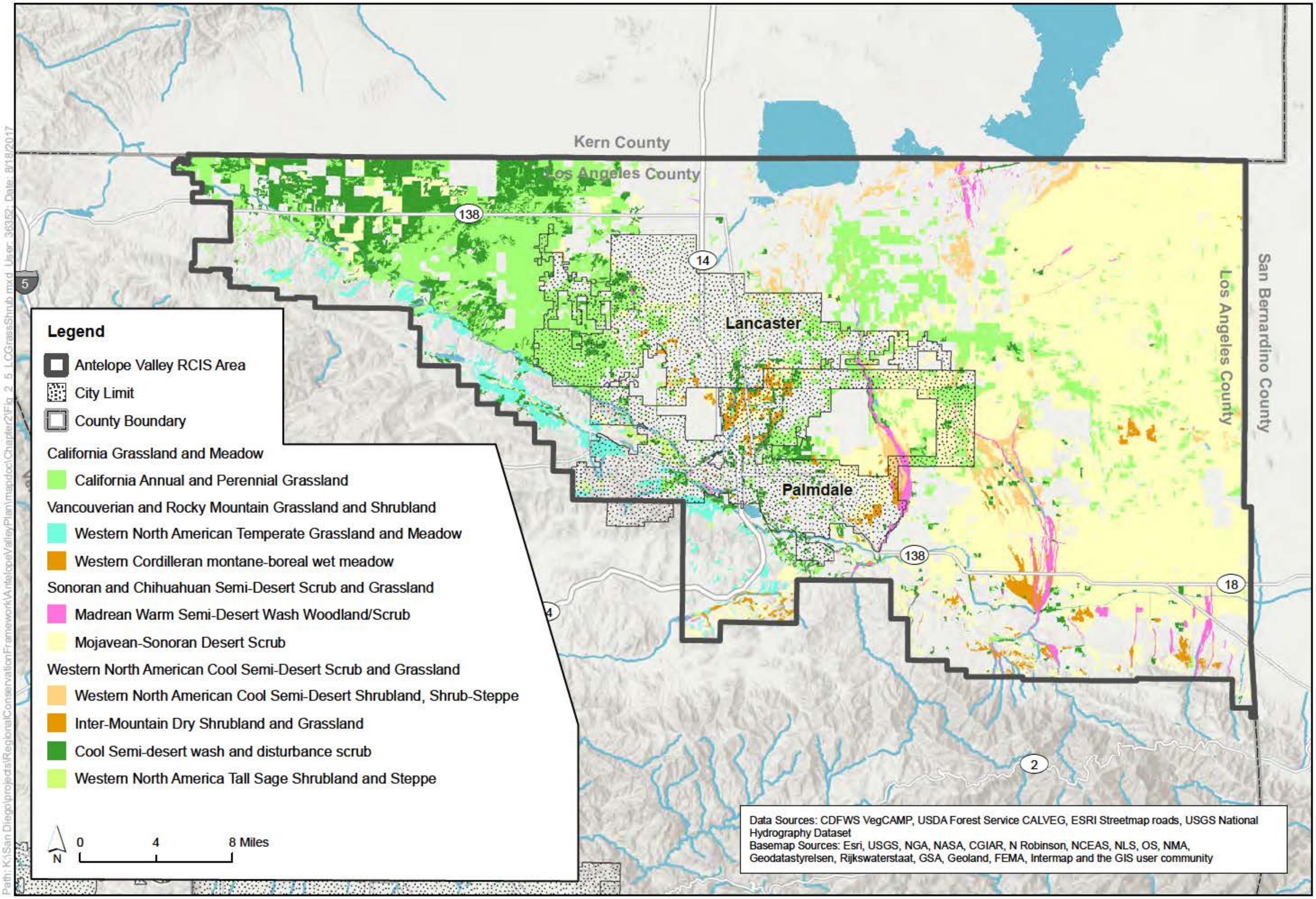


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**Figure 2-5**
**Grassland and Shrubland Land Cover in the Antelope Valley RCIS Area**

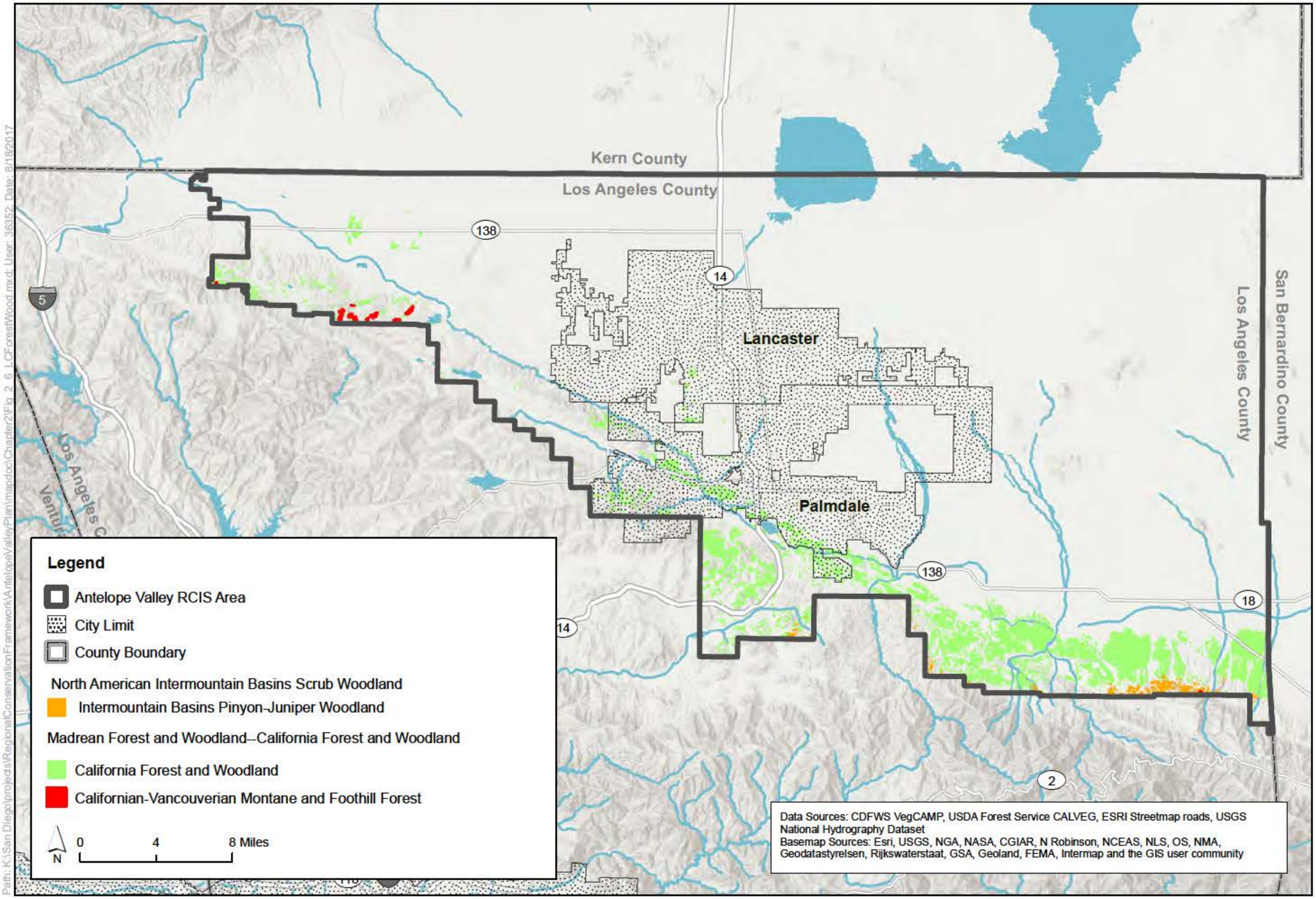


**Figure 2-6**
**Forest and Woodland Land Cover in the Antelope Valley RCIS Area**

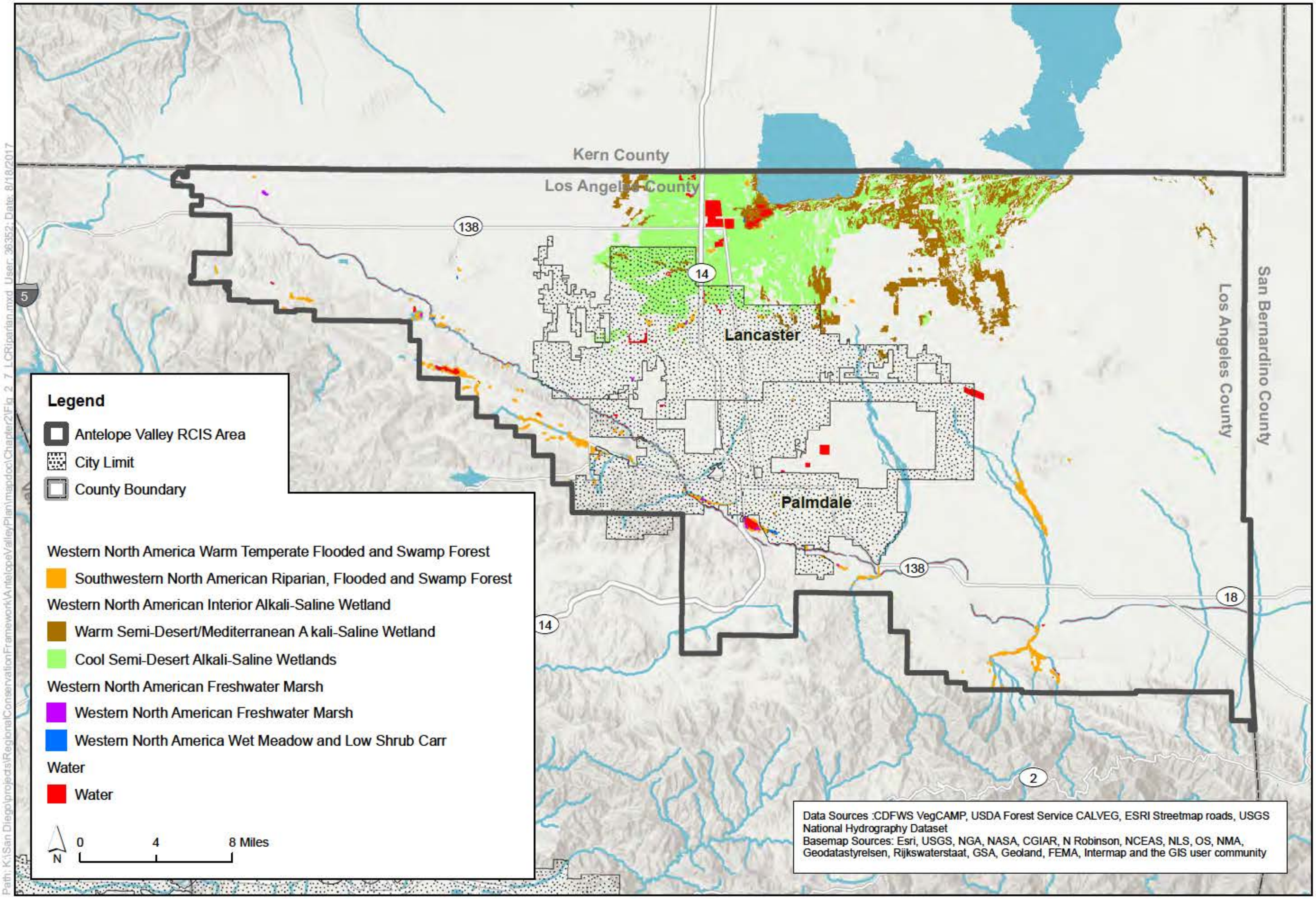


**Figure 2-7**
**Riparian and Wetland Land Cover in the Antelope Valley RCIS Area**

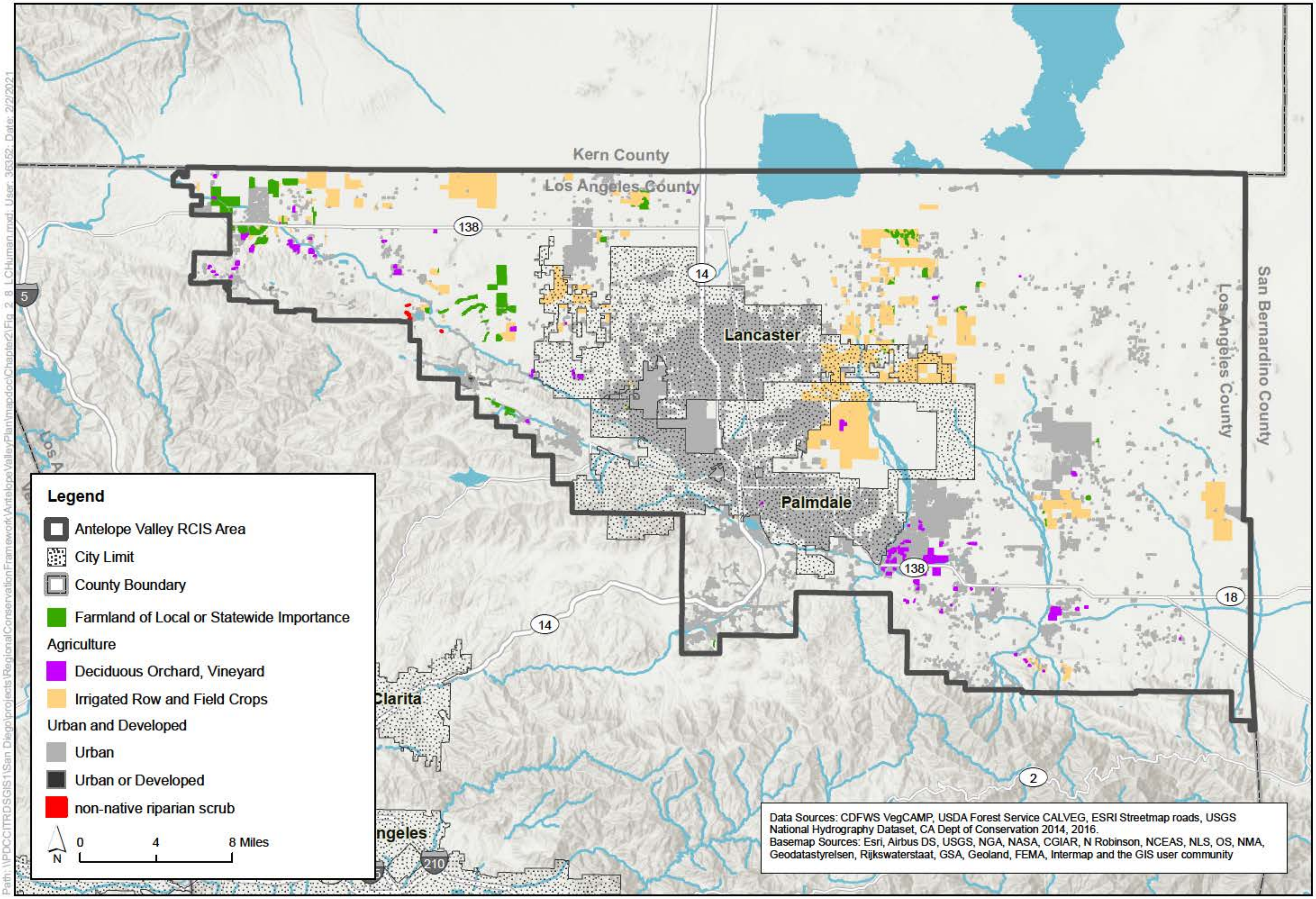


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**Figure 2-8**
**Human Modified Land Cover in the Antelope Valley RCIS Area**

## California Scrub

The Californian scrub natural community occurs in the warm-temperate Californian Floristic Province,[4] from southwestern Oregon through California, west of the Sierra-Cascades divide and south into northwestern Baja California, Mexico.

This natural community is composed of two distinct vegetation communities: California chaparral and coastal scrub land cover types. Chaparral occurs on rocky, porous, nutrient-deficient soils on steep slopes up to 2,000 meters in elevation (Keeley 2000). These communities are dominated by densely packed and nearly impenetrable drought-adapted evergreen woody shrubs with small, thick, leathery sclerophyllous leaves (Hanes 1988; Keeley 2000). In comparison, the coastal scrub cover types generally consist of low "soft" shrubs in open to dense shrublands, interspersed with grassy openings or little to no herbaceous layer.

California scrub is classified into two land cover types and is mostly found along the western border of the RCIS area (Figure 2-4).

- California chaparral
- Coastal scrub

### California Chaparral

The California chaparral land cover type occurs along the coast and into the western foothills of the Sierra Nevada. It is typically found on arid, south-facing slopes and ridges, and occasionally on mesic sites, such as north-facing slopes, concavities, or toe slopes, with well-drained soils and mafic soils. The more frost-tolerant species are found at higher, cooler, and generally more mesic sites up to approximately 6,000 feet. Chaparral is naturally displaced by woodlands on very mesic slopes and by sage scrub on xeric slopes (Keeley and Davis 2007). These shrublands include extensive areas on coarse-grained soils with annual precipitation up to 75 centimeters (winter rain and only intermittent snow).

The California chaparral land cover type includes Californian mesic chaparral, Californian xeric chaparral, Californian premontane chaparral, and western Mojave and Sonoran borderland chaparral, with Californian xeric chaparral being the most common. Californian mesic chaparral occurs on sites with mesic conditions, such as north-facing slopes, concavities, and toe slopes with well-drained soils. It is found throughout Mediterranean California, but is primarily inland from the coastal fog belt. Californian mesic chaparral occurs up to 6,000 feet in Southern California. Dominant plant species include a variety of mixed or single-species, evergreen, sclerophyllous shrubs that resprout following fire. Dominant species include mostly evergreen, drought-deciduous plants, but also some deciduous species.

Californian chaparral consists of a mixture of obligate seeders, facultative seeders, and resprouters that form sclerophyll shrublands dominated by one or more of the following species: chamise, bigberry manzanita (*Arctostaphylos glauca*), hoaryleaf ceanothus (*Ceanothus crassifolius*), or flannelbush (*Fremontodendron* spp.). Drought-deciduous black sage (*Salvia mellifera*) may be codominant.

[4] The California Floristic Province is a world biodiversity hotspot as defined by Conservation International, due to an unusually high concentration of endemic plants. It is one of only five areas with a Mediterranean-type climate in the world, all of which are on the biodiversity hotspot list, with hot, dry summers and cool, wet winters (Critical Ecosystem Partnership Fund 2017).

California chaparral occupies 16,145 acres (2.4 percent) of the RCIS area (Figure 2-4).

#### California Coastal Scrub

The California coastal scrub land cover type consists of a diverse mix of drought-deciduous shrubs and characteristic obligate-seeding or resprouting evergreen shrubs occurring in coastal and foothill communities of southwestern Oregon, along the California coast and inner foothills, and south into Baja Norte, Mexico. California coastal scrub generally occurs where the cooling influence of the Pacific Ocean moderates summer drought. Landforms include coastal terraces, low to middle slopes, valley bottoms, coastal bluffs, and rock outcrops. Southern coastal scrub occurs below 3,300 feet and extends inland from the maritime zone in hotter, drier conditions than northern (less fog-drenched) shrublands (e.g., areas with 10 to 60 centimeters of annual precipitation). The more central and northern scrub extends inland in some areas to over 4,900 feet. Some of the inland distribution follows the corridors of marine influences of coastal fog or cool marine air where it is pushed inland by prevailing winds and in areas with steep slopes and disturbance. Soils vary from coarse gravels to clays but typically only support plant-available moisture with winter and spring rains.

California coastal scrub occupies 29,932 acres (4.4 percent) of the RCIS area (Figure 2-4).

### Californian Grassland and Meadow

The grassland and meadow natural community consists of herbaceous vegetation dominated by grasses and forbs. Grasslands are the dominant land cover type outside of urban areas in the RCIS area and are found in upland topographic locations, generally irrespective of landscape position, slope, and aspect. Areas devoid of vegetation but located in grasslands are also included in this natural community as individual land cover types.

Grassland is classified into one land cover type and is found in the northwestern portions and east of Lancaster in the RCIS area (Figure 2-5).

- California annual and perennial grassland

#### California Annual and Perennial Grassland

The California annual and perennial grassland land cover type includes all annual forb/grass vegetation, native and nonnative, as well as native perennial grasslands growing within the California Mediterranean climate. Stands of this land cover type include everything from wildflower fields in the San Joaquin Valley and adjacent South and Central Coast Ranges to poppy fields of the western Mojave Desert, needlegrass grasslands of the foothills, valleys, and coastal ranges, and the largely nonnative annual grasslands and weed patches in the dry, warm summer regions of California. The dominant grasses generally consist of introduced annual grasses, including barbed goat grass (*Aegilops triuncialis*), foxtail chess (*Bromus madritensis*), harding grass (*Phalaris aquatica*), hare barley (*Hordeum murinum* ssp. *leporinum*), nit grass (*Gastridium phleoides*), oats (*Avena barbata* and *A. fatua*), rattail sixweeks grass (*Festuca myuros*), ripgut grass (*Bromus diandrus*), rye grass (*Festuca perennis*), silver hair grass (*Aira caryophyllea*), small fescus (*Festuca microstachys*), soft chess (*Bromus hordeaceus*), and water beard grass (*Polypogon viridis*). The associated herbaceous cover includes native and nonnative forbs.

California annual grassland occupies 96,558 acres (14.1 percent) of the RCIS area (Figure 2-5).

## Sonoran and Chihuahuan Semi-Desert Scrub and Grassland

The Sonoran and Chihuahuan semi-desert scrub and grassland natural community is characterized by a sparse to moderately dense layer (1 to 50 percent cover) of xeromorphic, evergreen and drought-deciduous, microphyllous and broad-leaved shrubs and/or succulent species, especially cacti and rosette stem succulents and sarcocaulescent trees and shrubs. The semi-desert scrub and grassland natural community includes two land cover types and is the predominant land cover type covering most of the eastern RCIS area (Figure 2-5).

- Madrean warm semi-desert wash woodland/scrub
- Mojavean-Sonoran desert scrub

### Madrean Warm Semi-Desert Wash Woodland/Scrub

The Madrean warm semi-desert wash woodland/scrub land cover type consists of fluvial-driven shrublands and herbaceous communities that line washes in the warm deserts of the western United States. The land cover may be dominated by desert willow (*Chilopsis linearis*), Apache plume (*Fallugia paradoxa*), desert almond (*Prunus fasciculate*), or other shrub species. This land cover type is restricted to intermittently flooded washes or arroyos that dissect bajadas, mesas, plains, and basin floors throughout the warm deserts. A woody layer is usually present and is typically scattered clumps to very open and may be dominated by shrubs and small trees. Although often dry, the intermittent fluvial processes are characteristic of this land cover type, which are often associated with rapid sheet and gully flow. The vegetation of desert washes is quite variable in species composition and structure, ranging from sparse and patchy to moderately dense, and typically occurs along the banks, but may occur in the channel.

Madrean warm semi-desert wash/woodland scrub occupies 7,427 acres (1.1 percent) of the RCIS area (Figure 2-5).

### Mojavean-Sonoran Desert Scrub

The Mojavean–Sonoran desert scrub land cover type, which composes the majority of the scrub communities in the RCIS area, consists of two groups: lower bajada and fan Mojavean–Sonoran desert scrub and the less common Arizonan upland Sonoran desert scrub. Lower bajada and fan Mojavean–Sonoran desert scrub occurs on lower slopes, fans, and small sheet-flow areas and not on well-defined washes or arroyos with defined banks and channels. This natural community is dominated or co-dominated by the following small to moderately sized shrubs (or perennial grasses): ragweed (*Ambrosia* spp.), brittlebush, creosote bush, mountain yucca (*Hesperoyucca whipplei*), buckwheats (*Eriogonum* spp.), and barrel cactus (*Ferocactus* spp.). Where Mexican bladdersage (*Scutellaria mexicana*), hopsage (*Grayia spinosa*), or Mormon's tea (*Ephedra viridis*) are present, they have equal or lower cover. Areas where lower bajada and fan Mojavean-Sonoran desert scrub occurs may experience short frosts during winter, but typically do not experience persistent freezes or snow accumulation. Lower bajada and fan Mojavean-Sonoran desert scrub is found throughout most of the RCIS area except for the mountainous regions along the western border of the RCIS area.

Mojavean-Sonoran desert scrub occupies 217,789 acres (30.8 percent) of the RCIS area (Figure 2-5).

## Western North American Cool Semi-Desert Scrub and Grassland

The western North American cool semi-desert scrub and grassland natural community includes all upland shrub and grassland vegetation within the Western North American Cool Semi-Desert Region, from south-central Alberta through the Great Basin and western margins of the Great Plains to New Mexico, westward to dry-interior southern British Columbia and south through eastern Oregon and interior California, into the mountains of northwestern Baja California, Mexico. It includes extensive shrublands dominated by Great Basin sagebrush, ranging from middle to upper slopes and deep to shallow soils, and extensive sagebrush shrublands.

This natural community includes four land cover types within the RCIS area. It is predominantly found mixed in with California grasslands and meadows in the northwestern portion of the RCIS area and in scattered patches throughout (Figure 2-5).

- Cool semi-desert wash and disturbance scrub
- Inter-mountain dry shrubland and grassland
- Western North America tall sage shrubland and steppe
- Western North American cool semi-desert shrubland, shrub-steppe

### Cool Semi-Desert Wash and Disturbance Scrub

The cool semi-desert wash and disturbance scrub land cover is most common in the mountains of the Mojave Desert in the RCIS area. Stands form when fire or other clearing and disturbance remove stands of sagebrush (in the big sagebrush scrub) or other shrubs.

Cool semi-desert wash and disturbance scrub occupies 43,049 acres (6.3 percent) of the RCIS area (Figure 2-5).

### Inter-Mountain Dry Shrubland and Grassland

The inter-mountain dry shrubland and grassland land cover type occurs in the cooler mountains of the Mojave Desert. It is composed of shrublands with cool desert affinities but segregated from the short and tall species of sagebrush. Most of the vegetation in this land cover type occurs well beyond the eastern borders of California. Perennial desert grasslands are also part of this land cover type and increase with short fire intervals.

Inter-mountain dry shrubland and grassland occupies 8,381 acres (1.2 percent) of the RCIS area (Figure 2-5).

### Western North American Tall Sage Shrubland and Steppe

The western North American tall sage shrubland and steppe land cover type is emblematic of the valleys and lower slopes of the Great Basin Desert and the higher mountains of the Mojave Desert. This land cover type includes the big sagebrush shrubland and shrub-steppe that is a matrix and large-patch type throughout much of the intermountain western United States and is dominated by Great Basin sagebrush and bitterbrush (*Purshia tridentata*).

Western North American tall sage shrubland and steppe occupies 1,693 acres (0.2 percent) of the RCIS area (Figure 2-5).

### Western North American Cool Semi-Desert Shrubland, Shrub-Steppe

The western North American cool semi-desert shrubland, shrub-steppe land cover type includes shrubby cool desert saltbush species that often form distinct bands above closed basins and below extensive sagebrush belts in the Great Basin Desert. This land cover type contains those saltbush scrubs that typically do not grow in strongly saline or alkaline soils but do tolerate higher pH (alkalinity) and often finer soil texture than Great Basin sagebrush and related taxa of sagebrush.

Western North American cool semi-desert shrubland, shrub steppe occupies 12,793 acres (1.9 percent) of the RCIS area (Figure 2-5).

## Vancouverian and Rocky Mountain Grassland and Shrubland

The Vancouverian and Rocky Mountain grassland and shrubland natural community is widespread in the Rocky Mountains cordillera from New Mexico and Colorado north into Canada, and west to high plateaus and mountains in the Colorado Plateau, higher mountain ranges of Nevada, and the Sierra Nevada into the eastern Cascades. It also occurs in the "island ranges" of central Montana. Vegetation is composed of an open to dense perennial graminoid layer that is generally less than 3 feet tall. Characteristic grassland species include Parry's oatgrass (*Danthonia parryi*), timber oatgrass (*Danthonia intermedia*), Arizona fescue (*Festuca arizonica*), Thurber's fescue (*Festuca thurberi*), and mountain muhly (*Muhlenbergia montana*) in montane and subalpine grasslands. Associated graminoid species include pine dropseed (*Blepharoneuron tricholepis*), blue grama (*Bouteloua gracilis*), blue fescue (*Festuca idahoensis*), needle-and-thread grass (*Hesperostipa comata*), slimstem muhly (*Muhlenbergia filiculmis*), and bluebunch wheatgrass (*Pseudoroegneria spicata*).

This natural community includes two land cover types in the RCIS area, primarily along the western border of the RCIS area in the foothills of the San Gabriel Mountains (Figure 2-5).

- Western cordilleran montane-boreal wet meadow
- Western North American temperate grassland and meadow

### Western Cordilleran Montane-Boreal Wet Meadow

The western cordilleran montane-boreal wet meadow land cover type is found in montane and subalpine elevations, occasionally reaching into the lower edges of the alpine elevations at 3,000 to 10,000 feet. This land cover type contains montane meadow grasses, graminoids, and forbs and shrublands associated with meadows, riparian terraces, and seeps in the higher mountains of the state from the Peninsular and Transverse Ranges through the Sierra-Cascade Ranges and including the higher mountains of the Modoc Plateau, the Klamath Mountains, and the high Inner North Coast Ranges. The vegetation tends to make small stands based on moisture availability and on tolerance of disturbance. This concept joins both low riparian shrublands and associated wet meadows based on their overlap in ecologies and floristic composition. Wet meadows can be tightly associated with snowmelt and typically are not subjected to high-velocity disturbance, but they can be flooded by slow-moving waters. Soils are mostly mineral and show typical hydric soil characteristics such as low chroma and redoximorphic features; some areas may have high organic content as inclusions or pockets. Vegetation of this group can manifest as a mosaic of several plant associations, or be a monotypic stand of a single association dominated by graminoids or forbs.

Western cordilleran montane-boreal wet meadow occupies 30 acres (less than 0.1 percent) of the RCIS area (Figure 2-5).

### Western North American Temperate Grassland and Meadow

The western North American temperate grassland and meadow land cover type includes montane and subalpine mesic meadows and drier grasslands in the high plateaus and ranges. This land cover type is dominated by grasses, which are typically not restricted to moisture conditions that are higher than the surrounding landscape (not seeps, riparian areas, or wet meadows). The grasslands occur on flat to rolling plains, in intermontane parks, and on dry side slopes, especially with south and west aspects. They can also occur on gentle slopes with ample early-season seepage. Mesic meadow stands occur in swales that lose their snow cover relatively late in the season. Many occurrences are small patches and are often found in mosaics with woodlands, more dense shrublands, or just below alpine communities. These upland communities occur on gentle to moderate-gradient slopes and in relatively moist habitats. At montane elevations, this macrogroup occurs within Pinus-Pseudotsuga or mixed conifer-dominated forests. At subalpine and low alpine elevations, these meadows are found below the tree line, usually within *Abies lasiocarpa–Picea*-dominated forests, or they extend into the low alpine.

Western North American temperate grassland and meadow occupies 10,517 acres (1.5 percent) of the RCIS area (Figure 2-4).

## Western North American Interior Sclerophyllous Shrubland

The western North American Interior sclerophyllous shrubland natural community occurs between low-elevation desert landscapes and higher subalpine woodlands of the western United States and northern Mexico. The moderate to dense evergreen shrub layer is dominated by sclerophyllous shrubs, especially desert ceanothus (*Ceanothus greggii*), Tucker's oak, and Turbinella oak (*Quercus turbinella*). Scattered pinyon and juniper trees may be present; however, in the western Mojave Desert, California juniper sometimes forms an open, shrubby tree layer with the evergreen oaks and other shrubs, and can even be the sole dominant (as in the upper Santa Clara River area). Stands occur predominantly across central Arizona (Mogollon Rim) and western New Mexico, south into mountains in the northwestern Chihuahuan region and Madrean Occidentale in northern Mexico, and north into extreme southwestern Utah and southern Nevada. It also occurs in mountains in the Sonora and western Mojave Deserts, and extends from northeast Kern County, California south into Baja Norte, Mexico. Stands are found on foothills, xeric mountain slopes, and canyons in hotter and drier habitats and often dominate along the mid-elevation transition zone between desert scrub and montane woodlands.

This natural community is found in small patches near the northwestern border of the RCIS area (Figure 2-4). It contains the following land cover types.

- Warm interior chaparral
- Lower montane chaparral

### Warm Interior Chaparral

The warm interior chaparral land cover type includes all the interior chaparral in the southwestern United States. It is composed of a diverse list of evergreen shrubs such as Greenleaf manzanita (*Arctostaphylos patula*), desert ceanothus, Tucker's oak, and Turbinella oak, which dominate large areas on foothills, xeric mountain slopes, and canyons. These chaparral stands occur in the rain shadow of the mountains including the inland sides of the inner South Coast, the southern Sierra Nevada, Tehachapi, Transverse, and Peninsular Ranges. Compared to California chaparral, the stands are less dense, contain a mix of other non-chaparral shrubs with desert affinities, and tend to have less frequent and less intense fires.

Warm interior chaparral occupies 6,202 acres (0.9 percent) of the RCIS area (Figure 2-4).

### Lower Montane Chaparral

The lower montane chaparral land cover type is found on foothills, xeric mountain slopes, and canyons in hotter and drier habitats. It often dominates along the mid-elevation transition zone between desert scrub and montane woodlands (oak, pine-oak, and ponderosa pine [*Pinus ponderosa*]). Sites are variable but often steep and rocky. Sometimes this group occurs in thickets along upper canyon watercourses and northerly upland slopes in the pinyon-juniper woodland zone.

Lower montane chaparral occupies 109 acres (less than 0.1 percent) of the RCIS area (Figure 2-4).

## Madrean Forest and Woodland

The Madrean forest and woodland natural community is composed of forests, woodlands, and savannas characterized by various species of conifers and deciduous and evergreen broad-leaved trees. These species are usually oaks, junipers, and/or pines that have a Madrean and/or Balconian distribution, in semi-arid to sub-humid, warm-temperate settings in montane areas of southern New Mexico, southeastern Arizona, western Texas, or northern and central Mexico, and in lowland settings in central Texas.

This natural community contains two land cover types along the southwestern border of the RCIS area (Figure 2-6).

- California woodland and forest
- Californian-Vancouverian montane and foothill forest

### California Woodland and Forest

The California woodland and forest land cover type includes all Mediterranean climate woodlands and forests in California from sea level to the point where snow and frost with high winter precipitation enable cool-temperate species of trees to dominate the overstory layer. This land cover type ranges throughout the state west of the deserts and below the higher mountains where snow is the main form of precipitation. This land cover type is limited to the higher elevations in the RCIS area.

California woodland and forest occupies 36,646 acres (5.4 percent) of the RCIS area (Figure 2-6).

### Californian-Vancouverian Montane and Foothill Forest

The California-Vancouverian montane and foothill forest land cover type is representative of the cool-temperate forests in the Pacific states from the Puget Sound area south into the higher mountains of Southern California and adjacent Baja California, Mexico. In California, these range inland from the immediate coast. This land cover type experiences warm, relatively dry summers and cool rainy to cool snowy winters.

California-Vancouverian montane and foothill forest occupies 113 acres (less than 0.1 percent) of the RCIS area (Figure 2-6).

## North American Intermountain Basins Scrub Woodland

The North American intermountain basins scrub woodland natural community includes pinyon pine- and juniper-dominated woodlands, scrub, and savannas that generally occur just above semi-desert shrublands and grasslands or shortgrass prairies and below montane forest vegetation throughout the semi-arid Intermountain West and western Great Plains of North America.

This natural community contains one land cover type found in the RCIS area. This natural community is found in small patches along the southern boundary of the RCIS area in the foothills of the San Gabriel Mountains (Figure 2-6).

- Intermountain basins pinyon-juniper woodland

### Intermountain Basins Pinyon-Juniper Woodland

The intermountain basins pinyon-juniper woodland land cover type includes all mixed and pure pinyon and juniper stands in transmontane California. These are largely found in the mountains of the Mojave Desert and of the Modoc Plateau and Great Basin. They also occur on the eastern slopes of the Sierra Nevada and the Peninsular Ranges and the northern slopes of the Transverse Ranges. The herbaceous layer may be sparse to dense depending on overstory density, substrate, landscape position, and disturbance history, with the densest graminoid layer in open tree savanna. Common graminoid associates include *Stipa comate*, blue fescue, Great basin wild rye (*Elymus cinereus*), Salina wild rye (*Leymus [Elymus] salinus*), bluebunch wheatgrass, muttongrass (*Poa fendleriana*), and pine bluegrass (*Poa secunda*). Forb species may be diverse but typically have low canopy cover values. Pinyon and juniper stands in the RCIS area occur between 3,000 to 4,000 feet on warm, dry sites of foothills and toe slopes.

Intermountain basins pinyon-juniper woodland occupies 1,968 acres (0.3 percent) of the RCIS area (Figure 2-6).

## Western North America Warm Temperate Flooded and Swamp Forest

The western North American warm temperate flooded and swamp forest natural community is dominated by broad-leaved deciduous trees (cottonwoods [*Populus* spp.], sycamores [*Platanus* spp.], and hackberries [*Celtis* spp.]) and palms (*Washingtonia* spp.) that occur along perennial and intermittent rivers, springs, and oases of the California Central Valley, deserts of the southwestern United States, and the Tamaulipan region of south Texas and adjacent Mexico.

This natural community contains one land cover type that occurs in the RCIS area. This natural community is found in small patches of riparian areas east of Lancaster (Figure 2-7).

- Southwestern North American riparian, flooded and swamp forest

### Southwestern North American Riparian, Flooded and Swamp Forest

The southwestern North American riparian, flooded and swamp forest land cover type consists of low-elevation riparian areas throughout the southwestern United States that are dominated by nonnative invasive woody species. These are warm desert riparian forests and thickets with a range of the main indicator trees and shrubs. Most stands occur below 4,000 feet and are replaced by the cool-temperate version of riparian forest in the mountains and on the north coast. Species include Russian olive (*Elaeagnus angustifolia*), saltcedar (*Tamarix chinensis/T. ramossima*), smallflower tamarix (*Tamarix parviflora*). Peruvian peppertree (*Schinus molle*), Brazilian peppertree (*Schinus terebinthifolius*), and mousehole tree (*Myoporum laetum*) and may be present to abundant, but these latter species are not restricted to riparian settings. Sites are typically streambanks and benches, floodplains, and canyons with permanent, intermittent, or temporary water flows.

Southwestern North American riparian, flooded and swamp forest occupies 1,525 acres (0.2 percent) of the RCIS area (Figure 2-7).

## Western North American Freshwater Marsh

The western North American freshwater marsh natural community includes herbaceous marshes and riparian shrublands found throughout canyons and desert valleys of the warm desert regions of the southwestern United States and adjacent Mexico. These desert freshwater marshes consist of low-elevation (lower than 3,500 feet) wetlands where dominant scrub species are honey mesquite (*Prosopis glandulosa*) and velvet mesquite (*Prosopis velutina*), and other shrubs include mulefat (*Baccharis salicifolia*), arrowweed (*Pluchea sericea*), Arroyo willow (*Salix lasiolepis*), and narrowleaf willow (*Salix exigua*). Woody vegetation is relatively dense, especially when compared to drier washes. These wetlands occur along perennial and intermittent streams, lake or playa edges, and alkaline seeps and springs. Vegetation, especially the mesquites, tap into groundwater below the streambed when surface flows stop. Vegetation depends on annual rise in the water table or annual or periodic flooding and associated sediment scour or annual rise in the water table for growth and reproduction.

This natural community is found in small patches along the northwestern border of the RCIS area (Figure 2-7). It contains the following land cover types.

- Western North America wet meadow and low shrub carr
- Western North American freshwater marsh

### Western North America Wet Meadow and Low Shrub Carr

The western North American wet meadow and low shrub carr land cover type is typical of low-lying sites in the mountains and in some lower-elevation valleys and depressions. Saturated soil or standing water through the growing season are key characteristics. Long-persisting standing water tends to convert sites to freshwater marsh. Many wet meadow vegetation types occur in the mountainous areas of the state where cool, snowy winters and short growing seasons prevail. However, there is a warmer winter lower elevation analog and one with invasive exotic species. This land cover type is widespread throughout California wherever freshwater meadows and seeps occur.

Western North America wet meadow and low shrub carr occupies 15 acres (less than 0.1 percent) of the RCIS area (Figure 2-7).

### Western North American Freshwater Marsh

The western North America freshwater marsh land cover type is characterized by fresh water throughout all or most of the growing season. Vegetation is widespread and tends to be tall, emergent forms at lower elevations, but when water depth is more than 3.2 feet, most vegetation is either anchored or floating hydrophytes (e.g., water lilies, duckweed, pondweed). Fresh water occurs along perennial and intermittent streams, lake or playa edges, and alkaline seeps and springs. Vegetation, especially the mesquites, taps into groundwater below the streambed when surface flows stop. Vegetation depends on annual rise in the water table or annual or periodic flooding and associated sediment scour or annual rise in the water table for growth and reproduction. This macrogroup occurs in the warm desert regions of the southwestern United States and adjacent Mexico.

Western North American freshwater marsh occupies 41 acres (less than 0.1 percent) of the RCIS area (Figure 2-7).

## Western North American Interior Alkali-Saline Wetland

The western North American interior alkali-saline wetland natural community consists of alkaline and saline wetlands with salt-tolerant plant growth where dominant and characteristic plant species include *Atriplex* spp., desert saltgrass (*Distichlis spicata*), glasswort (*Salicornia* spp.), greasewood, western sea-purslane (*Sesuvium verrucosum*), alkali sacaton (*Sporobolus airoides*), and Mojave sea-blite (*Suaeda nigra*). These are located in playas, washes, mudflats, and depressional wetlands where evaporation far exceeds precipitation and/or where bedrock and soil properties contribute to alkaline and saline conditions. Sites are found throughout the western United States.

This natural community contains two land cover types found in the RCIS area, primarily north of Lancaster (Figure 2-7).

- Cool semi-desert alkali-saline wetlands
- Warm semi-desert/Mediterranean alkali-saline wetland

### Cool Semi-Desert Alkali-Saline Wetlands

The cool semi-desert alkali-saline wetland land cover type typically has saline/alkaline soils, a shallow water table, and flood or high water table intermittently, seasonally to semi-permanently. Sites may remain dry for most growing seasons or remain wet due to poor drainage. The water table generally remains high enough to maintain vegetation, despite salt accumulations. Some stands occur on floodplains, along the margins of perennial lakes, and in alkaline closed basins, with extremely low-gradient shorelines, and slopes with alkaline springs.

Cool semi-desert alkali-saline wetlands occupy 45,086 acres (6.4 percent) of the RCIS area (Figure 2-7).

### Warm Semi-Desert/Mediterranean Alkali-Saline Wetland

The warm semi-desert/Mediterranean alkali-saline wetland land cover type includes herbaceous and shrubby perennial vegetation associated with saline or alkaline wetlands in the desert or along the upper edges of coastal salt marshes. The overlap between salty desert basins and coastal “high” salt marsh becomes more pronounced to the south in regions where precipitation is only 10 inches per year and solar insulation and evaporation concentrate surface salts to similar levels found on or at the edges of many desert playas. Seeps of fresh or brackish water in either setting account for denser herbaceous growth indicative of one group of alliances in this land cover type, while the evaporative flat pannes and playas of the coast and the desert are the home of phreatophitic shrubby indicators.

Warm semi-desert/Mediterranean alkali-saline wetland occupies 18,959 acres (2.8 percent) of the RCIS area (Figure 2-7).

## North American Mediterranean Rock Outcrop, Scree, and Talus Nonvascular and Sparse Vascular Vegetation

The North American Mediterranean rock outcrop, scree, and talus nonvascular and sparse vascular vegetation natural community supports vegetation in rocky or rocklike habitats (such as cliffs, talus, scree, pavement, cobbles, lava, boulder fields, or badlands) at low elevations at mid-latitudes. It is characterized by nonvascular plant growth forms that have structural adaptations for living on stable rock surfaces or in unstable rocky substrates. A sparse cover of vascular mesomorphic growth forms, including needle-leaved and cold-deciduous broad-leaved woody plants, may be present.

This natural community is found in a few small patches along the eastern border of the RCIS area in the foothills of the San Gabriel Mountains (Figure 2-4). The natural community contains the following land cover type.

- California cliff, scree, and other rock vegetation

### California Cliff, Scree, and Other Rock Vegetation

The California cliff, scree, and other rock vegetation land cover type has vegetation cover that generally covers less than 2 percent of cliffs and outcrops west of the deserts and inland from the immediate coast, south of Central California. Rock surfaces or rapidly eroding, unstable slopes are characteristic. Stands do not include alpine or subalpine sparse, rocky vegetation, or the sparsely vegetated portions of the warm and cold deserts. This land cover type consists of barren and sparsely vegetated substrates from a variety of landscapes across the southwestern United States and northern Mexico in the Chihuahuan, Sonoran, and Mojave Deserts, extending south along coastal areas around the Gulf of California. Vegetation is variable depending on environmental factors of the sites, which range from sea level to subalpine elevations. Lower-elevation sites often have herbaceous or shrub species present, whereas foothill, montane, and subalpine sites may also include trees. Most of the species also occur in non-sparse vegetation groups.

California cliff, scree, and other rock vegetation species occupy 1,030 acres (0.2 percent) of the RCIS area (Figure 2-4).

## North American Warm Semi-Desert Cliff, Scree, and Rock Vegetation

The North American warm semi-desert cliff, scree, and rock vegetation natural community is characterized by the vegetation of rocky or rocklike habitats, including outcrops, cliffs, talus, or scree, in low- to mid-elevation, temperate and boreal climatic areas of western North America. Cryptogam vegetation tends to dominate, with vascular plants species of low cover.

This natural community is found in a few small patches along the eastern border of the RCIS area in the foothills of the San Gabriel Mountains. It contains one land cover type in the RCIS area (Figure 2-4).

- North American warm semi-desert cliff, scree, and other rock vegetation

### North American Warm Semi-Desert Cliff, Scree, and Other Rock Vegetation

The North American warm semi-desert cliff, scree, and other rock vegetation land cover type is characteristic of the desert dunes and contains both annual and perennial species with special strategies to deal with the shifting sands and the dry and unpredictable climate. Vegetation cover is variable depending on unpredictable rainfall patterns. This land cover type consists of near-barren and sparsely vegetated landscapes on a variety of substrates across the southwestern United States and northern Mexico, including Baja California. It is divided into two main groups: pavement, badlands, and outcrops or southwestern North American dunes and sand sheets. Vegetation is variable depending on environmental factors of the sites, which range from sites below sea level to those at foothill and lower montane elevations. Lower-elevation sites often have herbaceous or shrub species present, whereas foothill and lower montane sites may include scattered trees. Most of the tree species also occur in non-sparse vegetation groups.

North American warm semi-desert cliff, scree, and other rock vegetation species occupy 5,892 acres (0.9 percent) in the RCIS area (Figure 2-4).

## Agriculture

The agriculture natural community consists of deciduous orchards, vineyards, and irrigated row and field crops that require soil tillage. Agriculture in Antelope Valley is on a much smaller scale than in surrounding areas. Crops include alfalfa, dry onions, carrots, potatoes, peaches, grapes, and nectarines.

This natural community consists of two land cover types in the RCIS area, mostly to the east of the cities of Palmdale and Lancaster (Figure 2-8).

- Deciduous orchard, vineyard
- Irrigated row and field crops

### Deciduous Orchard, Vineyard

The deciduous orchard, vineyard land cover type is those areas planted in fruit-bearing trees or vineyards. Orchards are usually evergreen or deciduous small trees producing fruit or nut crops, such as peaches and nectarines, usually planted in rows with or without irrigation channels. Orchard is distinguished because of its tree cover, canopy characteristics, and distinctive production rows.

The vineyards are characterized by row production and open canopy. Vines or shrubs, such as vineyards devoted to grapes and shrubby nut or fruit crops, may dominate the woody component on agricultural or horticultural lands.

Deciduous orchard, vineyard occupies 1,796 acres (0.3 percent) of the RCIS area (Figure 2-8).

### Irrigated Row and Field Crops

The irrigated row and field crops land cover type consists of tilled land not supporting orchard or vineyard, and includes hay and pasture. Edible or useful herbaceous products, such as cereals or vegetables for stock or human use, are usually harvested in irrigated or dry rows. Agricultural crop fields are occasionally planted to provide animal forage and to improve nitrogen levels, as with legumes such as alfalfa or sweet clovers (*Melilotus* spp.). This land cover type includes ruderal and barren areas that have been left fallow for several growing seasons. Ruderal sites may be dominated by weedy forbs such as black mustard (*Brassica nigra*) or thistles (*Centaurea* and *Salsola* spp.).

Irrigated row and field crops occupy 34,920 acres (5.1 percent) of the RCIS area (Figure 2-8).

## Urban and Developed

The urban and developed land cover consists of areas where native vegetation has been replaced with residential, commercial, or industrial lands; transportation infrastructure; or other structures, paved and impermeable surfaces, horticultural plantings, turf, and lawn. Vegetation found in the urban and developed land cover type is typically cultivated vegetation associated with landscaped residences, nonnative planted street trees (e.g., elm [*Ulmus* spp.], ash [*Fraxinus* spp.], liquidambar [*Liquidambar* spp.], pine, palm), and parklands.

This land cover in the RCIS is located primarily in the large urban centers of Lancaster and Palmdale (Figure 2-8).

### Urban or Developed

The urban land cover type comprises areas dominated by low- to high-intensity residential, commercial, industrial, transportation, open space, or recreational uses, or other developed land use elements such as highways, city parks, golf courses, and cemeteries. Vegetation found in the urban land cover type is similar to that of the rural residential land cover type, except that these areas are more expansive and include large areas of turf and lawn.

Urban or developed land occupies 80,854 acres (11.8 percent) in the RCIS area, primarily in the cities of Lancaster and Palmdale (Figure 2-8). These areas also include rural development in the western Mojave Desert.

## Water

The water natural community includes open water and aquatic habitats subject to seasonal or perennial flooding or ponding. This natural community may have hydrophytic herbaceous vegetation.

The water natural community includes one land cover type in the RCIS area (Figure 2-7).

- Lacustrine

### Lacustrine

The lacustrine land cover type consists of lakes or lake-like areas and occurs along the California Aqueduct in the southern portion of the western Mojave Desert. This land cover type includes large, open reservoirs managed for water storage, water supply, flood protection, or recreational uses. Plants associated with reservoirs include those plants common to deep water systems. Algae are the predominant photosynthetic organisms found in the open waters of reservoirs. Depending on reservoir temperature, water level, and other environmental conditions, algal blooms may occur, resulting in thick algal mats on the surface of the reservoir. Where reservoir edges are shallow, plant species similar to those found in ponds may be present. If a reservoir has steeper edges, water depth and fluctuations in reservoir height may prevent the establishment of vegetation. Upland and riparian trees that were not removed during the construction of the reservoir, or that were planted afterward, may be present around the perimeter of the reservoir.

Lacustrine areas occupy 4,183 acres (0.6 percent) of the RCIS area (Figure 2-7).

### 2.1.4 Focal Species

*Focal species* are defined by the Program Guidelines as follows.

> Sensitive species that are identified and analyzed in an RCIS and will benefit from conservation actions and habitat enhancement actions set forth in the RCIS. Focal species may benefit through both conservation investments and MCAs..

The conservation actions, including land protection, habitat enhancement, and restoration (Chapter 3, *Conservation Strategy*), are described in the context of the conservation needs for focal species. Therefore, selecting the species that are addressed in this RCIS was one of the first and most important decisions.

#### 2.1.4.1 Selection Process

This section discusses the screening criteria used to select focal species for this Antelope Valley RCIS and the application of those criteria to develop the focal species list. The section also discusses factors to consider when prioritizing species and developing a manageable focal species list to help ensure a cost-effective RCIS process.

The focal species list was developed using a three-step process.

- Step 1. Identify potential focal species.
- Step 2. Apply screening criteria.
- Step 3. Prioritize and finalize focal species list.

##### Step 1. Identify Potential Focal Species

The first step in the selection process was to compile a comprehensive list of declining and vulnerable species that occur or may occur in the RCIS area. This list was compiled by reviewing a variety of publicly available sources. The initial list included those taxa identified as species of greatest conservation need in the California SWAP (California Department of Fish and Wildlife 2015) and species that have documented occurrences in the California Natural Diversity Database (CNDDB) (California Department of Fish and Wildlife 2017b).

The following sources were also considered in developing the focal species list.

- Species proposed for coverage in the *Draft Desert Renewable Energy Conservation Plan and Environmental Impact Report/Environmental Impact Statement* (DRECP) (California Energy Commission et al. 2014).
- Species proposed for coverage by the proposed Apple Valley Multiple Species Habitat Conservation Plan (Apple Valley 2017).
- California Native Plant Society *Inventory of Rare and Endangered Vascular of California* (California Native Plant Society 2017a).
- CDFW lists of special animals (California Department of Fish and Wildlife 2020b).
- U.S. Fish and Wildlife Service (USFWS) federally listed endangered and threatened species for the RCIS area.

- Personal communication with local species experts, including wildlife agency staff and representatives of local environmental groups.

Potential focal species may also include species that are not necessarily declining or vulnerable species, but that inform the conservation strategy in ways that declining species cannot. These species, called planning species, may include area-dependent species, umbrella species, indicator species, and keystone species. Each category of planning species is defined below.

- **Area-dependent species.** The species requires large, contiguous blocks of habitat and may therefore inform the placement of protected areas on the landscape for wildlife connectivity and other landscape-scale processes.
- **Umbrella species.** Conservation of an umbrella species would indirectly conserve multiple other species dependent on the same ecological conditions.
- **Indicator species.** The species' abundance in a given area is believed to indicate certain environmental or ecological conditions or suitable conditions for a group of other species. This may include species that are particularly sensitive to climate change.
- **Keystone species.** The species' impacts on the community or ecosystem are much larger than would be expected from the species' abundance.

## Step 2. Apply Screening Criteria

Once the potential focal species were identified, the following criteria were applied to each of the species. To be considered a focal species, the species should meet all three criteria.

- **Status.** The species is listed by state or federal resource agencies as threatened or endangered, or is a candidate for such listing; is reasonably expected to be considered for listing in the future; or is considered highly vulnerable or at risk by a recognized leading organization such as the California Native Plant Society. If the species does not meet the status criteria, then it has conservation value as a planning species (e.g., area-dependent, umbrella, indicator, or keystone species).
- **Occurrence.** The species is known or likely to occur in the RCIS area. Occurrence data should be based on credible evidence. Some potential focal species may not be present in the RCIS area at the time the RCIS is developed but could be reasonably expected to expand their range into the RCIS area within 10 years.[5]
- **Data.** Drawing on best available science and emerging data, sufficient data on the species' life history, habitat requirements, and occurrence within the RCIS area are available to propose viable conservation actions.

## Step 3. Prioritize and Finalize Focal Species List

The final step in the focal species selection process is prioritization. The species were prioritized for inclusion on the focal species list based on the following factors.

- **Status.** Species that are state or federally listed or candidates for listing are prioritized over declining or vulnerable species that are not listed or candidate species. Non-listed species are

[5] CDFW approval of each RCIS is valid for 10 years. After 10 years, RCISs can be updated and approved again to extend their authorization for another 10 years.

prioritized based on their likelihood of being listed in the near future. This criterion assumes that listed species are at a higher risk of extinction than other species and therefore are in greater need of conservation.

- **Importance of RCIS area to the species.** Species are prioritized as focal species based on the importance of the RCIS area to the species. For example, a species with a range that is wholly or mostly included in the RCIS area is prioritized over a species for which the RCIS area is only a small fraction of its range. Species with designated critical habitat or core recovery areas within the RCIS area are also prioritized as focal species.
- **Alignment with other regional conservation goals.** Focal species are prioritized if their conservation aligns with conservation goals outlined in other regional or statewide strategies (e.g., SWAP, local habitat conservation plans, or natural community conservation plans).

The resulting focal species of this Antelope Valley RCIS are noted in Table 2-3.

**Table 2-3. Antelope Valley RCIS Focal Species**

| | | Status[1] | | |
|---|---|---|---|---|
| **Common Name** | **Scientific Name** | **Federal** | **State** | **Global** |
| **Plants** | | | | |
| Alkali mariposa-lily | *Calochortus striatus* | – | 1B.2 | G3 |
| California juniper | *Juniperus californica* | – | – | G4 |
| Joshua tree | *Yucca brevifolia* | – | SC(PT) | G4 |
| Spreading navarretia | *Navarretia fossalis* | T | 1B.1 | G2 |
| Short-joint beavertail | *Opuntia basilaris* var. *brachyclada* | – | 1B.2 | G5T3 |
| **Reptiles** | | | | |
| Coast horned lizard | *Phrynosoma blainvillii* | – | SSC | G3G4 |
| Desert horned lizard | *Phrynosoma platyrhinos calidiarum* | – | – | G5 |
| Agassiz's desert tortoise | *Gopherus agassizii* | T | T | G3 |
| Western pond turtle | *Emys marmorata* | UR | SSC | G3G4 |
| **Birds** | | | | |
| Burrowing owl | *Athene cunicularia hypogea* | – | SSC | G4 |
| California condor | *Gymnogyps californianus* | E | E, FP | G1 |
| Golden eagle | *Aquila chrysaetos* | BGEPA | FP | G5 |
| Le Conte's thrasher | *Toxostoma lecontei* | – | [2] | G4 |
| Least Bell's vireo | *Vireo bellii pusillus* | E | E | G5T2 |
| Loggerhead shrike | *Lanius ludovicianus* | – | SSC | G4 |
| Long-billed curlew | *Numenius americanus* | – | – | G5 |
| Mountain plover | *Charadrius montanus* | – | SSC | G3 |
| Northern harrier | *Circus hudsonius* | – | SSC | G5 |
| Prairie falcon | *Falco mexicanus* | – | – | G5 |
| Swainson's hawk | *Buteo swainsoni* | – | T | G5 |
| Tricolored blackbird | *Agelaius tricolor* | – | T | G2G3 |
| Willow flycatcher | *Empidonax traillii* | – | E | G5 |
| **Mammals** | | | | |
| American badger | *Taxidea taxus* | – | SSC | G5 |

| Common Name | Scientific Name | Status[1] Federal | State | Global |
|---|---|---|---|---|
| Desert kit fox | *Vulpes macrotis arsipus* | – | FBM | G4 |
| Mohave ground squirrel | *Xerospermophilus [Spermophilus] mohavensis* | – | T | G2G3 |
| Mountain lion | *Felis concolor* | – | SC(PT) | G5 |
| Tehachapi pocket mouse | *Perognathus alticolus inexpectatus* | – | SSC | G1G2T1T2 |

[1] Status:

**Federal**
E = listed as endangered under the federal Endangered Species Act.
T = listed as threatened under the federal Endangered Species Act.
BGEPA = protected under the Bald and Golden Eagle Protection Act
UR = Species that have been petitioned for listing and for which a 90-day finding has not been published or for which a 90 day substantial has been published but a 12 Month finding have not yet been published in the Federal Register.
– = no listing.

**State**
**(California Department of Fish and Wildlife November 2020b, Special Animals List; available at https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=109406)**
E = listed as endangered under the California Endangered Species Act.
T = listed as threatened under the California Endangered Species Act.
SC = listed as a candidate species, which is a species for which the California Department of Fish and Wildlife has on file sufficient information to warrant a listing.
SC(PT)= listed as a candidate – petitioned for threatened status
SSC = listed as a California species of special concern by the California Department of Fish and Wildlife
FP = listed as a fully protected by the California Department of Fish and Wildlife
– = no listing.
FBM = Protected under California Code of Regulations Title 14, Section 460 as a Fur-bearing Mammal

**Global Conservation Status (Definitions from NatureServe 2021; available at https://explorer.natureserve.org/AboutTheData/Statuses)**
G1 = critically imperiled: high risk of extinction due to extreme rarity (often 5 or fewer populations)
G2 = imperiled: high risk of extinction due to very restricted range, very few populations (often 20 or fewer populations)
G3 = vulnerable: moderate risk of extinction due to restricted range and very few populations (often 80 or fewer populations)
G4 = apparently secure: uncommon but not rare
G5 = secure: common, widespread, and abundant
G#G# = range rank: numeric range rank (e.g., G2G3) is used to indicate the range of uncertainty in the status of a species or community.
Q = questionable taxonomy: taxonomic distinctiveness of this entity at the current level is questionable; resolution of this uncertainty may result in change from a species to a subspecies or hybrid.
T# = infraspecific taxon: the status of infraspecific taxa (subspecies or varieties) is indicated by a “T-rank” following the species’ global rank.

Rules for assigning T-ranks follow the same principles outlined for global conservation. For example, the global rank of a critically imperiled subspecies of an otherwise widespread and common species would be G5T1.

**California Rare Plant Rank (California Native Plant Society 2021); available at http://www.cnps.org/cnps/rareplants/ranking.php)**
1B = plants rare, threatened, or endangered in California and elsewhere.
0.1 = seriously threatened in California (over 80% of occurrences threatened/high degree and immediacy of threat)
0.2 = moderately threatened in California (20 to 80% of occurrences threatened/moderate degree of immediacy of threat)

[2] SSC status is specific for the San Joaquin Valley population

## 2.1.4.2 Species Occurrence Data

Species occurrence data are important in understanding the distribution of species in the RCIS area. The occurrence data were derived from several sources. The use of data from multiple sources collected at different times, spatial scales, and for different purposes can result in an unsystematic and spatially biased occurrence data set. Sampling effort is, as expected, not equal across the RCIS area and is generally higher where access is easier. Therefore, these data do not represent a comprehensive survey for the entire RCIS area. Regardless, the data do provide important locations where sensitive species have been found and are known to occur.

The polygon version of the CNDDB (California Department of Fish and Wildlife 2017b) provided the majority of occurrence data. It was augmented by point occurrence data, validated by species experts, from USFWS, eBird, and HerpMapper (Table 2-4).

**Table 2-4. Species Occurrence Data**

| Data Layer | Data Description |
|---|---|
| Audubon and Cornell Lab of Ornithology eBird Database | Documented and reported bird species occurrences. (August 2016)<br>Source: Audubon and Cornell Lab of Ornithology 2017. |
| HerpMapper Data | Common and rare or sensitive herpetological species documented by experts and HerpMapper partners (September 2016).<br>Source: HerpMapper 2016. |
| CDFW (BIOS and CNDDB) | Documented and reported occurrences of sensitive and special-status animal species within the study area from the California Natural Diversity Database (CNDDB). These data are also available to view with the Biogeographic Information and Observation System (BIOS). (January 2017)<br>Source: California Department of Fish and Wildlife 2017c . |
| BISON species occurrence data | U.S. Geological Survey Biodiversity Information Serving Our Nation (BISON) 2017. |
| USFWS Carlsbad species occurrence data | Known occurrence and point data of sensitive species tracked and identified by the USFWS Carlsbad office.<br>Source: U.S. Fish and Wildlife Service 2017. |

CDFW = California Department of Fish and Wildlife; CNDDB = California Natural Diversity Database; USFWS = U.S. Fish and Wildlife Service

## 2.1.4.3 Species Habitat Distribution Modeling

Species habitat distribution models can be used to evaluate the distribution of potentially suitable habitat and conservation options at a landscape scale when it is not feasible to conduct comprehensive species surveys. Species habitat distribution models tend to be conservative (i.e., to over-predict habitat), and the results generally include areas beyond the actual distribution of species. Furthermore, not all of the predicted suitable habitat is expected to be occupied by a given species at any one time because population dynamics of species affect their local distribution over space and time. In addition, small-scale habitat features not mapped in the GIS database can affect the ability to predict the actual suitability of habitat.

While it is important to be aware of these limitations, species modeling can provide an objective, transparent, and repeatable means of assessing species habitat distribution where the species or suitable habitat distribution are not well known. Species habitat distribution modeling improves the RCIS planning process in the following ways.

- Extrapolates habitat distribution across areas lacking adequate data from field surveys.
- Transcends the limitations of the "snapshot in time" effect that survey data represent.
- Synthesizes and analyzes multiple data sources across the entire RCIS area.
- Supports the identification and ranking of biological values between areas.

Two types of models are typically used in conservation planning applications: expert-based models and statistically based models. Expert-based models identify species-specific habitat distribution based on scientific literature and expert opinion related to the physical and biological habitat parameters associated with species occurrence. Expert-based models are appropriate where species occurrence data are not sufficient to conduct more rigorous statistical modeling, where species occurrence data are strongly biased spatially across a plan area, or during the initial exploratory analyses of environmental factors associated with species occurrence. Statistically based models identify potentially suitable habitat and may even predict the likelihood of species occurrence based on correlations between presence/absence data and physical and biological habitat parameters. A combination of expert-based models and statistically based models are used in this Antelope Valley RCIS to identify areas of higher probability for species presence or, in other words, high probability of suitable conditions for a species in the RCIS area.

Maps showing the potentially suitable habitat for all species are included in Appendix F. The sources of existing species distribution models for focal species are listed in Table G-1 (Appendix G, *Modeling Methodology*, describes species modeling methods).

As described below and summarized in Table 2-5:

- Seventeen focal species models were created using statistical methods that were further refined to depict where each species is most likely to occur on the landscape.
- Five focal species models were created as expert models.
- Two focal species were field mapped directly in the land cover mapping.
- Two focal species (western pond turtle [*Emys marmorata*] and spreading navarretia [*Navarretia fossalis*]) lacked enough occurrence data to create species distribution models; therefore, evaluation of the species in the RCIS is based on occurrence data only.

Most of the statistical models were originally created by the University of California, Santa Barbara and were included in the DRECP. Conservation Biology Institute (CBI) created new statistical species distribution models for four of the focal species: desert kit fox (*Vulpes macrotis arsipus*), desert horned lizard (*Phrynosoma platyrhinos calidiarum*), long-billed curlew (*Numenius americanus*), and Tehachapi pocket mouse (*Perognathus alticolus inexpectatus*). For these, MaxEnt (Version 3.3.3k; Phillips et al. 2006) was used to estimate the relative habitat suitability for a species as a function of environmental predictor variables and observation records at 270-meter resolution. See Appendix G, *Modeling Methodology*, for more details. All statistical models were masked using the updated land use/land cover dataset to remove areas clearly not habitat, such as playas, urban, and major disturbed areas (e.g., large mines). CBI also created new expert species distribution models for three focal species: golden eagle (*Aquila chrysaetos*), Swainson's hawk (*Buteo swainsoni*), and short-joint beavertail(*Opuntia basilaris var. brachyclada*). The modelling methods are described in Appendix G.

Areas mapped as habitat in Appendix F and summarized in tables throughout this RCIS are referred to generally as areas of Potentially Suitable Habitat. As noted above, the areas of potentially suitable habitat were derived from several different species distribution modelling methods and direct mapping methods.

**Table 2-5. Potentially Suitable Habitat Data Types for 25 Focal Species**

| Statistical Model | Expert Model | Mapped Distribution | Occurrence Data Only |
|---|---|---|---|
| American badger | Short-joint beavertail* | California juniper | Spreading navarretia |
| Alkali mariposa-lily | Golden eagle | Joshua tree | Western pond turtle |
| Burrowing owl | Mountain plover | | |
| Coast horned lizard | Swainson's hawk* | | |
| Desert horned lizard* | Mountain lion | | |
| Desert kit fox* | California condor | | |
| Agassiz's desert tortoise | | | |
| Least Bell's vireo | | | |
| Long-billed curlew* | | | |
| Le Conte's thrasher | | | |
| Loggerhead shrike | | | |
| Mohave ground squirrel | | | |
| Northern harrier | | | |
| Prairie falcon | | | |
| Willow flycatcher | | | |
| Tehachapi pocket mouse | | | |
| Tricolored blackbird | | | |

* New species distribution model created by Conservation Biology Institute

In summary, for each of the 17 species mapped using statistical methods, three datasets were created.

- The original DRECP or a new species distribution model
- A version of the species distribution model showing only high probability of occurrence (see Appendix G)
- Species focal areas, as described above

For the three species that used an expert model for which point location data were available, two datasets were created.

- The expert model
- Species focal areas

In addition to helping understand the potential distribution of each focal species in the RCIS area, the modeled or mapped species distributions were also used in mapping the biological values in the RCIS area (Section 3.2.1.1, *Focal Species Habitat Groups*), and displaying the high conservation value areas for each species (Section 3.2.3, *Mapping Conservation Value*).

## 2.1.4.4 Model Uses and Limitations

The precision of the habitat distribution models to predict potentially suitable habitat is limited by several factors, including minimum mapping units of the underlying land cover datasets resulting in areas of suitable habitat smaller than the mapping thresholds not being mapped and therefore not possible to incorporate into the models. This constraint limits the degree of resolution of some habitat features potentially important to some species. This presents challenges in particular for focal plant species, which are often associated with unmapped microhabitats such as swales, ditches, or rock outcrops smaller than the minimum mapping unit.

The habitat distribution models are intended to be used only for planning purposes at the scale of the RCIS area. The use of these models and the resulting maps of potentially suitable habitat by project applicants is voluntary. The models impose no regulatory requirements. If used for site planning, the models should only be used as a guide. All species' habitat and occurrences should be verified in the field. Occurrence data are incomplete and limited by where field surveys have been conducted. Some occurrence points may also be geographically general or inaccurate.

## 2.1.4.5 Focal Species Profiles

The following species profiles summarize the regulatory status, species range, habitat requirements, and distribution in the RCIS area for each focal species, sufficient for the analysis in the RCIS. The information provided in the species profiles is not intended to provide a comprehensive summary of the biology and ecology of each focal species. A summary of the historical, current, and projected future stressors and pressures in the RCIS area, including climate change vulnerability, on the focal species is provided in Section 2.3, *Pressures and Stressors on Focal Species and other Conservation Elements*.

### Alkali Mariposa-Lily (*Calochortus striatus*)

#### Status and Range

Alkali mariposa-lily (*Calochortus striatus*) is not currently federally listed under the federal Endangered Species Act (ESA) or state-listed under the California Endangered Species Act (CESA). It has a California Rare Plant Rank of 1B.2 (Rare, Threatened, or Endangered in California and Elsewhere) and is listed on CDFW's 2021 List of Special Vascular Plants, Bryophytes, and Lichens. It was included as a focal species in this Antelope Valley RCIS as an indicator species for seasonally moist alkaline habitats such as alkaline meadows and seeps and ephemeral washes. The species is mainly found in California, but its range extends a short distance into southern Nevada. Within California, the species occurs in the southern Central Valley and Mojave Desert. Within the RCIS area, the species occurs in lowland areas of Antelope Valley.

#### Habitat

Alkali mariposa-lily grows in seasonally moist alkaline habitats such as alkaline meadows and seeps, and ephemeral washes, within chaparral, chenopod scrub, and Mojavean desert scrub (California Native Plant Society 2017; California Department of Fish and Wildlife 2021; Jepson Flora Project 2017). Alkali mariposa-lily grows in calcareous sandy soil (Fiedler 1985 cited in Greene and Sanders 2006). This species is frequently found on clay pans and near sand dunes in the western portion of its range (Edwards Air Force Base 2002), and is also found in saltgrass meadows at large spring complexes situated in the eastern part of its range (i.e., Paradise, Rabbit and Cushenbury Springs). Occasional flooding or partial seasonal inundation is important to alkali mariposa-lily persistence (Edwards Air Force Base 2002). This flooding or inundation is often through groundwater expression as opposed to surface water pooling, and the species has been reported as absent from areas with surface salts or with permanent standing surface water (Greene and Sanders 2006). This species inhabits elevations from 224 to 5,240 feet (Bureau of Land Management 2010; California Department of Fish and Wildlife 2021).

#### Distribution in the RCIS Area

There are 59,098 acres of potentially suitable habitat for alkali mariposa-lily in the RCIS area (Appendix F-1). Potentially suitable habitat is concentrated in the north-central portion of the RCIS area, extending south and west from Rosamond Lake north of Lancaster.

### California Juniper (*Juniperus californica*)

#### Status and Range

The California juniper is not currently listed under the ESA or CESA. Juniper woodland has not been identified as a conservation target in the Mojave Desert Ecoregion in the SWAP. It is included as a focal species in this Antelope Valley RCIS as an umbrella species to benefit many species in the RCIS area dependent on its vegetation community, including loggerhead shrike (*Lanius ludovicianus*), prairie falcon (*Falco mexicanus*), golden eagle, and coast horned lizard (*Phrynosoma blainvillii*). The species is mainly found in California, but its range extends through most of Baja California and a short distance into southern Nevada and western Arizona. Within the state, California juniper is found at moderate elevations in the Peninsular, Transverse, and Coast Ranges, as well as within the Sacramento Valley and Sierra Nevada foothills. California juniper is found primarily along the southern and western edges of the RCIS area at elevations above 2,500 feet. It often co-occurs with Joshua tree in Mojave Desert environments.

#### Habitat

The species is adapted to one of the driest habitats in which any species in the genus *Juniperus* can survive well. It is locally common in desert scrubland of the Colorado, Mojave, and Sonoran Deserts but extends into chaparral and open woodland in somewhat more mesic sites, which often occur nearer the Pacific coast. Its elevation range is 200 to 5,000 feet. In semi-desert vegetation its common associates are Joshua tree, Mojave yucca (*Yucca schidigera*), desert agave (*Agave deserti*), mountain yucca, cholla (*Cylindropuntia* spp.), and prickly pear (*Opuntia* spp.), with creosote bush in the lower, hotter basins, and, Great Basin sagebrush, and rubber rabbitbrush (*Ericameria nauseosus*) in cooler uplands. In pine-juniper woodlands a codominant is *Pinus monophylla* and associates include oak , desert ceanothus, *Ceanothus cuneatus leucodermis*, Greenleaf manzanita *Arctostaphylos patula*, and in some areas California flannelbush (*Fremontodendron californicum*). In the RCIS area, California juniper often co-occurs with Joshua tree, but is frequently the sole dominant plant in areas such as the upper Santa Clara River watershed (southern RCIS boundary). The California juniper can occur on barren serpentine or among granite boulders, but is not found in rock crevices because it needs (coarse) alluvial material to spread its roots. In much of its range there is a long, dry summer period and rains occur only in winter. In some interior desert valleys, rain is erratic and the junipers may be associated with deeper water sources in alluvial fans.

### Distribution in the RCIS Area

There are 31,810 acres of potentially suitable habitat (based on mapped California juniper habitat rather than modelling) in the RCIS area (Appendix F-2). California juniper communities mostly occur in the foothills and toe slopes in the southern RCIS area.

## Joshua Tree (*Yucca brevifolia*)

### Status and Range

The Joshua tree is not listed under the ESA but is a candidate for listing as threatened under the CESA. Joshua tree is included as a focal species in this Antelope Valley RCIS because of its role in benefiting many species in the RCIS area that occur in Joshua tree woodland, including loggerhead shrike, Swainson's hawk, American badger (*Taxidea taxus*), Mohave ground squirrel (*Xerospermophilus* [*Spermophilus*] *mohavensis*), and Tehachapi pocket mouse. Joshua tree woodland has not been specifically identified as a conservation target in the Mojave Desert Ecoregion of the SWAP but is included in the Desert Scrub conservation target. The species is found in California and a short distance into southern Nevada and western Arizona. Within California, Joshua tree woodland coincides closely with the Mojave Desert Ecoregion. The species is common throughout the Antelope Valley RCIS area but is found in higher concentrations along north-facing slopes. The species developed in the ice ages of the Pleistocene, and higher densities in areas with the higher moisture and cooler habitat of north-facing slopes may be a consequence of this origin.

### Habitat

Joshua tree habitats generally occur at moderate elevations in the Mojave Desert between creosote bush scrub and pinyon-juniper woodlands. At lower elevations, Joshua trees intergrade with desert scrub, alkali scrub, and desert succulent shrub. At higher elevations, Joshua trees interface with pinyon-juniper and sagebrush (Thorne 1976). Joshua tree habitats also may be adjacent to desert riparian and desert wash habitats in the elevational zone inhabited by Joshua trees. Because Joshua trees are the only sizable trees in many Joshua tree habitats, this species characterizes the desert scrub habitat in the Antelope Valley RCIS. Joshua trees and other related yuccas are all dependent on a mutual relationship with a moth specific to each yucca species for reproduction. Populations need contiguity with one another to maintain the genetic viability of both the moths and the yuccas including Joshua trees. The small, pollinating moths have been determined to have very limited abilities for long-range flight (Lenz 2001). Joshua trees may also provide song perches, lookout posts, and nest sites for birds. The sharp, spiny leaves provide protective havens for birds and lizards.

### Distribution in the RCIS Area

There are 43,738 acres of potentially suitable habitat (based on mapped Joshua tree vegetation community rather than modelling) in the RCIS area (Appendix F-3). Patches occur throughout the RCIS area, concentrated in the western portion near Highway 138 between 140th W and 220th W Streets. In the eastern part of the Antelope Valley RCIS, Joshua trees are scattered broadly throughout the Antelope Valley floor with concentrations southwest of Palmdale Regional Airport, around Saddleback Butte, and on the toe slopes of the San Gabriel Mountains in the southeastern area of the Antelope Valley RCIS area. The areas with very few Joshua Trees are alkali flats, which are concentrated near the north-central portion of the Antelope Valley RCIS area.

## Spreading Navarretia (*Navarretia fossalis*)

### Status and Range

Spreading navarretia is listed as threatened under the ESA as threatened but has no state listing status under the CESA. It has a California Rare Plant Rank of 1B.1 (Rare, Threatened, or Endangered in California and Elsewhere). Spreading navarretia has not been identified as a conservation target in the Mojave Desert Ecoregion in the SWAP. The species is found in Southern California and Baja California, Mexico. Within California, the occurrence of the species is restricted to portions of the Mojave Desert and South Coast ecoregions. Within the RCIS area, the species is known from a small number of populations on the northern slopes of the Transverse Ranges west of Lancaster and near Fairmont Butte in vernal pools.

### Habitat

Spreading navarretia is an annual herb and occurs in vernal pool and alkali playa habitat in Southern California and in Baja California, Mexico. Spreading navarretia is dependent on the ephemeral inundation cycle found in vernal pool habitat and playas, but may also occur in human-made depressions and ditches that have the same hydrological dynamics. Plants usually flower in May and June because vernal pools must be devoid of standing water before plants begin to flower.

### Distribution in the RCIS Area

There are two documented occurrences of spreading navarretia in the RCIS area near the northwestern corner of the Antelope Valley California Poppy Preserve (Appendix F-4).

## Short-Joint Beavertail (*Opuntia basilaris* var. *brachyclada*)

### Status and Range

The short-joint beavertail is not currently federally listed under the ESA or state-listed under the CESA. It has a California Rare Plant Rank of 1B.2 (Rare, Threatened, or Endangered in California and Elsewhere). Short-joint beavertail occurs very sporadically on the northern slopes of the San Gabriel Mountains, as well as on northern slopes of the northernmost Castaic Ranges, such as the Portal Ridge vicinity. It occurs from Quigley Canyon and ranges east-northeast to the Anaverde Valley west of Palmdale. From there, it appears to follow the San Andreas rift zone to the Cajon Pass, although it departs somewhat from the rift zone near Mill Creek Summit within the Angeles National Forest. It occurs mostly at elevations between 3,000 and 6,500 feet. CNDDB reports for short-joint beavertail have very little information on population sizes within the RCIS area and there is no information on trend at reported sites. In 1989, Myers (California Department of Fish and Game 1997) reported four locations at City Ranch in the Anaverde Valley west of Palmdale. One of these locations had 300 plants, while another had 12. There are no further population data for these locations, nor are there counts for the other two Anaverde populations. A population with at least 23 individuals was found south of Palmdale near an airstrip in an area a developer retained as natural open space (Bureau of Land Management 2005b), but there is no current information on the status of that population.

### Habitat

Short-joint beavertail is known to occur in chaparral, Joshua tree woodland, Mojave Desert scrub, and pinyon-juniper woodland communities at elevations of 3,000 to 6,500 feet. Throughout much of the RCIS area it is commonly associated with Joshua tree, California juniper, Tucker's oak, desert ceanothus , California buckwheat (*Eriogonum fasciculatum* var. *polifolium*), pinyon pine, purple sage (*Salvia dorrii*), and linear-leaved goldenbush (*Ericameria linearifolia*). It has also been reported from a wide variety of soils, from sandy to rocky, in open streambeds and on rocky slopes (Bureau of Land Management 2005b).

#### Distribution in the RCIS Area

There are 20,526 acres of potentially suitable habitat for the short-joint beavertail modeled in the RCIS area (Appendix F-5). Habitat distribution in the RCIS area appears concentrated along the southwestern boundary of the RCIS area in the foothills of the San Gabriel and Castaic Mountains, closely associated with California juniper distribution.

### Coast Horned Lizard (*Phrynosoma blainvillii*)

#### Status and Range

The coast horned lizard is not listed under the ESA or CESA, but is designated as a California Species of Special Concern. As the name implies, the coast horned lizard is found primarily in coastal areas of the southwestern coast of the United States and the Baja Peninsula of northwestern Mexico. The coast horned lizard has a limited distribution within the RCIS area (Section 2.3, *Pressures and Stressors on Focal Species and Other Conservation Elements*).

#### Habitat

The coast horned lizard is found in a wide variety of habitats within its range (University of California, Davis 2011). These habitats can include various scrublands, grasslands, coniferous and broadleaf forests, and woodlands. It can range from the coast to elevations of 6,000 feet in the Southern California mountains (California Department of Fish and Game 2000). It is most common in mid-elevations of the coastal mountains and valleys within open habitats that offer good opportunities for sunning. In the RCIS area, suitable habitat is found in the foothills of the San Gabriel Mountains. It is often associated with sandy soils in which it will bury itself; these often support ant colonies (Behler and King 1979).

#### Distribution in the RCIS Area

There are 17,861 acres of potentially suitable habitat for the coast horned lizard modeled in the RCIS area (Appendix F-6). Habitat distribution in the RCIS area is concentrated around Portal Ridge with smaller patches occurring in the toe slopes of the San Gabriel Mountains along the southeastern border of the RCIS area.

### Desert Horned Lizard (*Phrynosoma platyrhinos calidiarum*)

#### Status and Range

The desert horned lizard is not listed under the ESA or CESA, and does not have special conservation status in California. In the RCIS area, they are threatened by expanding human development and associated stressors. The desert horned lizard has not been identified as a conservation target in the Mojave Desert Ecoregion in the SWAP. The species is included as an RCIS focal species as an indicator planning species because of its dependence on intact desert habitats. In California, this subspecies is found throughout the Colorado and Mojave Deserts, east and north of the southern mountain ranges to the Colorado River and Baja California border, and north through the Owens

Valley to near the Nevada border (CalHERPS 2017). Desert horned lizards are primarily found at lower elevations in Antelope Valley, in the central to northern portion of the RCIS area.

#### Habitat

Desert horned lizards are found in desert areas where patches of sand are generally present, including alluvial fans, dry washes, sandy flats, and at the base of sand dunes (Marangio 2000). Associated vegetation includes cacti, creosote, saltbush, and other desert shrubs. Greater shrub cover, an open understory, and greater cover by cryptobiotic soil crusts are high predictors of desert horned lizard occurrences (Newbold and MacMahon 2014).

#### Distribution in the RCIS Area

There are 25,323 acres of potentially suitable habitat for the desert horned lizard modeled in the RCIS area (Appendix F-7). Habitat is dispersed throughout the desert habitats of the eastern portion of the RCIS area, including around Alpine Butte and Lovejoy Buttes.

### Agassiz's Desert Tortoise (*Gopherus agassizii*)

#### Status and Range

Agassiz's desert tortoise (*Gopherus agassizii*) is listed as threatened under both the ESA and CESA. Line distance sampling, long-term study plots, and other studies demonstrate appreciable declines at the local level in much of the western Mojave Desert. The identified downward trend of the species in the western portion of its range has been found valid and is ongoing (U.S. Fish and Wildlife Service 2011). Agassiz's desert tortoise has been identified as a conservation target in the Mojave Desert Ecoregion in the SWAP. Generally, the Agassiz's desert tortoise range extends from the desert areas of California south of the San Joaquin Valley, eastward across the Mojave Desert into southern Nevada, the extreme southwestern corner of Utah (the Beaver Dam Slope), and the extreme northwestern corner of Arizona (U.S. Fish and Wildlife Service 2008). Agassiz's desert tortoise is currently found only within a very small area in the northeastern corner of the RCIS area.

#### Habitat

Agassiz's desert tortoise can be found in a wide variety of habitats, such as alluvial fans, washes, canyons, and saltbush plains (Coachella Valley Conservation Commission 2007). Whereas Agassiz's desert tortoises in the Mojave Desert are commonly associated with creosote bush scrub on alluvial fans and bajadas (U.S. Fish and Wildlife Service 2014), they can also be found in saltbush scrub, Joshua tree woodland, and even in some Juniper woodlands. The presence of shrubs that provide adequate thermoregulatory cover, friable soils in which to burrow, and shrub interspaces that support annual plant growth are critical habitat components. Shrubs not only supply shade for the tortoises during hot weather, but the roots provide support and protection for tortoise burrows.

Habitat loss and fragmentation are substantial factors in reducing tortoise numbers (U. S. Bureau of Reclamation 2008). Residential and infrastructure development, particularly within the expanding Antelope Valley communities of Lancaster and Palmdale, has dramatically reduced and fragmented tortoise habitat. Furthermore, human uses and activities have considerable indirect effects on Agassiz's desert tortoise, such as common raven and coyote provisioning. These subsidized scavengers are known to prey upon tortoises, especially in dry years. Human infrastructure and recreational vehicle use have also increased the presence and extent of certain invasive plant species, which over time degrade tortoise habitat. Further infrastructure and residential development are anticipated to act as barriers to tortoise movement and fragment dwindling tortoise populations. They also cause tortoise mortality. Models have shown that physically isolated populations are more likely to be extirpated by stochastic, demographic, and/or genetic consequences.

### Distribution in the RCIS Area

There are 80,678 acres of potentially suitable habitat for the Agassiz's desert tortoise modeled in the RCIS area (Appendix F-8). Tortoises are currently known to occur in the northeastern corner of the RCIS area, including within a small portion of critical habitat designated for the species.

## Western Pond Turtle (*Emys marmorata*)

### Status and Range

The western pond turtle Is not listed is not listed under the ESA though its' federal status is under review and petitioned action may be warranted. This species is not listed under the CESA, but is designated a California Species of Special Concern. Abundance within groups is highly variable, but most Southern California populations, particularly within the Los Angeles basin, have seen precipitous declines in recent years. Western pond turtle has been identified as a conservation target in the Mojave Desert Ecoregion of the SWAP. Western pond turtles are found from the Pacific coast inland to the interior foothills from Baja California to Washington State. In California, the southern subspecies (*E. m. pallida*) occurs from south of the border with Mexico in Baja California north to southern San Francisco Bay. Farther east in the San Joaquin Valley, turtle populations belong to the northern subspecies (*E. m. marmorata*). In spite of its strong association with aquatic habitats, scattered populations of western pond turtles are known from desert drainages, including the Mojave River, Afton Canyon, and some Great Basin drainages. Most known populations in Southern California exist in isolated patches, with little or no connectivity between groups. Due to the rarity of open surface waters in the RCIS area, western pond turtles are only known from a few locations. These include Lake Hughes and Ritter Ridge, as well as an additional unconfirmed observation from Una Lake (Kohn pers. comm.).

### Habitat

Although highly aquatic, pond turtles are habitat generalists, able to use open water of almost any presentation as found in streams, rivers, marshes, and ponds. They have been known to use ephemeral and human-made habitats, including vernal pools, seasonal wetlands, and stock ponds. They appear able to tolerate at least some salinity, having been found in saltmarsh environments. In order to reproduce, pond turtles require adjacent upland habitat suitable for nesting and overwinter refugia. Soil composition in uplands adjacent to suitable wetlands is particularly important. These upland soils need to be friable to allow burrowing yet relatively undisturbed by human activities and vehicular disturbance.

### Distribution in the RCIS Area

Due to the small number of documented occurrences of western pond turtle in the RCIS area and its close association with aquatic features, a habitat distribution model was not created for this species. The species is most likely to occur in aquatic habitat within the Amargosa Creek watershed, where it historically occurred, as well as in similar habitat in the Big Rock Wash and Little Rock Creek watersheds that drain the San Gabriel and Castaic Ranges (Appendix F). Almost any surface water impoundment within the Antelope Valley RCIS area could potentially support this cryptic, focal species. There are recent unconfirmed observations of western pond turtle at Una Lake in 2017 (Kohn pers. comm.).

## Burrowing Owl (*Athene cunicularia hypogea*)

### Status and Range

The western burrowing owl (*Athene cunicularia hypogea*) is not listed under the ESA or CESA, but is designated as a California Species of Special Concern, designated as a Sensitive Species by the Bureau of Land Management (BLM) and as a Bird of Conservation Concern by USFWS. The species' distribution and abundance vary considerably throughout its range (Wilkerson and Siegel 2010). The species has been identified as a conservation target in the Mojave Desert Ecoregion of the SWAP. The burrowing owl is found throughout non-mountainous western North America, from the Great Plains grasslands in southern portions of the western Canadian provinces south through the United States into Mexico. In California, the burrowing owl's range extends throughout the lowlands from the northern Central Valley to the U.S./Mexico border, with large populations in the Imperial Valley of southeastern California (Gervais et al. 2008) and a small (perhaps extirpated) population in the Great Basin bioregion in northeastern California. Burrowing owls currently occur across most of the Mojave and Sonoran Deserts of Inyo, eastern Kern, northern Los Angeles, San Bernardino, eastern Riverside, eastern San Diego, and Imperial Counties (Miller 2003). In the RCIS area, the species is known from scattered locations across the floor of Antelope Valley.

### Habitat

Throughout their range, burrowing owls require habitats with three basic attributes: open, well-drained terrain; short, sparse vegetation generally lacking trees; and underground burrows or burrow-like structures (e.g., pipe openings) (Gervais et al. 2008). The importance of burrows in a suitable habitat landscape cannot be overstated, as this species cannot dig its own burrows and will not forage too far from an available, suitable burrow. Burrowing owls occupy grasslands, deserts, sagebrush scrub, agricultural areas (including pastures and untilled margins of cropland), earthen levees and berms, coastal uplands (especially by over-wintering migrants), and urban vacant lots, as well as the margins of airports, golf courses, residential developments, and roads (Gervais et al. 2008). However, some of this potentially suitable habitat is not available for use due to a lack of suitable burrows in proximity.

### Distribution in the RCIS Area

There are 360,703 acres of potentially suitable habitat for the burrowing owl modeled in the RCIS area (Appendix F-10). Habitat is widely distributed throughout the RCIS area across the floor of Antelope Valley.

## California Condor (*Gymnogyps californianus*)

### Status and Range

The California condor (*Gymnogyps californianus*) is listed as endangered under the ESA and CESA, and is fully protected in California. It has also been identified as a conservation target in CDFW's (2015) SWAP for the Mojave Desert Ecoregion. Historically, the California condor occurred in northern Baja California, Northern California, Oregon, Washington, and southern British Columbia, with a few reports from Arizona, Nevada, Utah, Wyoming, Colorado, Idaho, Montana, and southern Alberta, Canada. By the mid-20th century, its range was mostly restricted to Southern California (Snyder and Schmitt 2002). Currently, the condor is found in three disjunct populations in the United States: reintroduced populations in both Southern and central–coastal California and a reintroduced population in the Grand Canyon area of Arizona. A reintroduced population also occurs in Baja California, Mexico (U.S. Fish and Wildlife Service 2020a). There are no California condor occurrences in the RCIS occurrence database. However, there are California condor observations as recent as 2018 to the north, south, and west (eBird 2021) and telemetry data indicates periodic flights cutting across the southern portion of the Antelope Valley (Kirkland pers. comm.) Therefore, there is a high potential the species forages on occasion in southern and western Antelope Valley.

#### Habitat

California condors nest in rock formations (crevices, overhung ledges, and potholes), deep caves, and occasionally in cavities in giant sequoia trees (*Sequoiadendron giganteus*) (Snyder and Schmitt 2002). Nest caves have been known to occur from about 2,000 to 6,000 feet in elevation, with a tendency for high-elevation sites to face south and low-elevation sites to face north. A key characteristic of a suitable nest site is a location at least partially sheltered from the weather and easily approachable from the air, such as on a cliff, steep slope, or tall tree (Snyder and Schmitt 2002).

While nesting habitat within the RCIS area is limited, the California condor may use the foothills, grasslands, and grazing lands along in the northwestern and western boundaries of the RCIS area as foraging habitat. Condors tend to forage within 31 to 44 miles of nests, but may travel up to 112 miles in search of food (U.S. Fish and Wildlife Service 1996).

#### Distribution in the RCIS Area

A California condor habitat distribution model created by U.S. Geological Survey was used to predict the distribution of potentially suitable habitat in the RCIS area. The model differentiates foraging; foraging and roosting; foraging, nesting, and roosting; and roosting habitat types. There are 54,077 acres of potentially suitable habitat (all habitat types combined) in the RCIS area (Appendix F-11). Condor habitat is concentrated along the foothills of the San Gabriel Mountains and the northern expression of the Castaic Ranges, along the southern border of the RCIS area.

### Golden Eagle (*Aquila chrysaetos*)

#### Status and Range

The golden eagle is not listed under the ESA or the CESA, but is fully protected in California. The species is protected under the 1962 (as amended) Bald and Golden Eagle Protection Act. It is a conservation target for the Mojave Desert Ecoregion of the SWAP and designated as a Bird of Conservation Concern by USFWS. Recent evidence suggests that golden eagle populations across the western United States have been largely stable (U.S. Fish and Wildlife Service 2016). The western United States populations were estimated to be 30,000 individuals; however, while populations have remained relatively steady, these populations might be declining gradually toward a new, lower equilibrium of about 26,000 individuals (U.S. Fish and Wildlife Service 2016). The golden eagle is predominantly a western North American species, ranging from northern Alaska though the western states and Great Plains to Mexico, with some breeding and wintering locations in eastern North America (Katzner et al. 2020). In California, the golden eagle is a year-round resident generally inhabiting mountainous and hilly terrain throughout the open areas of the state (Katzner et al. 2020)Human activities can limit golden eagle populations directly by causing mortality, or indirectly through impacts on habitat, prey, and nest site availability; collision or electrocution; and ingestion of toxicants (Katzner et al. 2020). In the RCIS area, the species is known from the Acton area and the western Antelope Valley RCIS foothill area foraging out from the adjacent San Gabriel Mountains, Coastal Ranges, and Tehachapi Mountains (eBird 2021).

### Habitat

Golden eagles use nearly all terrestrial habitats of the western states, occurring primarily in mountainous canyon land, rimrock terrain of open desert, and grassland areas (Katzner et al 2020). In central California, they prefer open grasslands and oak savanna, with lesser numbers in oak woodland and open shrublands. They can also be found in desert grasslands and chaparral habitats. Secluded cliffs with overhanging ledges and large trees are used for nesting and cover. However, wooden pole and steel lattice transmission line towers are also occasionally used as nesting habitat structure. Preferred territory sites include those that have a favorable nest site, a dependable food supply, and broad expanses of open country for foraging. Hilly or mountainous country where takeoff and soaring are supported by updrafts is generally preferred to flat habitats (Johnsgard 1990). Deeply cut canyons rising to open mountain slopes and crags are ideal habitat (Katzner et al 2020).

### Distribution in the RCIS Area

There are 51,069 acres of potentially suitable habitat for the golden eagle modeled in the RCIS area (Appendix F-12). Much of the golden eagle habitat in the RCIS area is situated along the west and south in the foothills of the San Gabriel and Castaic Mountain Ranges. There are also patches of foraging habitat to the east of Palmdale.

## Le Conte's Thrasher (*Toxostoma lecontei*)

### Status and Range

Le Conte's thrasher (*Toxostoma lecontei*) is not listed under the ESA or the CESA. It is designated as a Bird of Conservation Concern by USFWS, and the San Joaquin Valley population is designated as a California Species of Special Concern. It has not been identified as a conservation target for the Mojave Desert Ecoregion in CDFW's (2015) SWAP, but is regularly addressed as a sensitive species in the Antelope Valley RCIS region. The primary range is the desert of southeastern California, southern Nevada, extreme southwestern Utah south into west-central and southwestern Arizona, northeastern Baja California, and northwestern Sonora. Two disjunct populations exist at the edge of the species' range in California: one at the northwestern limit of the San Joaquin Valley in California, the other at the southwestern limit in central and coastal Baja California. Le Conte's thrashers in the San Joaquin Valley may be isolated geographically from other populations. Highest densities of this species occur in the Maricopa area of southwestern Kern County. Recently, this species has been found to range into the Carrizo Plain and Cuyama Valley, much of the San Joaquin Valley, and the Panoche Hills (Shuford and Gardali 2008). Within the RCIS area, the species is known from several foothills and valley floor locations.

#### Habitat

The Le Conte's thrasher is typically found in desert wash woodland and scrub, and sparsely vegetated desert dune habitats (California Department of Fish and Wildlife 2015a). Birds seek gentle to rolling, well-drained slopes bisected with dry washes, conditions found most often on bajadas or alluvial fans. Occupied habitats are moderately to sparsely vegetated by common saltbush (*Atriplex polycarpa*), spiny saltbush (*Atriplex confertifolia*), or, in a small area of the Carrizo Plain and Cuyama Valley, desert tea (*Ephedra fasciculata*) (Shuford and Gardali 2008). Joshua tree woodlands with abundant shrubs are also widely used in the Mojave Desert (Weigand and Fitton 2008). The ground is generally bare or has patches of sparse, low-growing grass. Nesting areas must have a few larger, dense shrubs averaging 83 centimeters tall for nest placement (Shuford and Gardali 2008).

#### Modeled Distribution in the RCIS Area

There are 344,725 acres of potentially suitable habitat for the Le Conte's thrasher modeled in the RCIS area (Appendix F-13). Habitat for Le Conte's thrasher is predominantly distributed in the eastern portion of the RCIS area throughout the valley floor.

### Least Bell's Vireo (*Vireo bellii pusillus*)

#### Status and Range

The least Bell's vireo (*Vireo bellii pusillus*) is listed as endangered under the ESA and CESA. The USFWS designated critical habitat for the least Bell's vireo in 1994. At the time of its federal listing, least Bell's vireo had been extirpated from most of its historic range, and numbered just 300 pairs statewide (Kus 2002). The least Bell's vireo is increasing throughout Southern California, with a tenfold increase in the recorded population since its listing in 1986. Breeding pairs have been observed in the counties of Monterey, San Benito, Inyo, Santa Barbara, San Bernardino, Ventura, Los Angeles, Orange, Riverside, and San Diego, with the highest concentration in San Diego County along the Santa Margarita River (U.S. Fish and Wildlife Service 2006). USFWS records show a tenfold increase in the least Bell's vireo population since its listing under the federal ESA in 1986, from 291 to 2,968 known territories, with "tremendous" growth of the vireo populations in specific areas in San Diego and Riverside Counties and lower but still significant growth in Orange, Ventura, San Bernardino, and Los Angeles Counties (U.S. Fish and Wildlife Service 2006). The species has been identified as a conservation target in the Mojave Desert Ecoregion of the SWAP.

Least Bell's vireo is a migratory species that breeds in North America and overwinters primarily along the Pacific Coast in southern Mexico. The breeding range for least Bell's vireo is from the north-central to southwestern United States and into central Mexico. Breeding by least Bell's vireo has been documented from southwestern California and northwestern Baja California, Mexico, to central South Dakota, east to Illinois and northwestern Indiana, south to the gulf coast and into southern Sonora, Mexico. Breeding in California usually takes place in southwestern California and northwestern Baja California, Mexico. In the RCIS area, the species is known from two valley floor locations in the Lancaster/Palmdale area.

#### Habitat

Least Bell's vireo breeds during the summer in riparian scrub. It is largely associated with early successional cottonwood-willow and is known to nest in riparian woodlands dominated by willow (*Salix* spp.)(Peterson et al. 2004) and Fremont cottonwood (*Populus fremontii*). Suitable willow woodlands are typically dense with well-defined vegetative strata or layers. The most critical structural component of nesting habitat in California is a dense shrub layer 2 to 10 feet aboveground (Brown 1993). The presence of water, including ponded surface water or moist soil conditions, may be an important component of nesting habitat (Rosenberg et al. 1991). Individuals may forage in scrub or chaparral habitat near nesting habitat. During the winter, Bell's vireo uses scrub vegetation along watercourses or riparian gallery forests along the west coast of northern and central Mexico.

#### Modeled Distribution in the RCIS Area

There are 7,903 acres of potentially suitable habitat for the least Bell's vireo modeled in the RCIS area (Appendix F-14). Habitat is mostly restricted to small patches of riparian areas in the western foothills of the RCIS area. There are small patches of habitat in the east of the RCIS area along the valley floor.

### Loggerhead Shrike (*Lanius ludovicianus*)

#### Status and Range

The loggerhead shrike is not listed under the ESA or the CESA. It is designated as a Bird of Conservation Concern by USFWS and is designated as a California Species of Special Concern. The species has been identified as a conservation target in the Mojave Desert Ecoregion of the SWAP. This species breeds in Canada in the provinces of southern Alberta, Saskatchewan, and Manitoba; and widely throughout the United States, except in portions of the Northwest and Northeast and at higher elevations. The largest concentrations of the species occur in portions of Texas and Louisiana (Pruitt 2000). In California, the loggerhead shrike is present year-round throughout most of the state. Wintering individuals augment resident populations and occupy non-forested areas locally. Breeding abundance is generally highest in portions of the Central Valley, Coast Ranges, and the southeastern deserts. In winter the shrike can be found throughout the San Joaquin Valley, the south-central and south coasts, and the southeastern deserts (Shuford and Gardali 2008). In the Antelope Valley RCIS area, the species occurs throughout suitable habitat .

#### Habitat

The loggerhead shrike typically occupies a variety of Mojave Desert habitats including Great Basin pinyon-juniper woodland, big sagebrush scrub, shadscale-saltbush scrub, Mojave and Sonoran desert scrub, desert wash woodland scrub, Joshua tree woodland, high desert wash and rangeland scrub, Great Basin upland scrub, and American southwest riparian forest and woodland (California Department of Fish and Wildlife 2015a). In California, loggerhead shrikes breed in shrublands or open woodlands with a fair amount of grass cover and areas of bare ground. Habitat requirements include tall shrubs or trees (in absence of these, fences or power lines) for hunting perches, territorial advertisement, and pair maintenance; open areas of short grasses, forbs, or bare ground for hunting; and large shrubs or trees for nest placement. Loggerhead shrikes impale their prey for storage; therefore, sharp, thorny, or multi-stemmed plants and/or barbed-wire fences are also an important habitat feature.

#### Modeled Distribution in the RCIS Area

There are 422,995 acres of potentially suitable habitat for loggerhead shrike modeled in the RCIS area (Appendix F-15). Habitat for loggerhead shrike is widely distributed throughout the RCIS area throughout the valley floor.

## Long-Billed Curlew (*Numenius americanus*)

### Status and Range

The long-billed curlew is not listed under the ESA or the CESA. It is on the CDFW Watch List and is designated as a Bird of Conservation Concern by USFWS. The species has not been identified as a conservation target in the Mojave Desert Ecoregion of the SWAP. Breeding range extends from southern British Columbia, southern Alberta, southern Saskatchewan, and southern Manitoba south to eastern Washington, Mono and northern Inyo Counties of California, Nevada, Utah, southern Colorado, New Mexico, and northern Texas east to southwestern Kansas. Wintering birds occur along the Pacific coast and at interior sites in California and Mexico (Fellows and Jones 2009). In California, long-billed curlews breed only in northeastern counties of Siskiyou, Modoc, Lassen, and Plumas south to Mono and northern Inyo Counties, but they winter all along the California coast, Central Valley, and the Imperial Valley (Fellows and Jones 2009; Audubon California no date). Antelope Valley is the only remaining wintering habitat for the species in Los Angeles County, where migrating and overwintering birds are observed nearly year-round. There is currently no information on the distribution of the species in the RCIS area, but based on their habitat preferences in other locations, they may use Antelope Valley for overwintering habitat.

### Habitat

Within Los Angeles County, long-billed curlew historically wintered in flocks on the coastal plain around Ballona and Venice Marshes and the coastal prairie of Los Angeles County. With development along the coast and the rise of agriculture in Antelope Valley, the wintering range of the species shifted to the interior of the county where it uses agricultural fields and pasture lands for wintering and migrating habitat, including alfalfa, sod fields, pastureland, and plowed dirt fields.

### Modeled Distribution in the RCIS Area

There are 174,592 acres of potentially suitable habitat (including overwintering and migration habitat) for the long-billed curlew modeled in the RCIS area (Appendix F-16). Habitat for long-billed curlew is mostly distributed throughout the wetland and agricultural areas north and east of Lancaster.

## Mountain Plover (*Charadrius montanus*)

### Status and Range

The mountain plover is not listed under the ESA or the CESA. It is designated as a Bird of Conservation Concern by USFWS and BLM and is designated as a California Species of Special Concern. The species has been identified as a conservation target in the Mojave Desert Ecoregion of the SWAP. This species does not nest in the Antelope Valley. Nesting occurs in the high plains east of the Rocky Mountains, from southeastern Alberta and southwestern Saskatchewan to Montana, New Mexico, western Texas, and western Oklahoma south to central Mexico; however, most birds breed in northern Montana and southeastern Colorado and Wyoming (Shuford and Gardali 2008). The primary wintering area for mountain plovers is likely in California, with most birds occurring in the Sacramento, San Joaquin, Panoche, and Imperial Valleys and on the Carrizo Plain (Andres and Stone 2010). In California, the mountain plover is considered a winter visitor from September to mid-March with peak numbers from December through February. The largest numbers of mountain plovers occur in the Imperial Valley and the portion of the Central Valley from southern Colusa

County south to Kern County (Shuford and Gardali 2008). In the RCIS area, there are recorded observations for the species throughout the valley floor.

### Habitat

Mountain plovers in all seasons are strongly associated with short-grass prairie habitats, shrub-stepped tablelands, and disturbed, dry grassland sites that are flat and nearly devoid of vegetation (Shuford and Gardali 2008; Andres and Stone 2010). In many areas of the United States (but not within the Antelope Valley), nesting mountain plovers are strongly associated with prairie dog colonies. Mountain plovers respond to changes in areas occupied by prairie dogs; the size of the colony may positively influence breeding mountain plover density (Knowles et al. 1982, Olson-Edge and Edge 1987). Mountain plover use of prairie dog colonies likely increases in wetter years, when grasses grow taller in the surrounding landscape (Andres and Stone 2010).

Mountain plovers occur in burned grasslands in breeding areas for nesting and in nonbreeding areas for foraging and night roosting. Birds typically appear on burned sites very soon after a fire, often where fires are still smoldering. Mountain plovers are also attracted to fallow or recently planted fields for nesting and brood rearing (Andres and Stone 2010).

Mountain plovers use wintering habitats that are similar to those on breeding grounds such as heavily grazed pastures, burned fields, fallow fields, and tilled fields. The Antelope Valley is outside of the range for prairie dog; therefore, wintering grounds within the Antelope Valley are not associated with prairie dog colonies. Wintering mountain plovers have been reported annually from the Antelope Valley area from Christmas Bird Counts where the species prefers to use alfalfa fields and other grass and pasture fields after harvest.

### Modeled Distribution in the RCIS Area

There are 130,218 acres of potentially suitable habitat for the mountain plover modeled in the RCIS area (Appendix F-17). Habitat for mountain plover is distributed throughout the RCIS area. There are large areas of habitat in the grasslands and agricultural areas just east and west of Lancaster.

## Northern Harrier (*Circus hudsonius*)

### Status and Range

The northern harrier (*Circus hudsonius*) is not listed under the ESA or the CESA. It is designated as a California Species of Special Concern. The species has been identified as a conservation target in the Mojave Desert Ecoregion of the SWAP. The northern harrier occurs year-round in much of its breeding range in the contiguous United States and locally in southwestern and southeastern Canada. Northern harriers typically migrate and winter from southern Canada (locally) to Central America. During breeding times, this species is most numerous in the prairies and plains from southern Canada to the Dakotas and Montana (Shuford and Gardali 2008). In California, northern harriers occur year-round within breeding range and some populations may be resident. The species occurs more broadly and in greater numbers during migration and winter than during the breeding season, which generally extends from March through August (Shuford and Gardali 2008). Though suitable habitat is extremely limited in southern California deserts for northern harriers, the Antelope Valley is a center of abundance in the region (Shuford and Gardali 2008). Consequently, northern harrier is one of the more common raptor species in the RCIS area. It is most likely to occur around wetted areas and croplands in the western portion of the RCIS area and around Piute Ponds near Edwards Air Force Base, though there are numerous northern harrier observations throughout the Antelope Valley (eBird 2021).

### Habitat

Northern harriers frequent meadows, grasslands, open rangelands, desert sinks, and fresh and saltwater emergent wetlands, but are seldom found in woodlands (Zenier et al. 1990). Harriers also breed in a variety of open, treeless habitats that provide adequate vegetative cover, an abundance of suitable prey, and scattered hunting and perching locations such as shrubs or fence posts. California-specific habitats include freshwater marshes; brackish and saltwater marshes; wet meadows; weedy borders of lakes, rivers, and streams; annual and perennial grasslands; weed fields; ungrazed or lightly grazed pastures; some croplands; sagebrush flats; and desert sinks. Nesting occurs on the ground, typically within patches of dense and tall vegetation in undisturbed areas. Harrier prey includes a variety of small- to medium-sized vertebrates, generally rodents and passerines (Shuford and Gardali 2008).

### Modeled Distribution in the RCIS Area

There are 16,610 acres of potentially suitable habitat for the northern harrier modeled in the RCIS area (Appendix F-18). Modeled habitat is concentrated in the northwestern border of the RCIS area and a few smaller patches distributed north of Lancaster near Edwards Air Force Base and east of Palmdale.

## Prairie Falcon (*Falco mexicanus*)

### Status and Range

The prairie falcon is not listed under the ESA or the CESA. It is on the CDFW Watch List and is designated as a Bird of Conservation Concern by USFWS. The species has not been identified as a conservation target in the Mojave Desert Ecoregion of the SWAP. Prairie falcons range from central British Columbia to western North Dakota, south to Baja California and Nuevo Leon. Winter range overlaps much of the breeding range and extends farther south into Mexico and east to Minnesota and Missouri (U.S. Fish and Wildlife Service 2015). In California, prairie falcons are uncommon year-round residents and the species has been described as a wanderer rather than a true migrant. Populations breeding in the north will winter in California (Yolo Natural Heritage Program 2009). The species has been observed throughout  the RCIS area (eBird 2021).. The majority of the observations during the nesting season are in the foothills along the southern end of the RCIS area, and non-breeding season occurrences are in the valley floor(eBird 2021).

### Habitat

During the breeding season, prairie falcons inhabit open habitats including arid plains, shrub-steppe desert, open desert scrub, grassland, mixed shrub-grasslands, and alpine tundra where cliffs are present for nesting. (Yolo Natural Heritage Program 2009; U.S. Fish and Wildlife Service 2015). This species will also occur near agricultural fields. Nests are typically located on sheltered ledges or in potholes of a high vertical cliff overlooking large, open areas. Common foraging habitat includes desert scrub and grasslands, particularly in Southern California. Prairie falcons prefer to forage in grasslands, oak savannahs, seasonal wetlands, pasturelands, and occasionally in grain and hay fields in the interior Coast Ranges (Yolo Natural Heritage Program 2009). Migration habitat is similar to wintering and breeding habitat with prairie falcons preferring to migrate through open grassland habitat; however, falcons will also seek out montane meadows, alpine tundra, and subalpine habitat in the northern extent of its range (U.S. Fish and Wildlife Service 2015).

### Modeled Distribution in the RCIS Area

There are 404,548 acres of potentially suitable habitat for the prairie falcon modeled in the RCIS area (Appendix F-19). Habitat for prairie falcon is widely distributed throughout the RCIS area; nesting habitat occurs in the hills along the southern borders of the RCIS area.

## Swainson's Hawk (*Buteo swainsoni*)

### Status and Range

Swainson's hawk is not listed under the ESA, and islisted as threatened under the CESA. It is designated as a Bird of Conservation Concern by USFWS. The species has been identified as a conservation target in the Mojave Desert Ecoregion of the SWAP. In California, approximately 95 percent of breeding pairs of nesting Swainson's hawks occur in the Central Valley (Battistone et al. 2019). Bloom (1980) concluded that the California Swainson's hawk population had declined 90 percent since 1900, when Sharp (1902) considered the species abundant. Much of this decline occurred in Southern California, where the species was once considered abundant in coastal valleys (Sharp 1902). Current nesting territories in Southern California may represent recolonizations (Woodbridge 1998). Declines of Swainson's hawk populations have also occurred in the Mojave Desert. Bloom (1980) estimated that the Mojave Desert once supported 270 to 1,080 pairs, but they have since declined by as much as 95 percent. The small number of breeding Swainson's hawks in the Antelope Valley and the potential isolation from other Swainson's hawk populations makes the Antelope Valley population particularly susceptible to extirpation. This geographical isolation combined with the species' high nesting site fidelity make rapid re-colonization of the Antelope Valley unlikely if nesting pairs are lost (California Energy Commission and California Department of Fish and Game 2010).

Swainson's hawk inhabits grasslands, sage-steppe plains, and agricultural regions of western North America during the breeding season and winters in grassland and agricultural regions from central Mexico to southern South America (Woodbridge et al. 1995; Bechard et al. 2010). In California, most breeding occurs in the Central Valley between Modesto and Sacramento, and approximately 95 percent of the breeding pairs now occur in the Central Valley (California Department of Fish and Game 2007). Remnant (or recolonizing) populations in Southern California are found in the Antelope Valley and Mojave National Preserve regions of the western Mojave Desert. Recent Swainson's hawk breeding populations have occurred in, or close to, the RCIS area with the vast majority of occurrences clustered in the western Mojave region along the base of the San Gabriel and Tehachapi Mountain ranges and in Antelope Valley.

### Habitat

Swainson's hawks inhabit many types of open habitats, including prairie and shrubsteppe and grasslands, desert, and agricultural areas (Woodbridge 1998). In the RCIS area, Swainson's hawks nest primarily in Joshua trees and nonnative ornamental trees or trees planted as windbreaks (California Energy Commission and California Department of Fish and Game 2010). Nesting pairs in Antelope Valley primarily forage in the alfalfa fields and other agricultural areas in the region (Bloom 2011), as well as grasslands, Joshua tree woodlands, and other desert scrub habitats that support a suitable prey base of small rodents, birds, snakes, and insects such as grasshoppers and crickets (Snyder and Wiley 1976; Fitzner 1980; Bednarz 1988; Estep 1989).

### Modeled Distribution in the RCIS Area

There are 196,681 acres of potentially suitable habitat for the Swainson's hawk modeled in the RCIS area (Appendix F-20). Habitat for Swainson's hawk is widely distributed throughout the RCIS area. There are large areas of habitat distributed throughout the agricultural lands and grasslands to the east and west of Lancaster.

## Tricolored Blackbird (*Agelaius tricolor*)

### Status and Range

Tricolored blackbird (*Agelaius tricolor*) is not listed under the ESA though its' federal status is under review and petitioned action may be warranted. The species

is listed as threatened under the CESA.. It is also designated as a Bird of Conservation Concern by USFWS. The species has been identified as a conservation target in the Mojave Desert Ecoregion of the SWAP. Tricolored blackbird is largely endemic to California, and more than 90 percent of the population occurs in the state (California Department of Fish and Wildlife 2018b; Churchwell et al. 2005). Population surveys and banding studies of tricolored blackbird in the Central Valley from 1969 through 1972 concluded that its geographic range and major breeding areas were unchanged since the mid-1930s. Tricolored blackbird historical breeding range in California included the Sacramento and San Joaquin Valleys, lowlands of the Sierra Nevada south to Kern County, the coast region from Sonoma County to the border of Mexico, and sporadically on the Modoc Plateau (Grinnell and Miller 1944). Historically, the tricolored blackbird was described as locally common in the coastal area of Southern California. It also bred on the western edge of the desert in Antelope Valley (Garrett and Dun 1981). Tricolored blackbird currently breeds in small, isolated groups in the eastern and western parts of the RCIS area at emergent water areas. Surveys conducted from 1994 to 2000 and from 2008 to 2017 estimated state-wide population declines of 56 and 63 percent, respectively (California Department of Fish and Wildlife 2018b). In the west, these are along the San Andreas fault zone. In recent years, one large colony has repeatedly used the small constructed pond, Holiday Lake, on the valley floor.

### Habitat

Tricolored blackbird requires three basic habitat elements for selecting its breeding colony site: open, accessible water; a protected nesting substrate, including flooded, thorny, or spiny vegetation; and suitable foraging habitat providing adequate insect prey within a few miles of the nesting colony (Hamilton et al. 1995; Beedy and Hamilton 1997b, 1999). Tricolored blackbird requires open water within 1,640 feet for colony settlement (Hamilton 2004a).

Breeding tricolored blackbirds form large colonies, typically in freshwater wetlands dominated by cattails (*Typha* spp.) or bulrushes (*Schoenoplectus* spp.) and thorny vegetation such as Himalayan blackberry (*Rubus armeniacus*, formerly *R. discolor*) (Churchwell et al. 2005). They may also nest in willows, thistles, and nettles (*Urtica* spp.) (Beedy and Hamilton 1999). In addition, triticale, a vigorous wheat and rye hybrid grown to feed the dairy cows, has become an important nesting substrate (Hamilton and Meese 2006; Kelsey 2008).

Tricolored blackbird forage in rice fields, lightly grazed pasture, dairies, or alfalfa fields. With the conversion of wetlands to arable land, tricolored blackbirds began exploiting the rich agricultural fields created by the transition to farming. Recently, the species has been using dairies, which contain many of the necessary characteristics for breeding.

Tricolored blackbirds require robust and healthy foraging grounds within 5 kilometers of their colony sites (rarely up to 13 kilometers); proximity to suitable foraging habitat is very important for the establishment of colony sites (Orians 1961; Beedy and Hamilton 1997b). Ideal foraging conditions for tricolored blackbird are created when shallow flood irrigation, mowing, or grazing keeps the vegetation at an optimal height (less than 6 inches) (Tricolored Blackbird Working Group 2007). Preferred foraging habitats include agricultural crops such as rice, alfalfa, irrigated pastures, and ripening or cut grain fields (e.g., oats, wheat, silage, and rice), as well as annual grasslands, cattle feedlots, and dairies. Tricolored blackbird also forages in remnant native habitats, including wet and dry vernal pools and other seasonal wetlands, riparian scrub habitats, and open marsh borders (Tricolored Blackbird Working Group 2007). In the RCIS area, habitat for tricolored blackbird is limited to human-made lakes and the agricultural fields around Palmdale and Lancaster as well as emergent water areas along the San Andreas fault zone in the western RCIS area. Small marshes in the Fairmont Reservoir have had sizeable breeding colonies reported in this century.

### Modeled Distribution in the RCIS Area

There are 264,177 acres of potentially suitable habitat for the tricolored blackbird modeled in the RCIS area (Appendix F-21). Habitat for tricolored blackbird is widely distributed throughout the RCIS area. There are large areas of habitat distributed throughout the agricultural lands and grasslands to the east and west of Lancaster. Breeding habitat is more confined to emergent wetted areas which is consistent with documented colony locations that have been mapped and monitored by the statewide tricolored blackbird surveys (Meese 2017).

## Willow Flycatcher (*Empidonax traillii*)

### Status and Range

The willow flycatcher (*Empidonax traillii*) is not listed under the ESA, and islisted as endangered under the CESA. The species has been identified as a conservation target in the Mojave Desert Ecoregion of the SWAP. Willow flycatcher populations have declined by 51 percent between 1966 and 2014, according to the North American Breeding Bird Survey (Sauer et al. 2017). The willow flycatcher occurs throughout the United States with the exception of the extreme northeast and the southeast. It winters from southern Mexico to northern South America in habitats similar to those occupied on the breeding grounds. The willow flycatcher breeding range extends from central British Columbia, southern Alberta, southern Saskatchewan, southwestern Manitoba, northern North Dakota, western and southern Minnesota, central Wisconsin, Michigan, southern Ontario, southwestern Quebec, central Maine, New Brunswick, Prince Edward Island, and Nova Scotia (possibly) south to Southern California (local, formerly widespread), northern Baja California and northern Sonora (at least formerly), southern Arizona (locally), southern New Mexico, northeastern Oklahoma, Arkansas (rarely), northeastern Louisiana, central Tennessee, northern Georgia, western South Carolina, western North Carolina, and central and eastern Virginia. Within California, breeding populations exist in the Sierra Nevada and Transverse Ranges. The RCIS area supports migratory and nesting habitat.

#### Habitat

Historically, willow flycatchers nested throughout California wherever riparian deciduous shrubs, mainly thickets of willows, occurred. Today willow flycatchers prefer moist, shrubby areas, often with standing or running water. Breeding habitat is typically moist meadows with perennial streams; lowland riparian woodlands dominated by willows primarily in tree form, and cottonwoods; or smaller spring-fed or boggy areas with willow or alders (*Alnus* spp.) (Whitfield et al. 1997). Riparian deciduous shrubs or trees, such as willow or alder, are essential elements on willow flycatcher territories (Harris et al. 1988). In meadows, willow thickets interspersed with open space are typically used, while large, contiguous willow thickets are avoided.

#### Modeled Distribution in the RCIS Area

There are 2,706 acres of potentially suitable habitat for the willow flycatcher modeled in the RCIS area (Appendix F-22). Habitat for willow flycatcher is limited in distribution to small patches adjacent to bodies of water throughout the RCIS area.

### American Badger (*Taxidea taxus*)

#### Status and Range

The American badger is not listed under the ESA or CESA. It is designated as a California Species of Special Concern The species has been identified as a conservation target in the Mojave Desert Ecoregion of the SWAP. American badgers occur throughout most of California, except for the northern North Coast from below sea level to 12,000 feet above mean sea level. American badgers can be found throughout the RCIS area.

#### Habitat

American badgers are highly specialized fossorial mammals. They occur in most habitat types, though are most abundant in open, drier habitats with dry, friable soils (Ahlborn 1990). Badgers prefer grasslands, meadows, open scrub communities, such as creosote and sagebrush, and open woodland communities, such as juniper and Joshua tree. Terrain is generally flat to gently sloped. Badgers can disperse up to 70 miles through preferred habitat (Penrod et al. 2012). They dig burrows for cover and will frequently reuse old burrows. They are carnivorous and prey upon fossorial rodents, including mice, rats, chipmunks, and especially gophers and ground squirrels (Ahlborn 1990). Will also feed on reptiles, insects, birds, eggs, and carrion, especially when fossorial rodent populations are low (Helgen and Reid 2016).

#### Modeled Distribution in the RCIS Area

There are 389,477 acres of potentially suitable habitat for the American badger modeled in the RCIS area (Appendix F-23). Habitat for badger is widely distributed throughout most of the RCIS area.

### Desert Kit Fox (*Vulpes macrotis arsipus*)

#### Status and Range

The desert kit fox is not listed under the ESA or CESA. This species is protected as a furbearing mammal under California Code of Regulations Title 14, Section 460.. In the RCIS area, desert kit foxes are primarily threatened by expanding development and associated ecological stressors. The species has been identified as a conservation target in the Mojave Desert Ecoregion of the SWAP. The geographic distribution of kit foxes ranges from southern Oregon east to eastern New Mexico and west Texas and south into Baja California and north-central states of Mexico (Penrod et al. 2012). In California, the desert kit fox occurs throughout the arid southern half of California from Inyo County south to Imperial County and west to the western end of Antelope Valley. The elevation range is 1,300 to 6,250 feet (Penrod et al. 2012). Desert kit fox can be found throughout the RCIS area but primarily in lower-elevation portions of Antelope Valley.

### Habitat

Desert kit fox occurrence is strongly influenced by topography, vegetative cover, prey availability, and prevalence of predators. Ideal habitat is flat to gently sloping terrain with open, arid vegetation communities such as desert grasslands and scrub. Desert kit fox is most often found in habitats with friable soils such as soft clay or alluvial soils, which provide easy digging of burrows and facilitate rodent populations (Penrod et al. 2012). Burrows are dug in level areas with loosely textured soils. Burrows are used year-round for cover, to escape predators, and to bear young. Kit foxes will also use agricultural areas, especially orchards, for foraging and movement (Warrick et al. 2007).

### Modeled Distribution in the RCIS Area

There are 361,851 acres of potentially suitable habitat for the kit fox modeled in the RCIS area (Appendix F-24). Habitat for kit fox is widely distributed throughout the most RCIS area.

## Mohave Ground Squirrel (*Xerospermophilus [Spermophilus] mohavensis*)

### Status and Range

The Mohave ground squirrel is not listed under the ESA but is listed as threatened under the CESA. The species has been identified as a conservation target in the Mojave Desert Ecoregion of the SWAP. Endemic to California, the Mohave ground squirrel is exclusively found in the northwestern Mojave Desert in San Bernardino, Los Angeles, Kern, and Inyo Counties. The species likely has been extirpated from portions of its former range due to urban and agricultural development, especially around the Lancaster, Palmdale, and Victorville areas (Leitner 2008; Leitner 2015). The long-term global trend for Mohave ground squirrel is moderately declining to relatively stable, with an estimated 25 percent chance of 50 percent decline in population (NatureServe 2010). Recent camera and live-trapping surveys suggest that Mohave ground squirrel population densities are historically low in much of the undeveloped areas of the geographic range (CDFW 2019)

### Habitat

The Mohave ground squirrel occurs in a variety of desert shrubland habitats. Although most often found in creosote bush scrub, it has also been recorded in desert saltbush scrub, desert sink scrub, desert greasewood scrub, shadscale scrub, and Joshua tree woodland (Best 1995). Mohave ground squirrel typically occupies areas with open vegetative cover and small bushes (less than 2 feet in height) spaced approximately 20 to 30 feet apart (Best 1995).

Mohave ground squirrel prefers deep, sandy to gravelly soils on flat to moderately sloping terrain and will avoid rocky areas. The species is not known to occupy areas of desert pavement (see Conservation Strategy for the Mohave Ground Squirrel, CDFW 2019). Soil characteristics are particularly important because Mohave ground squirrels construct burrows to provide temperature regulation, avoid predators, and use during the inactive season pavement (CDFW 2019).

### Modeled Distribution in the RCIS Area

There are 121,592 acres of potentially suitable habitat for the Mohave ground squirrel modeled in the RCIS area (Appendix F-25). Habitat for the Mohave ground squirrel is predominantly distributed in the northeastern portion of the RCIS area south of Edwards Air Force Base along the valley floor.

## Mountain Lion (*Felis concolor*)

### Status and Range

Mountain lion (*Felis concolor*) is not listed under the ESA, however the central and south coast mountain lion populations (Southern California/Central Coast Evolutionarily Significant Unit [ESU]) were designated as candidates for listing as threatened under the CESA. On April 16, 2020, the Fish and Game Commission (FGC) found sufficient scientific information available to indicate that listing the mountain lion as threatened may be warranted (California Fish and Game Commission staff summary for April 15-16, 2020, Item No. 32). The passage of Proposition 117 in 1990 prohibits the hunting of mountain lions and granted mountain lions the status of a California Specially Protected mammal species. Depredation permits can still be issued for this species. It was included as a focal species in the RCIS as an indicator species for habitat connectivity and function, given its wide-ranging nature.

Mountain lions are widely distributed across the western hemisphere in both North and South America. Within California, mountain lions are widespread, though uncommon where they do occur. Their range extends from sea level to alpine meadows. They occur in most habitats except for the xeric regions of the Mojave and Colorado Deserts and cropland areas of the Central Valley. Their range is closely tied to the range of the mule deer (*Odocoileus hemionus*), their primary prey (Ahlborn 1990). Suitable mountain lion habitat in the RCIS areas is predominantly along the southern border in the northern foothills of the Castaic and San Gabriel Mountains.

The home ranges of mountain lions vary by sex, age, and distribution of prey. Home ranges in Southern California averaged 93 square kilometers for females and 363 square kilometers for males. Males occupy distinct areas, while female home ranges may overlap. Mountain lion movements are often in response to changing prey densities. Mountain lion are capable of moving large distances in search of prey and dispersal. Although mountain lions will cross large areas of unsuitable habitat, they prefer not to do so. Dispersal plays a crucial role in mountain lion population dynamics. Recruitment into a local population occurs mainly by immigration of juveniles from adjacent populations (Penrod et al. 2012).

### Habitat

Mountain lions are habitat generalists, but require extensive areas of riparian vegetation and brushy stages of various habitats, with rocky outcrops and tree/shrub/grassland edges. Caves, other natural cavities, and vegetative thickets are used for denning. They prefer to use vegetated ridgetops and stream courses as travel corridors and hunting routes (Penrod et al. 2012). Mule deer make up approximately 60 to 80 percent of their diet throughout the year. Mountain lions will also prey on rabbits (*Sylvilagus* spp.), rodents, skunk (*Mephitis* spp.), coyotes (*Canis latrans*), porcupines (*Erethizon dorsatum*), and occasionally domestic livestock (Ahlborn 1990).

#### Modeled Distribution in the RCIS Area

The mountain lion habitat species range map was created by CDFW as part of the California Wildlife Habitat Relationships program and used to predict the distribution of potentially suitable habitat and the range of the mountain lion in the RCIS area (Appendix F-26). There are 69,755 acres of potentially suitable habitat within the RCIS area. The mountain lion's range is distributed along the southwestern border of the RCIS area in the foothills of the San Gabriel Mountains.

### Tehachapi Pocket Mouse (*Perognathus alticolus inexpectatus*)

#### Status and Range

The Tehachapi pocket mouse is not listed under ESA or CESA. It is designated as a California Species of Special Concern. The species has not been identified as a conservation target in the Mojave Desert Ecoregion of the SWAP. The Tehachapi pocket mouse is known from a few scattered areas in the Tehachapi Mountains from Tehachapi Pass on the northeast to the areas of Mt. Pinos on the southwest, and around Elizabeth, Hughes, and Quail Lakes on the southeast (Brylski 1998). In 2010, individuals were captured on the south slope of the Tehachapi Mountains. It has been recorded between 3,500 and 6,000 feet in elevation (Dudek & ICF 2012).

#### Habitat

Tehachapi pocket mouse is known to occur in Joshua tree woodland, pinyon-juniper woodland, oak savannah, and native and nonnative grasslands. At higher elevations, the species uses open pine forests and at lower elevations, chaparral and coastal sage scrub communities (Dudek & ICF 2012).

#### Modeled Distribution in the RCIS Area

There are 7,390 acres of potentially suitable habitat for the pocket mouse modeled in the RCIS area (Appendix F-27). Habitat for the pocket mouse is limited in distribution to small patches in the northwestern region of the RCIS area along the western borders around State Route 138.

## 2.1.5 Other Conservation Elements

CFGC 1852©(4) states that an RCIS will include "important resource conservation elements within the strategy area, including, but not limited to, important ecological resources and processes, natural communities, habitat, habitat connectivity, and existing protected areas, and an explanation of the criteria, data, and methods used to identify those important conservation elements." This section identifies important conservation elements other than focal species and natural communities that occur within the RCIS area. Other conservation elements were identified based on guidance from the Steering Committee, as well as from existing literature and data relevant to the RCIS area, as described in each section that follows.

## 2.1.5.1 Habitat Connectivity

Human development, primarily urban and rural development, is the primary driver of change within the West Mojave subecoregion. The cities of Lancaster and Palmdale in the RCIS area both have populations larger than 150,000, with a population within the greater Antelope Valley of over 500,000 (Greater Antelope Economic Alliance 2015), making the dominant land cover change in the RCIS area the conversion of grasslands/shrublands to developed land. This conversion from natural to developed lands disrupts habitat connectivity and creates fragmentation throughout Antelope Valley.

As described in Section 2.1.1, *Ecoregions*, most of the RCIS area occurs within the West Mojave section of the American Semi-Desert and Desert Province, but it also includes a small portion of the Southern California Mountains and Valleys section of the California Coastal Range Open Woodland—Shrub—Coniferous Forest—Meadow province. A part of the upper Santa Clara River and a small portion of the headwaters of the Santa Clara River watershed near Elizabeth Lake and the Petersen Mitigation Bank are also included in the Antelope Valley RCIS. Much of the length of the San Andreas fault zone in Los Angeles County is included in the Antelope Valley RCIS. This multi-ecoregion composition indicates that the RCIS area includes important transition areas for wildlife movement within and across the RCIS area boundaries. Transition zones between ecoregions are critical habitat linkages that are often species-rich, as the plant and animal communities characteristic of each region abut one another, and species interact in novel combinations. Connectivity, both within the Mojave Desert and between ecoregions, is important in the face of global climate change, as some species may need to move to track shifts in the locations of areas with suitable temperature and rainfall regimes. Because habitat suitability varies among species, it is important to maintain landscape integrity at multiple scales. Conserving connections between preferred habitats allows individual movements and multi-generational dispersal, thereby increasing long-term species viability. For species that are not able to move far, protecting adjacent habitat can be critical to their survival because activities on surrounding lands can disrupt or alter the ecosystem processes that support them.

The California Essential Habitat Connectivity Project (Spencer et al. 2010) does not include any linkages through the RCIS area (Figure 2-9). The California Essential Habitat Connectivity Project depicts the large natural landscape blocks occurring in the Angeles National Forest along the southern boundary of the RCIS area, which connect to natural landscape blocks in the Tehachapi Mountains. These natural landscape blocks were also identified in the California Missing Linkages Project (Penrod et al. 2003) as important transitions from the floor of the Mojave Desert to the base of the southern Tehachapi Mountains. The linkages to the foothills along the base of the San Gabriel Mountains, Angeles National Forest, and drainages that connect to the Los Padres National Forest and Coastal Ranges farther west are generally contiguous and connected, although somewhat fragmented by Interstate 5 and the California Aqueduct channels. The California Aqueduct has been recognized as a significant barrier to wildlife movement in the southern Antelope Valley such that wildlife must rely on vehicle bridges to move across the California Aqueduct throughout its length (ICF Jones & Stokes 2008, Constable et al. 2009.

The DRECP (Bureau of Land Management 2016) includes two corridors within the RCIS area (Figure 2-9) with identified goals of maintaining habitat connectivity to benefit species movement habitat fragmentation. The Big Rock Wash Creek corridor identified in the DRECP overlaps with the Big Rock Wash RCIS Habitat Core Area, between the Big Rick Creek-Alpine Butte and Big Rock Wash RCIS Landscape Linkages. The Fremont-Kramer corridor identified in the DRECP overlaps with the Edwards Core Habitat area in the RCIS.

The largest and most intact linkage in the RCIS area is the Edwards Air Force Base-San Gabriel Mountains linkage identified in the Linkage Network for California Deserts (Penrod et al. 2012). The Edwards Air Force Base-San Gabriel Mountains linkage runs north-south along the eastern boundary of the RCIS area connecting Edwards Air Force Base with the San Gabriel Mountains (Figure 2-9). The linkage supports fairly contiguous natural land cover.

An extensive habitat connectivity analysis was conducted for this RCIS to identify fine-scale important habitat linkages in the RCIS area. This analysis included evaluation of the connectivity between large blocks of habitat from the perspective of a large species, which were assumed to have a greater tolerance to habitat fragmentation, and from the perspective of smaller species, which were assumed to have greater sensitivity to habitat fragmentation. Both connectivity evaluations included urban areas, roadways and the California Aqueduct as areas having a low permeability for wildlife movement, which is described further in Chapter 3, *Conservation Strategy*.

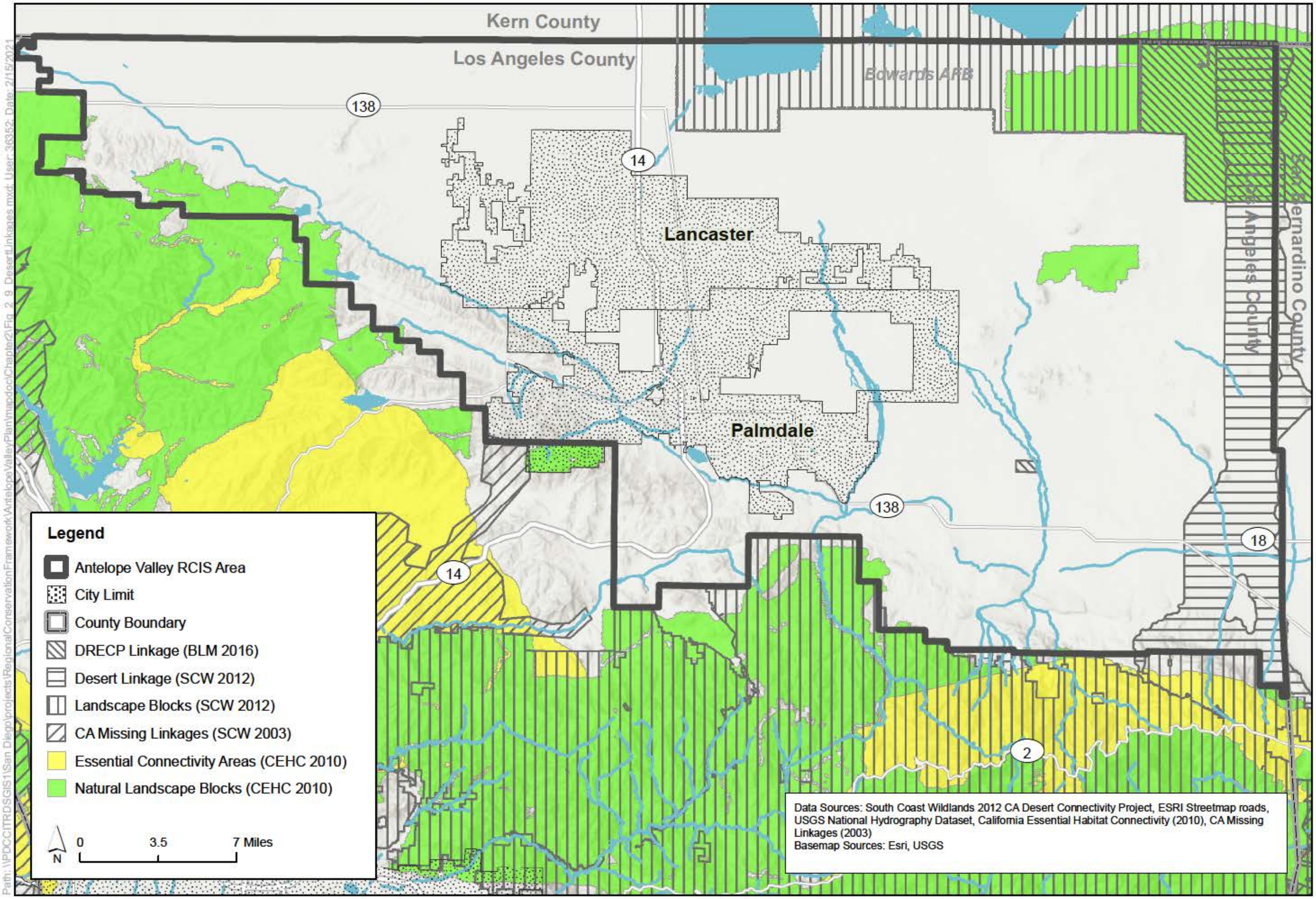


**Figure 2-9**
**Previously Identified Lanscape Linkages in the Antelope Valley RCIS Area**

### Ecosystem Services

Providing connectivity between habitats allows biotic and abiotic resources to move between the habitat patches, providing ecosystem services (Mitchell et al. 2013). The primary ecosystem service provided by habitat connectivity and wildlife linkages is allowing species access to additional habitat patches and increasing genetic connectivity across the species' range, increasing the likelihood of success of the species (Leibold et al. 2004). The current literature indicates that loss of habitat connectivity has a negative effect on ecosystem services such as the provisioning of food and water; the regulation of climate, disease, disturbance, flood control, pollination, seed dispersal, soil erosion, and water quality; and cultural services such as aesthetics, recreation, and spiritual services (Mitchell et al. 2013).

## 2.1.5.2 Working Lands

CFGC 1852 (e)(1) requires that an RCIS consider "the conservation benefits of working lands for agricultural uses." To support this analysis, the following section describes the extent of farmland and rangeland in the RCIS area. This information is based on the latest annual report of agricultural production in Los Angeles County compiled by the county's Agricultural Commissioner (Los Angeles County 2015a). The stressors on conservation goals posed by farmland and rangeland are discussed in Section 2.3.

### Farmland

Antelope Valley is historically known for its extensive alfalfa fields and fruit crops. In more recent years, farmland has shifted to support a wider variety of crops. Currently, the region supports a combination of planted fields and greenhouses (irrigated row, field crops, orchards, and vineyards account for 38,383 acres in the RCIS area), with apples, tomatoes, onions, bell peppers, carrots, and grapes as a part of the area's offerings (Figure 2-8). However, as housing tracts continue to build through the middle of Antelope Valley, farm operations are being marginalized to the western and eastern sides of the RCIS area more than in previous decades.

Additional farmland designations mapped in the Antelope Valley include Farmland of Local or Statewide Importance (Figure 2-8). Farmland of Statewide Importance is irrigated land that has a good combination of physical and chemical characteristics for the production of agricultural crops. This land has minor shortcomings, such as greater slopes or less ability to store soil moisture than areas considered Prime Farmland, which are those lands that contain the best combination of physical and chemical features to sustain high agricultural yields (California Department of Conservation Division of Land Resource Protection 2004). Farmland of Local Importance includes all farmable lands that do not meet the definitions of Prime, Statewide, or Unique. This includes land that is or has been used for irrigated pasture, dry land farming, confined livestock, and dairy, poultry facilities, aquaculture, and grazing land (California Department of Conservation Division of Land Resource Protection 2004).

#### Ecosystem Services

Farmlands in the Antelope Valley RCIS area provide ecosystem services in the form of provisioning, habitat, and cultural services. In 2015, agricultural commodities in Los Angeles County exceeded $192 million in value. Top five crops grown include root vegetables ($60 million), woody ornamentals ($48 million), bedding plants ($20 million), alfalfa hay ($11 million), and dairy and livestock ($8 million) (UCCE 2019). Many species now depend on habitat created by agricultural lands in Antelope Valley, especially irrigated pastures such as alfalfa and sod fields. These species include the mountain plover, Swainson's hawk, and tricolored blackbird, among others. Cultural services provided by farmlands include agritourism, farm stands, u-pick, farm stays, tours, farm classes, festivals, pumpkin patches, and corn mazes.

### Rangeland

The grassland, shrubland, and woodland natural communities in the RCIS area evolved under the influence of prehistoric herbivores—including deer and pronghorn antelope—and without competition from nonnative annuals, which currently dominate much of the region. Prior to agricultural expansion and other human development, Antelope Valley had a major component of native wildlife grazing, supporting large herds of pronghorn or "antelope" in native grasslands that were also wildflower fields.

Livestock grazing is used as a range management tool. If managed appropriately, moderate grazing could also improve conditions for rodents and their predators by reducing dense ground cover, which can impede movement and decrease populations of burrowing rodents. However, implementation of grazing as a habitat management measure should only occur where research has shown it will have benefits to native species and habitats.

Rangeland is generally concentrated in the western portion of the RCIS area (Figure 2-10). According to Farmland Mapping and Monitoring Program (California Department of Conservation 2014) data, approximately 15.6 percent of the RCIS area is rangeland.

#### Ecosystem Services

Rangeland can provide a variety of ecosystem services, including erosion control, water quality benefits, groundwater recharge, livestock forage, wildlife and pollinator habitat, threatened and endangered species habitat, outdoor recreation, and carbon sequestration (O'Connell and Livingston 2018). Rangeland supporting populations of burrowing mammals such as the California ground squirrel (*Spermophilus beecheyi*) can provide optimal foraging and breeding habitat for the burrowing owl when properly managed (Artis 2011). Rangelands also provide provisioning services for humans from the cattle they produce and may provide cultural services in the form of agritourism, wedding and dinner venues, youth camps, barn dances, hunting and fishing, and guest ranches (University of California Cooperative Extension 2017). The ecosystem services provided by a given area of rangeland can vary depending on how it is managed. For example, heavily grazed rangeland would improve the services provided to burrowing owl habitat (Dechant et al. 1999; Rosenberg et al. 2009), but would decrease the erosion control and water quality services.

## 2.1.5.3 Natural Communities of Conservation Importance

The RCIS area boundary is largely contained (90 percent) within the High Desert Plains and Hills U.S. Department of Agriculture Ecological Subsection (generally called the West Mojave subecoregion). Approximately 130 different natural or semi-natural vegetation classes mapped by CDFW occur within the Mojave Desert ecoregion section that encompasses approximately 90 percent of the RCIS area and the Southern California Mountains and Valleys ecoregion section that encompasses the remaining 10 percent of the RCIS area. These ecoregion sections provide the context for the unique natural or semi-natural communities encountered there.

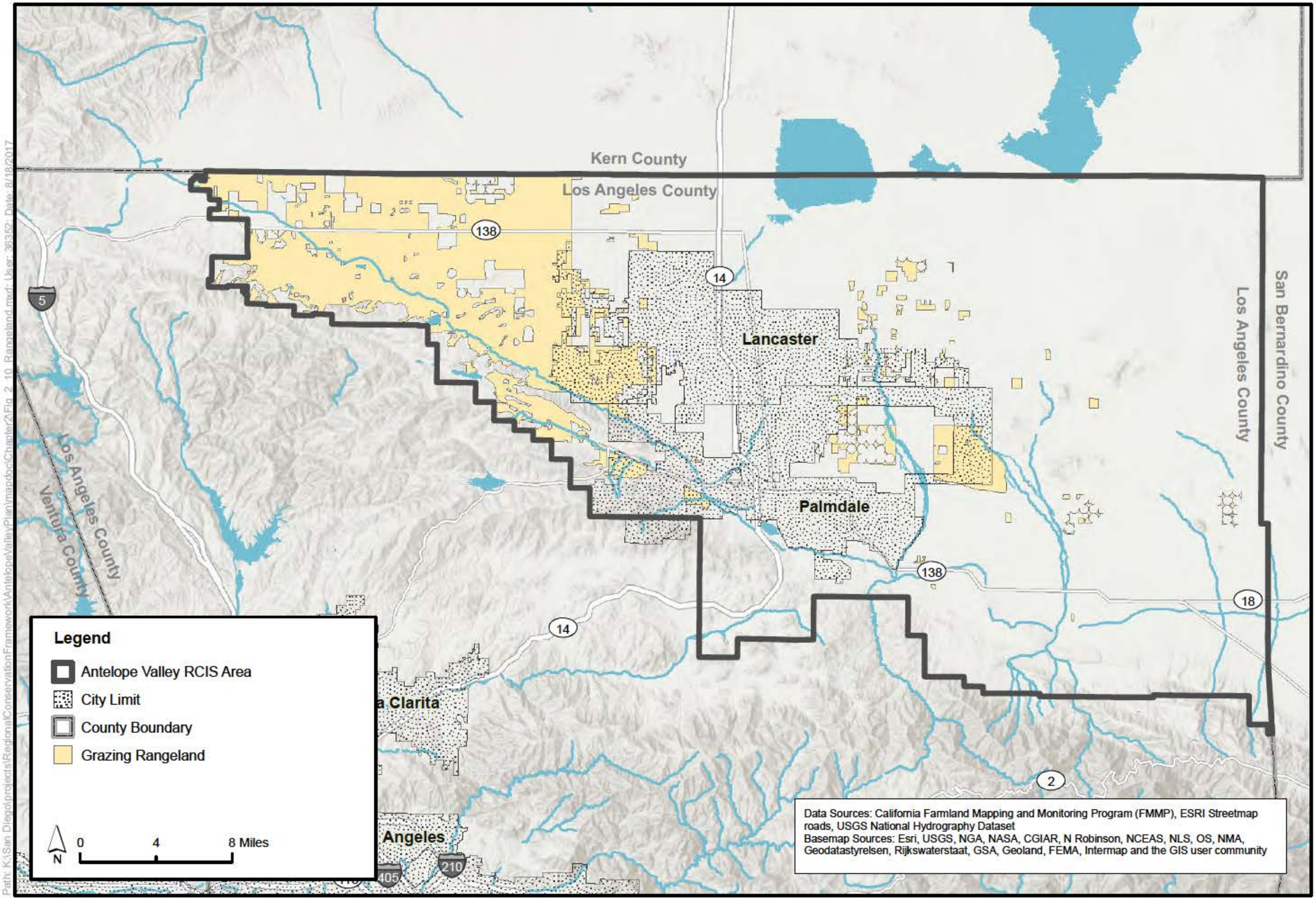


**Figure 2-10**
**Rangeland in the Antelope Valley RCIS Area**

Natural communities of conservation importance can be biologically diverse “hot spots” that often support one or more focal plant or wildlife species. These communities may be rare and imperiled because they have been lost to development and are currently under threat from climate change, invasive exotic species, human disturbance, disease, or a combination of these threats. Natural communities of conservation importance were incorporated into the biological value mapping to ensure that they were considered as key conservation elements for the RCIS.

Natural communities of conservation importance were evaluated using the NVCS Name field in the composite vegetation dataset, which corresponds to different levels in the vegetation classification hierarchy (e.g., Macrogroup, Group, and Alliance). These natural communities are shown on Figure 2-11 and listed in Table 2-6. The process for identifying natural communities of conservation importance is described in Chapter 3, *Conservation Strategy*, in Section 3.2.1.2, *Natural Communities of Conservation Importance*.

**Table 2-6. Natural Communities of Conservation Importance**

| Natural Community (NVCS Name) | Imperiled/Vulnerable | Acres |
|---|---|---|
| *Achnatherum hymenoides* | Critically imperiled | 618 |
| *Aesculus californica* | Vulnerable | 14 |
| *Encelia [actonii, virginensis] – Viguiera reticulata* | Vulnerable | 37 |
| *Ephedra nevadensis – Lycium andersonii – Grayia spinosa* | Vulnerable | 26 |
| *Ericameria linearifolia – Cleome isomeri* | Vulnerable | 118 |
| *Rhus trilobata – Crataegus rivularis – Forestiera pubescens* | Imperiled | 105 |
| *Krascheninnikovia lanata* | Vulnerable | 14 |
| *Lepidospartum squamatum* | Vulnerable | 3,056 |
| *Platanus racemosa – Quercus agrifolia* | Vulnerable | 81 |
| *Populus fremontii – Fraxinus velutina – Salix gooddingii* | Vulnerable | 956 |
| *Prosopis glandulosa-Prosopis velutina – Prosopis pubescens* | Vulnerable | 897 |
| *Prunus fasciculata – Salazaraia mexicana* | Vulnerable | 901 |
| *Pseudotsuga macrocarpa* | Vulnerable | 97 |
| *Purshia tridentata – Artemisia tridentata* | Vulnerable | 1,397 |
| *Quercus lobata* | Vulnerable | 697 |
| *Salix gooddingii – Salix laevigata* | Vulnerable | 135 |

NVCS = National Vegetation Classification System

### Ecosystem Services

Ecosystem services provided by natural communities of conservation importance will vary to some degree by community type and condition. They may provide such services as soil development, soil retention, nutrient cycling, water regulation, water treatment, climate regulation, carbon sequestration, pollination and seed dispersal, biodiversity, habitat, traditional medicines, pharmaceuticals, and moderation of extreme events (flooding, fires, or droughts). They also provide cultural services such as recreation, hiking, bird watching, camping, ecotourism, and cultural identity and spiritual services (Millennium Assessment 2005; O’Connell and Livingston 2018).

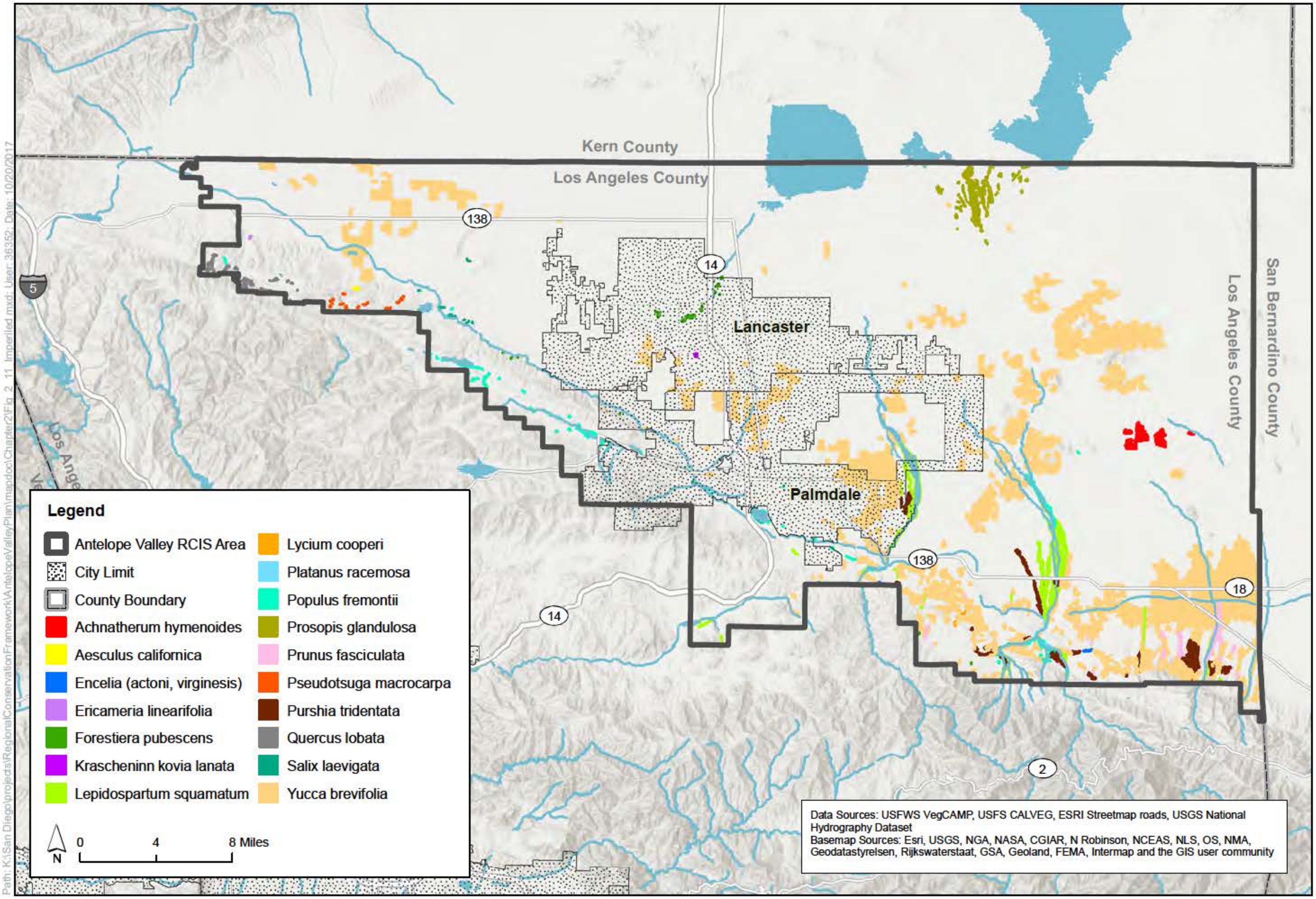


**Figure 2-11**
**Natural Communities of Conservation Importance in the Antelope Valley RCIS Area**

### 2.1.5.4 Key Aquatic Habitats

As noted in the California SWAP, "Because of the extreme weather conditions and limited water availability, the aquatic ecosystems of the deserts significantly differ from the rest of the state and provide unique environments for native species" (California Department of Fish and Wildlife 2015). The RCIS area includes the following key aquatic habitats, as identified by the SWAP, which are important habitats for many of the focal species (this list is not intended to be all-inclusive).

- Streams within the RCIS area are generally episodic due to the timing and amount of rainfall in the region. Episodic streams flow largely in response to rain events and tend to have wider, shallower forms or braided channels, formed by the short intense flows. Streams in the RCIS area include: Big Rock Creek, Pallett Creek, Sandrock Creek, Little Rock Creek, Kings Canyon.
- Seeps and springs are areas where groundwater meets the surface. They are important water sources for wildlife in desert areas that do not receive much rainfall. Mapped seeps and springs in the RCIS area are shown on Figure 2-12.
- Ponds, lakes, reservoirs are deeper, perennial water features that may be natural features, impoundments of natural features. Lake Palmdale and Una Lake are unusual lakes, formed along the San Andreas Fault and largely supplied by groundwater. Ponds, lakes, and reservoirs within the RCIS include: Lake Palmdale, Una Lake, Elizabeth Lake, Fairmont Reservoir, Tweedy Lake, Quail Lake, Lake Hughes.
- Other ephemeral water sources (shown on Figure 2-12).
- Human-created aquatic features: Piute Ponds, Kings Canyon Percolation Basin.

Known locations of these key aquatic habitats are shown on Figure 2-12; many smaller or ephemeral aquatic features are not comprehensively mapped in the RCIS area.

#### Ecosystem Services

Aquatic habitats provide a wide variety of ecosystem services including fish and wildlife habitat and forage, migrating bird habitat, water quality improvement, water storage, recreation, aesthetic appreciation, biodiversity, nutrient cycling, and carbon sequestration (Environmental Protection Agency 2016). Ecosystem services provided by aquatic habitats will vary by both type and position within the watershed.

## 2.2 Built Environment

This section describes government jurisdictions and plans, as well as existing infrastructure and infrastructure planning in the RCIS area. Assessing these elements of the built environment within the RCIS area helps to determine where foreseeable future urbanization will occur so that it can be considered in planning for future conservation.

The RCIS area is located entirely within the northeastern or Antelope Valley portion of Los Angeles County. Within the RCIS area, there are two incorporated cities, Lancaster and Palmdale. Both cities have growing populations of more than 150,000 residents. There are several smaller unincorporated communities within the RCIS area, but none has a population of more than 10,000; many have populations of fewer than 1,000 residents. Federal military land (Edwards Air Force Base) composes a large portion of the northeastern portion of the RCIS area.

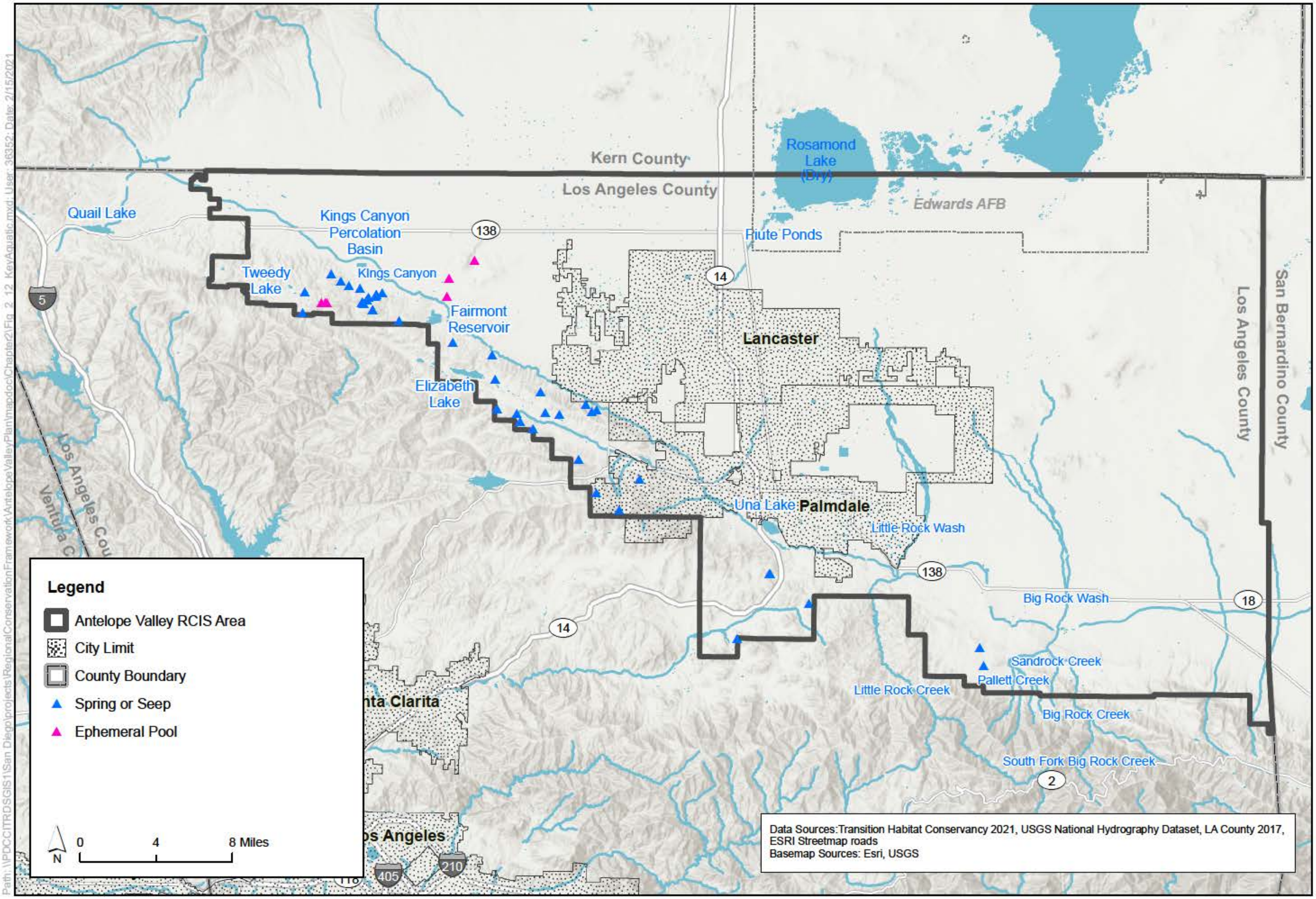


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**Figure 2-12**
**Key Aquatic Habitats of the Antelope Valley RCIS Area**

Lancaster is located near the central portion of the of the RCIS area in the northern portion of Los Angeles County, approximately 70 miles north of downtown Los Angeles. The entire sphere of influence of the city of Lancaster, including the incorporated city limits, comprises approximately 268 square miles. Currently, approximately 30 percent of the incorporated land area is developed.

Palmdale is south of Lancaster and is approximately 60 freeway miles north of Los Angeles. The city is bordered by Lancaster and the unincorporated community of Quartz Hill to the north, unincorporated communities of Lake Los Angeles and Littlerock to the east, the unincorporated community of Acton to the south, and the unincorporated community of Leona Valley to the west. The city of Palmdale encompasses approximately 174 square miles.

## 2.2.1 Local Government Planning Boundaries

CFGC 1852(c)(6) requires "consideration of . . . city and county general plan designations that accounts for reasonably foreseeable development of . . . housing in the RCIS area." This section describes urban development areas and city and county general plan designations that describe future urban development that is reasonably foreseeable.

The Antelope Valley RCIS is a non-regulatory, nonbinding voluntary strategy that, when adopted by CDFW, will provide information to support advance mitigation through voluntary mitigation credit agreements between willing participants. Adoption of this RCIS by CDFW is consistent with CFGC Sections 1850(e) and 1852(c)(7). By authorizing CDFW to approve RCISs, it is not the intent of the Legislature to regulate the use of land, establish land use designations, or to affect, limit, or restrict the land use authority of any public agency. Therefore, this RCIS does not preempt the authority of local agencies to implement infrastructure and urban development described in local general plans. Actions carried out as a result of this RCIS will be in compliance with all applicable state and local requirements.

Based on CFGC Sections 1852(c)(7) and 1855(b), the Antelope Valley RCIS:

- Does not establish a presumption under the California Environmental Quality Act (CEQA) that any project's impacts are, or are not, potentially significant.
- Does not prohibit or authorize any project or project impacts.
- Does not create a presumption or guarantee that any proposed project will be approved or permitted, or that any proposed impact will be authorized, by any state or local agency.
- Does not create a presumption that any proposed project will be disapproved or prohibited, or that any proposed impact will be prohibited, by any state or local agency.
- Does not alter or affect, or create additional requirements for, the general plan of the city, county, or city and county, in which it is located.
- Does not have any binding or mandatory regulatory effect on private landowners or mitigation credit project proponents.
- Does not preempt the authority of local agencies to implement infrastructure and urban development in local general plans.

## 2.2.2 Local Government Plans

Cities and counties are required by state law to develop and periodically update general plans with land use designations that typically include uses for urban development at various densities, rural development at various densities, commercial development, industrial development, and open space. Table 2-7 and Figure 2-13 show the consolidated land use designations of unincorporated Los Angeles County and the two cities in the RCIS area. For the purposes of the figure and this analysis, designations of different densities were consolidated into a single category (e.g., light industrial and heavy industrial shown as industrial; different residential designations shown as one residential category).

**Table 2-7. Land Uses in the RCIS Area**

| Land Use Designation | Acres |
|---|---|
| **Commercial** | |
| Cemeteries | 16.6 |
| Commercial and Services | 238.5 |
| General Office Use | 39.2 |
| Regional Shopping Center | 46.6 |
| Retail Stores and Commercial Services | 107.4 |
| Rural Commercial | 135.3 |
| **Conservation and Open Space** | |
| Cemeteries | 300.4 |
| Commercial and Services | 88.0 |
| General Office Use | 0.0 |
| Regional Shopping Center | 594.5 |
| Retail Stores and Commercial Services | 0.0 |
| Rural Commercial | 0.0 |
| **Education** | |
| Colleges and Universities | 10.5 |
| Educational Institutions | 108.5 |
| **Government** | |
| Bureau of Land Management | 660.9 |
| Military Land | 3,898.3 |
| National Forest | 107.1 |
| Public and Semi-Public | 1,917.7 |
| Public Facilities | 114.2 |
| **Industrial** | |
| Heavy Industrial | 671.6 |
| Industrial | 19.5 |
| Light Industrial | 1,466.6 |
| Manufacturing, Assembly, and Industrial Services | 1,284.4 |
| **Mixed Use** | |
| Mixed Commercial and Industrial | 349.0 |
| Mixed Residential and Commercial | 187.2 |

| Land Use Designation | Acres |
|---|---|
| Mixed Use – Rural | 64.4 |
| **Recreation** | |
| Golf Courses | 12.6 |
| Local Parks and Recreation | 44.3 |
| **Residential** | |
| Mixed Residential | 36.3 |
| Multi-Family Residential | 208.5 |
| Residential | 648.8 |
| Rural Residential | 2.1 |
| Single Family Residential | 5,215.0 |
| **Rural** | |
| Rural Land | 40,908.7 |
| **Utilities and Transportation** | |
| Transportation | 528.6 |
| Transportation, Communications, and Utilities | 0.1 |
| Utility Facilities | 72.4 |
| **Vacant** | |
| Vacant | 543.9 |
| **Water** | |
| Water | 684.1 |

Sources: City of Lancaster 2009a; Los Angeles County 2015b; City of Palmdale 1993

#### 2.2.2.1 County of Los Angeles General Plan 2035

The *Los Angeles County General Plan 2035* (General Plan) (Los Angeles County 2015b) is the foundational document for all community-based plans that serve the unincorporated areas within the county. The General Plan identifies 11 planning areas, including Antelope Valley, which has the corresponding *Antelope Valley Area Plan* (Area Plan). The purpose of the Planning Areas Framework is to provide a mechanism for local communities to work with the County to develop plans that respond to their unique and diverse character. The General Plan provides the policy framework and establishes the long-range vision for how and where the unincorporated areas will grow, and establishes goals, policies, and programs to foster healthy, livable, and sustainable communities through 2035. The County's role in the protection, conservation, and preservation of natural resources and open space areas is vital, as most of the natural resources and open space areas in Los Angeles County are located in the unincorporated areas.

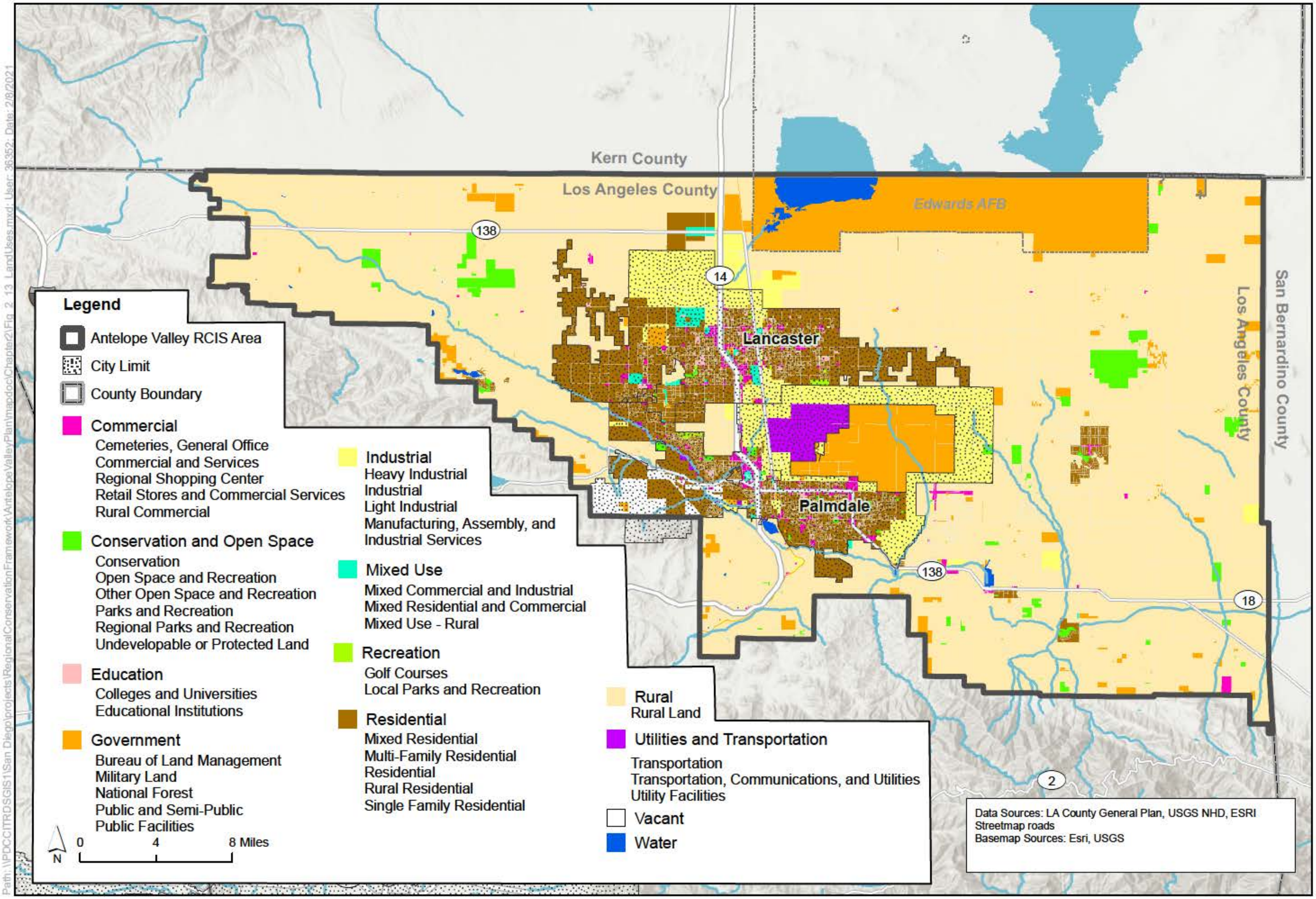


**Figure 2-13**
**Land Use Designations in the RCIS Area**

The Conservation and Natural Resources Element of the General Plan guides the long-term conservation of natural resources and preservation of available open space areas. The Conservation and Natural Resources Element addresses the following conservation areas: Open Space Resources; Biological Resources; Local Water Resources; Agricultural Resources; Mineral and Energy Resources; Scenic Resources; and Historic, Cultural and Paleontological Resources. The County also identifies Significant Ecological Areas (SEAs), which are further described below. Specific policies of note in the General Plan that pertain to biological resources include the following:

- Goal Land Use (LU) 3: A development pattern that discourages sprawl, and protects and conserves areas with natural resources and SEAs.
- Policy LU 3.1: Encourage the protect and conservation of areas with natural resources, and SEAs;
- Policy LU 3.2: Discourage development in areas with high environmental resources and/or severe safety hazards.
- Goal Conservation and Natural Resources (C/NR) 3: Permanent, sustainable preservation of genetically and physically diverse biological resources and ecological systems including: habitat linkages, forests, coastal zone, riparian habitats, streambeds, wetlands, woodlands, alpine habitat, chaparral, shrublands, and SEAs.
- Policy C/NR 3.1: Conserve and enhance the ecological function of diverse natural habitats and biological resources.
- Policy C/NR 3.4: Conserve and sustainably manage forests and woodlands.
- Policy C/NR 3.8: Discourage development in areas with identified significant biological resources, such as SEAs.
- Policy C/NR 3.9: Consider the following in the design of a project that is located within an SEA, to the greatest extent feasible:
    - Preservation of biologically valuable habitats, species, wildlife corridors and linkages; Protection of sensitive resources on the site within open space;
    - Protection of water sources from hydromodification in order to maintain the ecological function of riparian habitats;
    - Placement of the development in the least biologically sensitive areas on the site (prioritize the preservation or avoidance of the most sensitive biological resources onsite);
    - Design required open spaces to retain contiguous undisturbed open space that preserves the most sensitive biological resources onsite and/or serves to maintain regional connectivity;
    - Maintenance of watershed connectivity by capturing, treating, retaining, and/or infiltrating storm water flows on site; and
    - Consideration of the continuity of onsite open space with adjacent open space in project design.
- Policy C/NR 3.10: Require environmentally superior mitigation for unavoidable impacts on biologically sensitive areas, and permanently preserve mitigation sites.
- Policy C/NR 3.11: Discourage development in riparian habitats, streambeds, wetlands, and other native woodlands in order to maintain and support their preservation in a natural state, unaltered by grading, fill, or diversion activities.
- Goal C/NR 4: Conserved and sustainably managed woodlands.
- Policy C/NR 4.1: Preserve and restore oak woodlands and other native woodlands that are conserved in perpetuity with a goal of no net loss of existing woodlands.

## Significant Ecological Areas

SEAs are officially designated areas in Los Angeles County identified for their biological value. SEAs are designated to have special management because they contain biotic resources that are considered rare or unique, are critical to the maintenance of wildlife, represent relatively undisturbed areas of county habitat types, or serve as linkages. SEA boundaries were delineated to promote connectivity and biodiversity, with an overarching goal of protecting all representative biota of Los Angeles County, rather than focusing solely on rare species. The following four SEAs, as established in 2015 as part of the County General Plan Update, overlap with the boundaries of the Antelope Valley RCIS (Figure 2-14) (see Appendix E of the General Plan for more information about each SEA). Note that this RCIS has been developed based on the best available science and data. The RCIS provides landscape-scale guidance regarding high value conservation areas and conservation priorities and does not precisely map environmental resources. The high value conservation areas in the RCIS are not expected to be in complete alignment with the SEAs because they were developed with different methods. The RCIS is voluntary, nonbinding, and non-regulatory, and does not conflict with the SEAs in the Countywide General Plan.

- The **Antelope Valley SEA** is located primarily east of the cities of Palmdale and Lancaster, extending from the Angeles National Forest to the playa lakes within Edwards Air Force Base. The RCIS area encompasses the majority of this SEA, which is focused on the principal watercourses of the area: Little Rock Wash and Big Rock Wash and tributaries, such as Mescal Creek. The Antelope Valley SEA contains habitat for core populations of endangered and threatened plant and animal species and plant and animal species that are either unique or are restricted in distribution in the county and regionally, including the Agassiz's desert tortoise and Mohave ground squirrel. The geographical features of the SEA serve as a major habitat linkage and movement corridor for all wildlife species within its vicinity and, in an intergenerational sense, many of the plant species. The Little Rock Wash and Big Rock Wash, combined with the upland terrestrial Desert-Montane transect portion of the SEA, ensure linkage and direct movement areas for all of the wildlife species present within the county portion of Antelope Valley.
- The **Joshua Tree Woodlands SEA** is in the western portion of the RCIS area west and northwest of the Antelope Valley California Poppy Reserve in an unincorporated area of the county. This SEA encompasses many of the remaining old-growth stands of Joshua trees on the west side of Antelope Valley. Joshua tree woodland is a complex biological community of the gradual slopes of higher-elevation desert areas that once covered much of this part of Antelope Valley around the Antelope Wash. Joshua trees only occur within the Mojave Desert, and the county population is the western extreme location for the species.
- The **San Andreas SEA** is located along the southwestern portion of the RCIS area. The northwestern portion of the SEA is where multiple ecoregions converge. Wildlife corridors extend along the course of the San Gabriel Mountains in the RCIS area, as well as along the San Andreas fault and Garlock fault, which provide a great variety of habitats and frequent emergent water that is important for wildlife and plant movement and connectivity. The location and orientation of the SEA coincide with a segment of the San Andreas fault zone. The SEA includes a small portion of the western south-facing Tehachapi foothills, which are known for wildflower field displays in years of good rainfall. The SEA includes Quail Lake, a former sag pond enhanced to receive water from the West Branch of the California Aqueduct. From Quail Lake, the SEA extends up the northern foothills of Liebre Mountain and Sawmill Mountain, and includes Portal Ridge, large portions of Leona Valley, Ritter Ridge and Fairmont and Antelope buttes, and

portions of Anaverde Valley. It also includes a disjunct area that encompasses water bodies along the fault, Lake Palmdale, and Una Lake, with a terminus at Barrel Springs.

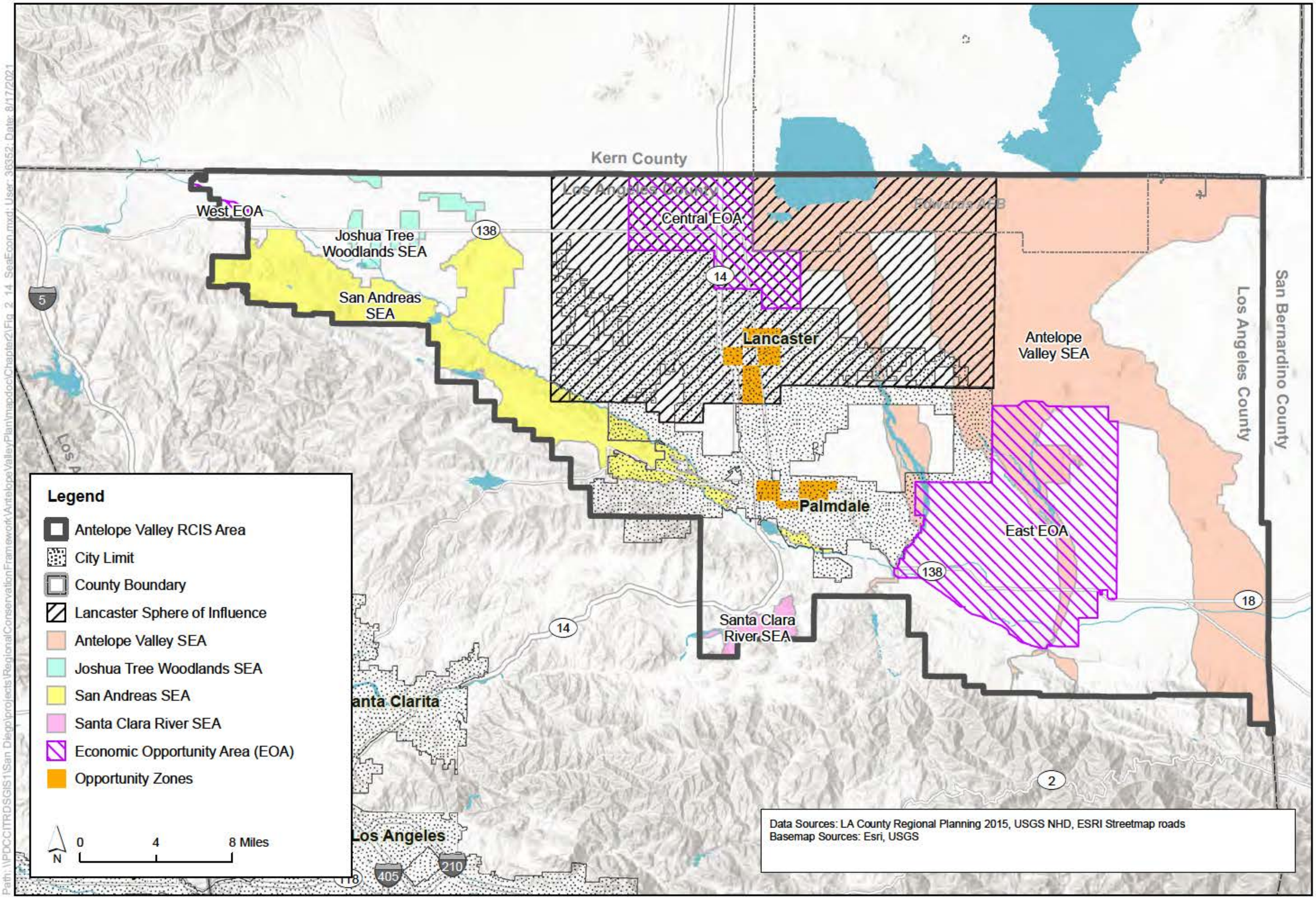


**Figure 2-14**
**Los Angeles County Significant Ecological Areas (SEA) and Economic Opportunity Areas**

- The **Santa Clara River SEA** extends along the entire reach of the Santa Clara River in Los Angeles County; only its easternmost portion extends into the RCIS area. The river is an important wildlife corridor in Los Angeles County. Nearly all of the SEA is designated by Audubon California as a Globally Important Bird Area. The Santa Clara River Important Bird Area extends beyond the SEA upstream, across Soledad Pass to the Barrel Springs area in Antelope Valley.

### 2.2.2.2 Antelope Valley Area Plan

The Area Plan was adopted in June 2015 (Los Angeles County 2015c). The planning area boundary encompasses the RCIS area, except for a small portion where the Palmdale city boundary runs adjacent to the Santa Clarita Valley Area Plan. Area plans cover smaller geographic areas than general plans and address neighborhood and/or community-level policy issues. The unique characteristics and needs of each plan area guide the development of each area plan. Area plans provide opportunities to update community-based plans, as well as implementation tools of the general plan, such as specific plans and community standards districts. The Antelope Valley plan area is predominantly rural and has major constraints, including natural hazards, environmental issues, lack of infrastructure, and limited water supply. While much of the growth has been at urban densities in and adjacent to the cities of Palmdale and Lancaster, the desirability of rural living and the availability of affordable housing have led to significant growth in the many unincorporated communities in Antelope Valley. In turn, many residents have had to commute longer distances to access employment opportunities.

The Area Plan's vision statement notes the "extraordinary environmental setting that includes agricultural lands, natural open spaces, expansive mountain views, and diverse ecological habitats" that unify the communities in Antelope Valley (Los Angeles County 2015c). As described in the Area Plan, the planning vision includes a Rural Preservation Strategy that is based on four types of environments that serve different purposes: rural town center areas, rural town areas, rural preserve areas, and economic opportunity areas. The plan goes on to describe rural preserve areas as those that are largely undeveloped and generally not served by existing or planned infrastructure and public facilities. Many of these areas contain environmental resources, such as SEAs. The primary benefit of rural preserve areas is that they provide habitat for regionally significant biological species while simultaneously providing scenic value to residents. A secondary benefit of these areas is that they contain natural resources that provide economic opportunities. The Area Plan's vision for these areas is limited development at very low densities, light and heavy agricultural uses, including equestrian and animal-keeping uses, and other uses where appropriate. Policies from the Area Plan that pertain to biological resources include the following:

- Goal Conservation and Open Space (COS) 4: Sensitive habitats and species are protected to promote biodiversity.
- Policy COS 4.2: Limit the amount of potential development in Significant Ecological Areas, including the Joshua Tree Woodlands, wildlife corridors, and other sensitive habitat areas, through appropriate land use designations with very low residential densities, as indicated in the Land Use Policy Map (Map 2.1) of this Area Plan.
- Policy COS 4.3: Require new development in Significant Ecological Areas to comply with applicable Zoning Code requirements, ensuring that development occurs on the most environmentally suitable portions of the land.
- Policy COS 4.4: Require new development in Significant Ecological Areas, to consider the following in design of the project, to the greatest extent feasible:

- Preservation of biologically valuable habitats, species, wildlife corridors and linkages;
- Protection of sensitive resources on the site within open space;
- Protection of water sources from hydromodification in order to maintain the ecological function of riparian habitats;
- Placement of development in the least biologically sensitive areas on the site, prioritizing the preservation or avoidance of the most sensitive biological resource onsite;
- Design of required open spaces to retain contiguous undisturbed open space that preserves the most sensitive biological resources onsite and/or serves to maintain connectivity;
- Maintenance of watershed connectivity by capturing, treating, retaining and/or infiltrating storm water flows on site; and
- Consideration of the continuity of onsite open space with adjacent open space in project design.

- Policy Land Use (LU) 2.1: Limit the amount of potential development in Significant Ecological Areas, including Joshua Tree Woodlands, wildlife corridors, and other sensitive habitat areas, through appropriate land use designations with very low residential densities, as indicated in the Land Use Policy Map (Map 2.1) of this Area Plan.
- Goal COS 18: Permanently preserved open space areas throughout the Antelope Valley
- Policy COS 18.1: Encourage government agencies and conservancies to acquire mitigation lands in the following areas and preserve them as permanent open space: - SEA, including Joshua Tree Woodlands, wildlife corridors, and other sensitive habitat areas; Hillside Management Areas; - Scenic Resource Areas, including water features such as the privately owned portion of Elizabeth Lake, significant ridgelines, buttes, and other natural landforms; - land adjoining preserves, sanctuaries, State Parks, and National Forests; and – privately owned lands within the National Forest
- Policy COS 19.3 Pursue innovated strategies for open space acquisition and preservation through the land development process, such as Transfers of Development Rights, Land Banking, and Mitigation Banking, provided that such strategies preserve rural character.

## Economic Opportunity Areas

Economic Opportunity Areas (EOAs) are areas in Antelope Valley (Figure 2-14) where major infrastructure projects are being planned by state and regional agencies, which would bring opportunities for growth and economic development in their vicinity. These projects include the Northwest 138 Corridor Improvement Project on the west side and portions of the High Desert Corridor project on the east side of Antelope Valley. Elements of both projects are being undertaken by the Los Angeles County Metropolitan Transportation Authority and California Department of Transportation.

The Antelope Valley Area Plan identifies three EOAs along the proposed route of the two projects: the East EOA, encompassing the communities of Lake Los Angeles, Sun Village, Littlerock, Pearblossom, Llano, and Crystalaire; the Central EOA, located along Avenue D, just north of William J. Fox Airfield and west of State Route 14; and the West EOA near Interstate 5 along State Route 138/Avenue D, immediately east and west of the California Aqueduct and including portions of the Neenach and Gorman communities.

The land use policies of the Antelope Valley Area Plan direct the majority of future growth to rural town centers and EOAs. EOAs contain land use designations that would allow for a balanced mix of residential, commercial, and light industrial uses, while preserving the rural character and ecological resources of the surrounding areas. The Area Plan encourages development to focus within EOAs by including fewer policy restrictions around resources such as water features, riparian areas, groundwater recharge basins, and national forests. It also identifies EOAs as areas where future planning would be appropriate with the completion of the identified infrastructure projects.

#### 2.2.2.3 City of Lancaster General Plan 2030

The *City of Lancaster General Plan 2030* was adopted on July 14, 2009, and the horizon year for the adopted general plan is currently 2030 (City of Lancaster 2009b). The plan is the City's long-term outlook for the future, and is the vision of the City. The plan identifies the types of allowable development and the general pattern of future development. The plan contains goals, objectives, policies, and specific actions that provide the framework for achieving the community's long-term vision. All subdivisions, public works, redevelopment projects, zoning decisions, and other various implementation tools must be consistent with the general plan. In order to keep the plan on course, the City may reexamine the goals, objectives, policies, and specific actions to ensure that the plan remains in line with the community's priorities.

#### 2.2.2.4 City of Palmdale General Plan

The *City of Palmdale General Plan* was adopted in 1993 (City of Palmdale 1993). It serves as a foundation in making land use decisions based on goals and policies related to land use, transportation routes, population growth and distribution, development, open space, resource preservation and utilization, air and water quality, noise impacts, safety issues, and other related physical, social, and economic development factors. In addition to serving as a basis for local decision making, the plan established a clear set of development rules for citizens, developers, decision makers, and neighboring cities and counties, and provides the community with an opportunity to participate in the planning and decision making process.

The Environmental Resources Element of the plan addresses the related issues of resource conservation and open space and provides a basis to evaluate existing resources and plan for their protection. The goal of this element is to improve the long-term quality of life for Palmdale residents through the rational management of natural resources and open space lands. The element establishes policies concerning air, water, land open space, recreation, and energy resources that relate to their conservation, preservation, and managed use. The element informs the public of the goals and policies of the City concerning conservation, open space, outdoor recreation, and scenic highways. It also provides an implementation program to serve as a guide for the day-to-day operational decisions of City staff.

#### 2.2.2.5 Opportunity Zones

While not a traditional local planning document, the Cities of Lancaster and Palmdale have identified areas within their city limits as Opportunity Zones (OZ) under the 2017 Tax Cuts and Jobs Act (Public Law No: 115-97). These are designated census tracts with specific tax breaks on development, designed to incentivize development within these areas. The Cities of Lancaster and Palmdale have each designated six census tracts as OZs.

## 2.2.3 Major Infrastructure

CFGC 1852(c)(6) requires that an RCIS include "consideration of major water, transportation and transmission infrastructure facilities . . . that accounts for reasonably foreseeable development of major infrastructure facilities, including, but not limited to, renewable energy . . . in the RCIS area." This section describes existing and reasonably foreseeable development of major infrastructure facilities in the RCIS area, including major water, transportation, transmission facility, and renewable energy projects.

### 2.2.3.1 Water

Major water infrastructure in the RCIS area including canals, engineered channels, reservoirs, artificial marshes, artificial water features, and flood control channels is shown on Figure 2-15.

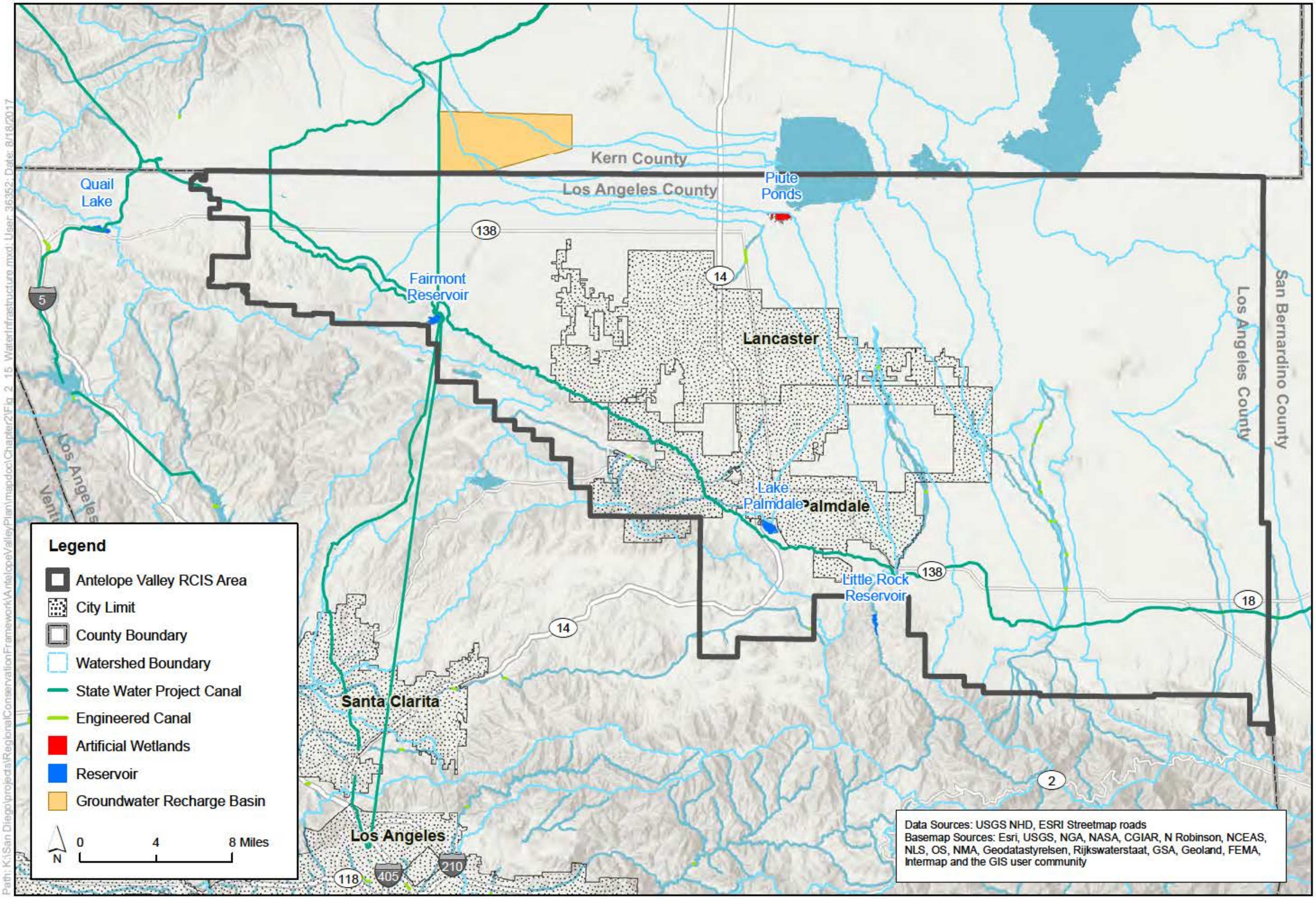


**Figure 2-15**
**Water Infrastructure within the RCIS Area**

## Antelope Valley-East Kern Water Agency

The Antelope Valley-East Kern Water Agency is the largest water district in the RCIS area, encompassing nearly 2,400 square miles in northern Los Angeles and eastern Kern Counties as well as a small portion of Ventura County. The agency constructed and manages several large water infrastructure projects within the RCIS area, including the 3-million-gallon reservoir at Vincent Hill and the Westside Water Bank, which started operations in 2010 and currently includes approximately 400 acres of groundwater recharge basins and nine groundwater recovery wells (up to 20 new wells may be constructed as a part of the Westside Water Bank project). Other projects are the Eastside Water Banking and Blending Project, which started operations in 2016 and includes three 2-acre recharge basins and three groundwater wells, and the South North Intertie Pipeline and Pump Station/Turnout Project, which connects the existing Rosamond Water Treatment Plant and the Quartz Hill Water Treatment Plant.

## Palmdale Water District

The Palmdale Water District produces an average of 6.83 billion gallons of water each year using more than 400 miles of pipe, 24 wells, 20 tanks, two reservoirs, and a state-of-the-art treatment plant. Lake Palmdale is an artificial lake completed in 1924 as part of the California State Water Project and is fed by the California Aqueduct (Figure 2-15). The Palmdale Water District is entitled to take 21,300 acre-feet (5.6 billion gallons) of water each year from the aqueduct into Palmdale Lake, where it is stored for eventual use. This water is then treated at the district's water treatment plant for distribution to the public.

The other source of surface water is Littlerock Reservoir, created by Littlerock Dam. Littlerock Dam was originally built in 1922 and was recently renovated to increase the storage capacity of the reservoir to 3,500 acre-feet (1.1 billion gallons) of water. Littlerock Reservoir, just outside and to the south of the RCIS area boundary, is fed by natural runoff from snowpack in the local mountains and from rainfall. The water is then transferred from Littlerock Reservoir to Palmdale Lake. After entering Palmdale Lake, this water is treated at the district's water treatment plant for distribution.

The population of Palmdale is expected to more than double over the next 25 years, causing water demands to more than double. A strategic water resources plan has been developed to address these demands. It identifies a number of water resource options available to meet these needs including the use of imported water from the State Water Project, groundwater, local runoff, recycled water, conservation, and water banking. The Palmdale Water District is carrying out major capital improvement projects to ensure each facility functions as intended. The district is currently constructing two water quality projects within the area: the Palmdale Regional Recharge and Recovery Project and the Littlerock Sediment Removal Project.

## California Aqueduct

The California Aqueduct carries water from the Sacramento–San Joaquin Delta to the San Joaquin Valley and Southern California. Water entering the RCIS area is generally released from Lake Oroville in the north, where it travels south through the delta and is pumped into the California Aqueduct. Antelope Valley is served by the eastern branch of the aqueduct. The California Aqueduct enters the RCIS area at its northwestern end and runs diagonally across State Route 138 and through the entire southern portion of the RCIS area west to east. The aqueduct is an open, cement-lined canal through most of this extent, with limited areas where it is routed underground including where it crosses major drainages such as Little Rock Wash and Big Rock Wash as they exit the San Gabriel Mountains foothills.

## Antelope Valley Integrated Regional Water Management Plan

The *Antelope Valley Integrated Water Management Plan* (Antelope Valley Integrated Regional Water Management Group 2013) was updated in 2013 through a collaborative effort between multiple water users and agencies in the valley, including Antelope Valley–East Kern Water Agency, the Cities of Palmdale and Lancaster, and Los Angeles County Waterworks District No. 40, Antelope Valley.[6] It provides a sustainable water management strategy within Antelope Valley through 2035. In order to improve water supply, quality, and flood management, a number of water infrastructure projects are in their conceptual stage. These includes projects that identify approximately 30,000 acre-feet per year of new supply, while also identifying up to approximately 600,000 acre-feet per year of water bank storage capacity, protecting natural streams and recharge areas from contamination, maximizing beneficial use of recycled water, and improving flood management in the region, including beneficial use identification, existing flood hazard mapping, development of policy actions, and flood mitigation.

The environmental resource management objective of the *Antelope Valley Integrated Water Management Plan* will also require more projects. Proposed projects that would help meet environmental resource management targets are mainly multiple-benefit projects that would provide water supply, water quality, and/or flood improvements in addition to providing open space and habitat. Section 6 suggests development of a habitat conservation plan for Antelope Valley, and promotion of land conservation projects that enhance flood control, aquifer recharge, and watershed and open space preservation to further identify projects to meet this objective. Similarly, additional projects may be necessary to achieve targets that include preserving farmland, increasing recreational space, and coordinating a regional land use plan. Many of the projects identified would indirectly support these targets by providing water to irrigate farm and recreational lands, but few projects would directly support these targets.

## Antelope Valley Groundwater Adjudication

The Antelope Valley Groundwater Adjudication case was launched October 29, 1999, when Diamond Farming Co. sued the cities of Lancaster and Palmdale, the Palmdale Water District, Antelope Valley Water Company, Palm Ranch Irrigation District, Quartz Hill Water District, Rosamond Community Services District, and Mojave Public Utilities District. In 2001, Bolthouse Farms sued all the water providers named in the 1999 complaint, and added Littlerock Creek Irrigation District and Los Angeles County Waterworks districts 37 and 40. In 2006, Antelope Valley–East Kern Water Agency filed for declaratory and injunctive relief to protect its overlying rights and rights to pump the supplemental yield from imported state water. The settlement covers six cases involving groundwater rights filed in California superior courts in Kern, Los Angeles, and Riverside Counties.

[6] According to Appendix A of the Antelope Valley Integrated Water Management Plan (Memorandum of Understanding), the complete list of parties is Antelope Valley-East Kern Water Agency, Palmdale Water District, Quartz Hill Water District, Littlerock Creek Irrigation District, Antelope Valley State Water Contractors Association, City of Palmdale, City of Lancaster, County Sanitation District No. 14 of Los Angeles County, County Sanitation District No. 20 of Los Angeles County, Rosamond Community Services District, and Los Angeles County Waterworks District No. 40, Antelope Valley.

The 2015 judgment cleared the way for water management limits and placed restrictions on the pumping of water so that no more water is pumped out than is replenished to the basin. The judgment allows anyone who was a party to the case to pump from the basin. There may be charges for pumping depending on a party's prior pumping and some pumping is subject to the watermaster's approval. The court will maintain continuing jurisdiction over the basin, and five watermaster board members will administer the basin in conjunction with the court (Best Best & Krieger 2016).

## 2.2.3.2 Transportation

Improvements to State Route 138 and State Route 14 compose the major highway transportation infrastructure projects that are planned within the RCIS area (Los Angeles County 2015b). Other large-scale transportation infrastructure development projects planned for Antelope Valley include the California high-speed rail system, with a station in Palmdale to provide links to Northern California and other portions of Southern California, and a high-speed rail system linking Palmdale to Victorville. Another project will establish a regional transportation hub in Palmdale with feeder transit service to the rural areas of the unincorporated Antelope Valley (Los Angeles County 2015b).

Many smaller-scale projects are also planned for the RCIS area. These include the development of a network of greenways, trails, and/or bike paths that connect population centers and an integrated system of safe and attractive pedestrian routes linking residents to rural town center areas, schools, services, transit, parks, and open space areas, as described in the Mobility Element of the Area Plan.

State Route 138 connects to Interstate 5, which is just to the west of the RCIS area and connects all three west coast states, running from the Mexico border to the Canada border. State Route 14 connects the adjacent Santa Clarita Valley, just north of metropolitan Los Angeles, to the eastern portion of the RCIS area. Figure 2-16 shows major transportation infrastructure in the RCIS area.

The following major roads transect parts of the RCIS area.

- Angeles Forest Highway, a key county road, connects Palmdale with Angeles Crest Highway as an alternate route to the Los Angeles basin.
- Antelope Valley Freeway (State Route 14).
- State Route 18 (connects State Route 138 east of Palmdale to Victor Valley and U.S. Route 395). There is currently a proposal to turn this into a freeway.
- State Route 138 (of which Pearblossom Highway composes the eastern leg).

### Northwest 138 Improvement and High Desert Corridor Projects

On the western side of Antelope Valley, the Northwest 138 Corridor Improvement Project will connect Interstate 5 with State Route 14. On the eastern side of Antelope Valley, the High Desert Corridor Project will connect State Route 14 with State Route 18 in San Bernardino County (Palmdale to Victorville). On December 31, 2020, Caltrans notified the U.S. Federal Highway Administration that the rail component of the High Desert Corridor is moving forward with a Record of Decision expected in 2021. Caltrans is opting not to build the freeway portion of the project at this time, but reserves the right to resume work on the freeway component at some point in the future (High Desert Corridor Joint Powers Authority, 2021). Both the High Desert Corridor and the Northwest 138 Corridor projects are joint initiatives of the Los Angeles County Metropolitan Transportation Authority and the California Department of Transportation.

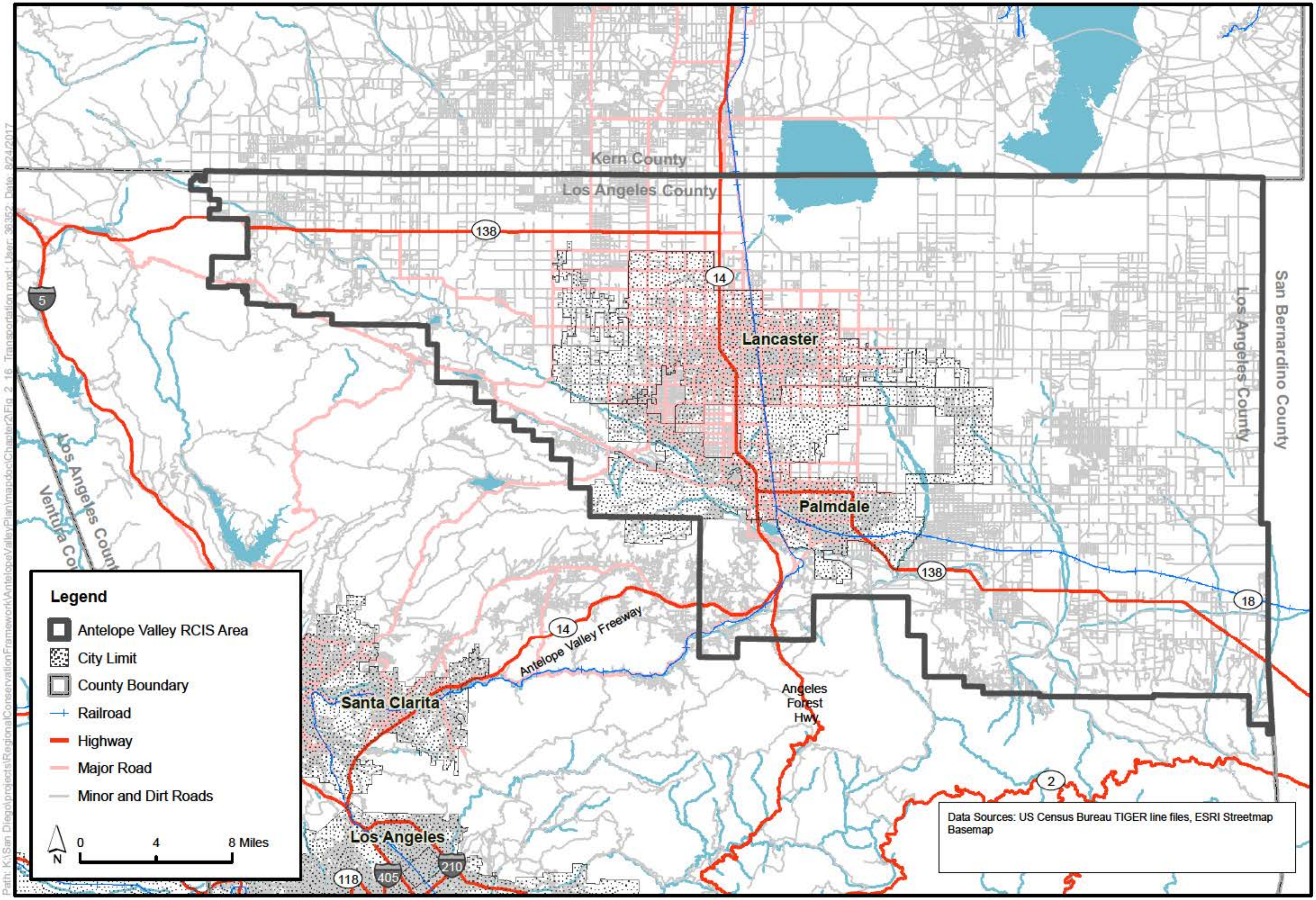


**Figure 2-16**
**Transportation Infrastructure in the Antelope Valley RCIS Area**

### Antelope Valley Transit Authority

The Antelope Valley Transit Authority was formed under an agreement between the County of Los Angeles and the Cities of Lancaster and Palmdale to provide transit services to the Antelope Valley region. Projects completed by or that are under construction by the authority include the following.

- Lancaster City Park Transfer Center Enhancement Project
- Palmdale Transportation Center Expansion
- New Lancaster Metrolink Intermodal Station
- Introduction of high-speed train service

### Metrolink

Metrolink is a commuter rail system serving Southern California that operates in Los Angeles, Orange, Riverside, San Bernardino, San Diego, and Ventura Counties. The Antelope Valley Line runs from Los Angeles Union Station through Santa Clarita, Soledad Canyon, and Palmdale to Lancaster. There are no planned expansions of the Antelope Valley Line.

### High-Speed Rail Project

The California High-Speed Rail Authority is responsible for planning, designing, building, and operating the first high-speed rail system in the nation. California High-Speed Rail will connect the largest cities of the state. By 2029, the system will run from San Francisco to the Los Angeles basin in under 3 hours at speeds of more than 200 miles per hour. The system will eventually extend to Sacramento and San Diego, totaling 800 miles with up to 24 stations. Two sections of the California High-Speed Rail are planned for construction within the RCIS area.

- The Bakersfield to Palmdale Section will provide a link between the Central Valley and Southern California by closing the gap in the statewide passenger rail system between these two regions. The approximately 80-mile route will cross the Tehachapi Mountains and include stations at Bakersfield and Palmdale.
- The Palmdale to Burbank Section will connect Antelope Valley to the San Fernando Valley in Southern California. The approximately 35- to 45-mile section has multiple alignment options under study and will tunnel under the San Gabriel Mountains. It will include stations at Palmdale and Burbank.

## 2.2.3.3 Electric and Gas Transmission

Transmission lines in the RCIS area include those supporting distribution of natural gas and electricity. Figure 2-17 shows transmission facilities in the RCIS area including major electric transmission lines (greater than 230 kilovolts) and natural gas pipelines. The gas transmission lines are owned/operated by the Southern California Gas Company or a third-party pipeline operator. Electric transmission lines range from the smaller 66 kV lines to the large 500 kV within the Antelope Valley RCIS area, and have multiple owner/operators. All Southern California Edison (SCE) transmission lines are operated by the California Independent System Operator. SCE delivers power to 15 million people in 50,000 square miles across central, coastal, and Southern California. The most recent major transmission project conducted by SCE in this area is the Tehachapi Renewable Transmission Project (TRTP).

The TRTP is a series of new and upgraded high-voltage electric transmission lines and substations capable of carrying 4,500 megawatts of electricity (enough energy to supply 3 million homes) from renewable and other generators in Kern County south through the RCIS area to San Bernardino County. The project is designed to provide added capacity to strengthen SCE's electrical system and deliver clean, renewable energy to the region to help meet California's renewable energy goals. SCE completed construction of the 173-mile TRTP electric transmission line and energized the line in the fourth quarter of 2016 (Figure 2-17).

### 2.2.3.4 Renewable Energy

Given the intention of the RCIS program to address infrastructure projects, the focus of the discussion on renewable energy in the RCIS area is on utility-scale facilities (greater than 1 megawatt); dispersed generating facilities (e.g., building-mounted photovoltaic panels) are not addressed herein. Antelope Valley and the RCIS area are home to several large utility-scale solar energy production facilities. Two of the largest, Solar Star and the Antelope Valley Solar Ranch, are within the RCIS area. Existing and approved renewable energy development in the RCIS area is shown on Figure 2-18. The 586-megawatt Solar Star project is among the largest solar photovoltaic projects in the world. The project spans 3,200 acres in Kern and Los Angeles Counties (approximately 1,000 acres within the RCIS area) and is under a long-term power purchase agreement with SCE. The Antelope Valley Solar Ranch One project is located on 1,372 acres in the RCIS area near Lancaster.

The Area Plan[7] includes the following policies for renewable energy development:

- Policy ED 1.11: Encourage the development of utility-scale renewable energy projects at appropriate locations and with appropriate standards to ensure that any negative impacts to local residents are sufficiently mitigated.
- Policy ED 1.13: Ensure early discussions with Edwards Air Force Base and U.S. Air Force Plant 42 regarding new industries, such as utility-scale renewable energy production facilities, to limit potential impacts on mission capabilities.

Los Angeles County adopted a Renewable Energy Ordinance in January of 2017. The Renewable Energy Ordinance updates the County's planning and zoning code for the review and permitting of solar and wind energy projects. The purpose and goals of the Renewable Energy Ordinance include incentivizing small-scale projects through a streamlined review process and regulating ground-mounted utility-scale projects to better address community concerns and minimize environmental impacts. The ordinance prohibits ground-mounted utility-scale solar facilities in SEAs and EOAs designated in the County's General Plan and Area Plan. Utility-scale wind facilities are prohibited in all zones and areas within the unincorporated county. There are no operating wind energy facilities in the RCIS area.

[7] Refer to the Antelope Valley Area Plan for more Conservation and Open Space and Economic Development policies pertaining to renewable energy development, including ED 1.21 and COS 7.2, 10.1–10.6, 11.1–11.3, 12.1–12.2, 13.1–13.9, and 14.1–14.7.

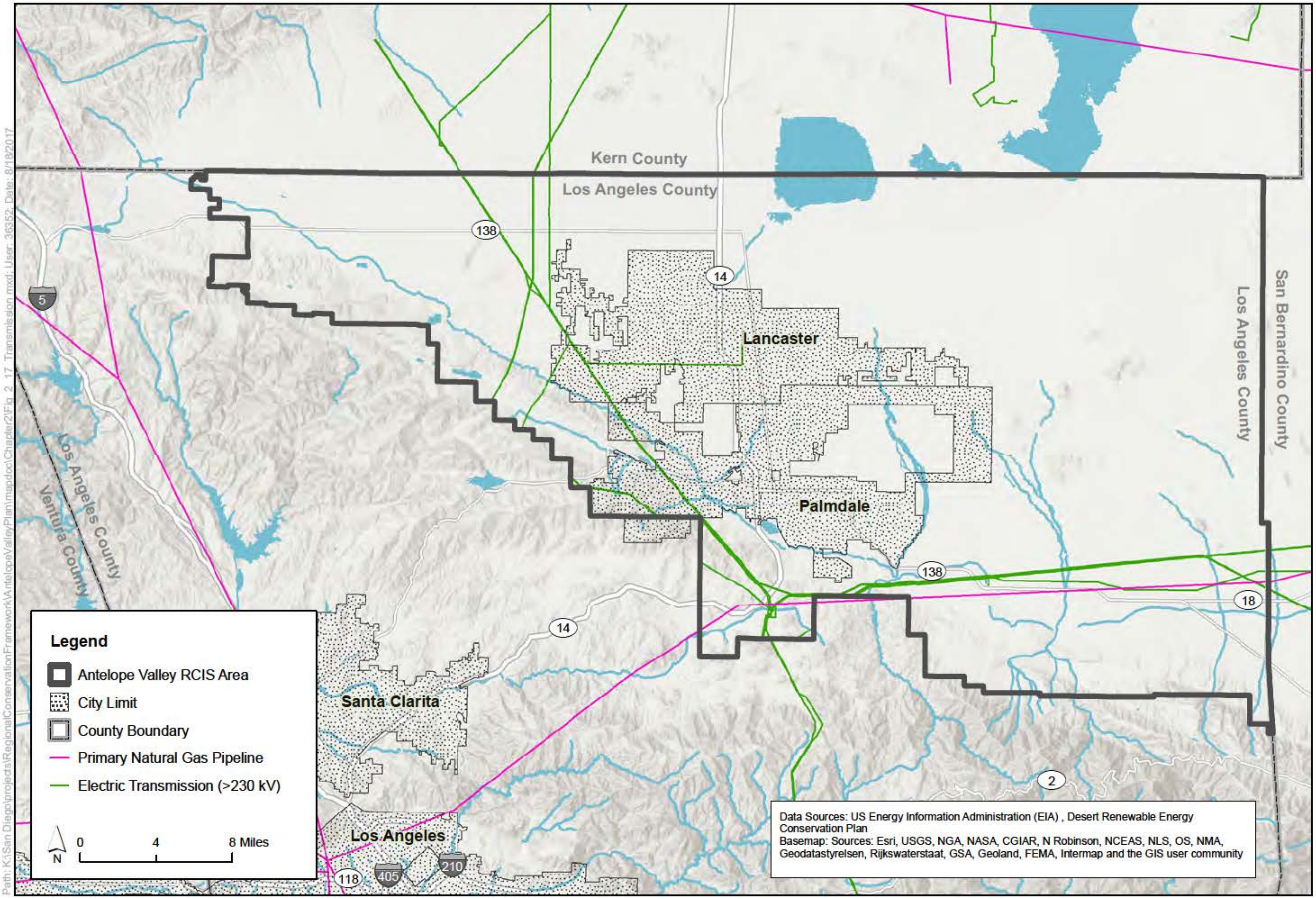


**Figure 2-17**
**Transmission Infrastructure in the Antelope Valley RCIS Area**

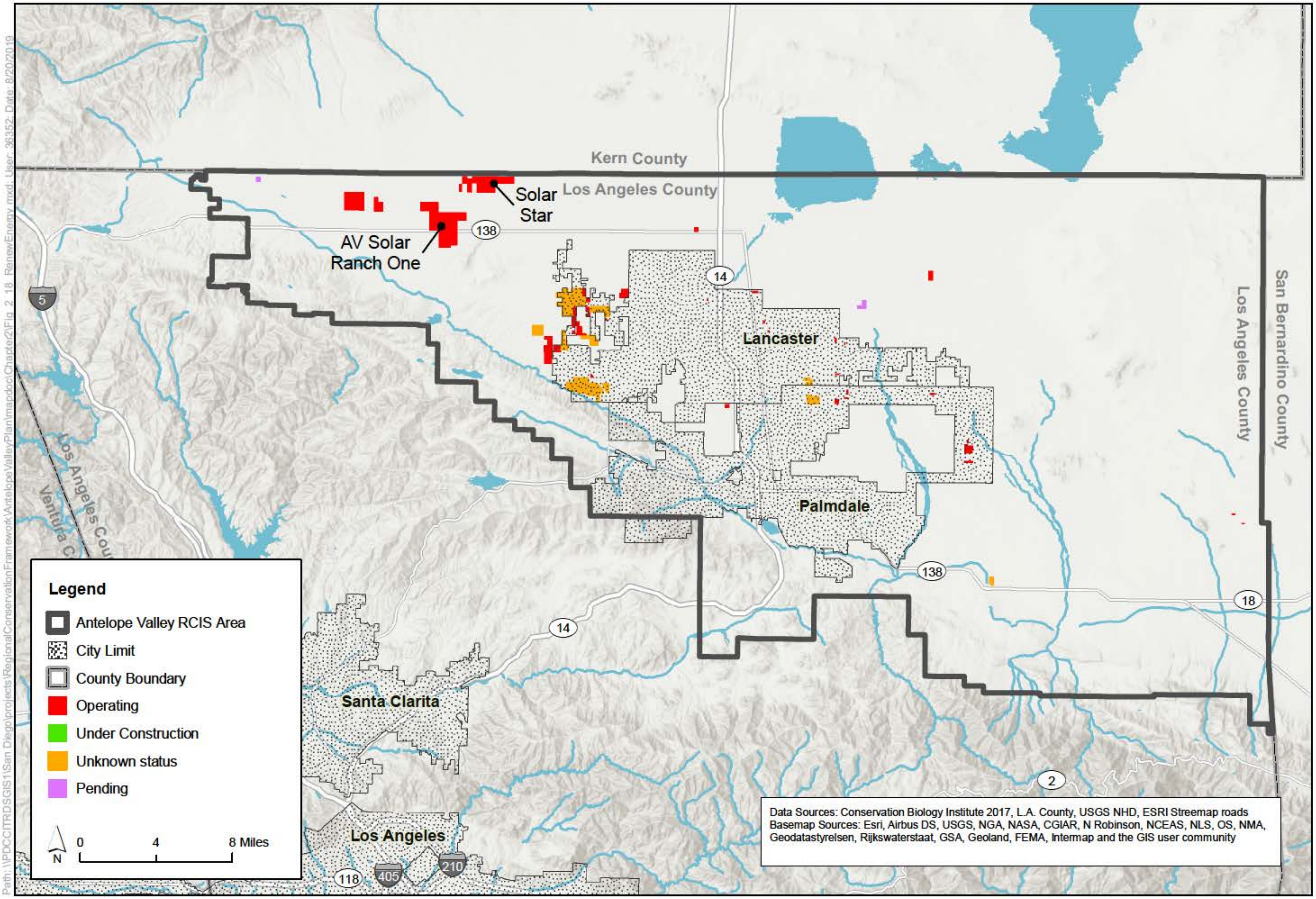


**Figure 2-18**
**Solar Energy Projects in the Antelope Valley RCIS Area**

## 2.2.4 Protected Areas

*Protection*, in the context of the protected area dataset, is defined in this RCIS as acquisition of land in fee title ownership and/or a conservation easement to benefit the conservation of species, habitats, and agricultural lands.

*Permanent protection* means: (1) recording a conservation easement and (2) providing secure, perpetual funding for management of the land, monitoring, legal enforcement, and defense.

The Antelope Valley RCIS protected areas database was based on the Antelope Valley and West Mojave Ecoregion Protected Areas Database (Conservation Biology Institute 2016), the California Protected Areas Database (2016), and the California Conservation Easements Database (2020). Additional data were provided by several regional and local agency and nongovernment partners, including the Transition Habitat Conservancy and BLM land use plan amendment from the DRECP (California Energy Commission et al. 2014). The Antelope Valley RCIS identified protected area status using the California Protected Areas Database, which assigns four levels of protection following the Gap Analysis Project (GAP) conservation status code categories, as follows (U.S. Geological Survey no date).

- GAP Status 1: An area protected from conversion of natural land cover and with a mandated management plan in operation to maintain a natural state within which disturbance events (of natural type, frequency, intensity, and legacy) are allowed to proceed without interference or are mimicked through management.
- GAP Status 2: An area protected from conversion of natural land cover and having a mandated management plan in operation to maintain a primarily natural state, but that may receive uses or management practices that degrade the quality of existing natural communities, including suppression of natural disturbance.
- GAP Status 3: Area protected from conversion of natural land cover for the majority of the area. Subject to extractive uses of either broad, low-intensity type (e.g., logging) or localized intensity type (e.g., mining). Confers protection to federally listed endangered and threatened species throughout the area.
- Unassigned Public Lands: Public land holdings that do not meet the International Union for Conservation of Nature definition of a protected area or are not GAP Status 1, 2, or 3. The International Union for Conservation of Nature definition of a protected area is "a clearly defined geographical space, recognized, dedicated and managed, through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values" (International Union for Conservation of Nature 2020). The majority of these lands within the RCIS area include military lands, but also some local land holdings by water districts, schools, etc.

GAP Statuses 1–3 and Unassigned Public Lands are all evaluated as protected lands in the Antelope Valley RCIS. Not all protected lands, however, are permanently protected. The data sources used to create the Antelope Valley RCIS protected areas database did not provide enough information to definitively assign permanent protection status to most protected areas.

Easements were derived from the National Conservation Easement Database, (October 2015) which was supplemented by the California Conservation Easement Database (2020). More recent updates from local nongovernment groups and mapped mitigation lands were also included. These protected lands were assigned GAP Status codes to augment existing California Protected Areas Database data to create the protected lands layer for the RCIS area (Conservation Biology Institute 2016)**.**

The identification of an area as protected in this RCIS does not imply that the protected area is completely free from threat of conversion to non-habitat or other open space uses. Additional actions may be needed such as recording a conservation easement, restoring and enhancing habitat, and providing secure, perpetual funding for management of the land, monitoring, legal enforcement, and defense to a protected area to provide conservation uplift. Therefore, additional conservation actions and habitat enhancement actions may occur throughout the RCIS area, including on lands that are designated as protected.

The establishment of quantitative conservation goals for focal species includes setting target acreages for permanent protection of habitat (see Section 3.3, *Gap Analysis for Focal Species*).

#### 2.2.4.1 Protected Areas in the RCIS Area

The RCIS area includes existing protected areas that are public or private lands where the primary intent of land management is to manage the land for open space use. Protected areas include large parks and open space areas that are managed primarily for their ecological functions and values. Protected areas may also include semi-developed areas such as recreational parks that maintain some ecological value or may provide habitat for some species. The Antelope Valley RCIS protected areas database was compiled as described above to inform the development of the conservation strategy (Chapter 3, *Conservation Strategy*), including identifying gaps in permanent protection (e.g., gaps in protection of focal species populations, habitat, movement corridors, or other natural resources), and to inform the development of conservation goals and objectives, and prioritization of conservation opportunities.

Protected areas in the RCIS area vary by the mechanisms by which the land is protected (e.g., fee title, conservation easement, agricultural easement) and the degree to which land is managed and monitored for biological resources and ecological values (e.g., land protected primarily for the conservation of natural resources; land protected for multiple uses, including conservation and recreation; or land protected primarily for recreation, military, or natural resource use).

In the Antelope Valley RCIS area there are 55,928 acres of protected area in GAP Statuses 1–3, including 3,112 acres in conservation easement (Figure 2-19 and Table 2-8). There are an additional 54,321 acres in the unassigned public lands category, which are predominantly military lands. Collectively, these areas currently provide some level of protection for important habitat as well as public recreational opportunities. The largest landowner in the RCIS area is the U.S. Military (Edwards Air Force Base) (47,778 acres). Publicly owned protected lands outside of Edwards Air Force Base total approximately 43,627 acres in the RCIS area. The two largest private owners of protected lands within the RCIS area are Transition Habitat Conservancy (THC) and Petersen Ranch Mitigation Bank. THC owns 2,460 acres in fee title (all of which have deed restrictions and 320 acres of which have conservation easements), and additional 540 acres not owned but with conservation easements (totaling 3,000 acres of conserved habitat). Petersen Ranch Mitigation Bank owns 4,223 acres, but only 1,600 acres are currently protected by a conservation easement. Petersen Ranch Mitigation Bank is discussed further in Section 2.2.4.3 below.

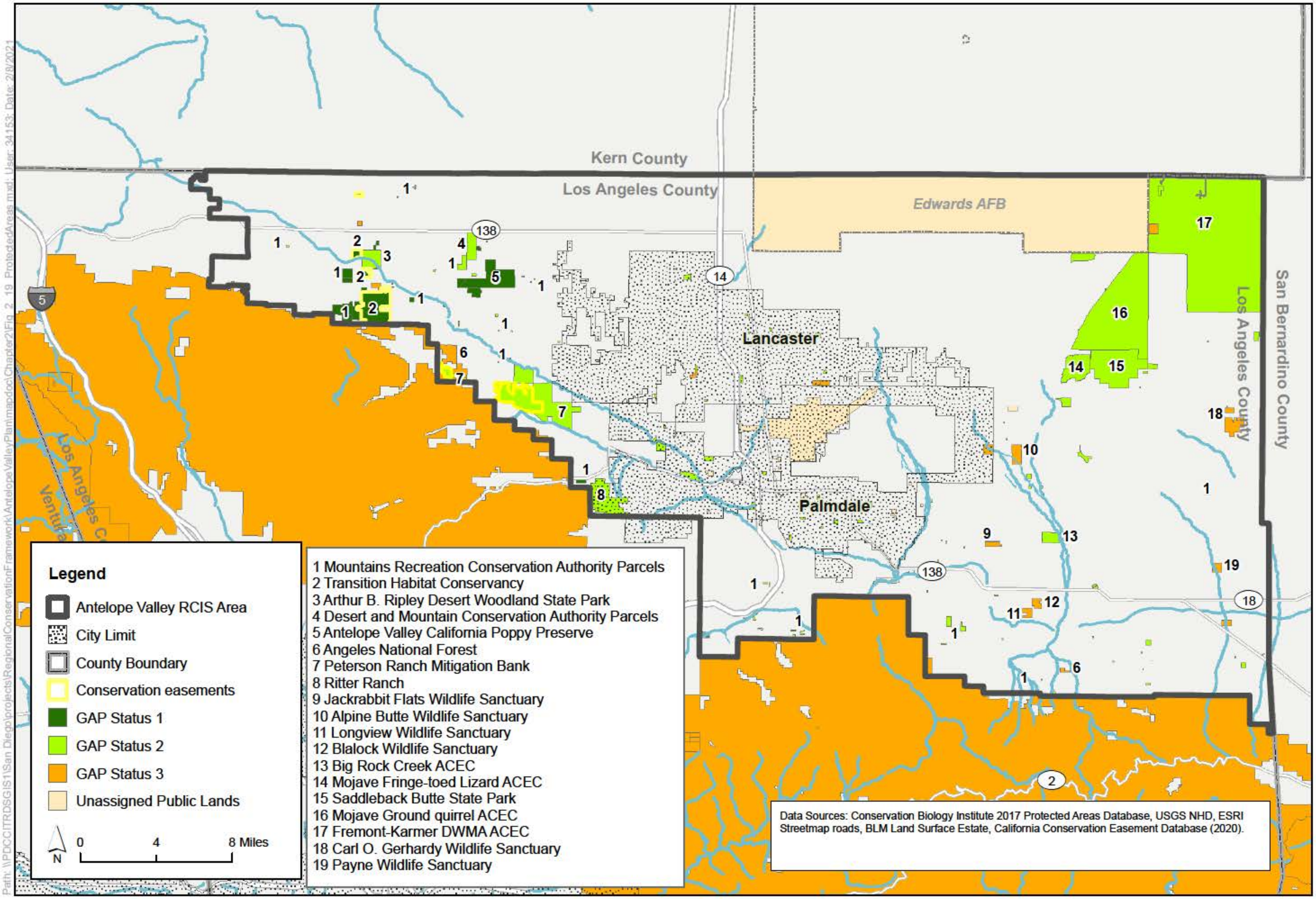


**Figure 2-19**
**Protected Areas in the Antelope Valley RCIS Area**

**Table 2-8. Protected Areas and GAP Status in the Antelope Valley RCIS**

| Protected Area Name | Acres | Protected Area Name | Acres |
|---|---|---|---|
| **GAP Status 1 Lands** | 7,419 | *GAP Status 2 Lands (continued)* | |
| Transition Habitat Conservancy | 2,096[1] | Lancaster Park | 64 |
| Mountains Recreation Conservation Authority Parcels | 2,043 | Apollo Community Regional Park | 54 |
| Antelope Valley California Poppy Preserve | 1,772 | Blanche Hamilton Wildlife Sanctuary | 51 |
| All Other GAP 1 Lands < 50 acres | 20 | All Other GAP 2 Lands < 50 acres | 656 |
| **GAP Status 2 Lands** | 45,191 | **GAP Status 3 Lands** | 3,318 |
| Fremont-Kramer Desert Wildlife Management Area ACEC | 23,544 | Angeles National Forest | 1,056 |
| Mohave Ground Squirrel ACEC | 8,869 | Carl O. Gerhardy Wildlife Sanctuary | 552 |
| Peterson Ranch Mitigation Bank (1,600 acres in easements) | 4,223 | Alpine Butte Wildlife Sanctuary | 323 |
| Saddleback Butte State Park | 2,953 | Big Rock Creek Wildlife Sanctuary | 161 |
| Ritter Ranch | 1,564 | Phacelia Wildlife Sanctuary | 161 |
| Mojave Fringe-toed Lizard ACEC | 1,090 | Payne Wildlife Sanctuary | 157 |
| Mountains Recreation Conservation Authority Parcels | 656 | Blalock Wildlife Sanctuary | 140 |
| Arthur B. Ripley Desert Woodland State Park | 568 | Longview Wildlife Sanctuary | 139 |
| Desert and Mountain Conservation Authority Parcels | 481 | Jackrabbit Flats Wildlife Sanctuary | 114 |
| Big Rock Creek ACEC | 309 | Mescal Wildlife Sanctuary | 99 |
| Joshua Ranch | 187 | George R. Bones Wildlife Sanctuary | 99 |
| Antelope Valley Indian Museum | 162 | All Other GAP 3 Lands < 50 acres | 316 |
| A.C. Warnack Nature Park | 131 | | |
| Stephen Sorensen Park | 108 | **Unassigned Public Lands** | 54,321 |
| Santa Monica Mountains Conservancy Parcel | 103 | Edwards Air Force Base | 47,788 |
| SCC Plum Canyon | 83 | Air Force Plant No. 42 | 5,915 |
| COGO | 82 | Little Rock Wash | 293 |
| Marie Kerr Park | 77 | County of Los Angeles Parcel | 80 |
| Pelona Vista Park | 76 | All Other Unassigned Public Lands < 50 acres | 243 |

ACEC = Area of Critical Environmental Concern; GAP = Gap Analysis Program
[1] Protected Lands owned by Transition Habitat Conservancy have increased to 3,000 acres since the time the RCIS analysis and acreage calculations were completed.

### 2.2.4.2 Mitigation Banks and Conservation Banks in the RCIS Area

CFGC 1852(b)(12) requires that an RCIS provide "a summary of mitigation banks and conservation banks approved by the department or the United States Fish and Wildlife Service that are located within the RCIS area or whose service area overlaps with the RCIS area." The Program Guidelines (California Department of Fish and Wildlife 2018a) further specify that the summary include banks approved by the U.S. Army Corps of Engineers, as well as information on the types of credits available and where information can be found on the number of available credits.

Conservation and mitigation banks are generally large, connected areas of permanently protected, restored, enhanced, or constructed habitats for target species that are set aside for the express purpose of providing mitigation for project impacts on wetlands, threatened and endangered species, and other sensitive resources. CFGC 1797.5 defines terms associated with mitigation banking in California. In summary, a conservation or mitigation bank is privately or publicly owned land that is managed for its natural resource values, with an emphasis on the targeted resource (species or aquatic resources, respectively). Overseeing agencies typically require that the establishment of a mitigation bank include the restoration or creation of aquatic resources. Conservation banks may include restoration or creation projects, but they are more heavily focused on the protection and management of existing occupied habitats of the target species. In exchange for permanently protecting and managing the land—and in the case of mitigation banks, restoring or creating aquatic resources—the bank operator is allowed to sell credits to project proponents who need to satisfy legal requirements for compensating environmental impacts of development projects.[8] The only approved mitigation or conservation bank in the RCIS area is the Petersen Ranch Mitigation Bank. The Santa Paula Creek Mitigation Bank does not have any mitigation properties in the RCIS area, but its service area does extend over the southwestern border of the RCIS area. These mitigation banks and their service areas are described in the following sections.

#### Petersen Ranch Mitigation Bank

The Petersen Ranch Mitigation Bank is an approximately 4,200-acre property located in an unincorporated area of Los Angeles County and includes the Petersen Ranch and Elizabeth Lake parcels (Figure 2-20). Approximately 1,600 acres of the Petersen Ranch and Elizabeth Lake parcels are currently in conservation easements and entitled as a mitigation bank, with most of the remainder of the property planned for inclusion in future phases of the bank.

Upon the passing of Robert Einer Petersen, publishing magnate and benefactor of the Petersen Automotive Museum in Los Angeles, the ranch passed into ownership of Land Veritas, a mitigation bank company, who now manages the land for conservation purposes.

The site is located in the Leona Valley within the San Andreas Rift Zone SEA and includes a portion of Portal Ridge up to the Angeles National Forest and down to the Antelope Valley floor. The site drains to two watersheds, with the western portion of the site draining into the Santa Clara River watershed and the eastern portion draining into the Antelope Valley watershed. It is also within the boundaries of the DRECP and is the largest mitigation bank in California.

[8] For additional information on banking, see the following websites: https://www.wildlife.ca.gov/Conservation/Planning/Banking and www.fws.gov/sacramento/es/cons_bank.htm.

The site is topographically and biologically diverse, with dominant vegetative communities including annual grasslands, mixed chaparral, California buckwheat scrub, rabbitbrush scrub, sagebrush scrub, mixed Mojave woodland scrub, riparian forest, willow scrub, and wetlands. Some of the key biological resources on Petersen Ranch (Figure 2-21) include large stands of California juniper, populations of short-jointed beavertail cactus, and frequent use and/or occupancy by western pond turtle, coast horned lizard, tricolored blackbird, burrowing owl, northern harrier, Swainson's hawk, prairie falcon, ferruginous hawk, loggerhead shrike, and mountain lion.

This property provides CEQA mitigation for any project type including but not limited to renewable energy projects affecting sensitive habitats throughout the desert and desert-foothill regions of Kern and Los Angeles Counties, as well as Regional Water Quality Control Board and U.S. Army Corps of Engineers mitigation for impacts on wetlands/waters within the Antelope-Fremont Valley and Santa Clara River watersheds. The service areas include portions of Los Angeles, Kern, Ventura, and San Bernardino Counties (Figure 2-20).

The bank is approved by the U.S. Army Corps of Engineers, CDFW, and California Water Resources Control Board/Lahontan Regional Board to provide mitigation for permitted impacts under U.S. Army Corps of Engineers 404 permits, Regional Water Quality Control Board 401 certifications, Porter-Cologne Water Quality Control Act Waste Discharge Requirements, and CDFW 1600 agreements. It also provides CEQA/CESA mitigation for a wide variety of species and habitats including alluvial fan, stream, open water, riparian, willow, cottonwood, cismontane woodland, mule fat, chaparral, great basin scrub, seeps, meadows, marshes, grassland, and Swainson's hawk.

## Santa Paula Creek Mitigation Bank

The Santa Paula Creek Mitigation Bank consists of 200 acres in northern Ventura and Los Angeles Counties that are protected for their natural resource values in perpetuity. Those with permit conditions requiring mitigation can buy bank credits from the Santa Paula Creek Mitigation Bank in order to meet legal and other permitting requirements to compensate for the environmental impacts of development projects. Credits are available for sale to offset impacts on both wetland and upland habitats. This can include wetlands and riparian areas designated as waters of the U.S., plus several upland covered habitats and the sensitive plant and wildlife species they support.

The Santa Paula Creek Mitigation Bank is authorized to assist with mitigation related to permits involving resources administered by the U.S. Army Corps of Engineers, USFWS, the U.S. Environmental Protection Agency, CDFW, and the Los Angeles Regional Water Quality Control Board.

The primary service area for U.S. Army Corps of Engineers permits is the combined sub-basins, watersheds, and sub-watersheds of the Santa Clara River within Los Angeles and Ventura Counties. This primary service area just extends into the RCIS area's southern and western portions (Figure 2-20). The secondary service area for U.S. Army Corps of Engineers permits in Los Angeles, Ventura, and Santa Barbara Counties does not overlap with the RCIS area.

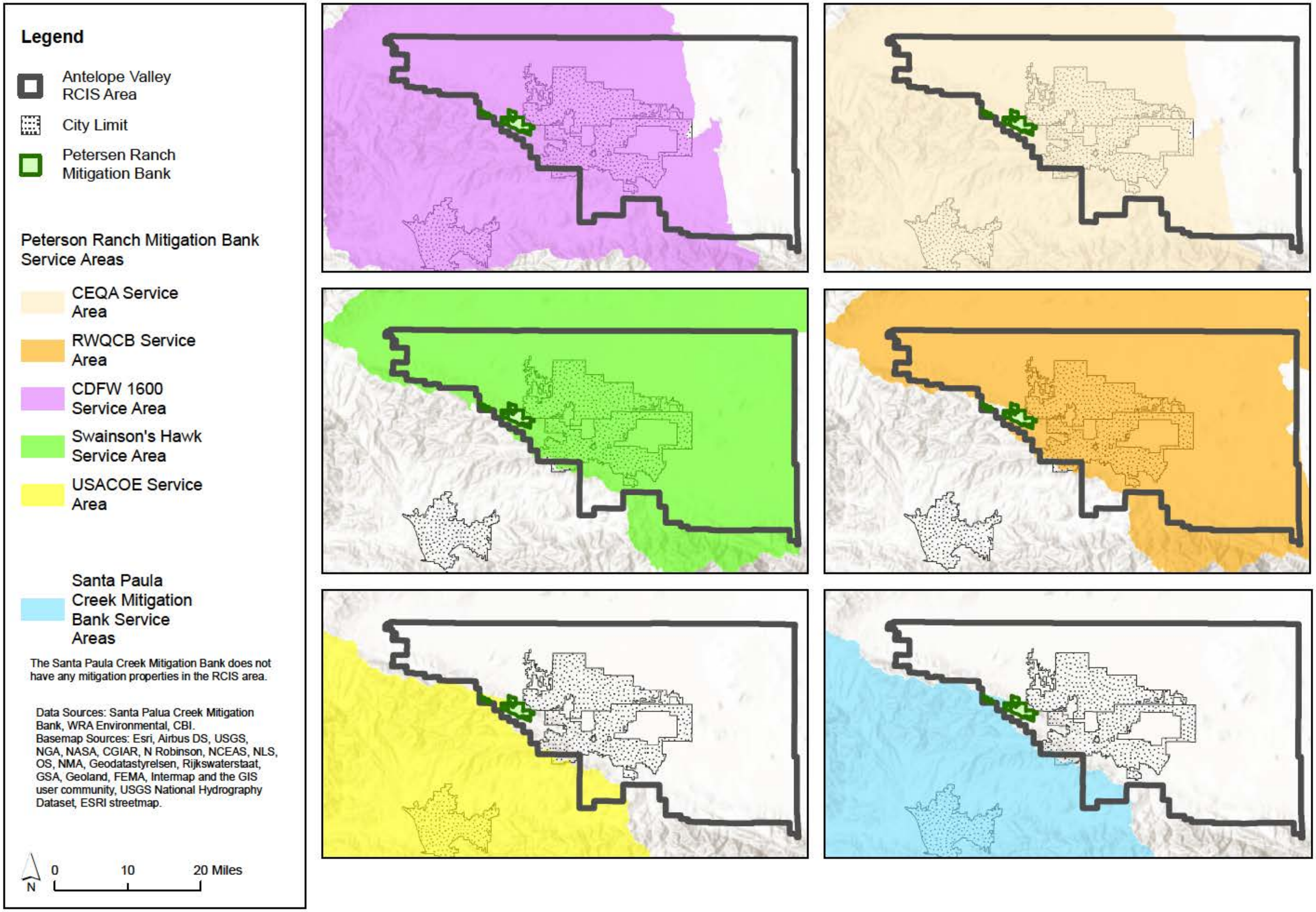


**Figure 2-20**
**Mitigation and Conservation Bank Service Areas in the RCIS Area**

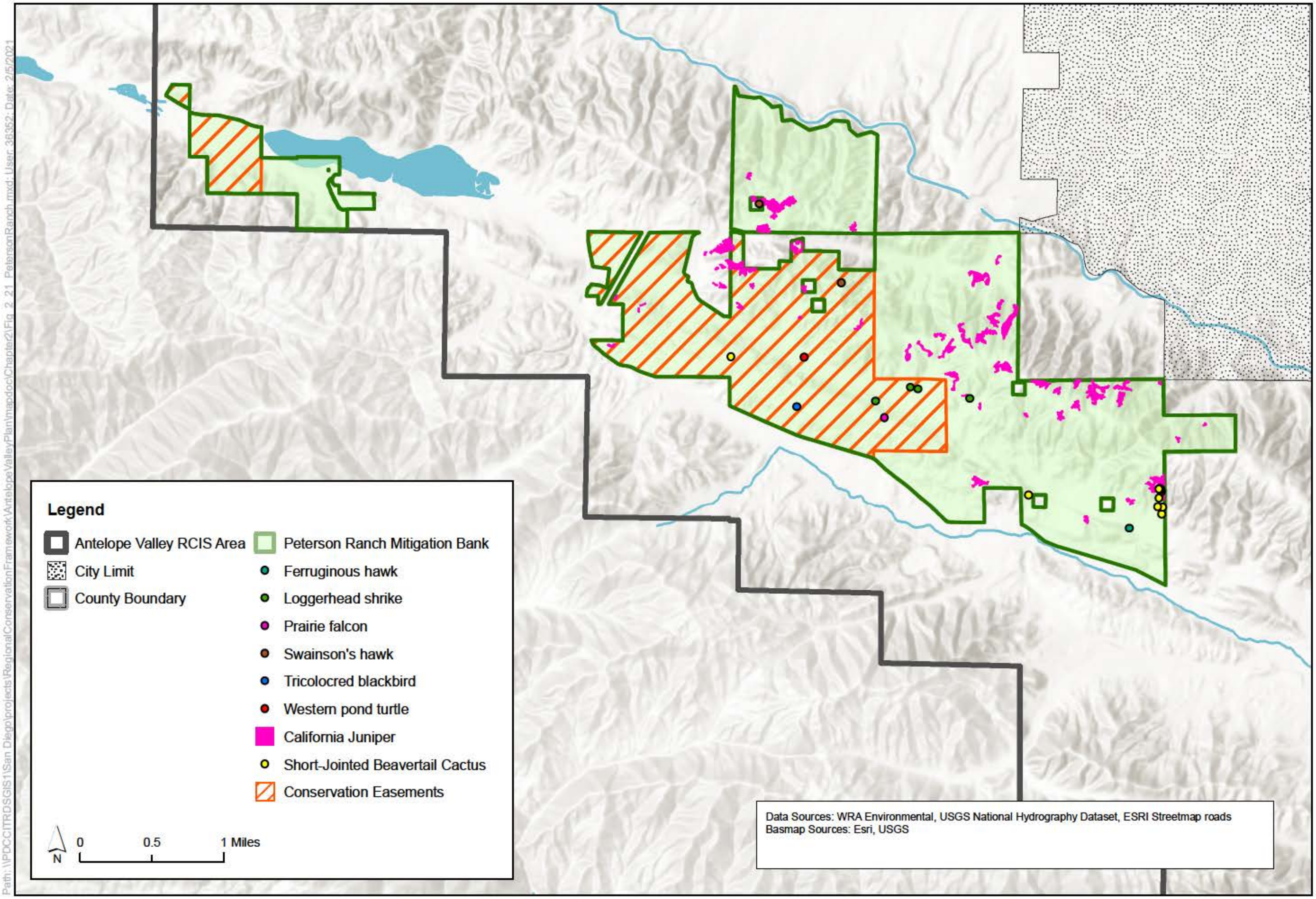


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**Figure 2-21**
**Key Biological Resources and Conservation Easements on Petersen Ranch**

# 2.3 Pressures and Stressors on Focal Species and on other Conservation Elements

Section 1852(c)(5) of CFGC requires that an RCIS include a summary of historic, current, and projected future pressures and stressors in the RCIS area, including climate change vulnerability, on the focal species, habitat, and other natural resources, as identified in the best available scientific information, including, but not limited to, the SWAP.

> A *pressure* is an anthropogenic (human-induced) or natural driver that could result in changing the ecological conditions of the focal species or other conservation element. Pressures can be positive or negative depending on intensity, timing, and duration. Negative or positive, the influence of a pressure on the target focal species or other conservation elements is likely to be significant.
>
> A *stressor* is a degraded ecological condition of a focal species or other conservation element that resulted directly or indirectly from a negative impact of pressures, such as habitat fragmentation.

Understanding the current and potential future pressures and stressors experienced by the focal species and their habitats within the RCIS area is one of the critical steps necessary to define conservation actions to counteract them. This Antelope Valley RCIS identifies 15 primary pressures on focal species, their habitat, and other natural resources in the RCIS area. The list and description of these primary pressures are largely based on the pressures described in the SWAP for the Desert Province.

- Airborne pollutants
- Annual and perennial non-timber crops
- Climate change
- Commercial and industrial areas
- Groundwater pumping
- Fire and fire suppression
- Housing and urban areas; roads and railroads
- Industrial and military effluents
- Invasive plants and animals
- Livestock, farming, and ranching
- Military activities
- Mining and quarrying
- Recreational activities
- Renewable energy
- Utility and service lines

Each of these pressures and stressors is summarized and discussed in detail in relation to the focal species and other conservation elements discussed in this chapter. A matrix showing the association between pressures and stressors and each focal species is included in Table 2-9. Stressors on species are indicated in Table 2-9 when the stressors are expected to overlap with habitat for that species, or are otherwise expected to notably affect the species. The assignment of these stressors to focal species was based on the best available scientific information, including expert input and/or locally relevant scientific literature, and professional judgement. The focal species and other conservation elements discussed in the following sections can be referenced in Section 2.1.4, *Focal Species*, and Section 2.1.5, *Other Conservation Elements*, respectively.

**Table 2-9. Primary Pressures and Stressors on Each Focal Species**

| Primary Pressures | Airborne Pollutants | Annual and Perennial Non-Timber Crops | Climate Change | Commercial and Industrial Areas | Groundwater Pumping | Fire and Fire Suppression | Housing and Urban Areas; Roads and Railroads | Industrial and Military Effluents | Invasive Plants and Animals | Livestock, Farming, and Ranching | Military Activities | Mining and Quarrying | Recreational Activities | Renewable Energy | Utility and Service Lines |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Focal Species** | | | | | | | | | | | | | | | |
| Alkali mariposa-lily | X | X | X | X | X | | X | X | X | X | X | | X | X | |
| California juniper | X | X | X | | | X | X | | X | X | | | X | X | |
| Joshua tree | X | X | X | | | X | X | | X | X | X | | X | X | X |
| Spreading navarretia | X | X | X | | X | | X | | | | | | X | X | |
| Short-joint beavertail | X | X | X | | | X | X | | X | | | X | X | X | X |
| Coast horned lizard | | X | X | | | X | X | | X | X | | | | X | X |
| Desert horned lizard | | X | X | | | X | X | | X | X | X | | X | X | |
| Agassiz's desert tortoise | | X | X | | | X | X | | X | X | X | | X | X | |
| Western pond turtle | | | X | | X | | X | | X | | | X | | | |
| Burrowing owl | | X | | X | | | X | | X | | X | X | X | X | X |
| California condor | | X | | | | | X | | | X | | | X | X | X |
| Golden eagle | | X | | X | | | X | | | X | X | | X | X | X |
| Le Conte's thrasher | | X | X | X | | X | X | | X | X | X | X | | | X |
| Least Bell's vireo | | | X | | X | X | X | X | X | X | X | X | | | |
| Loggerhead shrike | | X | X | X | X | X | X | | X | X | X | X | X | | X |
| Long-billed curlew | | X | X | X | X | | X | | | X | X | X | | | X |
| Mountain plover | | X | X | | | X | X | | X | X | X | | | X | X |
| Northern harrier | | X | X | X | X | X | X | | | X | X | | X | X | X |
| Prairie falcon | | X | X | X | | | X | | | X | X | X | | X | X |
| Swainson's hawk | | X | X | X | X | X | X | | | X | X | X | | X | X |
| Tricolored blackbird | | X | X | X | X | | X | X | X | X | X | | | | X |

| Primary Pressures | Airborne Pollutants | Annual and Perennial Non-Timber Crops | Climate Change | Commercial and Industrial Areas | Groundwater Pumping | Fire and Fire Suppression | Housing and Urban Areas; Roads and Railroads | Industrial and Military Effluents | Invasive Plants and Animals | Livestock, Farming, and Ranching | Military Activities | Mining and Quarrying | Recreational Activities | Renewable Energy | Utility and Service Lines |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Willow flycatcher | | X | X | | X | | X | X | X | X | X | | | | |
| American badger | | X | | X | | | X | | | X | X | X | X | X | X |
| Desert kit fox | | X | | X | | | X | | X | X | X | X | X | X | X |
| Mohave ground squirrel | | X | | X | | | X | | | X | X | | X | X | |
| Mountain lion | | X | | X | | | X | | | X | | | X | X | X |
| Tehachapi pocket mouse | | X | | X | | X | X | | X | X | | | X | X | |
| **Other Conservation Elements** | | | | | | | | | | | | | | | |
| Habitat connectivity | | X | X | X | X | X | X | | X | X | X | X | X | X | X |
| Working lands | | | X | X | X | X | X | | X | | | | | X | |
| Natural communities of conservation importance | X | X | X | X | X | X | X | | X | X | X | X | X | X | X |
| Key aquatic habitats | | X | X | X | X | | X | X | X | X | X | X | X | X | X |

Note: Stressors on species are indicated in Table 2-9 when the stressors are expected to overlap with habitat for that species, or are otherwise expected to notably affect the species.

## 2.3.1 Airborne Pollutants

Particulates, pollutants, and pathogens deposited from the air can degrade aquatic and terrestrial ecosystems. Discharges from power plants, sewage plants, and other industrial facilities are high in pollutants and pathogens. Pollutants, primarily water pollutants, are discussed in other sections below, including Section 2.3.7, *Housing and Urban Areas, Roads, and Railroads*, and Section 2.3.10, *Livestock, Farming, and Ranching*. This section specifically discusses air pollutants, nitrogen in particular, not covered elsewhere. Other air pollutants, such as carbon dioxide and methane, can have effects on climate change patterns and associated effects as described in Section 2.3.3, *Climate Change*.

Nitrogen deposition from air pollution is ongoing and increasing (Weiss 1999; Cayan et. al. 2006). Nitrogen deposition is predicted to continue to increase as population growth occurs in the RCIS area, which results in an increase in air pollutant emissions from passenger and commercial vehicles and other industrial and non-industrial sources (although it could possibly decrease if future automobile technologies address this issue). Emissions from these sources are known to increase airborne nitrogen, of which a certain amount is converted into forms that can fall to Earth as depositional nitrogen. Nitrogen deposition occurs at multiple scales resulting in nitrogen deposition from local sources as well as regional sources well outside the RCIS area (Tulloss and Cadenasso 2015).

### 2.3.1.1 Effects on Focal Species and Habitats

Air pollutants are identified for their effects on increased competition for focal plant species (Table 2-9). Nitrogen deposition has been shown to greatly increase available nitrogen in soils and, in turn, increase the success of nonnative plants (Allen et. al. 2000). Nonnative plants may also compete with native plants for water, nutrients, light, and safe sites for germination, crowding out native plants (ICF International 2012).

### 2.3.1.2 Effects on Other Conservation Elements

Nitrogen deposition can also affect other conservation elements, notably unique land cover types. California grasslands are believed to be among the most sensitive to nitrogen deposition (Fenn et al. 2010). Because air pollutants, and particularly nitrogen, are greater closer to their sources, natural habitats that occur near population centers and roads are likely to be more affected. These include the *Yucca brevifolia*, *Purshia tridentata – Artemisia tridentata*, *Lepidospartum squamatum*, *Rhus trilobata – Crataegus rivularis – Forestiera pubescens*, *Populus fremontii – Fraxinus velutina – Salix gooddingii*, and *Krascheninnikovia lanata* natural communities of conservation importance.

## 2.3.2 Annual and Perennial Non-Timber Crops

Agriculture in the RCIS area is concentrated in the northeastern portion of the RCIS area and the areas west of Lancaster. There are smaller agricultural areas scattered throughout the RCIS area. Commercial crops include alfalfa and small grains, hay, onions, carrots, potatoes, peaches, pears, and nectarines. Cherries, apples, and grapes are also grown on a smaller scale, generally as u-pick farms. Irrigated row and field crops are located generally in the northwestern portion of the RCIS area and in the area east of Lancaster and north of Palmdale. Deciduous orchards are scattered along the base of the foothills at the southern edge of the RCIS area.

#### 2.3.2.1 Effects on Focal Species and Habitats

Agricultural areas may both provide benefits and act as stressors to focal species. Row crops, including those grown in the RCIS area, provide foraging habitat for Swainson's hawks and other raptors. Tricolored blackbirds also depend upon agriculture within the RCIS area for their foraging habitat. However, use of chemical fertilizers, herbicides, rodenticides, and other chemicals can negatively affect both terrestrial focal species that live or forage in the agricultural fields, as well as aquatic species when these chemicals are transported to waterways during rain events.

Agricultural areas within the RCIS overlap with high conservation value habitat for tricolored blackbird, Tehachapi pocket mouse, Swainson's hawk, spreading navarretia, short-joint beavertail cactus, prairie falcon, mountain plover, mountain lion, long-billed curlew, loggerhead shrike, Le Conte's thrasher, Joshua tree, golden eagle, desert kit fox, desert horned lizard, coast horned lizard, California condor, burrowing owl, and American badger.

#### 2.3.2.2 Effects on Other Conservation Elements

Farming, in particular orchards and vineyards, can have a negative impact on water resources by diverting water and altering the local hydrology. This can negatively affect key aquatic resources by reducing their water supply or supplying them with nutrient- and sediment-laden water, degrading their condition. While conversion of native habitats to agriculture has vastly decreased since the 1970s, the conversion of row crops to orchards can reduce or prevent use of the land by focal species and cause habitat fragmentation.

### 2.3.3 Climate Change

Climate change is a major challenge to the conservation of natural resources in California and the RCIS area. Climatic changes are already occurring in the state and have resulted in observed changes in natural systems. Projected changes in climate, including extreme events such as fire, drought, flood, extreme temperatures, and storm events, are likely to have significant impacts on habitats, species, and human communities in the near future. The climatic changes presented below will likely affect all focal species and their habitats identified in this document. Climate change has been included as a pressure for a subset of targets that are considered more vulnerable to climate impacts, and/or in instances where it was determined that interactions between climate change and other pressures could be addressed in a meaningful way through a conservation strategy.

While a warmer and drier climate may shift the distribution of habitats for most of the focal species, some species are more vulnerable than others due to limitations such as range size, limited dispersal capacity, and dependence on riparian and aquatic habitats. Table 2-10 lists those species identified as climate vulnerable in the SWAP Species of Greatest Conservation Need, or are otherwise limited by range and dispersal capacity or dependence on riparian and aquatic habitats.

Climate change has also been addressed through modeling of climate stability, climate refugia, and climate water deficit to identify portions of the RCIS area that have physical characteristics that make them more resilient to the effects of climate change relative to other portions of the RCIS area. The rate at which environmental conditions change across the landscape can have serious consequences for species dispersal and species range shifts. Adequate habitat connectivity to areas with greater resilience to the effects of climate change is an important feature to accommodate shifting species distributions. Therefore, the climate modeling has been integrated into the overall habitat connectivity modeling for this Antelope Valley RCIS (Section 3.2, *Identifying Areas of High Conservation Value*).

**Table 2-10. Climate-Vulnerable Focal Species in the Antelope Valley RCIS**

| Common Name | SWAP SGCN Climate Vulnerability List |
|---|---|
| **Plants** | |
| Joshua tree | No |
| Spreading navarretia | No |
| **Reptiles** | |
| Coast horned lizard | Yes |
| Western pond turtle | No |
| **Birds** | |
| Least Bell's vireo | Yes |
| Swainson's hawk | Yes |
| Tricolored blackbird | No |
| Willow flycatcher | No |

Source: California Energy Commission et al. 2014
SGCN = Species of Greatest Conservation Need

## 2.3.3.1 Temperature

Average annual temperatures within the Mojave Desert are expected to increase between 1.9 and 2.6 degrees Celsius (3.4 to 4.7°F) by 2070 (Point Reyes Bird Observatory 2011). January average temperatures are projected to increase 2°F to 4°F by 2050 and 5°F to 8°F by 2100, while July average temperatures are projected to increase 3°F to 5°F by 2050 and 6°F to 9°F by 2100 (Russell and Grigg 2012). Hotter, drier weather will stress water resources available to people, wildlife, and vegetation. This is likely to translate into less water for wildlife, particularly riparian, vernal, and aquatic species. The ecological functioning of upland habitats is also likely to be disrupted as individual species respond differently to climatic changes. Some species will likely adapt in place while others are forced to move to seek suitable climates, and the rest will experience different rates of population or health declines.

## 2.3.3.2 Precipitation and Snowpack

The California desert is projected to experience greater variation in annual rainfall as a result of climate change, with some locations receiving more rain in the future, others less, and some with little to no change (California Emergency Management Agency 2012). A thorough discussion of the predicted effects of climate change on desert ecosystems in California can be found in Appendix P of the DRECP.

## 2.3.3.3 Wildfire Risk

Climate change is expected to contribute to increased likelihood of wildfire risk, but may also include shifts in the timing, frequency, and intensity of wildfire events. Fire is a natural component of many ecosystems and natural communities within the RCIS area, including grasslands and pinyon-juniper woodland. For these natural communities, fire frequency and intensity influence community regeneration, composition, and extent. However, more frequent, intense fires caused by high fuel loads and increased encroachment by nonnative annuals into grasslands could negatively affect community composition by favoring early successional species. Additionally, frequent, intense fires are known to cause *type conversion*, when fires occur at a shorter return interval than the plants are able to reproduce. This can increase the extent of certain natural communities, such as grassland, at the expense of other more diverse communities, such as pinyon-juniper woodlands and Joshua tree woodlands.

#### 2.3.3.4 Effects on Focal Species and Habitats

Climate change may alter habitats in the RCIS area as temperatures and precipitation levels change, which could lead to reduction in population sizes, require focal species in the RCIS area to migrate to other areas, or cause extirpation of focal species that rely on those habitats when there are no remaining areas that meet their habitat needs within their migration range. Many of the focal species in the RCIS area are of special conservation concern because of their risk of extinction. Species that are particularly vulnerable often occur within a limited geographic range, exist in small populations, have specialized habitat requirements, and have low dispersal ability, which make it difficult for them to migrate to more suitable areas as habitats shift with climate change. Aquatic and riparian species are particularly at risk (e.g., pond turtle, least Bell's vireo) because they could be extirpated by loss of habitat during extended periods of drought. By identifying species most at risk from the effects of climate change, conservation and management efforts can be targeted to reduce and mitigate these impacts, such as by protecting and restoring existing habitat and linkages between habitats and climate change refuges, or through assisted migration. This RCIS uses new climate modeling with input from three climate projections (CCSM4, CanESM2, and MIROC 5) plus the ensemble and two future time periods, 2016–2045 and 2046–2075, compared to the historical period, 1971–2000. The modeling predicts three climate change components relative to species vulnerability or resilience to climate change, including climate stability, climate exposure, and climate physical refugia (see Section 3.2.1.3, *Habitat Connectivity and Climate Change*, and Appendix G, *Modeling Methodology*).

#### 2.3.3.5 Effects on Other Conservation Elements

Climate change will also affect habitat connectivity, natural communities of conservation importance, working lands, and key aquatic habitats in the RCIS area. Increasing temperature and prolonged drought conditions will put greater stress on agricultural lands dependent on irrigation, such as alfalfa and sod fields that support focal species; aquatic habitats will also be put under greater stress from water shortage. Natural communities of conservation importance in the RCIS area are at risk from climate change because of their narrow distribution in the RCIS area. Dam and water management/use have put increased pressure of the ranges of these land cover types, and this pressure will only increase in the context of climate change. Some unique land cover types may be severely reduced in range and distribution or even extirpated with prolonged, extreme climate-driven events such as severe drought or increased fire frequency. As the range of these habitat types is restricted, habitat connectivity between patches will also be degraded, which will increase extinction risk for focal species utilizing these habitats.

## 2.3.4 Commercial and Industrial Areas

Commercial and industrial areas are located throughout the RCIS area, with the largest designated area north of Lancaster, and other large areas designated for commercial and industrial uses to the southeast of Palmdale along the Highway 138 corridor.

Past conversion of natural communities for development, including commercial and industrial areas, affects remaining patches of natural communities and aquatic resources. Isolated patches of habitat are often less suitable or unsuitable for focal species (this stressor is discussed in greater detail in Section 2.3.4.1, *Effects on Focal Species and Habitats*) than large, contiguous patches of habitat. Other stressors include light pollution, noise pollution, and degradation of aquatic resources. Aquatic resource degradation occurs through both point-source (e.g., wastewater treatment plant releases) and non-point source (e.g., stormwater runoff) releases. Both point and non-point sources are regulated by the Lahontan Regional Water Quality Control Board; however, capture and/or treatment of non-point sources is an ongoing challenge in urban areas. Impervious areas in commercial and industrial developments contribute to increased runoff, especially during storm events, due to increased extent of impermeable surfaces common to urban areas. Such increases can result in greater levels of scour and/or incision of local creeks, increased sediment loads, alterations of downstream hydrology, and decreased groundwater recharge.

Industrial facilities including power plants, sewage plants, and others also contribute pollutants to local aquatic resources. An increase in the quantity of pollutants reaching local waterways through higher runoff may affect the biological and physical characteristics of aquatic habitats. High runoff temperature may also result in an increase of in-stream water temperatures when runoff enters local streams.

### 2.3.4.1 Effects on Focal Species and Habitats

As further discussed in Section 2.3.7, *Housing and Urban Areas, Roads, and Railroads*, habitat fragmentation from development negatively affects all focal species. Commercial and industrial areas reduce and fragment habitats, but also increase proximity to pollution and the possibility of trampling converted lands and their inhabitants. Additionally, the burrowing owl, American badger, desert kit fox, mountain lion, and Tehachapi pocket mouse may be further affected by nighttime lighting that is common at commercial and industrial developments. This may reduce their use of adjacent lands, further restricting their habitat.

### 2.3.4.2 Effects on Other Conservation Elements

All of the other conservation elements in the RCIS area could be affected by land conversion. The major impact of new development is the conversion from undeveloped to developed land cover, which reduces biodiversity and eliminates natural habitat. Habitat conversion may further isolate areas of remaining natural habitat, increasing the edge (i.e., boundary) and the distance between habitats, limiting habitat connectivity and landscape linkages. Additionally, development can convert farmland and rangeland to areas with large amounts of impervious surfaces (e.g., concrete or asphalt), which have little or no value for the focal species in the RCIS area. Commercial and industrial areas currently overlap the *Rhus trilobata – Crataegus rivularis – Forestiera pubescens*, *Lepidospartum squamatum*, and *Purshia tridentata – Artemisia tridentata* natural communities of conservation importance, and thus have the potential to negatively affect these conservation elements.

## 2.3.5 Groundwater Pumping

The primary pressures on aquatic habitats in the RCIS area are groundwater pumping for agricultural, industrial, and domestic uses. Antelope Valley became a productive agricultural area in the early part of the 20th century. From the 1920s to the 1950s groundwater pumping increased significantly, until over 400,000 acre-feet of water were being pumped out of Antelope Valley each year (Kennedy/Jenks Consultants 2007). The groundwater table dropped precipitously, until it became uneconomical to pump groundwater and agricultural lands began to recede in Antelope Valley in the 1960s and 1970s. Despite the decline in agriculture, groundwater pumping continued to overdraft the basin until the ruling on the Antelope Valley Groundwater Adjudication (Section 2.2.3.1, *Antelope Valley Groundwater Adjudication*) set a limit on the amount of groundwater pumping to prevent overdraft of the basin. Although population growth has slowed over the past several years, development and demand for water have still grown. In order to recharge the groundwater basin to balance pumping demands, water management infrastructure (catchment basins, pipelines, recharge basins) is likely to increase, further altering natural land cover and hydrologic regimes in the RCIS area, with wide-ranging and in many cases uncertain effects on focal species.

### 2.3.5.1 Effects on Focal Species and Habitats

Due to their elevated importance in desert environments as the prime limiting resource, any adverse effects on aquatic resources can have substantial impacts on numerous focal species that are dependent on aquatic habitats. Aquatic habitats not dependent on water from human-made lakes and reservoirs, such as springs, seeps, vernal pools, and other types of ephemeral water features, are particularly vulnerable. Focal species dependent either entirely or partially on these natural aquatic features include Alkali mariposa-lily, spreading navarretia, western pond turtle, willow flycatcher, least Bell's vireo, tricolored blackbird, and most mammals including mountain lion and badger.

### 2.3.5.2 Effects on Other Conservation Elements

Groundwater pumping lowers the groundwater table and causes springs, riparian areas, and other key aquatic habitats in desert environments to dry up, causing water-stressed cottonwoods, willows, and other riparian vegetation to perish. In some areas of the West Mojave subecoregion, where dropping groundwater levels have caused more than 50 percent of the cottonwood trees to perish (California Department of Fish and Wildlife 2015), unique vegetation communities in the RCIS area are associated with seeps, springs, and other ephemeral water features that are affected by changing groundwater levels that result from pumping. Exacerbating the issue is the establishment and spread of tamarisk (saltcedar), a nonnative plant that invades areas where the native riparian habitat is stressed. Tamarisk roots can reach deeper for water, causing groundwater to recede farther (California Department of Fish and Game 2005).

## 2.3.6 Fire and Fire Suppression

Desert scrub natural communities are naturally slow to recover from fire episodes and are more vulnerable to proliferation of nonnative grasses that can often successfully compete with and overcome native assemblages and alter fire regimes (California Energy Commission et al. 2014). This pressure has come to the forefront as frequency of wildfire increases because of the invasion of desert habitats by nonnative plant species has increased (Brooks 1998; U.S. Fish and Wildlife Service 1995). Off-highway vehicle (OHV) activity, roads, livestock grazing, agricultural uses, and other activities contribute to the spread of nonnative annual grass species (or the displacement of native species) and perpetuate the spreading of these species that increase the potential for wildfire. Human-caused ignitions are also more likely as human activity levels increase in the RCIS area with population growth. These ignitions are often accidental such as ignitions caused by vehicles and machinery, or escaped planned burns; however, they are still likely to increase with greater levels of human activity in the Antelope Valley RCIS.

#### 2.3.6.1 Effects on Focal Species and Habitats

Changes in plant communities caused by nonnative plants and recurrent fire can destroy or permanently alter natural communities and negatively affect focal species, including Agassiz's desert tortoise and Joshua Tree woodlands, by altering habitat structure and species available as food plants (Brooks and Esque 2002). Fires may also result in increased mortality for native plants and less mobile focal species utilizing these habitats, which will increase the risk of local extinction events.

#### 2.3.6.2 Effects on Other Conservation Elements

Increased frequency of fire disturbance within the RCIS area driven by human activity, climate change, and invasion by nonnative annual grasses is likely to have negative impacts on natural communities of conservation importance. This will be primarily through overgrowth and displacement of native vegetation during post-fire succession. The remaining conservation elements are likely to be unaffected by these changes in fire regime.

### 2.3.7 Housing and Urban Areas, Roads, and Railroads

The western Mojave region has experienced growth as residential development spread northward from the Los Angeles basin. Existing local government general plans provide for residential growth in the western Mojave region to reach a population of 5 million (California Department of Fish and Game 2005).

In the RCIS area, sprawling development replaces and fragments habitat. Growing communities require additional rights-of-way for power lines, pipelines, and roads, which further fragment habitat. Population growth, especially suburban residential growth, requires larger roads and freeways, as well as public transportation such as railroads, for residents traveling to work within the Los Angeles metropolitan area. Residential single-family home development results in wide-spread habitat degradation and fragmentation. The Highway 14, 18, and 138 corridors currently act as either partial or complete barriers to wildlife movement in both the east to west and north to south directions. This pattern and density of growth dramatically increases the severity of development's effects on wildlife (California Department of Fish and Game 2005). Development also increases pressure to overdraw groundwater. Groundwater levels began dropping because of over-drafting in the 1950s, drying up riverbeds, springs, and seeps and diminishing riparian ecosystems that depend on flowing water and saturated soils. The new water demands of rapid growth also reduce the options for recharging and restoring groundwater levels.

While regional planning efforts can reduce some of the habitat effects of expanding housing, transportation infrastructure, and other urban areas, areas of known or foreseeable potential future urbanization and infrastructure development will continue to be a stressor for habitat in the RCIS area. Consequently, these areas of known or foreseeable potential future urbanization are generally not suited for achieving long-term conservation goals and objectives. Foreseeable potential future urbanizing areas were mapped based on local land use planning resources and known planned future development and infrastructure projects (shown on Figure 2-22).

#### 2.3.7.1 Effects on Focal Species and Habitats

All of the focal species are affected by habitat loss and fragmentation caused by expanding housing and urban areas and roads and railroads (Table 2-9). For example, Agassiz's desert tortoise, Mohave ground squirrel, and burrowing owl populations have experienced dramatic declines in the RCIS area due to widespread habitat loss and habitat fragmentation, resulting from the conversion of grassland and desert scrub habitat to urban and suburban areas. In addition, burrowing owl has lost suitable agricultural lands to development. Equally important for this and other raptor species such as Swainson's hawk is the loss of fossorial rodents, such as ground squirrels, caused, in part, by rodent control efforts. In addition to loss of prey base, rodent control methods using anticoagulant chemicals may result in exposure or bioaccumulation in non-target species that consume target rodents. Anticoagulants are commonly used in California to control rodent pests in urban and agricultural areas. Primary exposure as well as consumption of rodents treated with anticoagulants have been shown to cause mortality from anticoagulant toxicosis in birds, including golden eagles, and small to medium carnivores, including kit foxes and mountain lions (Hosea 2000). Occurrences of the focal plant and animal species are also directly affected by habitat conversion and habitat fragmentation. Habitat loss can result in the elimination of individuals or populations of these species from the area that is converted, and these species can also be affected by proximity to converted lands from pollution and trampling.

#### 2.3.7.2 Effects on Other Conservation Elements

This pressure is important in driving losses to habitat connectivity and natural communities of conservation importance. The major impact of housing, urban areas, roads, and railroads is the conversion from undeveloped to developed land cover, which eliminates natural habitat and reduces biodiversity and unique land cover types. Habitat conversion may further isolate areas of remaining natural habitat by increasing the edge (i.e., boundary) and the distance between habitats, limiting habitat connectivity and wildlife linkages. Fragmentation and resulting land management activities like fire suppression modify the natural disturbance regime necessary to sustain the unique land cover types in the RCIS area. Additionally, urban development can convert farmland and rangeland to habitat with large amounts of impervious surfaces (e.g., concrete, asphalt), which have little or no value for the focal species in the RCIS area.

### 2.3.8 Industrial and Military Effluents

Due to the nature of military activities, information on potential effluent sources is not publicly available; however, the Edwards Air Force Base Environmental Compliance Program assists base organizations to comply with all applicable environmental laws, statutes, and regulations, including those regulating effluents. Industrial effluents may come from industrial production sites or wastewater treatment plants. The Lahontan Regional Water Quality Control Board regulates effluents from industrial sites.

### 2.3.8.1 Effects on Focal Species and Habitats

Industrial and military effluents can change the local hydrology by introducing unseasonal flows from industrial applications to the local waterways. This can cause a shift in the plant composition and the fauna supported in the area. Effluents may also change the chemical composition of local waterways, affecting species that use these waters. If effluents are high in nutrients, they can also cause algal blooms that impair the ability of other organisms to use these resources.

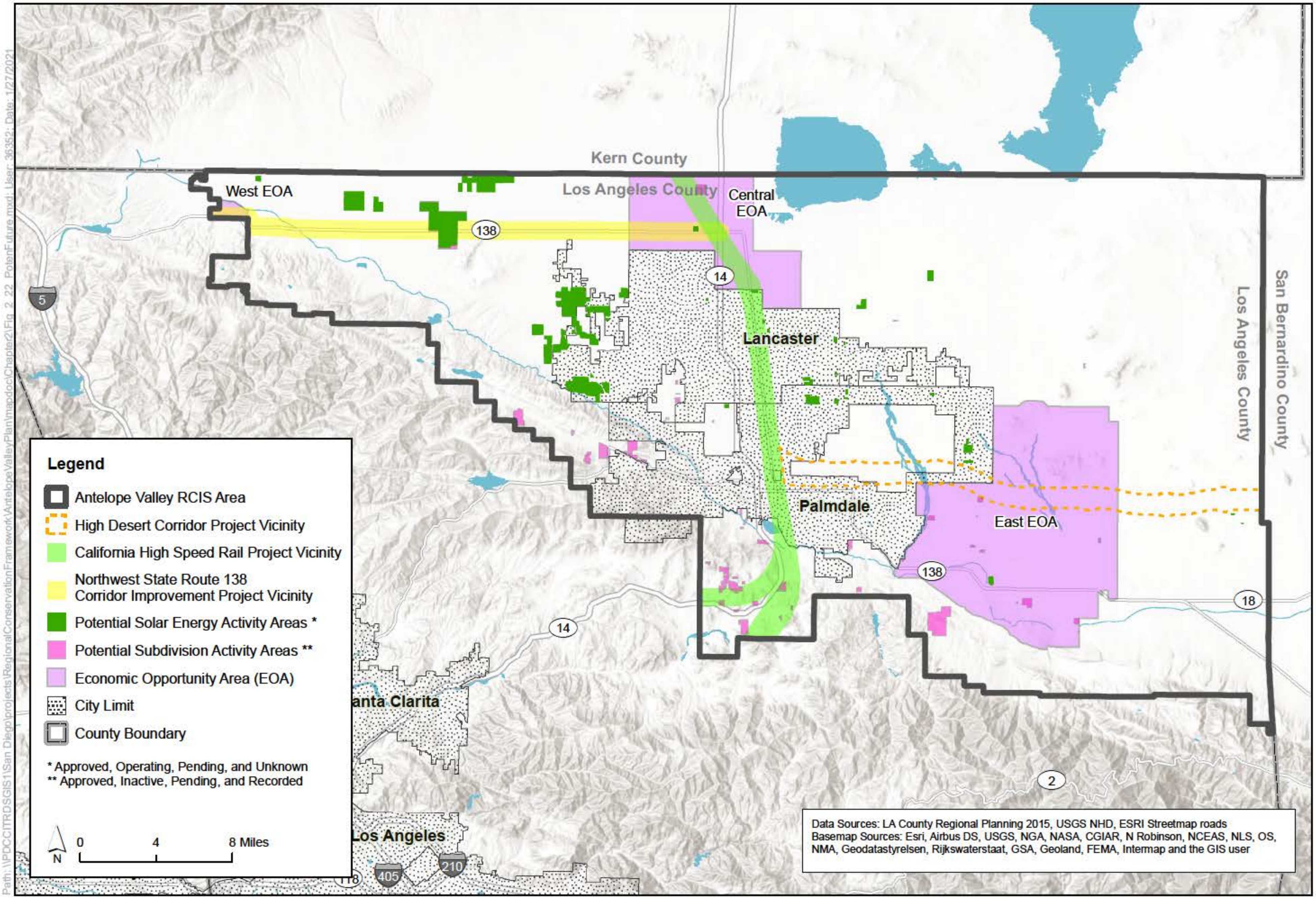


**Figure 2-22**
**Areas of Foreseeable Potential Future Infrastructure and Urbanization**

### 2.3.8.2 Effects on Other Conservation Elements

Effluents may negatively affect key aquatic resources by altering the hydrology through unseasonal flows or a change in the normal flow amount. These changes can increase erosion and have the potential to alter the plant communities supported by the key aquatic resources. Effluents with high nutrient loads can cause algal blooms.

## 2.3.9 Invasive Plants and Animals

Many of the conservation actions described in this RCIS address prevention, early detection, and rapid response to new invasive plants to prevent them from becoming widespread. Distribution maps and summary reports for invasive plants, as well as regional strategic plans for prioritized invasive plant species, can be found on the CalWeedMapper website.[9] Some of the invasive species affecting the RCIS area are discussed below.

Numerous nonnative plants have altered plant communities across large areas of the Mojave Desert, outcompeting native species and degrading upland and riparian habitats for native wildlife. The abundance of nonnative forbs and annual grasses (particularly *Bromus tectorum*, ripgut grass, foxtail chess [*Bromus madritensis* ssp. *rubens*], *Schismus barbatus*, and *S. arabicus*) increases the fuel and continuity of fuels, facilitating more-frequent and hotter fires. This changes the fire frequency and fire intensity that native plants evolved with and favors other nonnative plants that thrive in disturbed areas, further transforming the plant communities (California Department of Fish and Game 2005).

Imported tamarisk, a plant of inferior habitat value for native wildlife, has replaced native cottonwoods and willows in watercourses in the region. The leaves of tamarisk concentrate and shed salts, thus degrading soil conditions for native plants (Smith et al. 1998). Tamarisk is more drought tolerant than native cottonwood trees and willows. In areas where groundwater levels are receding, tamarisk outcompetes water-stressed native plants (Cleverly et al. 1997; California Department of Fish and Game 2005).

In 2002, state and federal agencies signed the Mojave Weed Management Area Memorandum of Understanding, which spells out a coordinated planning effort to prevent, control, and eradicate weeds and to educate the public about weed control in the region (Desert Managers Group 2002). The memorandum identifies a priority list of species to control in the Mojave Desert.

### 2.3.9.1 Effects on Focal Species and Habitats

Invasive annual grasses and forbs have displaced native plants, often greatly diminishing the native forage for Agassiz's desert tortoise and other focal bird and small mammal species. These nonnative grasses and forbs now dominate plant communities throughout the region. In Agassiz's desert tortoise critical habitat of the western Mojave Desert, nonnative plants account for more than 60 percent of the annual vegetative biomass (California Department of Fish and Game 2005). Some invasive plants, such as Saharan mustard, continue to spread across the region.

[9] Available at http://calweedmapper.cal-ipc.org.

#### 2.3.9.2 Effects on Other Conservation Elements

Natural communities of conservation importance are particularly at risk from invasive annual grasses. The effects of invasive plants are linked closely with changes in fire regime as detailed in Section 2.3.6, *Fire and Fire Suppression.* Because of their limited spatial distribution, these communities are at greater risk from fire disturbance by being likely to be completely engulfed by single events. Invasive plants are able to recolonize rapidly after fire disturbance, and can often outcompete natives during early succession. Finally, invasive annual grasses can increase the frequency of fire disturbance to a point where natural communities of conservation importance can no longer successfully recolonize.

### 2.3.10 Livestock, Farming, and Ranching

Agriculture expanded greatly in Antelope Valley with groundwater pumping (Section 2.3.5, *Groundwater Pumping*) from the 1920s to 1950s. This resulted in large-scale conversions of natural land cover to pastures and crops that resulted in extensive habitat loss for many desert species while expanding habitat for some species better adapted to pastures and crops. By the 1970s, the groundwater table was drawn down so much as to no longer support agricultural expansion, and the conversion of natural vegetation to agriculture in Antelope Valley slowed; many areas previously farmed have been converted to residential or urban land uses. The remaining agriculture in the valley, especially alfalfa fields and other irrigated crops, continues to support a number of focal species such as Swainson's hawk, long-billed curlew, loggerhead shrike, mountain plover, and burrowing owl. Given that some of these species now depend on irrigated agricultural land, they are imperiled by expanding residential growth and increasing water demand that threatens the irrigation supply for these remaining agricultural lands.

Excessive livestock grazing has altered ecosystems across the desert. Unmanaged livestock grazing, especially where plants are not adapted to large, herbivorous mammals or where the nonnative plant species are less palatable than the natives, can preferentially remove native vegetation, leaving nonnative plants to grow under reduced competition (Wittenberg and Cock 2001). During drought that diminishes other forage, domestic livestock in restricted (fenced) fields typically will uproot native bunchgrass. Eventually, livestock grazing can cause the demise of native grassland, especially in arid locations. In turn, fires are more frequent where invasive annual grasses are abundant, preventing the natural restoration of native vegetation and further disturbing habitat for native wildlife. Another problem of domestic livestock grazing is that through defecation and trampling, livestock with access to natural water sources for drinking can destroy the water quality and native, often rare, vegetation associated with aquatic habitats. Refer to Figure 2-10 for a map of rangeland in the RCIS area.

#### 2.3.10.1 Effects on Focal Species and Habitats

Several focal species depend upon the agricultural lands in the RCIS area for foraging and wintering habitat; the extent to which these lands support focal species is largely dependent on the type of crops grown and the farming practices conducted by landowners. Grazing has altered the desert scrub ecosystems, reducing preferred native shrubs and herbaceous plants that support Agassiz's desert tortoise and other reptiles, the Mohave ground squirrel, and other small mammals, birds, and butterflies (Avery 1999 in California Department of Fish and Wildlife 2015). Heavy grazing facilitates the spread of cheatgrass and other invasive annual grasses, replacing native grasses, herbs, and perennial shrubs, further diminishing habitat conditions for wildlife (California Department of Fish and Game 2005). Rodent control efforts, when conducted on rangelands, can also adversely affect focal species including the Mohave ground squirrel, raptors, American badger, and burrowing owl.

#### 2.3.10.2 Effects on Other Conservation Elements

Grazing has been particularly detrimental to key aquatic habitats important for maintaining wildlife diversity in the desert, denuding and eroding fragile soils around rivers, springs, and seeps and polluting scarce surface water. Unless managed properly, livestock can reshape streambeds and trample or consume vegetation and seedlings of native trees and shrubs, preventing regeneration. Refer to Section 2.1.5.2, *Working Lands*, for a discussion of the potential beneficial effects of grazing on the RCIS area rangelands.

### 2.3.11 Military Activities

The southern edge of Edwards Air Force Base overlaps with a large portion (47,778 acres) of the northeastern portion of the RCIS area. Potential uses in this area include bombing ranges, supersonic corridors, low-altitude high-speed maneuvers, radar intercept areas, and refueling areas. While, by nature, military activities and locations are undisclosed, the Edwards Air Force Base Environmental Conservation Group completes an environmental analysis of test programs and construction within the base, as well as managing the protection and conservation of natural and cultural resources.

Edwards Air Force Base has also been identified as an open space area by the County of Los Angeles and comprises one end of the Edwards Air Force Base San Gabriel Mountains linkage, an important wildlife corridor in the region. It has also been identified as the Edwards core habitat area for this RCIS according to the methodology discussed in Section 3.2.4, *Mapping Habitat Core Areas and Landscape Linkages*. The Edwards Air Force Base San Gabriel Mountains linkage and Edwards core habitat area are identified on Figure 3-20.

#### 2.3.11.1 Effects on Focal Species and Habitats

The sand dunes within Edwards Air Force base are specifically identified as habitat for alkali mariposa-lily. Ground disturbance from military activity in saltbrush scrub, particularly areas with claypans or along dunes, or disrupting the hydrology of drainages would negatively affect this focal species. Norther harriers are also identified as having habitat near to the base. They, along with other raptors, are likely to use Edwards Air Force Base as foraging habitat. Raptor focal species may be negatively affected by military flight activities. Finally, the majority of modeled habitat for Mohave ground squirrel overlaps with Edwards Air Force Base, and may be affected by military activities.

Edwards Air Force Base overlaps with high conservation value habitat for the American badger, burrowing owl, desert horned lizard, desert kit fox, desert tortoise, Joshua tree, least Bell's vireo, Le Conte's thrasher, loggerhead shrike, long-billed curlew, Mohave ground squirrel, mountain plover, northern harrier, prairie falcon, Swainson's hawk, willow flycatcher, and tricolored blackbird.

#### 2.3.11.2 Effects on Other Conservation Elements

Rosamond Lake (dry) is within Edwards Air Force Base and identified as a key aquatic resource in the RCIS. Military activities have the potential to negatively affect this resource; however, these effects will likely be mitigated through the base's environmental review process, to some extent. Edwards Air Force Base is also identified as the eastern end of the largest and most intact wildlife linkage in the region between Edwards Air Force Base and the San Gabriel Mountains. Edwards Air Force Base also acts as one end of habitat for the Edwards Antelope Buttes, Edwards-Portal Ridge, Little Rock Wash, Alpine Butte-Edwards, and Edwards-Saddleback landscape linkages. Military activities that cause a change in wildlife behavior will reduce the efficacy of this area as both habitat and as a corridor for movement. Additionally, the *Prosopis glandulosa-Prosopis velutina – Prosopis pubescens* natural habitat of conservation importance is located within Edwards Air Force Base, and subject to potential impacts from military activities.

### 2.3.12 Mining and Quarrying

Los Angeles County is the largest consumer of sand and gravel in the country, but it is also a major producer of this resource. The Little Rock Creek Fan production region is within the RCIS area and currently contains ten aggregate and mineral mines. This mining area produces an estimated 5.3 million tons per year, and is anticipated to continue to produce until 2046 (California State Mining and Geology Board 1999). Mining and quarrying directly affect the habitats where they occur, and can also increase air pollution from dust and trucks to transport the mined product. Airborne pollutants are further discussed in Section 2.3.1, *Airborne Pollutants*.

Extraction land uses and mines within the RCIS area overlap with the Big Creek Wash core habitat area and the Little Rock and Big Rock Wash habitat linkage areas.

#### 2.3.12.1 Effects on Focal Species and Habitats

Construction and operation of mining and quarrying operations can have the following effects on focal species in the RCIS area:

- Conversion of natural habitats
- Barriers and alterations to movement
- Introduction of nonnative species
- Direct mortality as a result of construction and operation

The Little Rock Creek watershed, which overlaps with the Little Rock Creek Fan production area, contains historical habitat of the western pond turtle. Ponded areas within the RCIS area, including this area, are target conservation areas for the western pond turtle. Little Rock Creek is identified as a target area for habitat conservation and management of ecological processes to support the alkali mariposa-lily. Additionally, mining operations are within the Swainson's hawk priority conservation area. Swainson's hawks are sensitive to noise during the breeding season and may be negatively affected by noise from mining and extraction operations.

#### 2.3.12.2 Effects on Other Conservation Elements

Little Rock Creek, where the mining operations are located, is identified as a key aquatic habitat. Creeks and riparian areas provide important habitat connectivity for many species. Mines within the RCIS area are within the Little Rock and Big Rock Wash landscape linkages. Mining activity can reduce use of these potential wildlife corridors through direct habitat removal, degradation of habitat from invasive species, and deterrence of wildlife movement from lighting and increased human presence. The following natural communities of conservation concern occur in the vicinity of mining operations and are subject to potential impacts: *Yucca brevifolia*, *Purshia tridentata* – *Artemisia tridentata*, and *Lepidospartum squamatum*.

### 2.3.13 Recreational Activities

The number of OHV registrations in California has more than doubled since 1980, and the rapid growth of the numbers of OHV recreationists continues. In addition to resident recreationists, the Mojave Desert attracts millions of OHV visitors annually. While the vast majority of motorcyclists and all-terrain vehicle riders are responsibly recreating at designated OHV parks or on designated trails and roads on public lands, many others are carving new trails across threatened Agassiz's desert tortoise and Mohave ground squirrel habitat, often across sensitive habitats in closed portions of designated areas of critical environmental concern.

While desert planning efforts attempt to minimize OHV damage to natural resources by designating open, limited use, and closed areas, damage to natural resources continues. The lack of public education regarding the rules and road networks, lack of adequate enforcement staff, and outright defiance by a small segment of the OHV community have thwarted efforts to protect wildlife and vegetation, including areas around desert springs and other sensitive sites. However, teaming with responsible OHV enthusiast groups has been an effective strategy for the Transitions Habitat Conservancy in some of its holdings in San Bernardino County to prevent degradation from OHV use.

The number of law enforcement personnel is small relative to their jurisdiction of enforcement acreage, so the risk of receiving a citation for riding in restricted areas is correspondingly small. Agencies have posted signs indicating where vehicles are prohibited, but in many areas this is futile.

The Decision Record also revealed that BLM was unable to keep OHVs out of sensitive areas. The frequent destruction of signs led BLM to sign the open route network and to cease signing the closed areas, reasoning that people are less likely to destroy "open area" signs than "closed area" signs. While this saves signs, this policy makes it difficult to inform recreationists where OHV activities are prohibited, providing less protection for important habitats.

The issue is not limited to federal lands. The Los Angeles County Sheriff's Department applied for additional funding to patrol lands in Antelope Valley for illegal OHV use, noting erosion and destruction of vegetation as effects. The application notes the largest areas of enforcement responsibility as Acton, Agua Dulce, Leona Valley, Lake Hughes, Green Valley, Lake Elizabeth, Littlerock, Pearblossom, Llano, Wrightwood, Lake Los Angeles, Hi Vista, Fairmont, and Antelope Acres (Los Angeles County Sheriff 2017).

OHV use can reduce the extent of habitat and fragment habitat resulting in overall habitat loss and reduction in the quality of habitat. Direct impacts include soil loss, vegetation loss and changes in vegetation community composition, and increases in the number of and abundance of invasive species (Miller et al. 2020). Indirect effects such as noise can have negative effects on species' behavior (Brattstrom and Bondello 1983) including causing mammals to flush away from trails (Taylor and Knight 2003) and reducing reproductive success of birds (Davis et al. 2010). These impacts would be expected to occur in all parts of the AVRCIS area where OHV use is frequent and not well-regulated.

One of the primary contributors to the damage caused by the creation of unauthorized OHV trails is the closure of currently used trails, resulting in increased dispersed use (Achana 2005). Therefore, careful planning, outreach, and education of the OHV community and associated interest groups is an important element of successful OHV use management likely to be more successful in minimizing negative effects on wildlife.

### 2.3.13.1 Effects on Focal Species and Habitats

The impacts of OHVs on fragile desert landscapes have been described by scientists and resource managers for more than 30 years. The 1980 California Desert Conservation Area Plan referred to OHVs as the "most pervasive management issue in the area." Along with direct collisions with Agassiz's desert tortoises and other wildlife, and the crushing of animal burrows, OHVs compact soils, fragment habitat, spread invasive plant species, and denude the landscape of vegetation. Off-highway driving or riding has essentially a non-restorable impact on some desert habitat; damaged soils and perennial vegetation are not likely to recover for several hundred years or more (California Department of Fish and Game 2005). Without active treatment of soils compacted by years of unmanaged recreational vehicle use, and enhancement of native vegetation production, even closed routes will remain as they are: wind-swept, eroded surfaces with no vegetative productivity and unsuitable burrowing substrate. Additionally, this prolonged recovery is likely to only occur if vehicle use no longer occurred on closed routes, which is likely to require exclusion measures (e.g., fencing) and enforcement.

### 2.3.13.2 Effects on Other Conservation Elements

Unauthorized OHV use in sensitive desert habitat drives the loss of habitat connectivity and degradation of natural communities of conservation importance in the same manner as for focal species and their habitats.

## 2.3.14 Renewable Energy

California's deserts contain some of the highest-rated solar energy resources in the world. Renewable energy projects, including geothermal energy, wind energy, and solar energy, have been constructed and are proposed throughout the Western Mojave Desert. In the RCIS area, wind energy is prohibited in the unincorporated areas of Los Angeles County and there are currently no operating utility-scale wind-generating facilities operating. As such, utility-scale solar has been and will continue to be the primary pressure on focal species and other conservation elements. As described in Section 2.2.3.4, *Renewable Energy*, utility-scale solar development has expanded in the RCIS area in recent years and is expected to continue to expand as California incentivizes renewable energy development over traditional fossil fuel generation sources. Utility-scale solar is extremely area-intensive, with large arrays of photovoltaic panels occupying up to thousands of acres, resulting in extensive conversion of natural desert habitat. There is also the potential for large solar arrays to have a "Solar Heat Island Effect" (Clark 2004), potentially causing these areas to be too hot for use by the desert tortoise. However, there is not consensus on whether this phenomenon occurs in relation to solar arrays.

## 2.3.14.1 Effects on Focal Species and Habitats

Siting, construction, decommissioning, and operational activities associated with solar array installations, as well as transmission facilities, result in loss of native vegetation and habitat for wildlife, particularly focal species such as Agassiz's desert tortoise, coast horned lizard, and Mohave ground squirrel. Focal bird species may be affected through collisions with heliostats, solar arrays, and injury or mortality from exposure to concentrated solar flux (California Energy Commission et al. 2014). Based on where wind-energy development would most likely occur, most collision and injury risk to avian and bat species would occur on the western edge of the RCIS area and along the southern border in the migratory corridor of the San Gabriel Mountains and San Andreas fault zone (commercial-scale wind energy generation has not yet occurred in the RCIS area and it is currently prohibited on unincorporated Los Angeles County lands). In addition, both large transmission lines and networks of smaller collector lines present collision and electrocution hazards to birds. In particular, lines running perpendicular to migratory corridors or close to bird refuges represent greater hazards. Utility-scale solar results in large swaths of converted habitat that adversely affects many focal species that use desert habitat, or move through these areas, such as mountain lion.

## 2.3.14.2 Effects on Other Conservation Elements

Stressors to conservation elements such as habitat connectivity, working lands, and natural communities of conservation importance from renewable energy activities share a great deal of overlap with other described pressures. These include the loss of habitat connectivity associated with direct displacement of native plant and animal communities to site solar installations, but also include loss of habitat connectivity associated with power lines and access roads. This increased fragmentation and human traffic promotes invasion of previously intact native habitats by invasive plant species and may encourage unauthorized OHV use.

## 2.3.15 Utility and Service Lines

Electric transmission lines are required to connect energy facilities such as power plants and solar fields to utility substations and the communities that they serve. They are often installed in remote landscapes, and require periodic vegetation control to mitigate the fire risk that they pose. They can cause changes in the sediment erosion and deposition regime, the spatial distribution of habitat types, natural community structures and composition, ecosystem development and succession processes, biotic interactions, and habitat fragmentation.

Electric transmission lines in the RCIS area generally follow two main corridors: from the solar fields located along the northern edge of the RCIS to Palmdale and then south, and from Palmdale east to the San Bernardino County line.

## 2.3.15.1 Effects on Focal Species and Habitats

Electric transmission lines have the potential to affect focal plants in their path, as well as fauna that migrate through these corridors. These corridors overlay California grassland and meadow and Sonoran and Chihuahuan semi-desert scrub and grassland areas. Electric transmission corridors within the RCIS area overlap with the Munz Ranch Road, Portal Ridge, and the Big Rock Creek Wash habitat core areas and the Portal Ridge Poppy Preserve, Barrel Springs, Little Rock Wash, Big Rock Wash, and Mescal Creek landscape linkages. Additionally, avian focal species may face increased injury and mortality caused by bird strikes to power lines.

Designated electric transmission line corridors within the RCIS area overlap with areas of high conservation value for American badger, burrowing owl, California condor, coast horned lizard, desert kit fox, golden eagle, Joshua tree, Le Conte's thrasher, loggerhead shrike, long-billed curlew, mountain lion, mountain plover, prairie falcon, short-joint beavertail, Swainson's hawk, and tricolored blackbird.

#### 2.3.15.2 Effects on Other Conservation Elements

Electric transmission lines have the potential to affect natural communities of conservation importance, key aquatic habitats, and habitat connectivity. Construction and maintenance of electric transmission lines cause disturbance and impacts on natural communities, increasing the potential for competition from invasive species and erosion where vegetation is removed. These impacts disrupt the natural communities and can also affect the species that rely on intact natural habitat to traverse multiple habitat patches or migrate through their entire range. The electric transmission corridors in the RCIS area cross the *Populus fremontii – Fraxinus velutina – Salix gooddingii*, *Purshia tridentata – Artemisia tridentata*, and *Lepidospartum squamatum* natural communities of conservation concern; key aquatic habitats such as Big Rock Creek and Little Rock Creek; and modeled wildlife corridors for both small and large species. Electric transmission corridors within the RCIS area overlap, and have the potential to affect, the Portal Ridge Poppy Preserve, Barrel Springs, Little Rock Wash, Big Rock Wash, and Mescal Creek landscape linkages.

## 2.4 Gaps in Scientific Information

The conservation strategy presented in Chapter 3, *Conservation Strategy*, is based on the best available scientific information. However, there are many gaps in that information. This section discusses information gaps that, if filled, could change the objectives, actions, and priorities in the RCIS area. Gaps may be created from either a lack of information or deficiency in how existing information is disseminated.

### 2.4.1 Focal Species Occurrence Data Gaps

The CNDDB (California Department of Fish and Wildlife 2017b) was the primary source of species occurrence data, along with a few others. While the data are considered high quality, because of the verification process used by CDFW, there are two inherent gaps. First, only positive data are presented (i.e., where an occurrence is found). While positive occurrence data are very useful, there is no way to know where surveys have been conducted for each species with negative survey results (i.e., where an occurrence was not detected). Knowing the characteristics of where species do not occur in habitat that may appear suitable is also important for informing where to prioritize conservation actions. Because that information is not available, the species habitat models typically over-predict where species may occur. With negative survey data, those models could be refined by removing areas that had been surveyed where no species were found. Second, the CNDDB does not include data for large areas of potentially suitable habitat, in part because a large amount of California, including the majority of the RCIS area, has not been surveyed.

Surveys are often driven by environmental compliance for projects. For example, many CNDDB occurrences fall along gas and electric rights-of-way or roadways—places where infrastructure projects typically happen—giving the potentially false impression that these species occur in proximity to infrastructure. As a result, conservation and mitigation projects may inadvertently focus on limited areas with suitable occurrence data, potentially at the expense of other important areas that are occupied by target species but have not been surveyed. Increasing occurrence data information for these species would allow for improved models that are able to more accurately predict habitat.

Within the RCIS area, the following species were specifically identified as needing additional survey and mapping efforts to improve knowledge of the species for planning and management activities: American badger, Mohave ground squirrel, Tehachapi pocket mouse, spreading navarretia, Bell's vireo, and loggerhead shrike. Additional occurrence data would benefit modeling and management for all focal species.

### 2.4.2 Rare Plant Distribution Data Gaps

The gaps in survey effort for fauna are discussed above in Section 2.4.1 above; however, the lack of survey data for rare plant species is an additional issue throughout the state. Plant species are under-surveyed for two reasons: (1) lack of access to private lands, and (2) plants are not state or federally listed as threatened or endangered at the same rate as wildlife, and therefore regulatory survey requirements are not in place for many species. Furthermore, when botanical surveys are done in areas with more than one plant with the potential to occur, surveys are often timed to address as many blooming periods as possible, but may miss the blooming window for any specific species in that year. So even when lands are surveyed, some species that are present may not be identified during the survey effort if they are not flowering at that time. The lack of survey data for many rare plant species consequently limits planning efforts by not accurately representing plant species occurrence and distribution. For example, the lack of occurrence data for spreading navarretia limits the identification of priority conservation areas in the RCIS. More surveys on private lands and standardized survey efforts would help fill this data gap and allow for more informed conservation priorities for focal plant species.

### 2.4.3 Wildlife Movement Data Gaps

There have been a number of wildlife connectivity assessment and modeling efforts completed in Southern California, as described in Section 2.1.5.1, as well as the connectivity modeling done for this RCIS described in Chapter 3, *Conservation Strategy*, and Appendix G, *Modeling Methodology*, and shown on Figures 3-9 and 3-10. Surveys including wildlife tracking stations and camera stations along predicted corridors to assess actual use would be valuable to inform the actual benefit to focal species of protecting the identified linkages prior to further planning and habitat conservation efforts.

### 2.4.4 Specific Effects of Climate Change

While there are numerous models and predictions regarding how California, and the RCIS area, will respond to a changing climate, the degree of change within the RCIS area as well as the ability of ecosystems to adapt to this change are still largely speculative. It is understood that some species and habitats will likely be more susceptible or resilient to climate change based on their specific life histories, distribution, adaptability, and abundance. Some of the specific data gaps that surround climate change will be the rate, timing, and extremity of warming and extreme weather events. Each species has a range of conditions under which it can survive. It is unknown whether species will be able to migrate or adapt quickly enough to the changing climate to sustain their populations. Climate change might affect the size, distribution, and functionality of natural communities and land covers as currently mapped and described in the RCIS. Aquatic habitats are likely to become more drought stressed with increased temperatures and more frequent drought, changing the functionality of these features for species that depend on them such as spreading navarretia, western pond turtle, least Bell's vireo, willow flycatcher, and tricolored blackbird, which depend on aquatic and riparian habitats. Terrestrial habitats are also likely to shift in composition and may shift from scrub habitats to grassland habitats with increased incidence of wildfires, further reducing the available habitat for many non-aquatic focal species as well, especially the coast horned lizard, Swainson's hawk, and Joshua tree. The potential pressures and stressors associated with climate change are further described in Section 2.3.3, *Climate Change.*

### 2.4.5 Fossorial Mammal Extent Mapping

Many native species in California, and in the RCIS area specifically, rely on fossorial mammals as an important element in their life history. Burrowing owls rely on fossorial mammals to provide underground nest sites (Appendix E, *Focal Species Assessments*). Many species of raptors and mammals include ground squirrels as a food source. If the distribution of fossorial mammals in the RCIS area was better understood, it could influence where priority conservation actions should be implemented.

### 2.4.6 Peer-Reviewed Literature Gaps

Many survey efforts are completed as part of the environmental documentation for projects. While this information is useful for larger planning efforts when it provides additional data points in the CNDDB, having publicly available reviewed literature and data addressing the gaps identified earlier in this section would aid planning and modeling efforts. Furthermore, peer-reviewed literature would provide additional data and information regarding a wide variety of topics relevant to conservation and management issues including, but not limited to, species-specific aspects of required habitat quality and quantity, species behavior, reproduction, movement, genetics, population and community dynamics, and many others.

# Chapter 3
# **Conservation Strategy**

## 3.1 Overview

The conservation strategy was designed to meet the requirements of the *Regional Conservation Investment Strategies Program Guidelines*[1] (Program Guidelines) (California Department of Fish and Wildlife 2018a). This chapter describes how conservation opportunities have been identified and prioritized in the Regional Conservation Investment Strategy (RCIS) area. This Antelope Valley RCIS uses the best available science to identify conservation goals and objectives, conservation actions, habitat enhancement actions, and conservation priorities and aid California's declining and vulnerable species by protecting, restoring, creating, enhancing, and reconnecting their habitat. This voluntary non-regulatory conservation strategy is intended to guide conservation investments and advance mitigation in the RCIS area. Voluntary implementation of this strategy will also sustain and enhance the species and their habitats and help them adapt to climate change and other pressures and stressors, such as habitat fragmentation.

The following sections of this chapter describe how the biological data, habitat distribution models, current land use, ecological condition of the landscape, patterns of ownership and land protection, and anticipation of future stressors on the species and natural communities (e.g., future development, climate change) have been integrated through spatial modeling and analysis to identify conservation value throughout the RCIS area. Areas with higher overall conservation value are the focus of the conservation strategy (Section 3.2, *Identifying Areas of High Conservation Value*). These areas were identified by mapping areas of biological value (Section 3.2.1, *Mapping Biological Value*), intactness (Section 3.2.2, *Mapping Terrestrial Landscape Intactness*), and conservation value (Section 3.2.3, *Mapping Conservation Value*). The core areas are delineated around the areas of highest conservation value in the RCIS area. Landscape linkages are also mapped to identify the important connections between habitat core areas and allow wildlife movement and dispersal among the core areas (Section 3.2.4, *Mapping Habitat Core Areas and Landscape Linkages*). A species conservation gap analysis is used to determine where species and habitats are protected and where more protection may be needed to achieve desired levels of conservation (Section 3.3, *Gap Analysis for Focal Species*). Finally, conservation goals and objectives are identified for each focal species and natural community; these objectives drive the conservation actions and habitat enhancement actions and, ultimately, the conservation strategy of the RCIS area (Section 3.4, *Conservation Strategy for Focal Species and Conservation Elements*). The application of the conservation strategies (Section 3.5, *Applying Actions and Conservation Priorities*) and ongoing monitoring and adaptive management (Section 3.6, *Monitoring and Adaptive Management Framework*) are the final cornerstones of the conservation strategy for this RCIS.

Prior to implementation of any of the actions to benefit focal species identified in the RCIS Conservation Strategy, an on-the-ground assessment should be conducted to determine what environmental regulations may apply to implementation of the actions. As indicated in Fish and Game Code Section 1855(b), neither this RCIS nor any Mitigation Credit Agreement adopted pursuant to it modifies in any way: (a) the standards for issuance of incidental take permits (ITPs)

[1] https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=141619&inline

or consistency determinations (CDs) under CESA; (b) the standards for issuance of lake and streambed alteration (LSA) agreements under Section 1600, et seq.; or (3) the standards under CEQA. In addition, nothing in this RCIS or in any MCA adopted pursuant to it relieves a project proponent of the obligation to obtain all necessary permits, including but not limited to ITPs, CDs, and LSA agreements, and to fulfill all avoidance, minimization, and mitigation measures required by those permits. For these reasons, CDFW and any other relevant regulatory agencies should be consulted prior to implementing any actions in this RCIS that have any potential for impacts to regulated resources (such as CESA-listed species or streambeds), to determine if any permits are needed.

In some cases, implementation of actions to benefit one focal species may directly or indirectly negatively affect another focal species or otherwise regulated species. Therefore, on-the-ground assessments should also be conducted to identify such potential conflicts and the actions should be modified to reduce or eliminate unintended potential negative effects.

# 3.2 Identifying Areas of High Conservation Value

This section describes the methods and processes by which areas of high conservation value were identified. This RCIS used several sequential steps of geographic information system (GIS) modeling and analysis to synthesize and evaluate the biological data and land use patterns (Figure 3-1). The results of each analytical step, along with substantial input from stakeholders and local conservation and biological experts, helped determine the RCIS conservation priorities.

The identification of areas of high biological value was based on the distribution of focal species, rare natural communities, wildlife movement corridors, habitat resilience to climate change, and other important considerations. Areas largely free of current and past land uses that have degraded conservation value through habitat fragmentation and habitat disturbance were used to identify areas with higher terrestrial intactness. The areas of highest conservation value (i.e., areas of high biological value and high terrestrial intactness) were thus identified and made the focus of the conservation priorities.

Conservation priorities should be focused on areas with higher conservation values as well as areas with the least potential for conflict with foreseeable land uses, such as urbanization. GIS modeling and input from local experts were used to systematically identify areas with higher conservation values across the RCIS area. The land use and project planning information was used to identify areas with foreseeable potential future urbanization. Conservation value was determined by evaluating the overall biological value and then determining the areas of greatest landscape intactness (i.e., areas with the least amount of habitat fragmentation and habitat degradation from human activity).

Areas with higher conservation value are defined as areas with moderate to high biological value *and* moderate to high landscape intactness (Table 3-1). Areas with low biological value *or* low landscape intactness are defined as having lower conservation value. The conservation priorities, conservation actions, and habitat enhancement actions in this Antelope Valley RCIS will focus on areas of higher conservation value and lower likelihood of foreseeable future urbanization in the RCIS area.

**Table 3-1. Relationship between Landscape Intactness and Biological Value for Determining Relative Conservation Value**

| **Conservation Value Matrix** | | **Biological Value (Supporting Species, Natural Communities, and Other Conservation Elements)** | | |
|---|---|---|---|---|
| | | High | Moderate | Low |
| **Landscape Intactness (Level of Fragmentation and Degradation)** | High | H/H** | M/H** | L/H* |
| | Moderate | H/M** | M/M** | L/M* |
| | Low | H/L* | M/L* | L/L* |

*/gray = Low Value
**/green = High Conservation Value

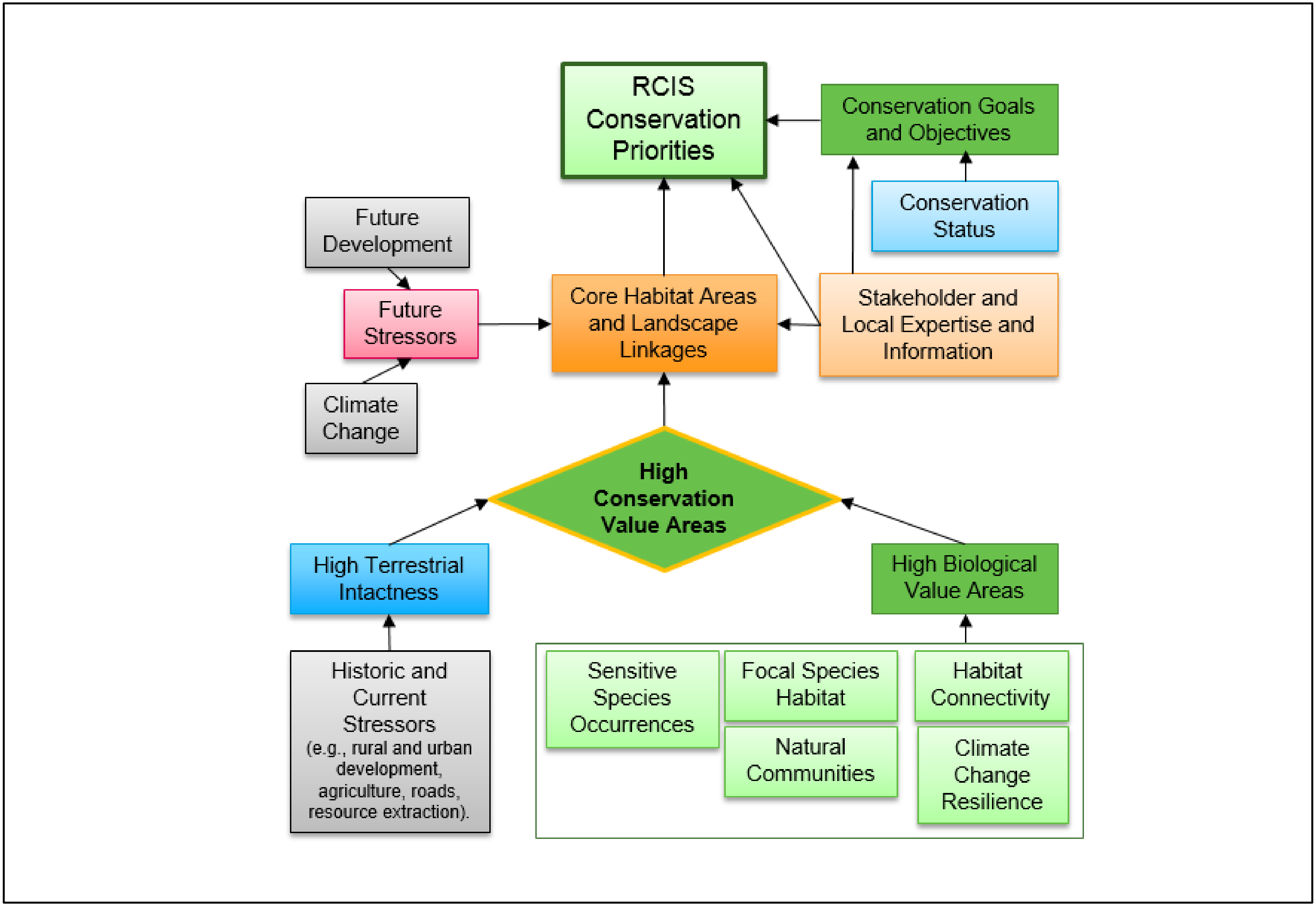


**Figure 3-1**
**Flowchart Depicting Process by Which Conservation Priorities are Identified**

## 3.2.1 Mapping Biological Value

Biological value mapping was based on four inputs: *focal species habitat groups*, *natural communities of conservation importance*, *habitat connectivity and climate change*, and *sensitive species occurrences*. Each of these components is discussed below. Modeling of *climate change resilience* was integrated into the habitat connectivity modeling (Section 3.2.1.3, *Habitat Connectivity and Climate Change*).

A map-based Environmental Evaluation Modeling System (EEMS) (Sheehan 2016) was used to generate the biological value model results (Conservation Biology Institute 2017). [2]EEMS allows for the logical assembly and integration of key spatial data layers in a clear and transparent modeling interface. The biological value model was developed interactively with stakeholder involvement; input from stakeholders and local experts could be dynamically changed, resulting in a transparent and iterative modeling process (Appendix F, *Focal Species Habitat Models*, and Appendix G, *Modeling Methodology*).

The biological value modeling with EEMS addressed the following question:

> *Where are the areas of higher biological value in Antelope Valley for each of three focal species habitat groupings, agriculture/grassland species, desert species, and foothill/riparian species?*

Appendix F, *Focal Species Habitat Models*, presents details on data sources, data thresholds, and logic operators for this and the other two parallel biological value models for agriculture/grassland species and foothill/riparian species.

### 3.2.1.1 Focal Species Habitat Groups

The focal species habitat groups are the first of four inputs to the biological value model. Each of the three focal species habitat groups contains species that have similar habitat affinities (based on the species life histories and habitat preferences) and spatial distributions (based on species models) in the RCIS area. Because the agriculture/grasslands species group is more similar to the desert species group there was more overlap of species between these groups (in comparison to the foothills/riparian species group), which resulted in three species being included in both groups (LeConte's thrasher, American badger, and desert kit fox) (Table 3-2).

Focal species were associated with habitat groups for the following reason: If all species were analyzed together in the EEMS model (Conservation Biology Institute 2017), rather than in habitat groups, one large set of similar species (e.g., agriculture/grassland species) could disproportionately swamp the effects of smaller sets of similar species (e.g., foothill/riparian species), thereby biasing the biological value mapping. However, grouping focal species by habitat still allowed the EEMS model to identify areas of overlapping high-quality habitat for multiple focal species as one measure of high biological value.

The distributions of focal species were combined in each habitat group to create a "species stack" or composite overlap for each habitat group, which provides a count of how many focal species in the species group are likely to occur in a given area. Each "species stack" was used as input for a

[2] Logic model built to display an index of biological conservation attributes at 270 m resolution across the West Mojave Antelope Valley study area. (v.11) Last modified December 28, 2017.

separate biological value model (one for each species group). Figure 3-2 through Figure 3-4 show the distribution and overlap of the species in each of these focal species habitat groups.

The analysis of areas of high conservation values was conducted separately for each of the three species groups, ensuring that the resulting conservation value data layers for each group accurately represent the distribution of conservation values for that group only.

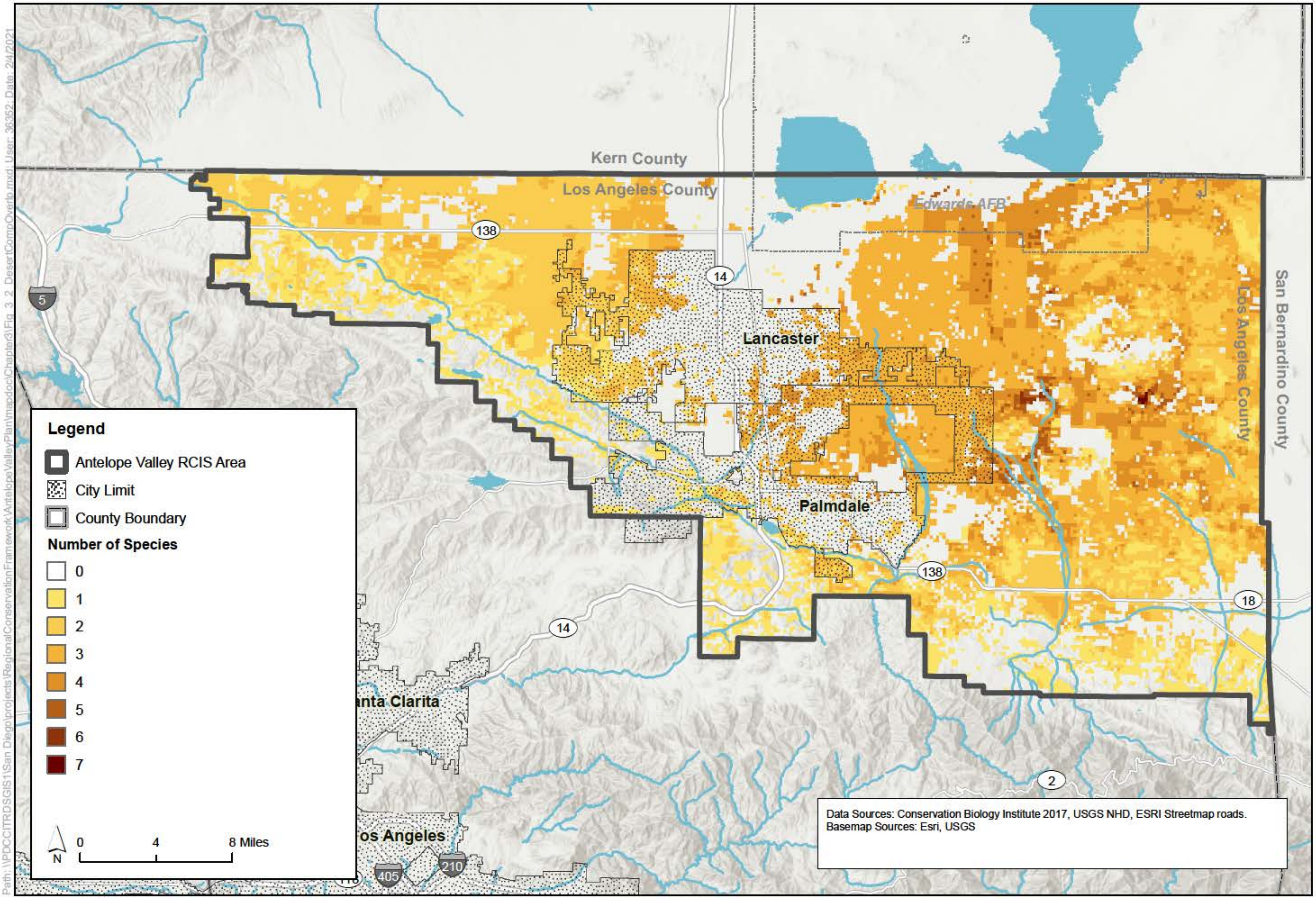


**Figure 3-2**
**Desert Species Group Composite Overlap of Potentially Suitable Habitat in the Antelope Valley RCIS Area**

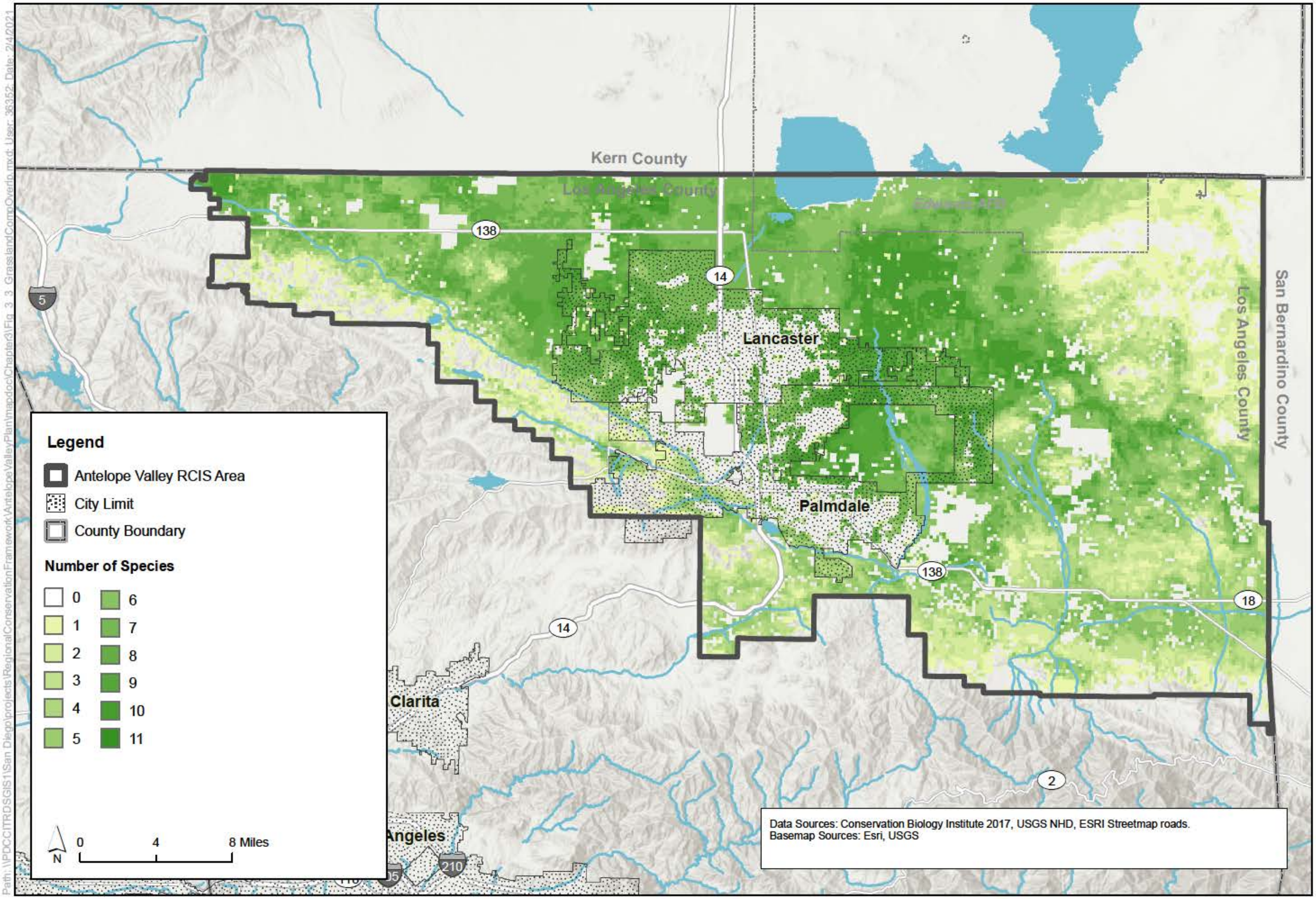


Figure 3-3
**Agriculture/Grassland Species Group Composite Overlap of Potentially Suitable Habitat in the Antelope Valley RCIS Area**

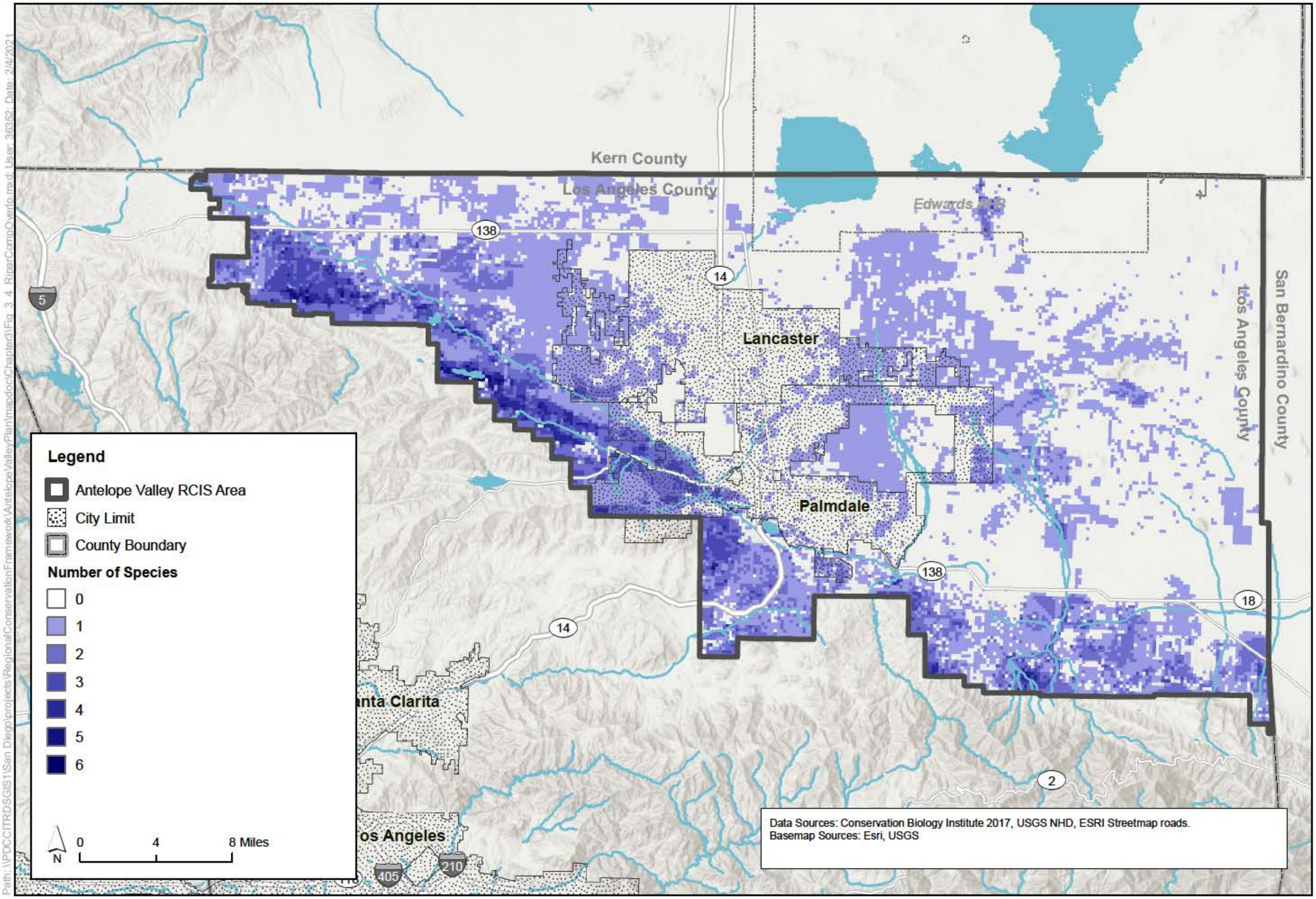


Figure 3-4
**Foothill/Riparian Species Group Composite Overlap of Potentially Suitable Habitat in the Antelope Valley RCIS Area**

**Table 3-2. Focal Species Assignments in Species Habitat Groups**

| Focal Species | Species Grouping: Desert | Species Grouping: Agriculture/Grasslands | Species Grouping: Foothills/Riparian |
|---|---|---|---|
| **Plants** | | | |
| Alkali mariposa-lily | X | | |
| California juniper | | | X |
| Joshua tree | X | | |
| Short-jointed beavertail cactus | | | X |
| **Reptiles** | | | |
| Coast horned lizard | | | X |
| Desert horned lizard | X | | |
| Desert tortoise | X | | |
| **Birds** | | | |
| Burrowing owl | | X | |
| California condor | | | X |
| Golden eagle | X | | X |
| LeConte's thrasher | X | X | |
| Least Bell's vireo | | | X |
| Loggerhead shrike | | X | |
| Long-billed curlew | | X | |
| Mountain plover | | X | |
| Northern harrier | | X | |
| Prairie falcon | | X | |
| Swainson's hawk | | X | |
| Tricolored blackbird | | X | |
| Willow flycatcher | | | X |
| **Mammals** | | | |
| American badger | X | X | |
| Desert kit fox | X | X | |
| Mohave ground squirrel | X | | |
| Mountain lion | | | X |
| Tehachapi pocket mouse | | | X |

Note: Because of lack of adequate occurrence data, spreading navarretia and western pond turtle species distribution models were not developed. Therefore, these species are not included in this table.

### 3.2.1.2 Natural Communities of Conservation Importance

Natural community conservation importance is the second input to the biological value model. Natural communities, besides focal species, are one of the other important conservation elements addressed by this Antelope Valley RCIS. Natural communities are associated with the *Division* level in the National Vegetation Classification System (NVCS) hierarchy, the broadest level of mapping of the natural landscape in this RCIS. Although some natural communities as a whole may not be at risk, some subcommunity types may be rarer or imperiled. Therefore, natural community conservation importance is based on these subcommunity types, including, in descending order, the

NVCS *Macrogroup* level (land cover type), the NVCS *Group* level, and, at the finest scale, the NVCS *Alliance* level.

To identify those natural communities that are of highest conservation importance, inclusive of all subcommunities described above, we looked at the overall sensitivity of the communities, based on the California State Rank; the distribution and abundance in the RCIS area and the surrounding ecoregion for regional context; and the existing level of protection (Table 3-3). The existing level of protection is the proportion occurring in Gap Analysis Project (GAP) 1 – GAP 3 status and Unassigned Public Lands. The analysis used the composite vegetation dataset assembled for this RCIS and the Antelope Valley RCIS protected-areas database, described in Section 2.2.4. *Protected Areas*. Complete summary tables pertaining to the gap analysis results for natural communities can be found in Appendix H, *Species Conservation Value Maps and Graphs*.

**Table 3-3. Natural Community Status and Existing Level of Protection Used for Assigning Emphasis Levels**

| Natural Community and Status | Total in RCIS Area | Amount Protected[1] (acres) | Percent Protected |
|---|---|---|---|
| **Critically Imperiled Communities (S1, highest priority)** – Only one group (below), occupying 618 acres | | | |
| *Achnatherum hymenoides* Alliance | 618 | 0 | 0% |
| **Imperiled Communities (S2, highest priority)** – Two S2 alliances, occupying 1,213 acres | | | |
| *Rhus trilobata – Crataegus rivularis – Forestiera pubescens* Alliance | 105 | 4 | 3.8% |
| *Ceanothus greggii – Fremontodendron californicum* Alliance | 1,108 | 1 | 0.1% |
| **Vulnerable Communities (S3, very high priority)** – Fifteen S3 alliances, occupying 8,149 acres | | | |
| *Aesculus californica* Alliance | 14 | 14 | 100% |
| *Krascheninnikovia lanata* Alliance | 14 | 0 | 0% |
| *Ericameria linearifolia – Cleome isomeri* Alliance | 3 | 0 | 0% |
| *Ephedra nevadensis – Lycium andersonii – Grayia spinosa Lycium cooperi* Alliance | 26 | 0 | 0% |
| *Lepidospartum squamatum* Alliance | 3,056 | 39 | 1.3% |
| *Populus fremontii – Fraxinus velutina – Salix gooddingii* Alliance | 894 | 34 | 3.8% |
| *Pseudotsuga macrocarpa* Alliance | 91 | 16 | 18.1% |
| *Platanus racemosa – Quercus agrifolia* Alliance | 81 | 0 | 0% |
| *Quercus lobata* Alliance | 243 | 4 | 1.6% |
| *Salix gooddingii – Salix laevigata* Alliance | 72 | 0 | 0% |
| *Prosopis glandulosa – Prosopis velutina – Prosopis pubescens* Alliance | 897 | 0 | 0% |
| *Artemisia tridentata* spp. *parishii* Provisional Association | | | 0.4% |
| *Prunus fasciculata – Salazaraia mexicana* Alliance | 901 | 50 | 5.6% |
| *Encelia* [*actonii, virginensis*] – *Viguiera reticulata* Alliance | 37 | 0 | 0% |
| *Purshia tridentata – Artemisia tridentata* Alliance | 1,397 | 23 | 1.6% |
| **Locally Rare Communities (high priority)** – Four alliances or macrogroups in the RCIS area were identified as potentially locally rare, occupying 59,527 acres | | | |
| California annual and perennial Grassland | 55,319 | 2,361 | 9.3% |
| California annual herb/grass | 133 | 28 | 32.6% |

| Natural Community and Status | Total in RCIS Area | Amount Protected[1] (acres) | Percent Protected |
|---|---|---|---|
| *Eschscholzia (californica)* | 4,005 | 464 | 11.3% |
| *Lasthenia californica – Plantago erecta – Vulpia microstachys* | 69 | 27 | 40.3% |
| **Special Interest Communities (moderate priority)** – Eight communities, occupying 6,327 acres | | | |
| Southwestern North American riparian/wash scrub Group | 39 | 10 | 26.8% |
| Western cordilleran montane-boreal wet meadow Macrogroup | 30 | 3 | 10.2% |
| Southwestern North American riparian, flooded, and swamp forest Macrogroup | 132 | 19 | 14.4% |
| North American warm desert alkaline scrub, herb playa, and wet flat Group | 5,847 | 0 | 0% |
| Southwestern North American alkali marsh/seep Group | 238 | 0 | 0% |
| Arid West freshwater emergent marsh Group | 10 | 0 | 0% |
| Western North American temperate grassland and meadow Macrogroup | 31 | 0 | 0% |

[1]The existing level of protection is the proportion occurring in GAP 1–GAP 3 status and Unassigned Public Lands.

We then applied a conservation importance ranking to determine the level of emphasis (i.e., degree of conservation need) for each natural community and how strongly each community should be weighted with respect to influencing the resulting map of biological value (Table 3-4). To ensure that the conservation importance for each community was not artificially skewed by the RCIS area boundary and understand the regional context, we conducted this analysis within the entire ecoregion and then applied the results to the RCIS area.

### Table 3-4. Natural Community Categories and Assigned Emphasis Level in Conservation Importance

| Category | Emphasis Level (Rank Order Model Codes) | | | |
|---|---|---|---|---|
| Critically Imperiled (S1) | Highest (12) | | | |
| Joshua tree woodland (*Yucca brevifolia*)[1] | Highest (12) | | | |
| Imperiled (S2) Communities | Highest (11) | | | |
| Vulnerable (S3) Communities (< 50% protected) | | Very High (10) | | |
| Vulnerable (S3) Communities (> 50% protected) | | Very High (9) | | |
| California juniper woodland (*Juniperus californica*)[2] (status = S4, locally rare) | | | High (8) | |
| Locally Rare (< 50% protected) | | | High (8) | |
| Locally Rare (> 50% protected) | | | High (7) | |
| Special Interest Communities (< 50% protected) | | | | Moderate (6) |
| Special Interest Communities (> 50% protected) | | | | Moderate (5) |

| | | | |
|---|---|---|---|
| All remaining natural communities (< 50% protected) | Moderate (4) | | |
| All remaining natural communities ( > 50% protected) | | Low (3) | |
| Agriculture | | Low (2) | |
| Developed and Disturbed Areas | | | Very Low (1) |

1 Joshua tree woodlands is a special interest community that was elevated to the highest emphasis level because of local conservation concern as well as major threats over 90% of its range, especially with respect to the potential effects of climate change.

2 California juniper woodland is classified separately because it is a special interest community as well as a locally rare (S4) community.

Vulnerable communities that were not well protected (defined as less than 50 percent in designated protected areas) received a very high emphasis level and score of 10. Vulnerable (S3) communities that were found to be better protected in existing designated conservation lands (i.e., more than 50 percent) received a very high emphasis level and score of 9 in this component of the model for mapping areas with high conservation values. Local rarity designations were assigned using land cover data from the Desert Renewable Energy Conservation Plan (DRECP) Draft Environmental Impact Report/Environmental Impact Statement (California Energy Commission et al. 2014). All communities with a DRECP designation of locally rare were conservatively labeled with the same designation in the updated Antelope Valley RCIS vegetation dataset. This inclusive approach ensured that updated mapped areas of vegetation with the potential to be locally rare were not excluded from the classification. Communities identified as locally rare and not well represented in existing designated protected lands (i.e., less than 50 percent) received a high emphasis level and score of 8 in the model. Locally rare communities that were better protected (i.e., more than 50 percent) received a high emphasis level and score of 7.

Artificial impoundments were included in some wetland classes because of their importance from a conservation perspective in this region. Special interest communities at the *moderate* level were scored at 6. Natural communities in the region that were less than 50 percent protected shared this *moderate* emphasis level with a score of 4. All remaining natural communities that were more than 50 percent protected in the region as well as agricultural lands, which provide potential habitat for some focal species, received a *low* emphasis level in the model, with scores of 3 and 2, respectively. Agricultural areas that provide habitat for focal species were emphasized in the species component of the logic model. To maintain complete coverage of the study site for modeling purposes, developed and disturbed areas received a *very low* emphasis level with a score of 1.

Results from the ranking of the conservation importance of natural communities are presented on Figure 3-5. The numeric representation of the data served as the input for the “natural communities of conservation importance” component of the biological values model.

#### 3.2.1.3 Habitat Connectivity and Climate Change

Habitat connectivity is the third input to the biological value model and a particularly important consideration in identifying areas of high conservation value. Habitat connectivity allows species to access all components of their habitat to reach resources for their life history requirements (e.g., foraging, breeding, dispersal). Habitat connections are easily compromised by human impacts such as urban development, the alteration of habitat through various land use practices, and human-made linear features such as roads, rail lines, and aqueducts. Geographic isolation that results from fragmented landscapes can compromise native species populations, even culminating in local extirpations or species extinctions.

Species populations that are faced with changing climatic conditions can either adjust to the changes by using local refugia where environmental conditions are stable and resilient with respect to the effects of climate change (Figure 3-6) or seeking out new environments with conditions that are similar to those to which they have adapted. Climate change has the potential to trigger significant range shifts for species. These shifts may be possible when suitable habitats are available and individuals have the ability to move to these suitable habitat areas (i.e., habitat connectivity). Therefore, habitat connectivity to local refugia with higher stability and resilience to the effects of climate change and environments with similar habitat conditions across a landscape is an important consideration when identifying areas for conservation (Figure 3-7). However, a highly disturbed and fragmented landscape makes these necessary movements difficult or even impossible. Furthermore, current highly suitable landscape linkages can be compromised by a changing climate, rendering them less suitable for certain species. The habitat connectivity modeling conducted for this Antelope Valley RCIS included important climate change modeling components to enhance the identification of viable landscape linkages and wildlife movement corridors under future forecast climate conditions for the RCIS area (Figure 3-8).

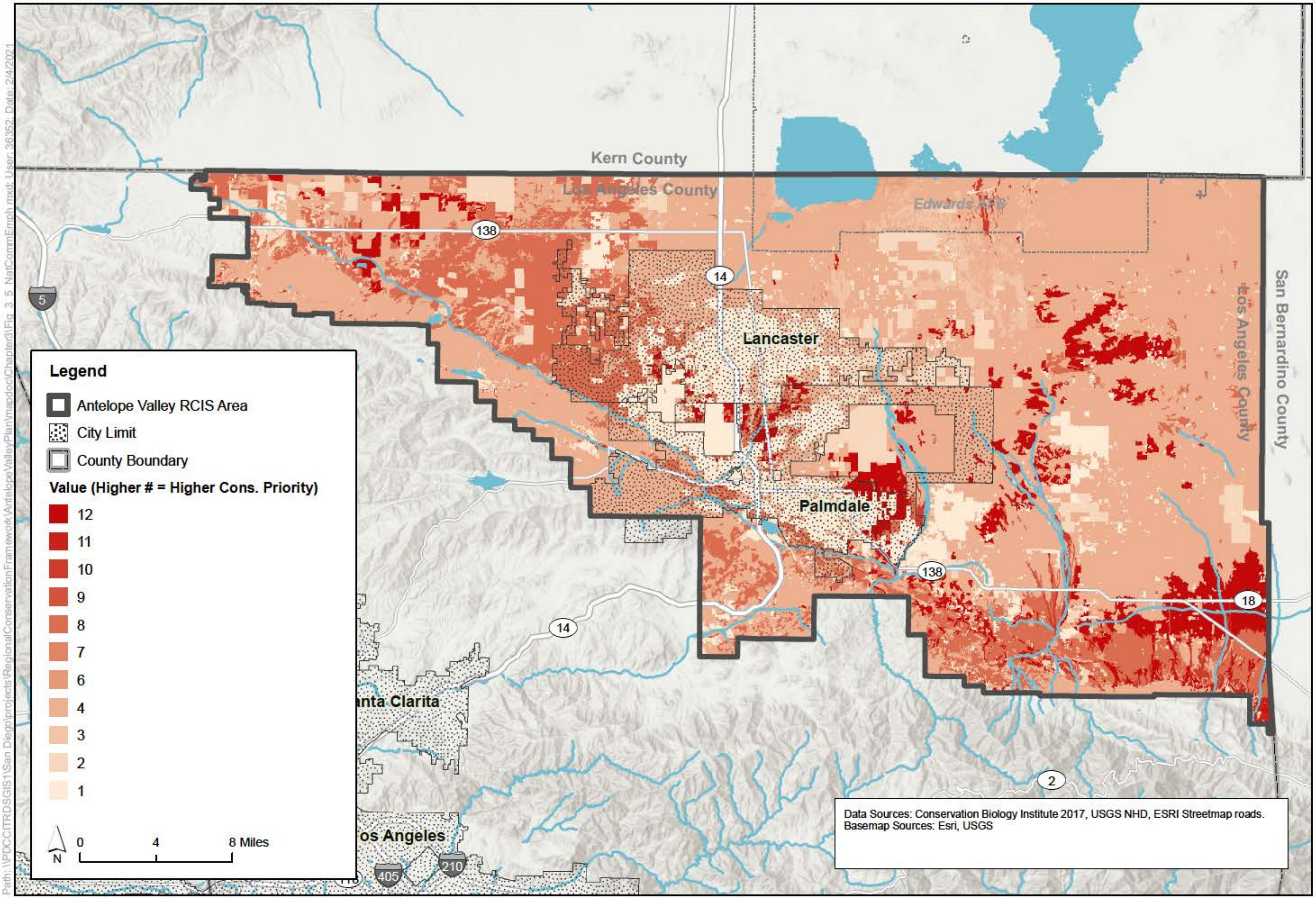


**Figure 3-5**
**Natural Communities Emphasis Levels in the Antelope Valley RCIS Area**

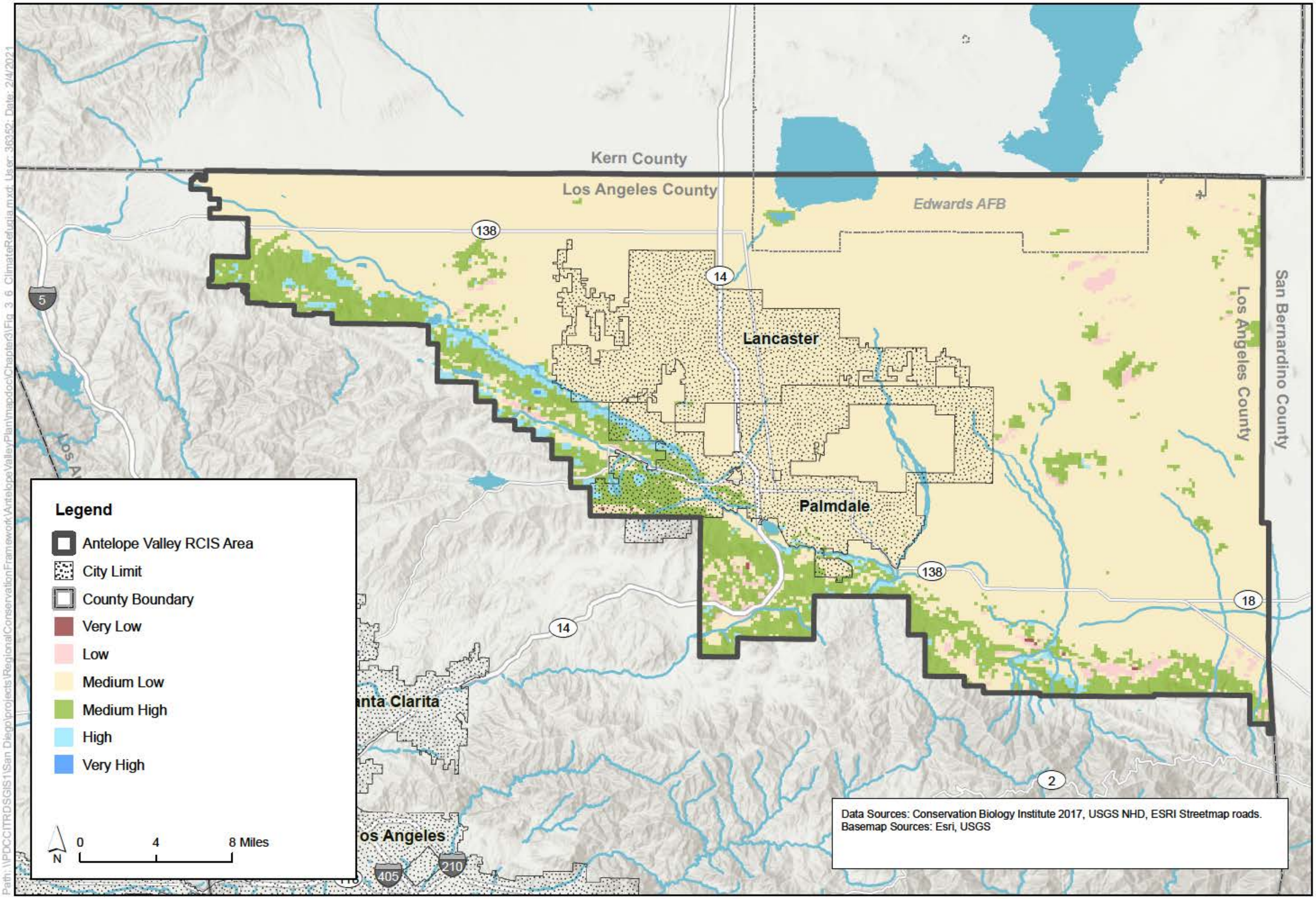


**Figure 3-6**
**Climate Physical Refugia in the Antelope Valley RCIS Area**

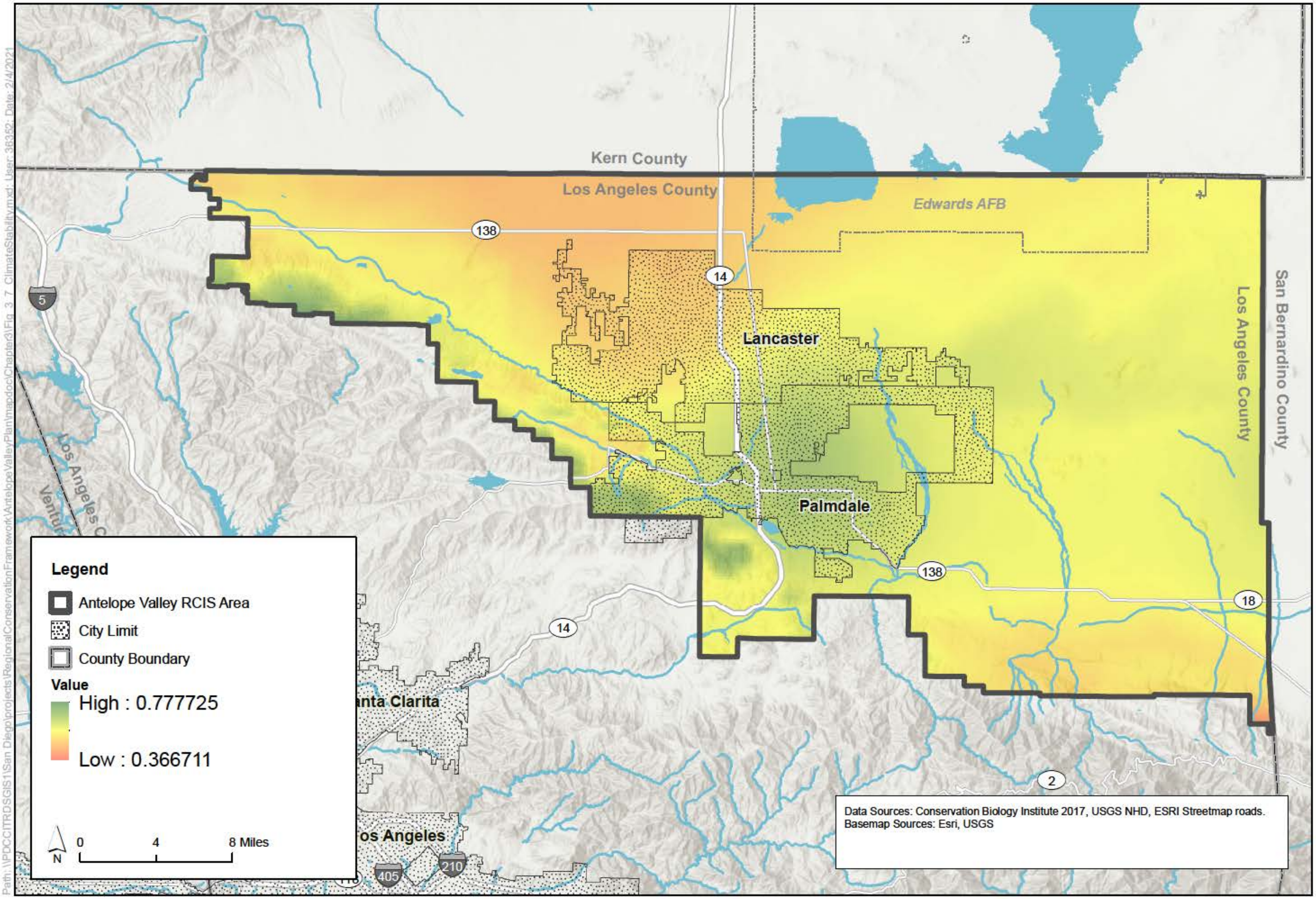


**Figure 3-7**
**Climate Stability in the Antelope Valley RCIS Area**

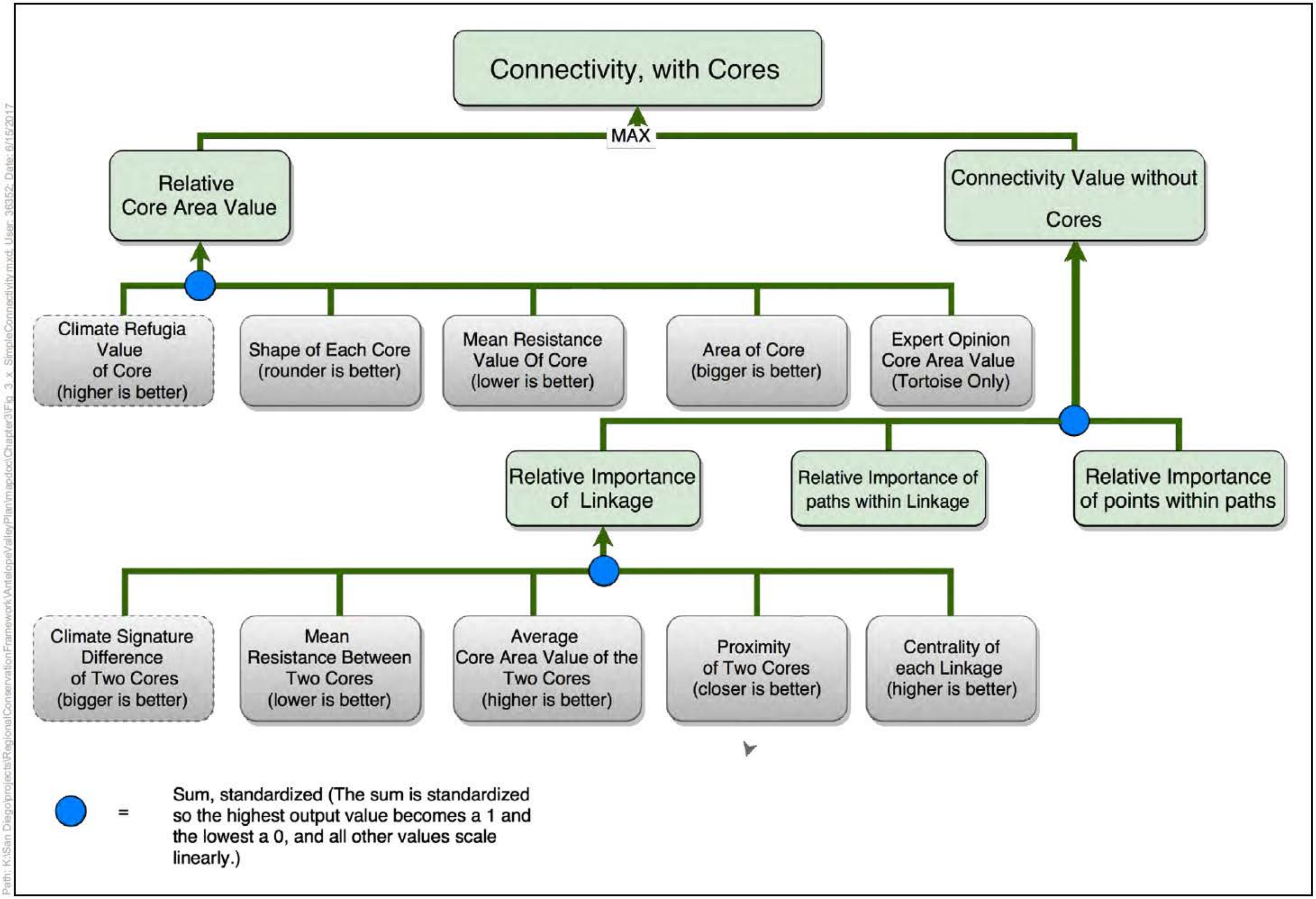




**Figure 3-8**
**Habitat Connectivity Model Flow Diagram**

A full description of the climate change modeling and integration with habitat connectivity mapping is provided in Appendix G, *Modeling Methodology.* Habitat connectivity was evaluated using a combination of modeling software packages, including Linkage Mapper, Circuitscape, and a hybridized graph theory add-on at 270-meter resolution (Appendix G, *Modeling Methodology*). These tools produce a number of important outputs that illustrate the least restrictive path (or least-cost corridor) between defined natural habitat blocks (or core areas), the relative importance of the core areas (larger, blockier core areas are more desirable than smaller, irregularly shaped areas), and the relative importance of the modeled corridors. They also identify and rank pinch points within the modeled corridors. Pinch points are narrow constrictions within a modeled corridor that are sources of corridor vulnerability. If a pinch point is compromised, an entire corridor could be rendered ineffective.

Barriers such as large highways and the California Aquaduct have a high "cost" (or "resistance") to movement by wildlife, and hence, the connectivity models. For example, if there is a relatively short pathway to go around a segment of highway rather than crossing it, the model, which uses the least cost corridor algorithm (Gallo et al. 2019), will map such a route. Therefore, it is possible for two areas that are near each other in Euclidean distance, to be very far apart when following a linkage pathway. Playas were modeled with a higher resistance than what was indicated by the Terrestrial Intactness Analysis because playas are inhospitable for many species and can be a barrier to movement. The resistance surface was created by emulating the Terrestrial Intactness Analysis (Section 3.2.2), with minor modifications as detailed in Appendix G, including modelling at a finer 270-meter resolution instead of a 1-kilometer resolution.

For the purposes of including habitat connectivity in the biological values model, two different types of habitat connectivity model runs were performed, one from the perspective of a large species (e.g., mountain lions), which tend to show greater tolerance to habitat fragmentation, and another from the perspective of smaller species, which could show greater sensitivity to habitat fragmentation. Modeling in both cases required close attention to three main features:

- How core areas (or natural habitat blocks) are defined,
- How the relative permeability of the landscape is defined through the creation of different resistance surfaces, and
- How projected future climate conditions affect the viability of the core areas with respect to supporting wildlife movement.

The results of the habitat connectivity modeling are shown on Figure 3-9 for large species and Figure 3-10 for small species. The connectivity analysis results were also used to delineate the landscape linkages, as described in Section 3.2.2, *Mapping Terrestrial Landscape Intactness*.

#### 3.2.1.4 Sensitive Species Occurrences

Sensitive species occurrence is the fourth input to the biological value model. It incorporates known concentrations of rare and endangered species. The data do not represent a comprehensive survey of the entire study area, but they do identify important locations where sensitive species have been found.

The California Natural Diversity Database (2017) provided the core data (i.e., occurrences mapped as polygons that delineate specific occupied areas and polygons that indicate mapping accuracy). The data were augmented by point data from the U.S. Fish and Wildlife Service (2017), eBird (2016), and HerpMapper (2016). Data were weighted for each species in the biological values model, based on the California State Status ranking.

| California State Rank | Biological Values Model Weighting Score |
|---|---|
| *State Rank S1 (Critically Imperiled)*—Critically imperiled in the state because of extreme rarity (often five or fewer populations) or very steep declines, making it especially vulnerable to extirpation. | Score 1.0 |
| *State Rank S2 (Imperiled)*—Imperiled in the state because of rarity, along with a very restricted range, very few populations (often 20 or fewer), steep declines, or other factors that make it very vulnerable to extirpation. | Score 0.75 |
| *State Rank S3 (Vulnerable)*—Vulnerable in the state because of a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors that make it vulnerable to extirpation. | Score 0.50 |
| *State Rank S4 (Apparently Secure)*—Uncommon but not rare in the state; some cause for long-term concern because of declines or other factors. | Score 0.25 |

### 3.2.1.5 Biological Value Model Results

In summary, a biological value model was created for each of the three species groups (desert, agriculture/grassland, and foothill/riparian). Each model depicts a relative biological value for each group of species from the four main components of the biological values model: focal species habitat (modeled habitat distributions), natural communities, habitat connectivity (inclusive of climate change modeling), and sensitive species occurrences. The results for each group are summarized below.

**Desert Species.** The biological value model shows a concentration of the higher biological value in a number of clusters (Figure 3-11). *Note: The letters following each place name indicate locations in the figure.* The largest block of high biological value runs along the south side of Edwards Air Force Base (a), followed by a large area north of Lake Los Angeles (b). Other notable blocks occur just north of Lancaster (c), between Lancaster and Palmdale (d), north and east of Palmdale (e), and along State Route 18 near the San Bernardino county line (f).

**Agriculture/Grassland Species.** The biological value model highlighted some of the same areas as the desert model but with considerably broader extents (Figure 3-12). The additional highlighted areas cover portions of the western part of the RCIS area, including the large area northeast of Lancaster (a) and a smaller area in the far-west portion of the RCIS area north of State Route 138 (b). An extensive area is northeast of Lancaster and Palmdale (c), and a smaller area is east of Llano at the intersection of State Routes 138 and 18 (d).

**Foothill/Riparian Species.** The biological value model highlights areas along the San Gabriel Mountains, with four main concentration areas (Figure 3-13). These include the large area in the far-west portion of the RCIS area, south of Neenach (a); the area around Antelope and Fairmont Buttes (b); the area south of Palmdale and north of State Route 14 (c); and the southeast corner of the RCIS area south of State Route 138 (d).

Considered collectively, these three species group results demonstrate how each model identifies locations of biological value, which correlate with the distributions of the species in each group. All of the additional model components—natural communities of conservation importance, sensitive species occurrences, and habitat connectivity and climate change—are consistent among the three models; therefore, the differences are specifically tied to the differences of the habitat distributions among the species groups.

As noted in the introduction to this section, as well as Figure 3-1, areas of highest conservation value are those areas with higher biological value and higher landscape intactness, as discussed in the section that follows.

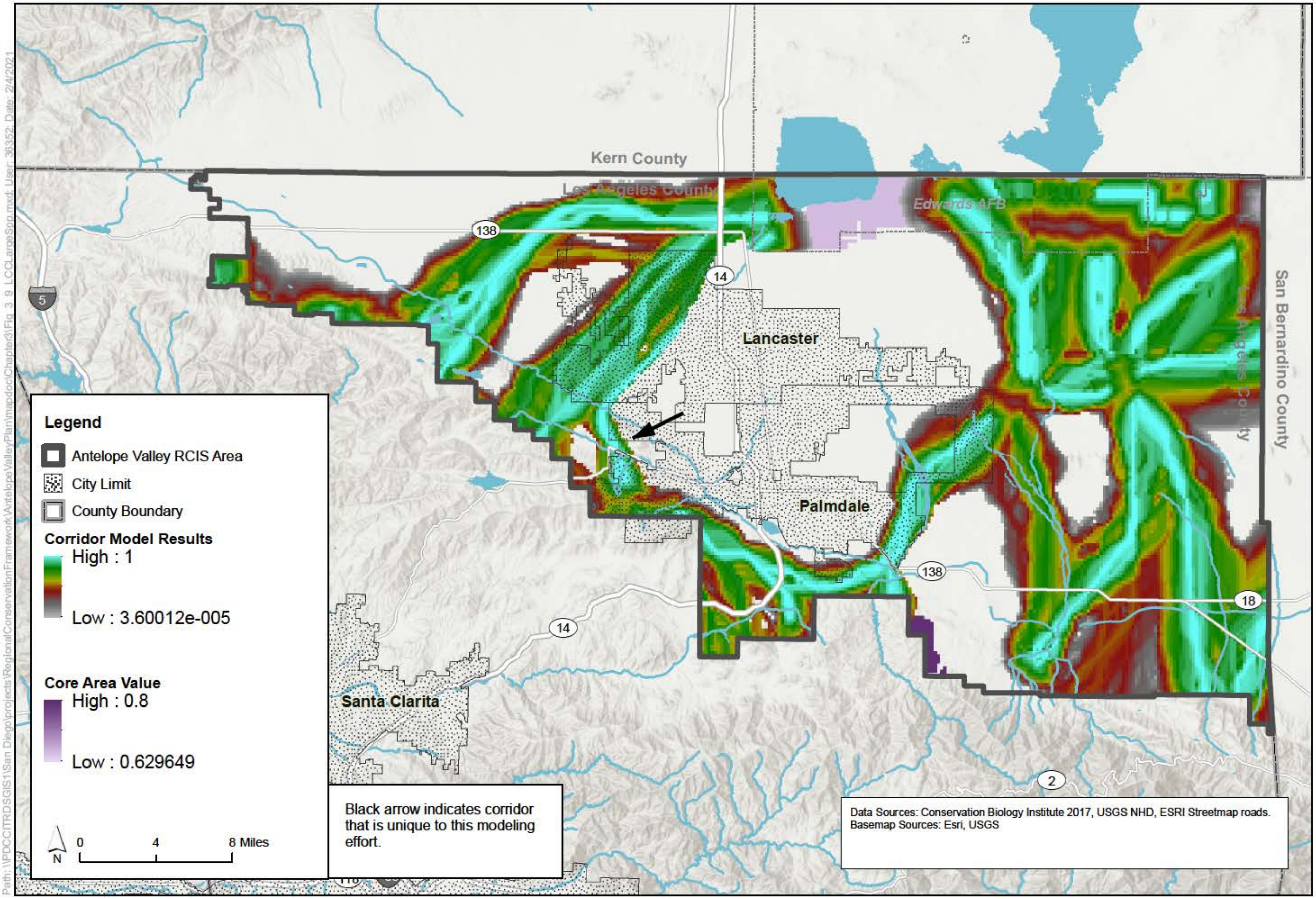


**Figure 3-9**
**Corridor Model Results for Large Species Connectivity for the Antelope Valley RCIS Area**

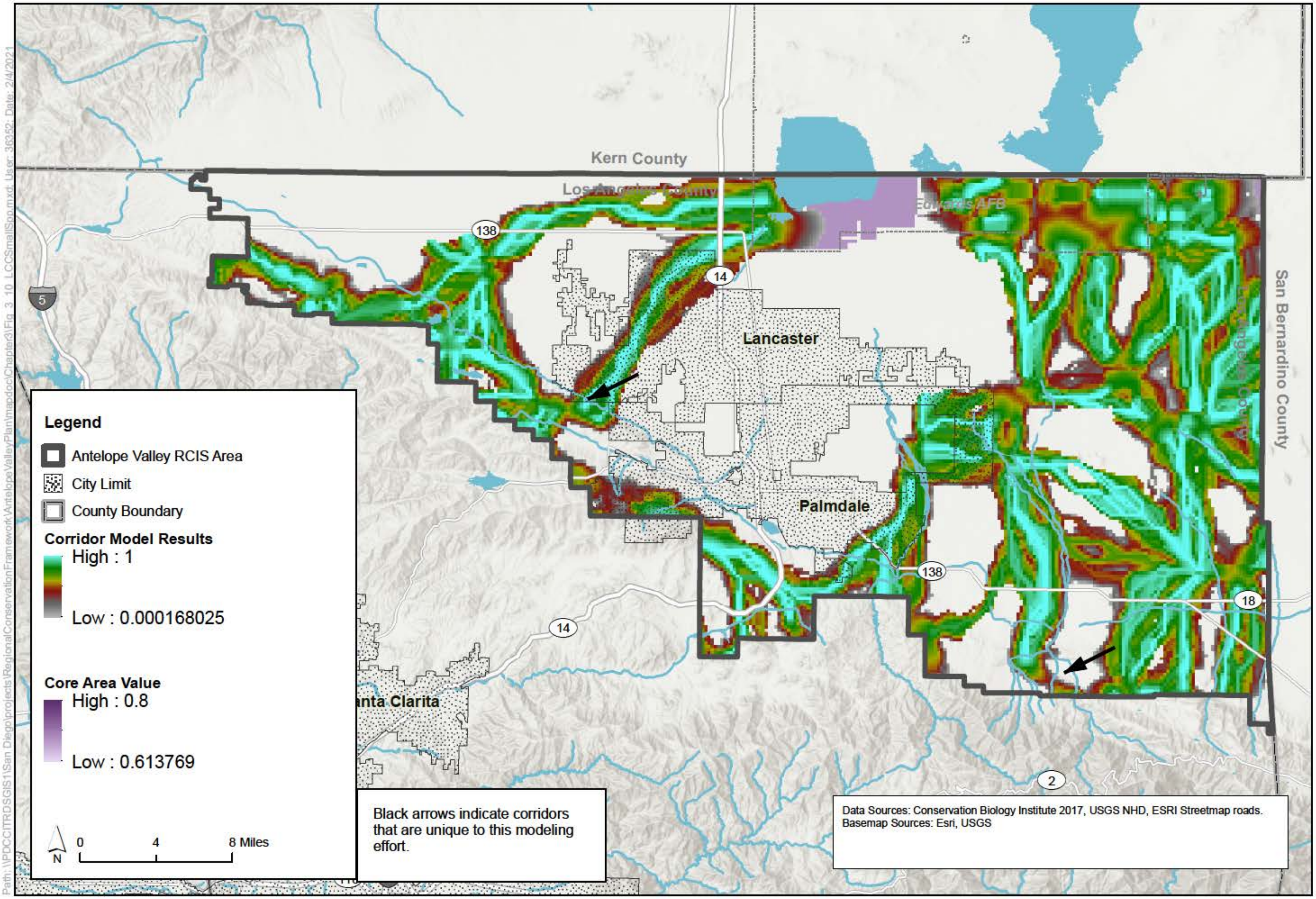


Figure 3-10
Corridor Model Results for Small Species Connectivity for the Antelope Valley RCIS Area

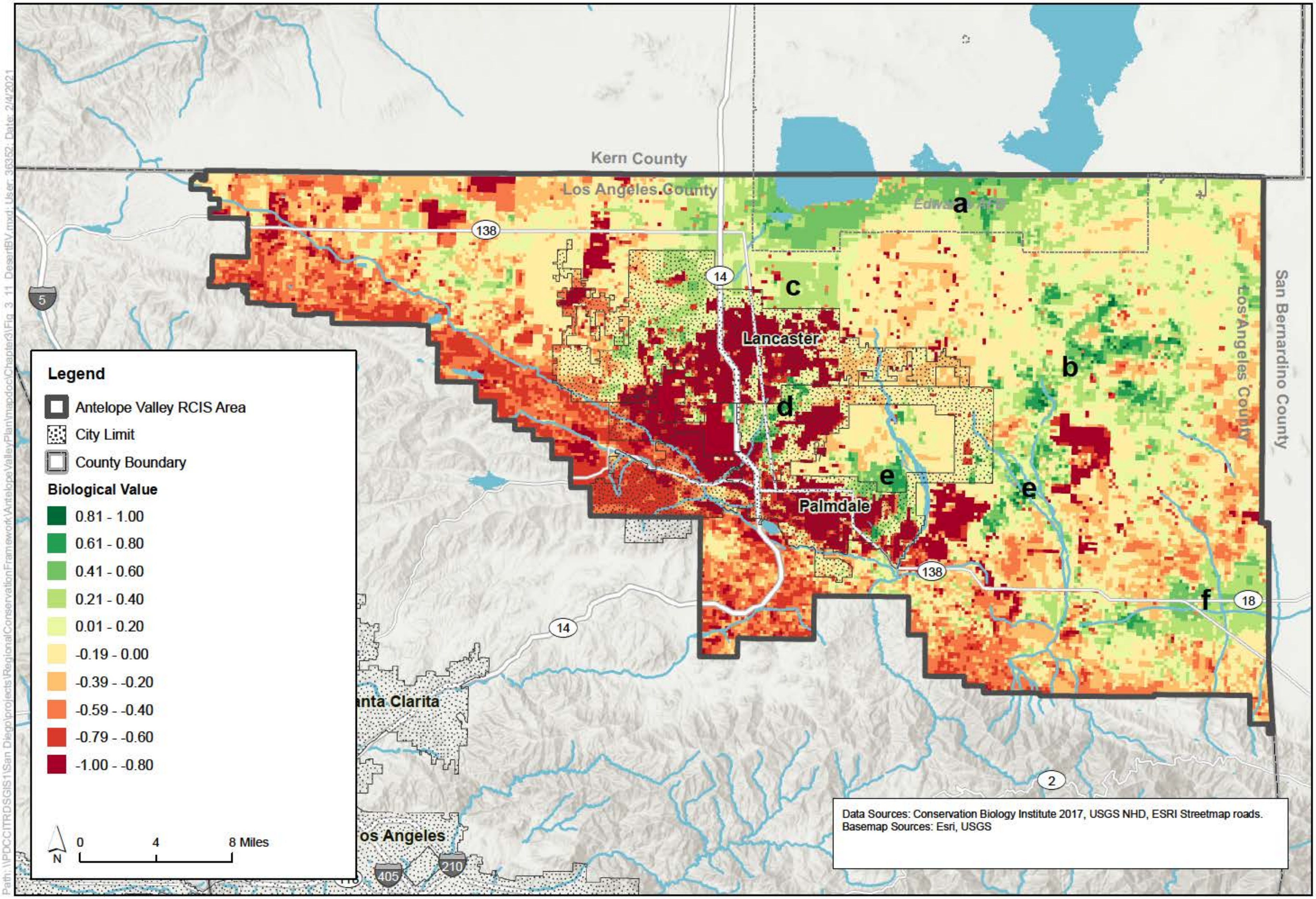


**Figure 3-11**
**Desert Biological Values Model for the Antelope Valley RCIS Area**

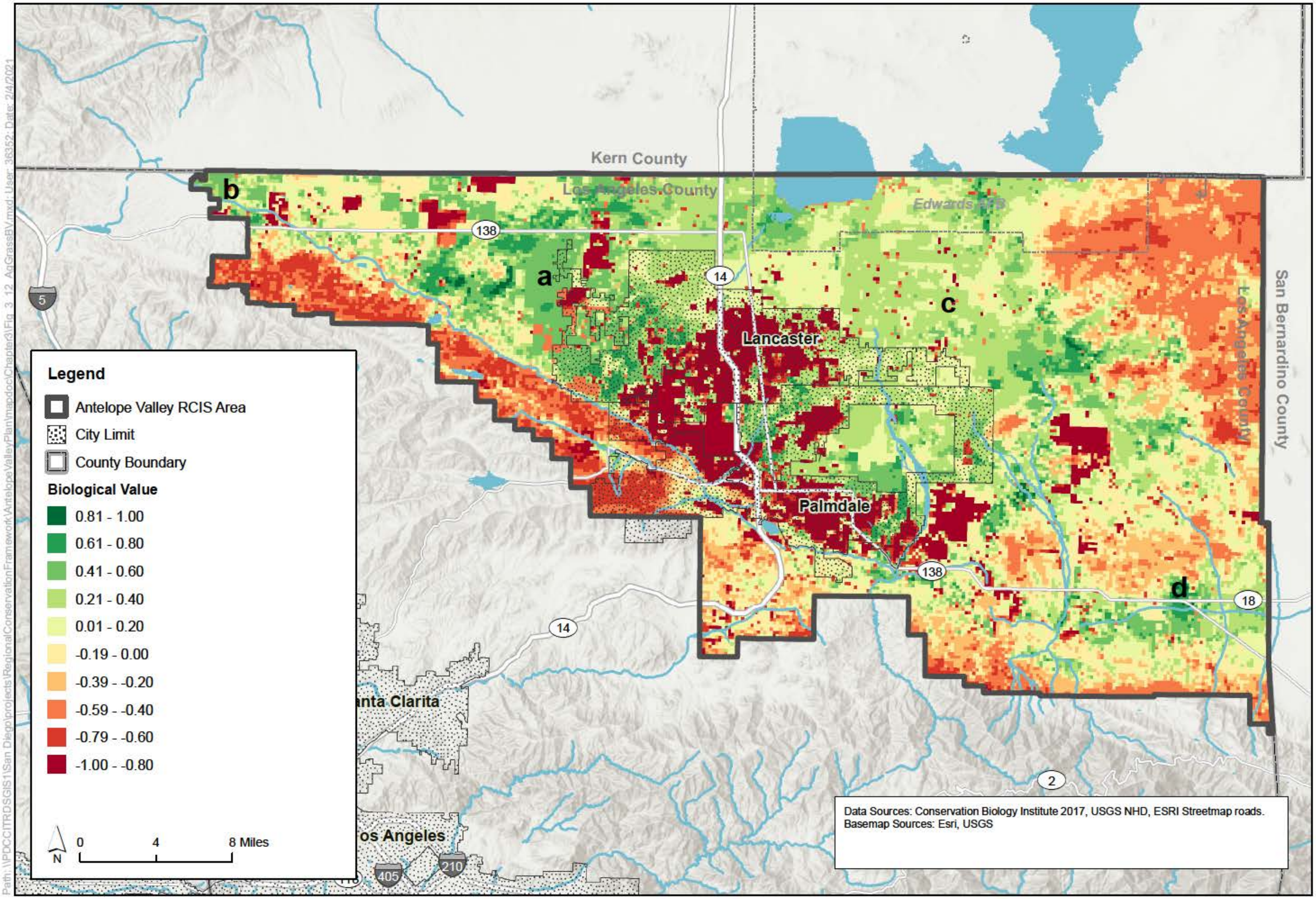


**Figure 3-12**
**Agriculture/Grassland Biological Values Model for the Antelope Valley RCIS Area**

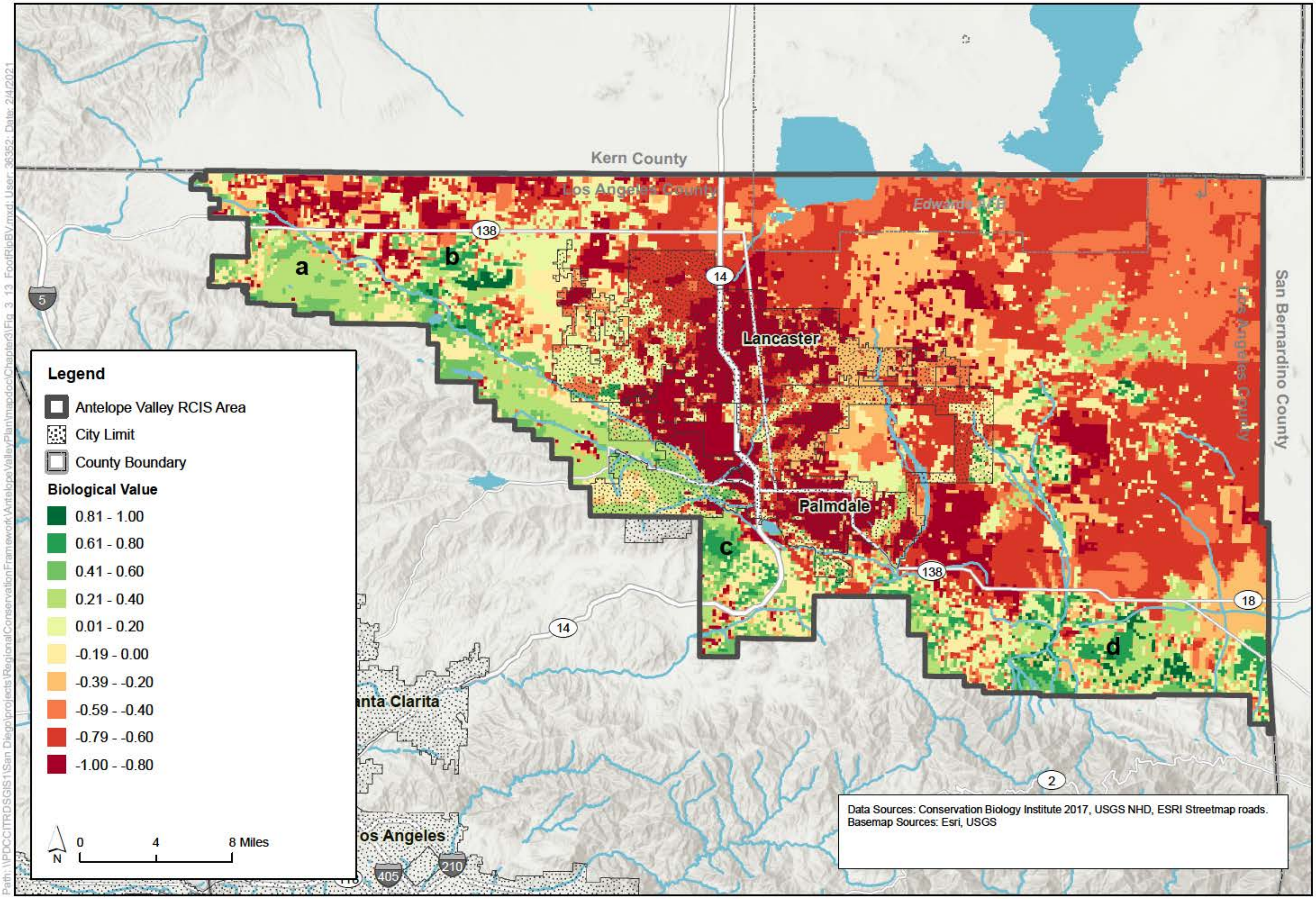


**Figure 3-13**
**Foothill/RiparianBiological Values Model for the Antelope Valley RCIS Area**

### 3.2.2 Mapping Terrestrial Landscape Intactness

One of the primary goals of this Antelope Valley RCIS is to identify areas with high conservation value. Conservation value in the RCIS area is determined by integrating the biological value model described in Section 3.2.1, *Mapping Biological Value*, with the terrestrial intactness model, described in this section.

Intactness is an estimate of naturalness and based on the level of human disturbance in an area, as quantified here through spatial analysis of available GIS data. Terrestrial intactness is high in places where anthropogenic impacts, such as urban development and natural resource extraction, which typically fragment native vegetation, are low. In the past, the term *terrestrial intactness* has been applied primarily to forested landscapes (Lee et al. 2002; Strittholt n.d.; Potapov et al. 2008). It is clear that natural assemblages of species and natural patterns and ecological processes are increasingly compromised as human influences intensify across the natural landscape. A terrestrial intactness model was developed by the California Energy Commission (Degagne et al. 2016) and adapted for use in the Antelope Valley RCIS modeling and analysis. A full description of the modeling process is provided in Appendix G, *Modeling Methodology.*

Like the biological value model, the terrestrial intactness model was constructed in the EEMS framework. The various anthropogenically themed data layers related to land use, development, roads, and landscape fragmentation are integrated through a complex set of modeling interactions, as displayed on Figures 3-14 and 3-15. The model relies solely on these spatial data layers, arranged in a hierarchical fashion to answer a primary question: *What is the level of terrestrial landscape intactness across the RCIS area?* Data and analysis flow from the bottom up in these figures.

A team of local conservation experts and stakeholders (including many Antelope Valley RCIS stakeholders) participated in the parameterization of the model. All data inputs (regardless of the type—ordinal, nominal, or continuous) were assigned relative values between -1 (totally false) and +1 (totally true), using up to six decimal places. For each of the data layers representing potential sources of fragmentation and habitat degradation, the team determined how to assign the range of values along a true/false continuum. For example, when mapping the most suitable habitat from the standpoint of road density for wildlife, a greater road density was determined to have a greater risk to wildlife through habitat degradation and direct mortality. In this example, road density ranges from 0 kilometer per square kilometer ($km/km^2$) to 24.5 $km/km^2$. One could assign a -1 to the high value (this value is totally harmful for wildlife, or false) and a +1 to the lowest value (this value is totally beneficial for wildlife, or true). However, mountain lion research has shown that mountain lion populations have a low probability of persistence in areas with road densities of more than 0.6 $km/km^2$ (Van Dyke et al. 1986). A more meaningful threshold for this parameter would be that a road density of more than 0.6 $km/km^2$ is totally false (-1). Of course, not all wildlife species have the same sensitivity to roads, but this example illustrates how the parameters in the model can be altered for known thresholds.

Once the parameters rating the potential effects of the anthropogenic data layers have been set, the relative effects of each source of fragmentation and habitat degradation are integrated in the terrestrial intactness model to generate the final intactness model results.

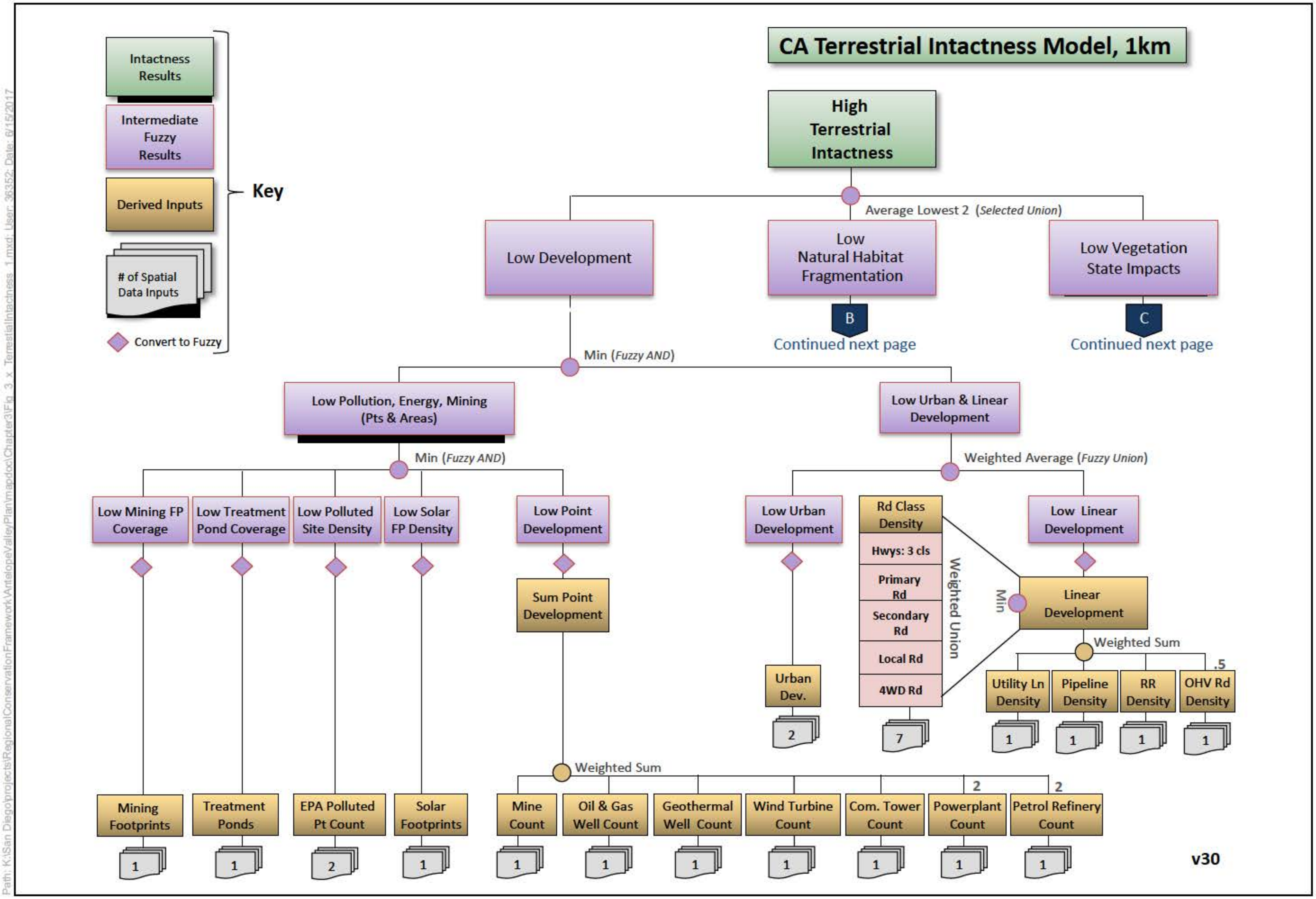


**Figure 3-14**
**Terrestrial Intactness Model Flow Diagram (1 of 2)**

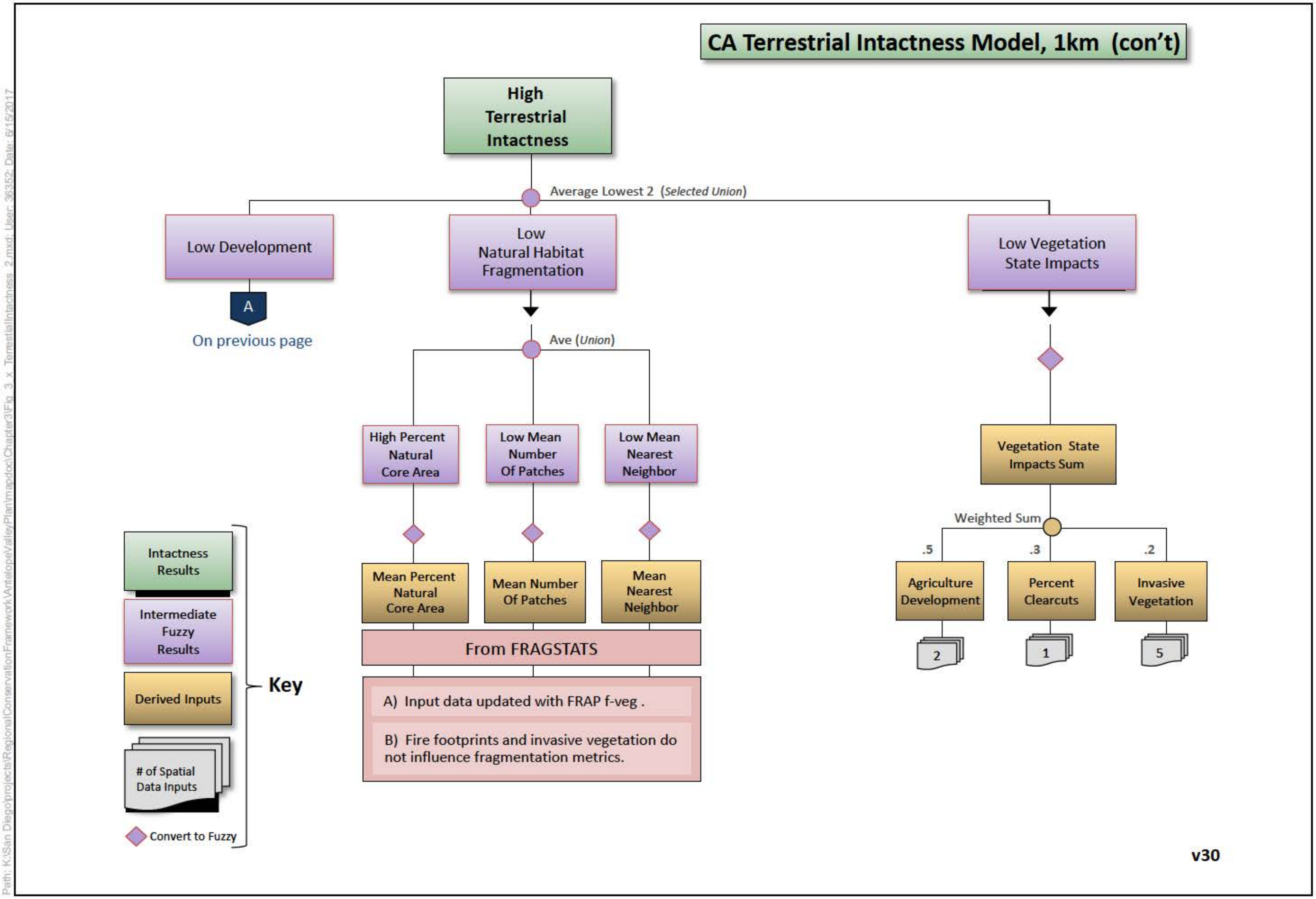


**Figure 3-15**
**Terrestrial Intactness Model Flow Diagram (2 of 2)**

The model results for each 1-square-kilometer cell range from -1.000000 (totally false) to +1.000000 (totally true), which were reclassified to characterize intactness at six levels—very low, low, moderately low, moderately high, high, and very high (Figure 3-16). This way, the degree of intactness can be evaluated against multiple conservation values and easily compared to potential future conditions, based on updated raw inputs (e.g., new urban development projections), using the same scale. The final terrestrial intactness model results are shown on Figure 3-16.

## 3.2.3 Mapping Conservation Value

Areas with higher conservation value are defined as the areas with moderate to high biological value *and* moderate to high landscape intactness (Figure 3-16). Areas of lower conservation value are defined as having low biological value *or* low landscape intactness. Combining the results of each of the three biological value models (one for each species group) with the results of the landscape intactness model results in three outputs of the distribution of conservation value across the RCIS area.

Areas with high conservation value were mapped by classifying the results for each model into three basic categories of high, moderate, and low biological value and high, moderate, and low intactness (based on natural breaks in the data distribution). The combination of the three categories of biological value and the three categories of landscape intactness resulted in nine combination classes. The highest four combinations represent higher conservation value, and the remaining five represent lower conservation value. Note that the modeled biological value and intactness may differ from site-specific evaluations in the field. Therefore, any areas known to have high conservation value should be considered and evaluated during RCIS implementation, regardless of modeled conservation value.

**Desert species.** Table 3-5 and Figure 3-17 show the conservation values mapping for the desert focal species. Class combinations of high biological value and high intactness, moderate biological value and high intactness, high biological value and moderate intactness, and moderate biological value and moderate intactness were determined to be of high conservation value and the most desirable from the standpoint of identifying the most important core habitat areas and landscape linkages for the focal species.

Approximately 388,762 acres (57 percent of the RCIS area) qualified as areas of high conservation value, while 48,142 acres (7 percent) account for the highest biological value and highest intactness.

**Table 3-5. Conservation Value Acreages for the Desert Species Group**

| Desert Species Group Acres and Percent of RCIS Area | | Biological Value | | |
|---|---|---|---|---|
| | | High | Moderate | Low |
| Landscape Intactness | High | 48,142**<br>7% | 105,595**<br>15% | 51,248*<br>8% |
| | Moderate | 40,552**<br>6% | 200,573**<br>28% | 167,611*<br>25% |
| | Low | 1,873*<br><1% | 26,339*<br>4% | 46,928*<br>7% |

**/green = High Conservation Value
*/grey = Low Conservation Value

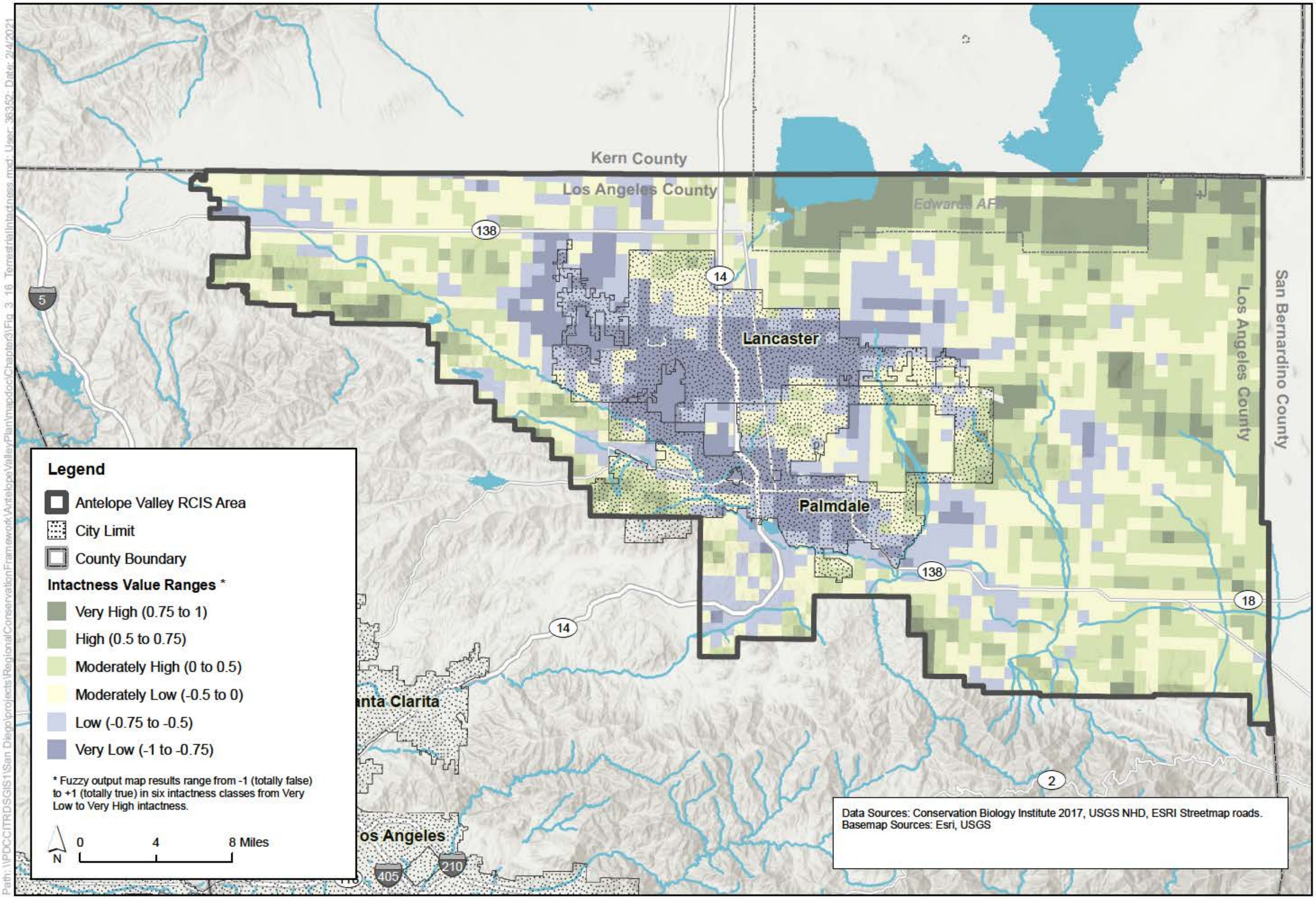


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**Figure 3-16**
**Terrestrial Intactness Model Results for the Antelope Valley RCIS Area**

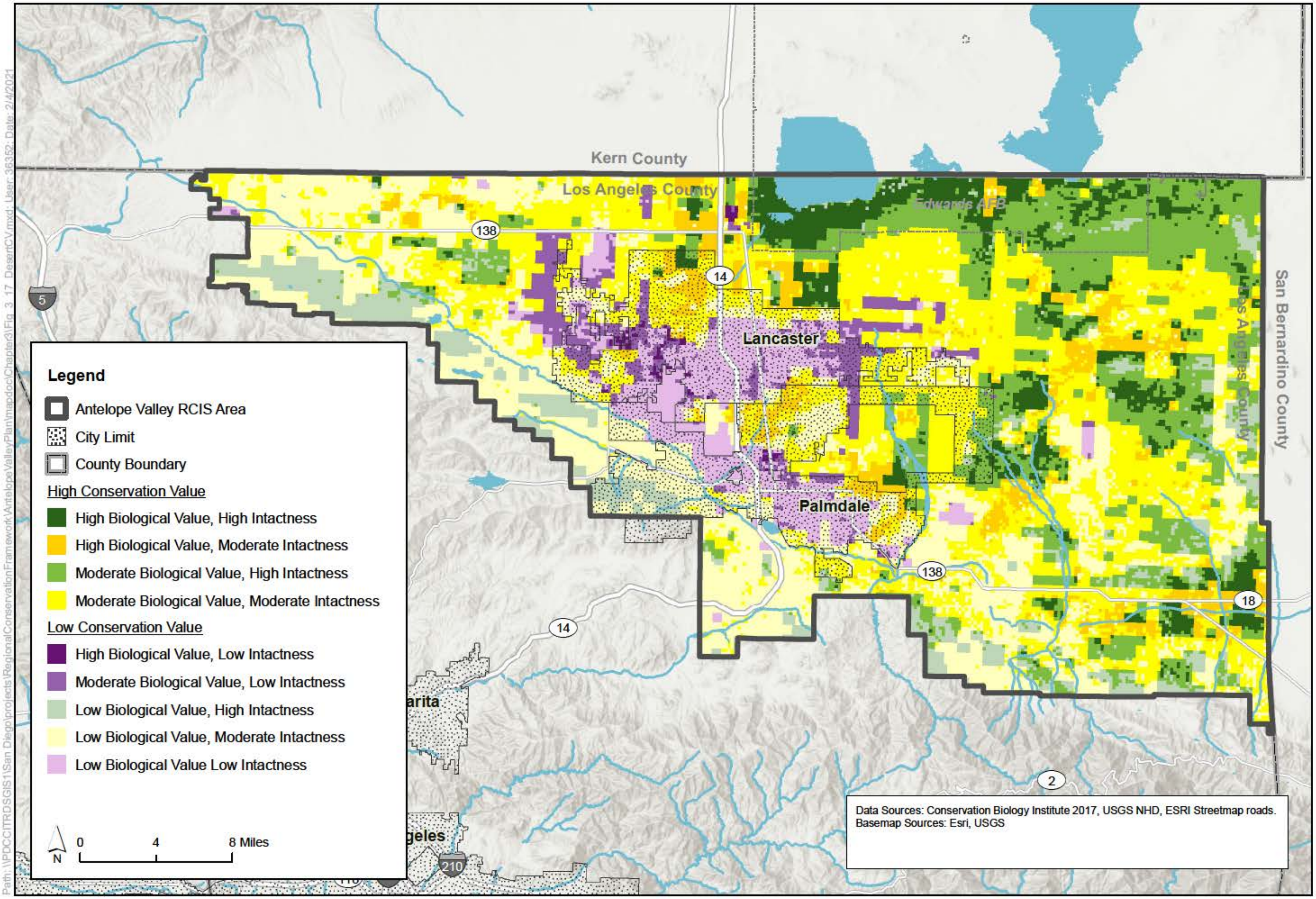



**Figure 3-17**
**Conservation Values Mapping for the Desert Species Group in the Antelope Valley RCIS Area**

**Agriculture/grassland species.** Table 3-6 and Figure 3-18 show the conservation values mapping for the agriculture/grassland species. Approximately 407,057 acres (60 percent) qualified as areas of high conservation value, while 46,493 acres (7 percent) account for the very best conservation value for agriculture/grassland focal species.

**Table 3-6. Conservation Value Acreages for the Agriculture/Grassland Species Group**

| Agriculture/Grassland Species Group Acres and Percent of RCIS Area | | Biological Value | | |
|---|---|---|---|---|
| | | High | Moderate | Low |
| Landscape Intactness | High | 46,493** 7% | 72,927** 11% | 89,566* 13% |
| | Moderate | 120,574** 18% | 167,063** 24% | 114,998* 17% |
| | Low | 22,960* 3% | 10,841* 2% | 41,339* 6% |

**/green = High Conservation Value
*/grey = Low Conservation Value

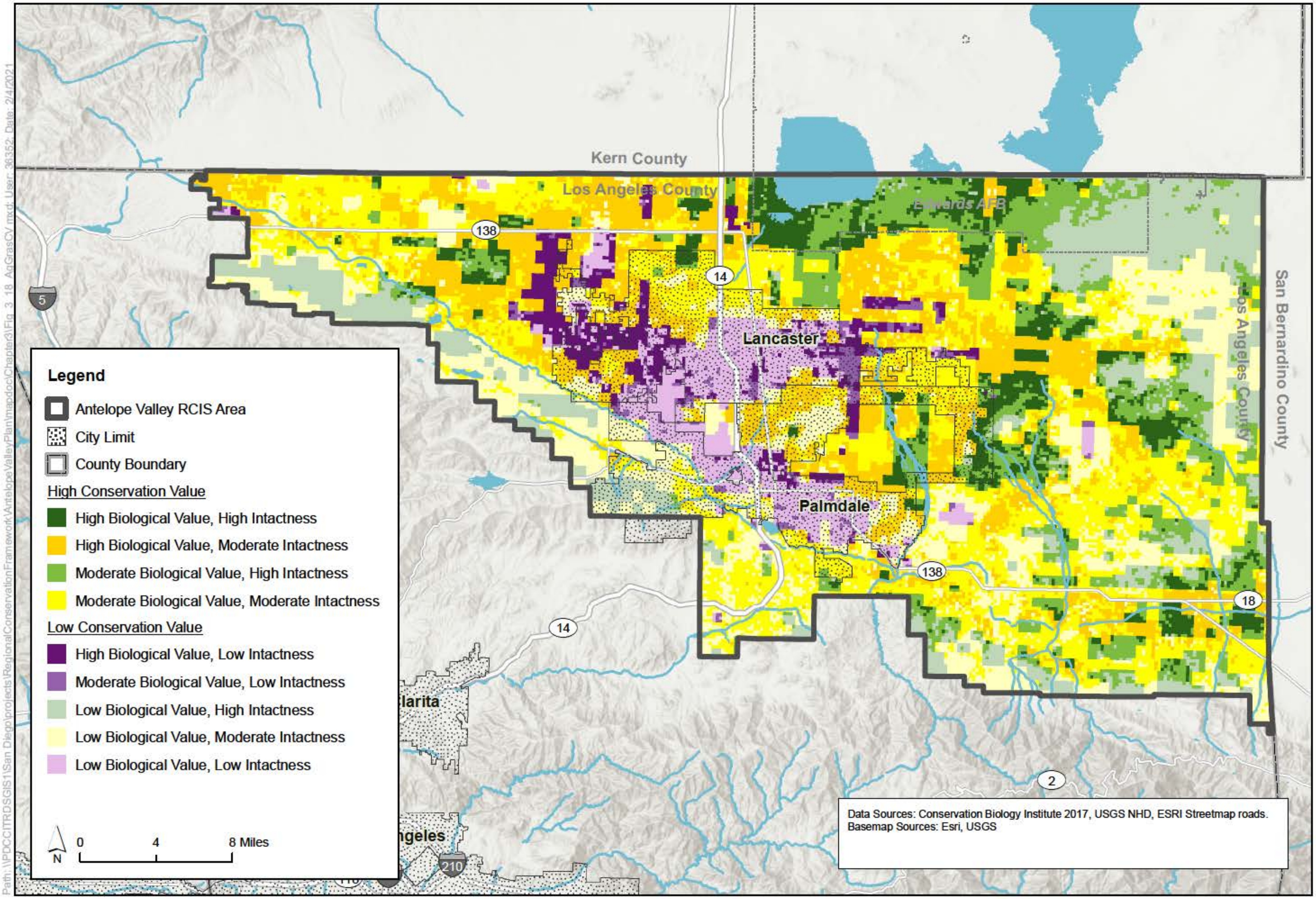
**Foothill/riparian species.** Table 3-7 and Figure 3-19 show the conservation values mapping for the foothill/riparian species. Approximately 232,932 acres (34 percent) qualified as areas of high conservation value, while 34,169 acres (5 percent) account for the best conservation value for foothill/riparian focal species.

**Table 3-7. Conservation Value Acreages for the Foothill/Riparian Species Group**

| Foothill/Riparian Species Group Acres and Percent of RCIS Area | | Biological Value | | |
|---|---|---|---|---|
| | | High | Moderate | Low |
| Landscape Intactness | High | 34,169** 5% | 36,920** 5% | 133,897* 20% |
| | Moderate | 59,461** 9% | 102,383** 15% | 240,792* 35% |
| | Low | 830* <1% | 18,819* 3% | 55,490* 8% |

**/green = High Conservation Value
*/grey = Low Conservation Value

These three conservation value maps were used to identify large habitat core areas and the higher conservation value linkages between them. Some areas have high conservation value for both desert and agriculture/grassland species groups; other areas are clearly important for individual species, such as those in the foothill/riparian group.




Path: \\PDCCITRDSGIS1\San Diego\projects\RegionalConservationFramework\AntelopeValleyPlan\mapdoc\Chapter3\Fig_3_18_AgGrasCV.mxd; User: 36352; Date: 2/4/2021

**Figure 3-18**
**Conservation Values Mapping for the Agriculture/Grasslands Species Group in the Antelope Valley RCIS Area**

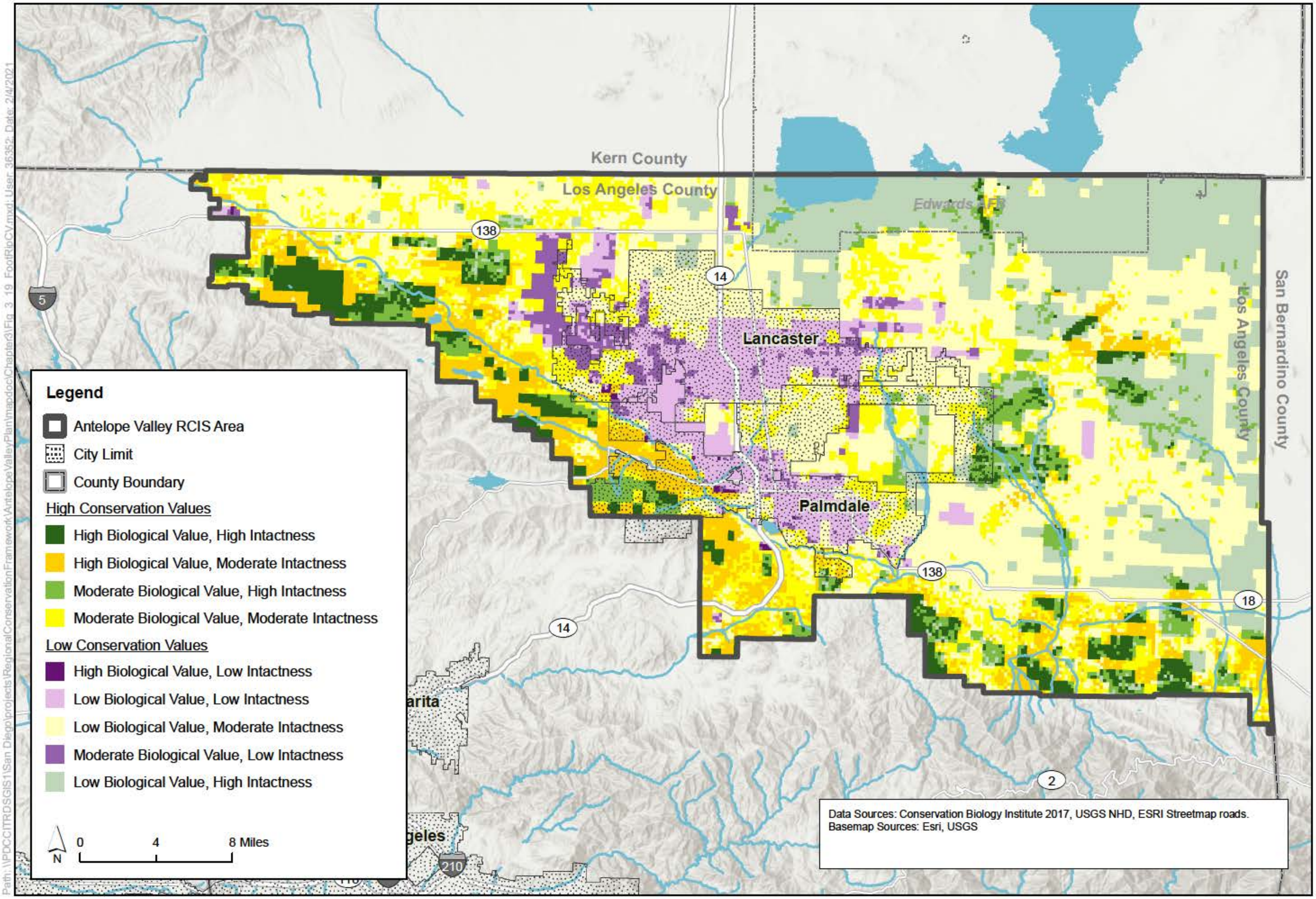



**Figure 3-19**
**Conservation Values Mapping for the Foothill/Riparian Species Group in the Antelope Valley RCIS Area**

### 3.2.4 Mapping Habitat Core Areas and Landscape Linkages

The RCIS area was divided into 13 core habitat areas and 17 landscape linkages for connecting the habitat core areas (or connecting to habitat outside the RCIS area). The habitat core areas and landscape linkages were identified using the conservation values maps from each of the three species groups, the habitat connectivity maps for large and small species, the landscape intactness map, the protected lands map, and the climate stability and climate refugia maps. The core habitat areas (cores) are large, contiguous patches of habitat with higher conservation value, and the linkages are important swaths of habitat that link the cores together to allow species to move and disperse between the habitat core areas and to areas outside of the RCIS area.

Other important considerations in determining the boundaries of the cores and linkages were the location of existing protected areas, natural and human-made features visible on aerial imagery, and the location of foreseeable potential future urbanization such as major transportation projects, subdivisions, and renewable energy projects. Boundaries of cores were delineated to capture the largest concentrations of areas with high conservation value in the RCIS area while limiting the overlap with foreseeable future development. The delineation of landscape linkages was based on modeled connectivity pathways (Section 3.2.1.3, *Habitat Connectivity and Climate Change*) and an examination of aerial imagery to avoid defining linkages in areas with obvious barriers to movement. In many instances, linkages were delineated across major roadways if alternative paths for connecting core areas were unavailable.

The delineation and naming of these habitat core areas and landscape linkages provides a means for spatially describing and naming the general locations of high conservation value at a landscape scale. This approach of spatially subdividing the RCIS area helps focus the planning of conservation and habitat enhancement actions in a spatially explicit manner. The scale of the habitat core areas and landscape linkages also allows the flexibility to select a variety of sites or parcels where conservation and habitat enhancement actions can be implemented to meet the conservation goals and objectives.

The cores and linkages are intended to offer guidance to those using the RCIS as to where conservation and habitat enhancement actions may have the greatest benefit to focal species and other conservation elements. They are not intended to rule out conservation and habitat enhancement actions occurring outside of the cores and linkages or to preclude development within them. Conservations actions occurring outside cores and linkages should still be considered if they meet the conservation goals and objectives of the RCIS. Future development planned to occur inside the cores and linkages should carefully consider the potential effects on habitat connectivity and fragmentation in these areas of higher conservation value in light of the conservation goals and objectives for all focal species and other conservation elements.

Finally, it should be noted that the boundaries of the cores and linkages are not intended to be permanent. As habitat conservation value changes as a result of restoration, habitat enhancement, and protection, and as new information and data are available, the boundaries of the cores and linkages should be updated to reflect future conditions and the state of knowledge. The update of the cores and linkages should be considered with each update to the RCIS itself. The cores and linkages are listed in Table 3-8 and shown on Figure 3-20 through Figure 3-22 for each of the species groups.

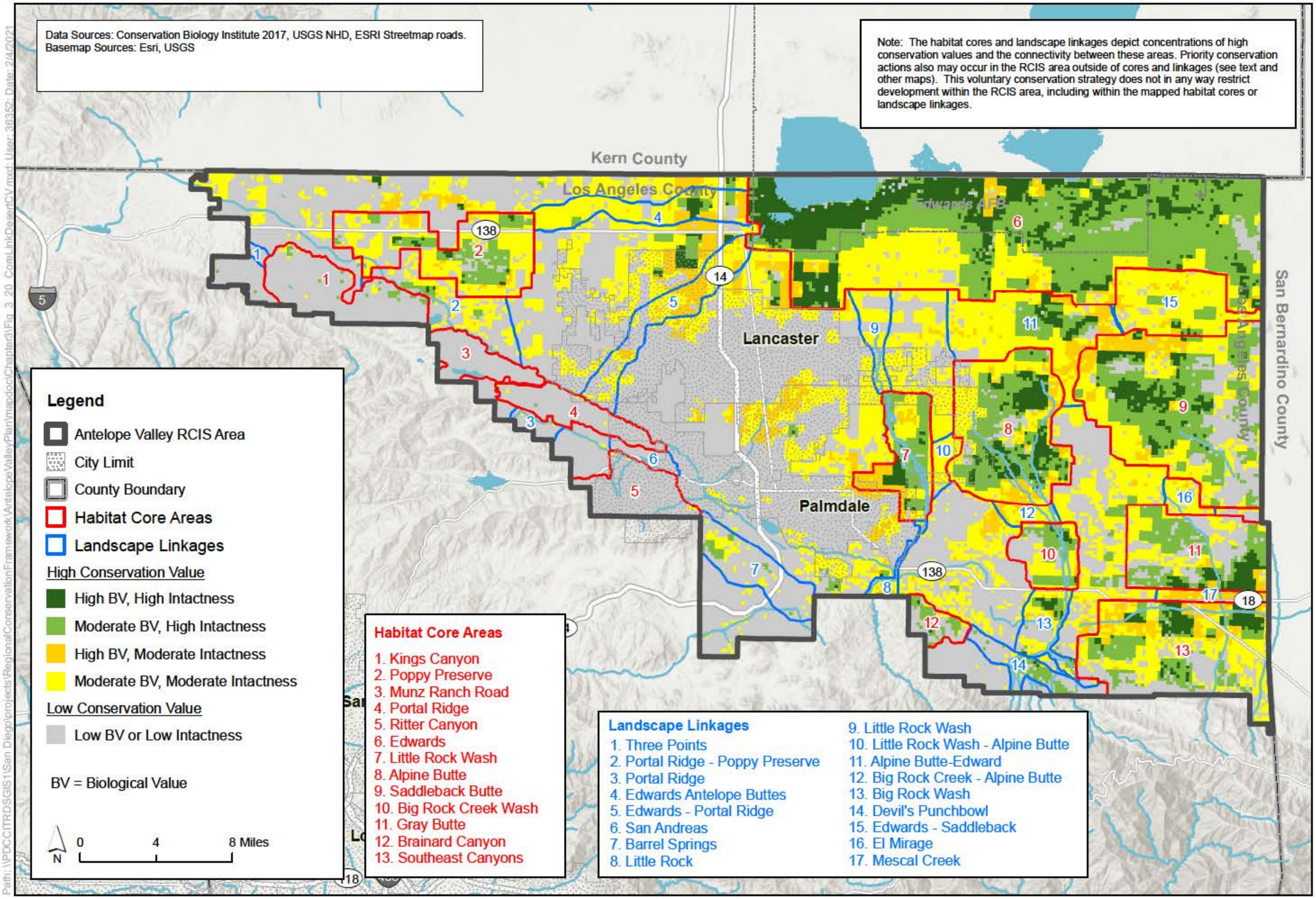



**Figure 3-20**
**Habitat Core Areas and Landscape Linkages with Desert Species Group for the Antelope RCIS**

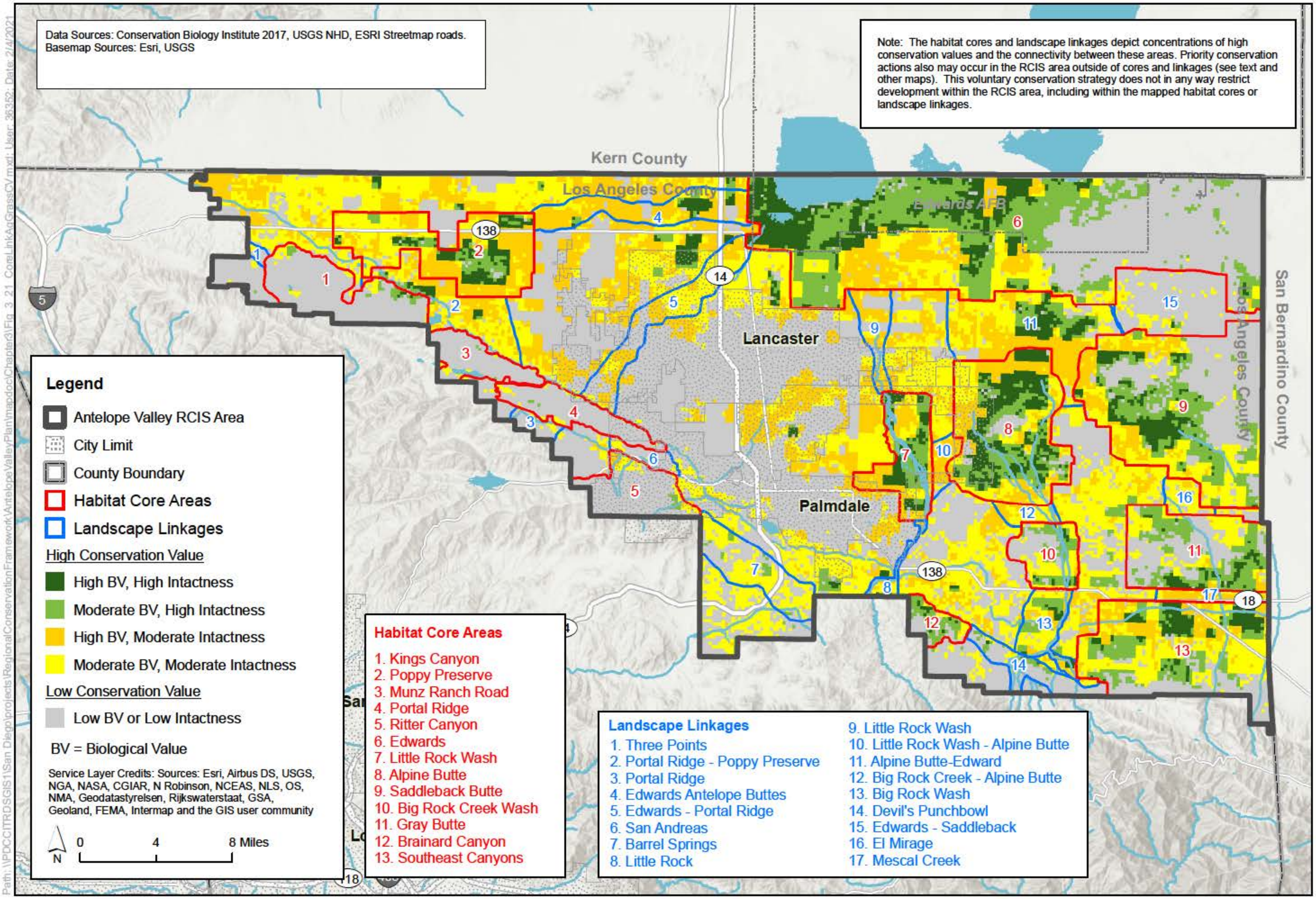



**Figure 3-21**

**Habitat Core Areas and Landscape Linkages with Agriculture/Grassland Species Group for the Antelope RCIS**

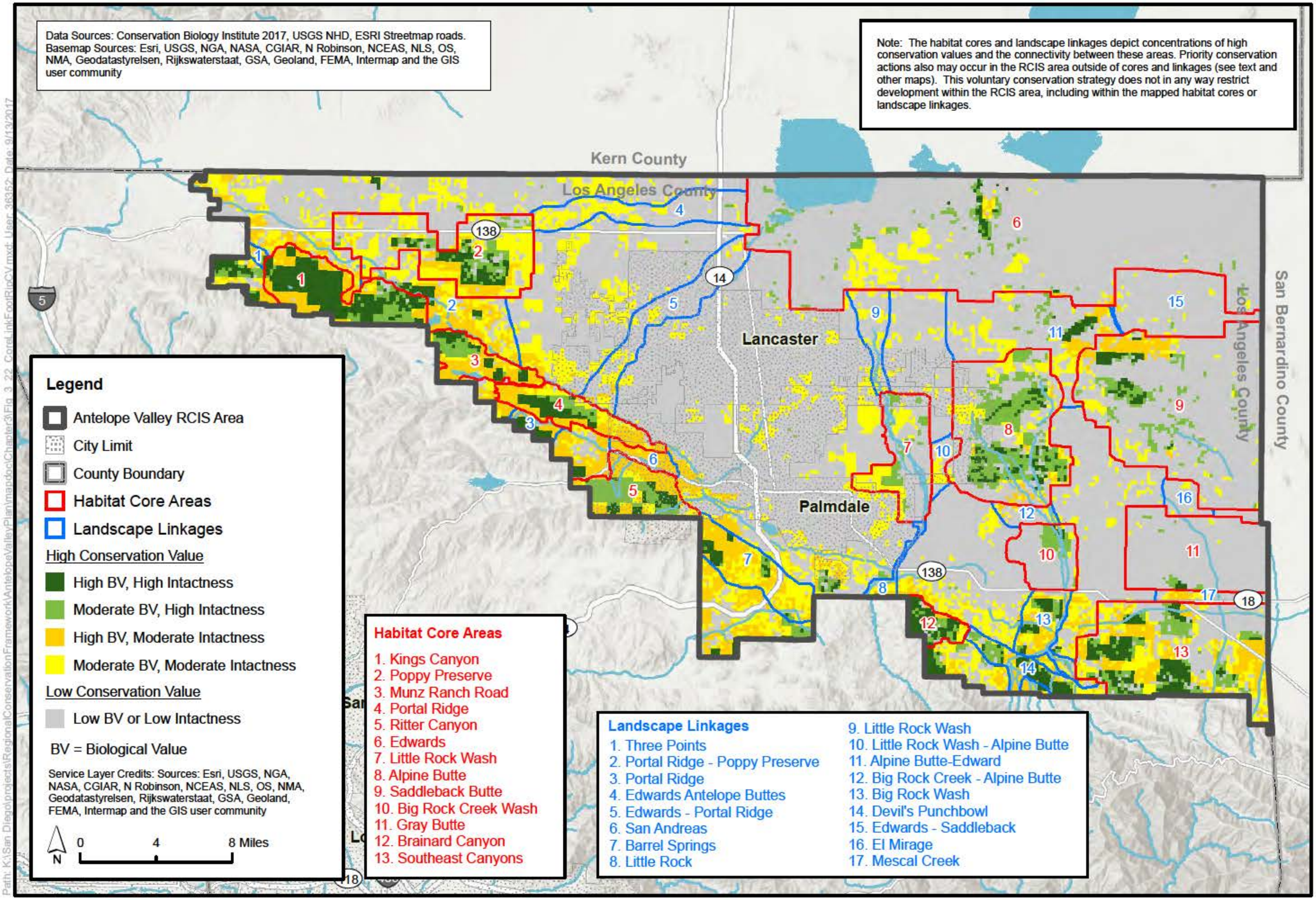



**Figure 3-22**
**Habitat Core Areas and Landscape Linkages with Foothill/Riparian Species Group for the Antelope RCIS**

**Table 3-8. Antelope Valley RCIS Habitat Core Areas and Landscape Linkages (numbers do not indicate priorities but, rather, locations in figures, generally numbered west to east)**

| | Habitat Core Areas | | Landscape Linkages |
|---|---|---|---|
| 1 | Kings Canyon | 1 | Three Points |
| 2 | Poppy Preserve | 2 | Portal Ridge – Poppy Preserve |
| 3 | Munz Ranch Road | 3 | Portal Ridge |
| 4 | Portal Ridge | 4 | Edwards Antelope Buttes |
| 5 | Ritter Canyon | 5 | Edwards – Portal Ridge |
| 6 | Edwards | 6 | San Andreas |
| 7 | Little Rock Wash | 7 | Barrel Springs |
| 8 | Alpine Butte | 8 | Little Rock |
| 9 | Saddleback Butte | 9 | Little Rock Wash |
| 10 | Big Rock Creek Wash | 10 | Little Rock Wash – Alpine Butte |
| 11 | Gray Butte | 11 | Alpine Butte-Edward |
| 12 | Brainard Canyon | 12 | Big Rock Creek – Alpine Butte |
| 13 | Southeast Canyons | 13 | Big Rock Wash |
| | | 14 | Devil's Punchbowl |
| | | 15 | Edwards – Saddleback |
| | | 16 | El Mirage |
| | | 17 | Mescal Creek |

# 3.3 Gap Analysis for Focal Species

A key step in the identification of priorities for the conservation strategy is to determine a desired long-term level of permanent protection for each focal species in the RCIS area.

The desired level of permanent protection is expressed as an acreage of each species' potentially suitable habitat in the areas of high conservation value within the habitat cores and linkages. The conservation goal acreages for each focal species were based on factors such as the species' conservation status, abundance, and distribution of habitat in the RCIS area, as well as the species' general life history type (e.g., rare and narrow endemic species with limited distribution or habitat generalist species with relatively wide distribution).

Sensitive or listed species with limited distribution in the RCIS area were given the highest conservation priority level and a conservation goal that calls for permanently protecting 90 percent of the habitat of high conservation value in the habitat cores and linkages. Listed species and some sensitive species with a wide distribution in the RCIS area, as well as special-interest species, were given a high conservation priority level and a conservation goal of 75 percent. Two exceptions were the golden eagle and California condor, both of which were placed in the moderate conservation priority category because they use the RCIS area primarily for foraging and nest outside of the RCIS area. The remaining sensitive species are not listed, are widely distributed outside of the RCIS area, with many also having a larger amount of total potentially suitable habitat acreage in the RCIS area. These species were placed in the moderate conservation priority category, with a conservation goal of 50 percent. The conservation priority ranking and conservation goal assignments for the species are shown in Table 3-9. The species conservation priority rankings were determined with input from the Steering Committee and Technical Advisory Committee based on the rationale above.

**Table 3-9. Species Conservation Priority Ranking and Conservation Goals for Focal Species**

| Common Name | Scientific Name | Status (Federal/State/ Global Rank) | Species Conservation Priority | Conservation Goal | Rationale |
|---|---|---|---|---|---|
| **Plants** | | | | | |
| Alkali mariposa-lily | *Calochortus striatus* | -/ S2.2; G2/G2S2 | Highest | 90% | Sensitive, limited distribution |
| California juniper | *Juniperus californica* | -/-/G5S5 | High | 75% | Special Interest |
| Joshua tree | *Yucca brevifolia* | -/T/G4G5 SNR | High | 75% | Listed, Special Interest |
| Spreading navarretia | *Navarretia fossalis* | T/-/G2S2 | Highest | 90% | Listed, limited distribution |
| Short-joint beaver tail | *Opuntia basilaris var. brachyclada* | -/-/G553 S3 | High | 75% | Special Interest |
| **Reptiles** | | | | | |
| Coast horned lizard | *Phrynosoma coronatum blainvillei* | -/SSC/G3G4 S3S4 | Moderate | 50% | Sensitive, wide distribution |
| Desert horned lizard | *Phrynosoma platyrhinos calidiarum* | -/-/- | High | 75% | Sensitive, wide distribution |
| Desert tortoise | *Gopherus agassizii* | T/T/G4S2 | High | 75% | Listed, wide distribution |
| Western pond turtle | *Actinemys marmorata* | UR/-/G3G4 S3 | Highest | 90% | Sensitive, limited distribution |
| **Birds** | | | | | |
| Burrowing owl | *Athene cunicularia hypugea* | -/SSC/G4S2 | High | 75% | Sensitive, wide distribution |
| California condor | *Gymnogyps californianus* | E/E,FP/G1S1 | Moderate | 50% | Listed, wide distribution |
| Golden eagle | *Aquila chrysaetos* | FP/FP/G5S3 | Moderate | 50% | Listed, wide distribution |
| LeConte's thrasher | *Toxostoma lecontei* | -/SSC/G3 S3 | Moderate | 50% | Sensitive, wide distribution |
| Least Bell's vireo | *Vireo bellii pusillus* | E/E/G5T2S2 | Highest | 90% | Listed, limited distribution |
| Loggerhead shrike | *Lanius ludovicianus* | -/SSC/G4 S4 | Moderate | 50% | Sensitive, wide distribution |
| Long-billed curlew | *Numenius americanus* | -/-/G5 S2 | Moderate | 50% | Sensitive, wide distribution |

| Common Name | Scientific Name | Status (Federal/State/ Global Rank) | Species Conservation Priority | Conservation Goal | Rationale |
|---|---|---|---|---|---|
| Mountain plover | *Charadrius montanus* | -/SSC/G2S2 | Moderate | 50% | Sensitive, wide distribution |
| Northern harrier | *Circus hudsonius* | -/SSC/G5 S3 | Moderate | 50% | Sensitive, wide distribution |
| Prairie falcon | *Falco mexicanus* | -/-/G5 S3 | Moderate | 50% | Sensitive, wide distribution |
| Swainson's hawk | *Buteo swainsoni* | -/T/G5S2 | High | 75% | Listed, wide distribution |
| Tricolored blackbird | *Agelaius tricolor* | -/T/G2G3 S2 | High | 75% | Sensitive, limited distribution |
| Willow flycatcher | *Empidonax traillii* | -/E/G5S1S2 | Highest | 90% | Listed, limited distribution |
| **Mammals** | | | | | |
| American badger | *Taxidea taxus* | -/SSC/G5 S4 | Moderate | 50% | Sensitive, wide distribution |
| Desert kit fox | *Vulpes macrotis arsipus* | -/-/G4 S3S4 | Moderate | 50% | Sensitive, wide distribution |
| Mohave ground squirrel | *Xerospermophilus [Spermophilus] mohavensis* | -/T/G2G3S2S3 | High | 75% | Listed, wide distribution |
| Mountain lion | *Felis concolor californica* | -/-/- | Moderate | 50% | Sensitive, wide distribution |
| Tehachapi pocket mouse | *Perognathus alticolus inexpectatus* | -/SSC/G1G2T1T2 S1S2 | Highest | 90% | Sensitive, limited distribution |

**Federal**
T = Threatened
E = Endangered
UR = Under Review
**State**
T = Threatened
E = Endangered
SC = State Candidate
SSC = Listed as a California Species of Special Concern by the California Department of Fish and Wildlife

**Global**
G1/S1 = Critically Imperiled: At high risk of extinction, extremely rare
G2/S2 = Imperiled: At high risk of extinction, restricted range, very few populations
G3/S3 = Vulnerable: Moderate risk of extinction, restricted range, few populations
G4/S4 = Apparently Secure: Uncommon, not rare, possible long-term declines

The purpose of this gap analysis is to evaluate the current level of protection of the high conservation value habitat for each species in the cores and linkages and create quantitative conservation objectives to permanently protect habitat.

Permanent protection is the highest level of protection that a focal species or other conservation element can receive under the RCIS. *Permanent protection* means: (1) recording a conservation easement and (2) providing secure, perpetual funding for management of the land, monitoring, legal enforcement, and defense. The Antelope Valley RCIS protected areas database identifies land that is protected to a certain degree, but does not include enough information to conclusively determine permanent protection status for most protected areas. Consequently, the precise amount of permanently protected land is not known.

This RCIS creates two conservation goal sub-categories of quantitative objectives to permanently protect habitat, in relation to the current level of protection:

1. **Permanent protection of unprotected lands.** This is the portion of the permanent protection goal to permanently protect land that is not currently protected at all (i.e., unprotected and not otherwise classified as GAP 1–GAP 3 status or Unassigned Public Lands). To achieve permanent protection status, a conservation easement would need to be recorded on these lands, and a secure, perpetual funding source for management of the land, monitoring, legal enforcement, and defense would need to be provided.
2. **Uplift from current protection status.** The uplift from current protection status is the portion of the permanent protection goal that would improve the conservation value of lands currently classified as GAP 1–GAP 3 status or Unassigned Public Lands. The conservation value can be improved for a large proportion of the GAP 1–GAP 3 lands by implementing one or more of the following: adding a conservation easement; providing secure, perpetual funding for management of the land, monitoring, legal enforcement, and defense; or implementing specific management actions to improve habitat conditions. This uplift potential would occur on a portion of the protected (GAP 1–GAP 3 status and Unassigned Public) lands where one or more of these measures is currently lacking and would contribute to focal species conservation goals if implemented.

The gap analysis was conducted through a GIS exercise that involved overlaying the currently protected (as described in Section 2.2.4, *Protected Areas*) with the high conservation value for each species in the cores and linkages. The gap analysis results summarize the potentially suitable habitat for each species at multiple hierarchically nested levels.

Figure 3-23 shows a conceptual nested view of the habitat in the RCIS area and illustrates how it is evaluated and how it informs the gap analysis and quantitative conservation goals for focal species. Table 3-10 shows the gap analysis results for each focal species. The color coding for each level on Figure 3-23 corresponds to the color coding of the data columns in Table 3-10.

Note that the three species that were included in both the desert and the agriculture/grassland species groups have two sets of gap analysis results and conservation goals, one for each conservation values model.

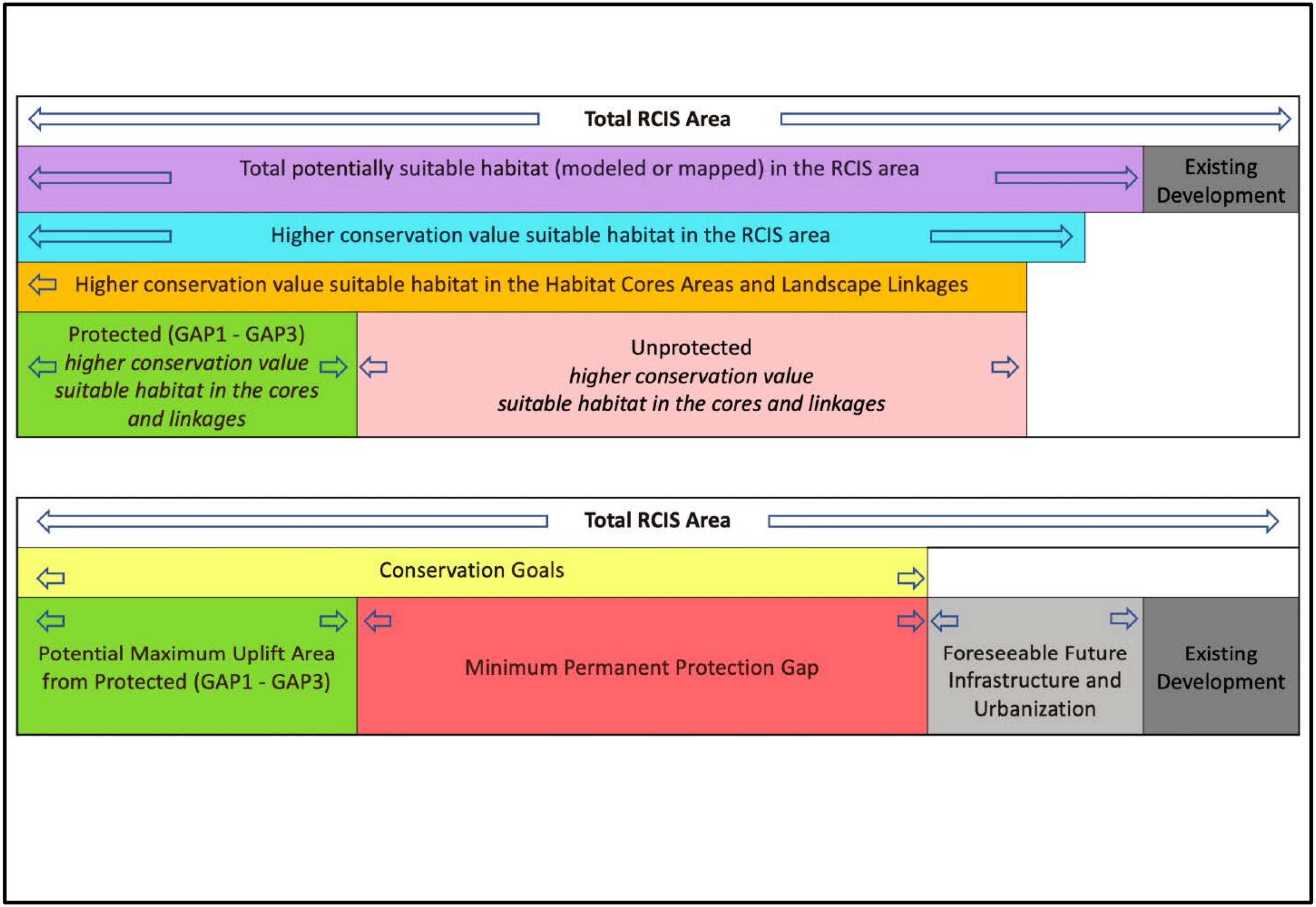



**Figure 3-23**

**Key to Gap Analysis Results and Conservation Goals for Permanent Protection and Potential Uplift**

**Table 3-10. Gap Analysis Results and Quantitative Conservation Goals**

| Focal Species | In RCIS Area | | | Higher Conservation Value Habitat in Cores and Linkages | | | | | | Quantitative Conservation Goals | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | All Predicted Habitat[1] | Higher Conservation Value Habitat[2] | | Total[3] | | Protected[4] | | Unprotected[5] | | Species Conservation Priority Level[6] | Conservation Goal[7] | | Minimum Permanent Protection Gap[8] | Potential Maximum Uplift for Currently Protected Lands Gap[9] |
| **Plants** | | | | | | | | | | | | | | |
| Alkali mariposa-lily | 52,098 | 49,148 | 94% | 33,761 | 69% | 18,025 | 53% | 15,736 | 47% | Highest | 90% | 30,385 | 12,360 | 18,025 |
| California juniper | 31,607 | 27,316 | 86% | 18,183 | 67% | 256 | 1% | 17,927 | 99% | High | 75% | 13,637 | 13,381 | 256 |
| Joshua tree | 43,738 | 40,601 | 93% | 31,868 | 78% | 4,849 | 15% | 27,019 | 85% | High | 75% | 23,901 | 19,052 | 4,849 |
| Spreading navarretia* | | | | | | | | | | | | | | |
| Short-joint beavertail cactus | 20,526 | 19,181 | 93% | 12,806 | 67% | 1,103 | 9% | 11,703 | 91% | High | 75% | 9,605 | 8,502 | 1,103 |
| **Reptiles** | | | | | | | | | | | | | | |
| Coast horned lizard | 17,449 | 17,062 | 98% | 13,940 | 82% | 3,915 | 28% | 10,025 | 72% | Moderate | 50% | 6,970 | 3,055 | 3,915 |
| Desert horned lizard | 25,323 | 23,435 | 93% | 15,811 | 67% | 1,964 | 12% | 13,848 | 88% | High | 75% | 11,858 | 9,894 | 1,964 |
| Desert tortoise | 80,678 | 74,337 | 92% | 73,898 | 99% | 40,235 | 54% | 33,663 | 46% | High | 75% | 55,424 | 15,189 | 40,235 |
| Western pond turtle* | | | | | | | | | | | | | | |
| **Birds** | | | | | | | | | | | | | | |
| Burrowing owl | 358,440 | 299,730 | 84% | 184,301 | 61% | 36,531 | 20% | 147,770 | 80% | Moderate | 50% | 92,151 | 55,620 | 36,531 |
| California condor | 33,320 | 31,236 | 94% | 16,905 | 54% | 4,640 | 27% | 12,265 | 73% | Moderate | 50% | 8,453 | 3,813 | 4,640 |
| Golden eagle (Desert) | 50,961 | 34,083 | 67% | 30,135 | 88% | 3,017 | 10% | 27,118 | 90% | Moderate | 50% | 15,068 | 12,051 | 3,017 |
| Golden eagle (Ag/Grassland) | 50,961 | 47,248 | 93% | 40,477 | 86% | 4,665 | 12% | 35,811 | 88% | Moderate | 50% | 20,239 | 15,574 | 4,665 |
| LeConte's thrasher (Desert) | 344,725 | 295,697 | 86% | 222,949 | 75% | 61,730 | 28% | 161,219 | 72% | Moderate | 50% | 111,475 | 49,745 | 61,730 |
| LeConte's thrasher (Ag/Grassland) | 344,725 | 279,666 | 81% | 195,772 | 70% | 44,633 | 23% | 151,139 | 77% | Moderate | 50% | 97,886 | 53,253 | 44,633 |
| Least Bell's vireo | 6,047 | 5,662 | 94% | 4,845 | 86% | 2,009 | 41% | 2,836 | 59% | Highest | 90% | 4,361 | 2,352 | 2,009 |
| Loggerhead shrike | 405,252 | 340,709 | 84% | 211,094 | 62% | 37,563 | 18% | 173,531 | 82% | Moderate | 50% | 105,547 | 67,984 | 37,563 |
| Long-billed curlew | 168,715 | 139,633 | 83% | 76,445 | 55% | 15,162 | 20% | 61,284 | 80% | Moderate | 50% | 38,223 | 23,061 | 15,162 |
| Mountain plover | 130,218 | 99,681 | 77% | 53,477 | 54% | 3,755 | 7% | 49,721 | 93% | Moderate | 50% | 26,739 | 22,984 | 3,755 |
| Northern harrier | 9,817 | 7,491 | 76% | 4,295 | 57% | 1,912 | 45% | 2,383 | 55% | Moderate | 50% | 2,148 | 236 | 1,912 |
| Prairie falcon | 395,207 | 336,484 | 85% | 204,254 | 61% | 31,750 | 16% | 172,504 | 84% | Moderate | 50% | 102,127 | 70,377 | 31,750 |
| Swainson's hawk | 181,803 | 141,685 | 78% | 84,234 | 59% | 10,431 | 12% | 73,802 | 88% | High | 75% | 63,176 | 52,745 | 10,431 |
| Tricolored blackbird | 249,142 | 200,322 | 80% | 110,128 | 55% | 10,634 | 10% | 99,493 | 90% | High | 75% | 82,596 | 71,962 | 10,634 |
| Willow flycatcher | 2,190 | 2,058 | 94% | 1,540 | 75% | 221 | 14% | 1,319 | 86% | Highest | 90% | 1,386 | 1,165 | 221 |
| **Mammals** | | | | | | | | | | | | | | |
| American badger (Desert) | 382,678 | 293,253 | 77% | 208,834 | 71% | 44,813 | 21% | 164,021 | 79% | Moderate | 50% | 104,417 | 59,604 | 44,813 |
| American badger (Ag/Grassland) | 382,678 | 322,076 | 84% | 210,346 | 65% | 40,445 | 19% | 169,901 | 81% | Moderate | 50% | 105,173 | 64,728 | 40,445 |
| Desert kit fox (Desert) | 347,901 | 255,337 | 73% | 171,749 | 67% | 40,994 | 24% | 130,755 | 76% | Moderate | 50% | 85,875 | 44,881 | 40,994 |
| Desert kit fox (Ag/Grassland) | 347,901 | 287,658 | 83% | 174,780 | 61% | 37,633 | 22% | 137,146 | 78% | Moderate | 50% | 87,390 | 49,757 | 37,633 |
| Mohave ground squirrel | 121,592 | 115,748 | 95% | 107,962 | 93% | 62,088 | 58% | 45,875 | 42% | High | 75% | 80,972 | 18,884 | 62,088 |
| Mountain lion | 69,755 | 66,758 | 96% | 48,486 | 73% | 9,522 | 20% | 38,964 | 80% | Moderate | 50% | 24,243 | 14,721 | 9,522 |
| Tehachapi pocket mouse | 1,960 | 1,876 | 96% | 850 | 45% | 202 | 24% | 649 | 76% | Highest | 90% | 765 | 563 | 202 |

*A species distribution model was not created for this species because it is only known from one area in the RCIS with two extant records.
[1] Total acreage of predicted habitat for each species within the RCIS area.
[2] Acreage and percentage of higher conservation value habitat within the whole RCIS area.
[3] Acreage and percentage of higher conservation value habitat within core and linkage areas
[4] Includes GAP 1 – GAP 3 and Unassigned Public Lands. Acreage and percentage protected habitat of higher conservation value habitat within core and linkage areas.
[5] Includes all other land not classified as GAP 1 – GAP 3 and Unassigned Public Lands. Acreage and percentage of unprotected habitat of higher conservation value habitat within core and linkage areas.
[6] Identified conservation priority level for each focal species. Priority categories are Moderate, High, and Highest.
[7] Acreage and percentage of conservation goal based on the identified conservation priority level.
[8] Portion of the conservation goal requiring all components of the definition of permanent protection to be applied to this area to achieve permanent protection status.
[9] Portion of the conservation goal on protected land (GAP 1-GAP 3 status and Unassigned Public Lands) to provide additional conservation and habitat enhancement actions needed to achieve permanent protection status.

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The framework used for mapping and modeling of potentially suitable habitat and setting of conservation goals and objectives for each species is shown in purple on Figure 3-23. The results of the focal species gap analysis are shown in Table 3-10. The higher conservation value habitat is shown in blue as a subset of the total predicted habitat in the RCIS area for a given species. The amount of the habitat of high conservation value that occurs in the habitat core areas and landscape linkages is shown in orange. The calculations of GAP analysis and conservation goals are based on this habitat shown in orange. Green represents the amount of that habitat that is already protected (GAP 1–GAP 3), and pink represents the amount of that habitat that is unprotected. The **conservation goal** (yellow) in Table 3-10 identifies the total amount of habitat that should be permanently protected. The **minimum permanent protection gap** (red) identifies the amount of unprotected habitat that would need all components of the definition of permanent protection applied to achieve permanent protection status. The **potential maximum uplift for currently protected lands gap** (green) identifies the amount of habitat protected to a certain degree (GAP 1–GAP 3 and Unassigned Public Land) that would benefit from additional conservation and habitat enhancement actions to achieve permanent protection status. The amount of minimum permanent protection gap plus uplift for current protected lands gap equals the conservation goal for permanent protection. Also note that the amounts of potential maximum uplift for currently protected lands gap are the same as the amount currently protected. This is because the conservation value of all currently protected lands has the potential to be improved, through placement of conservation easements and/or application of management actions. The actual areas of improvement depend on whether the land is already protected by a conservation easement or if habitat values could be improved, which would need to be determined through on-the-ground surveys. Finally, a portion of the habitat is expected to be lost because of foreseeable future infrastructure and urbanization, including some habitat of high conservation value within the habitat core areas and landscape linkages (light gray), or was previously lost when the existing development was built (dark gray) as shown on Figure 3-23.

# 3.4 Conservation Strategy for Focal Species and Conservation Elements

The conservation strategy includes conservation goals, objectives, and actions. The conservation priorities are determined by identifying where the conservation actions and habitat enhancement actions should be implemented for each focal species or other conservation element. These conservation priority areas are generally the areas of highest conservation value, predominantly within the habitat core areas and landscape linkages, but with the least amount of foreseeable future urbanization pressure. All four components of the conservation strategy (goals, objectives, actions, and priorities) are presented in this section for each focal species. The Antelope Valley RCIS conservation strategy has been designed to be generally consistent with previously approved plans and policies in the RCIS area. These plans and policies, described in Section 1.6, *Relevant Conservation Plans and Policies*, were reviewed and considered during development of the conservation strategy to ensure as much consistency as possible.

## 3.4.1 Conservation Goals and Objectives

The *conservation goals* of this Antelope Valley RCIS reflect the broad desired outcome for the focal species and other conservation elements in the RCIS area and address the pressures on focal species and important conservation elements identified in Section 2.3, *Pressures and Stressors on Focal Species and on Other Conservation Elements*. Each conservation goal is supported by several conservation objectives. *Conservation objectives* are intended to be concise, measurable statements of the target outcome for each focal species and other conservation elements. The conservation objectives focus on protecting unprotected land (Section 3.3, *Gap Analysis for Focal Species*) and enhancing land that is already protected in the RCIS area. In some cases, conservation objectives focus on enhancement of other conservation elements, such as protection of wildlife corridors or removal of movement barriers. Conservation objectives are established such that, if implemented, they accomplish the conservation goals as written. All conservation goals and objectives will be achieved through the implementation of the conservation actions.[3]

Most of the conservation goals and objectives are designed to support and increase current populations of focal species and retain the other conservation elements. The conservation goals and objectives also provide for the long-term persistence of focal species and other conservation elements through permanent protection and habitat enhancement.

All conservation goals and objectives are given unique two-digit codes so that they can be easily identified and tracked by those who implement the conservation actions, including through mitigation credit agreements (MCAs).

## 3.4.2 Actions and Conservation Priorities

The Antelope Valley RCIS actions and conservation priorities are the strategies that will be employed to accomplish the conservation goals and objectives. Actions include both conservation actions and habitat enhancement actions and are defined by the Program Guidelines, as follows.

- *Conservation action* is an action identified in an RCIS that, when implemented, would permanently protect or restore, and perpetually manage, conservation elements, including focal species and their habitats, natural communities, ecological processes, and wildlife corridors. In contrast, a habitat enhancement action would have long-term durability but would not involve acquiring land or permanently protecting habitat (see *habitat enhancement action*). A conservation action is developed to achieve one or more conservation objectives. A conservation action may be implemented through a variety of conservation investments or MCAs. A conservation action that is implemented through an MCA would create conservation credits to be used as compensatory mitigation.
- *Habitat enhancement action* is an action identified in an RCIS that, when implemented, is intended to improve the quality of wildlife habitat, or to address risks or stressors to wildlife. A habitat enhancement action is developed to achieve one or more conservation objectives. A habitat enhancement action would have long-term durability but would not involve acquiring

[3] The Program Guidelines recommend that conservation objectives be achievable within the 10-year lifespan of initial approval of the RCIS. The conservation objectives in this Antelope Valley RCIS, however, do not have a deadline because of the uncertainty in the pace of implementation. Instead, conservation priorities are designed to be implemented within an approximately 10-year timeframe.

land or permanently protecting habitat. In contrast, a conservation action would permanently protect or restore, and perpetually manage, conservation elements (see *conservation action*). Examples of habitat enhancement actions include improving in-stream flows to benefit fish species, enhancing habitat connectivity, and controlling or eradicating invasive species. A habitat enhancement action may be implemented through a variety of conservation investments or MCAs. A habitat enhancement action that is implemented through an MCA would create habitat enhancement credits intended for use as compensatory mitigation for temporary impacts.[4]

The primary distinction between a conservation action and a habitat enhancement action is the duration for which the land or habitat management action is protected. A conservation action includes permanent protection[5] or restoration and perpetual management. A habitat enhancement action is a management action implemented on land (or water) that is protected for a defined period of time, but not in perpetuity. Management actions implemented under a conservation action, such as managing invasive species, may be the same as those implemented as a habitat enhancement action. The primary difference is the contract used to protect the land and management action.

The actions described in the conservation strategies in this chapter are not identified as either conservation actions or habitat enhancement actions to retain flexibility in how the action may be implemented under an MCA, as many of the actions can be implemented on land or water permanently protected under a conservation easement (i.e., conservation action), or on land or water protected under a long-term durability agreement that is not permanently protected (i.e., habitat enhancement action). For example, an action to grow crops that provide high-quality foraging habitat for Swainson's hawk may be implemented on permanently protected land, with the land managed in perpetuity to provide foraging habitat for Swainson's hawk, or on land protected under an appropriate durability agreement that is not permanently protected.

A conservation priority is defined by the Program Guidelines as follows.

- *Conservation priority* is a conservation or habitat enhancement action (e.g., land acquisition, restoration, or habitat enhancement) that is identified based on its importance for benefiting and contributing to the conservation of focal species and their habitats, or other conservation elements within an RCIS area.

Conservation priorities are determined by identifying where actions should be implemented for each focal species or other conservation element. The conservation priority areas are generally the areas of highest conservation value, predominantly within the habitat core areas and landscape linkages, but without foreseeable future urbanization pressure. Conservation priorities are used to highlight important conservation actions and habitat enhancement actions that should be implemented within the next 10 years. If additional actions or new priorities emerge, the RCIS can be amended to include them, as necessary (Section 4.5, *Amending the RCIS*), or they can be added to the RCIS when extending the approval period (Section 4.2.1, *Updating and Extending this RCIS*).

Conservation priorities for each focal species or other conservation element are determined by evaluating the distribution of conservation value (generally within the habitat core areas and

[4] California Fish and Game Code Section 1856(d) states that "…the habitat enhancement action shall remain in effect at least until the site of the environmental impact is returned to pre-impact ecological conditions."

[5] *Permanent protection* means: (1) recording a conservation easement and (2) providing secure, perpetual funding for management of the land, monitoring, legal enforcement, and defense.

landscape linkages) relative to the conservation goals and objectives as well as the foreseeable potential future urbanization. Conservation priorities identified outside areas of foreseeable future urbanization pressure are less likely to be affected by the effects of habitat fragmentation, edge effects, and other general habitat degradation associated with urbanization pressure that could make achieving the long-term conservation goals and objectives more difficult and costly. Areas within the Los Angeles County Economic Opportunity Areas and the vicinity of other major foreseeable infrastructure and development projects are more likely to have higher future urbanization pressure; therefore, conservation priorities should not be identified in these areas when possible (see Section 2.3.7, *Housing and Urban Areas, Roads, and Railroads,* Figure 2-22). For some species, important conservation opportunities for achieving the conservation goals and objectives might be available only outside the habitat core areas and landscape linkages or may exist only in or near areas with higher future urbanization pressure. In these cases, actions for these conservation priorities will need to be developed such that the long-term success of actions can be achieved within the context of the surrounding future urbanization. Similarly, potential future development in these areas could be designed to minimize the effects of development on the conservation priority areas.

The location of conservation priorities will vary, depending on the conservation and mitigation needs and interests of the entities using the RCIS (e.g., which focal species and which actions). The determination of the location will be based on a number of factors, including the availability of willing landowners, the presence of habitat of high conservation value and/or with conservation potential (in the case of restoration or habitat enhancement), and the avoidance of foreseeable future urbanization pressure. Because these factors are highly variable and dynamic over time, conservation priority areas are not specifically mapped in the RCIS. Instead, the conservation goals, objectives, and actions are intended to be used in concert with the mapping of conservation value for each species, identification of cores areas and landscape linkages, and the mapping of foreseeable future urbanization to identify priority conservation areas that meet the needs of each user of the RCIS.

The detailed modeling and mapping of areas of conservation value (Section 3.2, *Identifying Areas of High Conservation Value*) for the three species groups are further refined by intersecting the conservation values maps with the habitat distribution for each individual focal species. The result is a detailed map of habitat of high conservation value for each focal species. These maps are described and quantified in the conservation strategy for each focal species (Section 3.4.4, *Conservation Strategy for Focal Species*).

Actions and conservation priorities are not necessarily limited to areas within the habitat core areas and landscape linkages. Other opportunities to implement actions that contribute to meeting the conservation goals and objectives of this Antelope Valley RCIS should be considered and may be implemented if the expected outcome of the actions will benefit the long-term viability of the species in the RCIS area. While species monitoring and additional research are important components of meeting the overall conservation goals and objectives of the RCIS, they, like many of the other actions, should not be expected to provide conservation credits to be used as compensatory mitigation if implemented in isolation. Therefore, species monitoring and additional research are listed as Additional Information Needs in the conservation strategy for each species and not as separate actions.

## 3.4.3 Adaptation to the Effects of Climate Change

California Fish and Game Code Section 1852(c)(13) states that an RCIS shall include "a description of how the strategy's conservation goals and objectives provide for adaptation opportunities against the effects of climate change for the strategy's focal species." Climate change is expected to increase the frequency of extreme events, such as floods and fires, as well as temperatures, drying, and changes in precipitation patterns. Climate change refugia and areas of climate change stability (Figures 3-6 and 3-7, respectively) were explicitly incorporated into the biological value modeling for this RCIS (see Section 3.2.1.3, *Habitat Connectivity and Climate Change*). This, in turn, led to higher conservation values being designated in areas where climate change adaptation opportunities are greatest. In addition, the conservation goals and objectives are designed to provide adaptation opportunities against the effects of climate change for the focal species. The conservation strategy targets the protection of large blocks of habitat in habitat core areas that support occurrences of focal species in and near protected areas to reduce habitat fragmentation and permanently protect interconnected habitats. Increasing the amount of protected areas in the RCIS area and retaining landscape linkages and wildlife corridors will facilitate movement by focal species to future shifting habitats. The conservation goals and objectives also target habitat enhancement in existing protected areas to improve the quality of habitat along a range of environmental gradients (e.g., east to west, north to south, along elevational gradients) in the RCIS area. Diverse native plant and animal communities that retain important ecological functions have a greater chance for persistence and change in response to climate shifts, In turn, these persistent communities increase the potential for focal species to move to areas containing favorable habitat conditions if their current locations become unsuitable (Beller et al. 2015).

Finally, climate change is addressed briefly for each focal species in Section 3.4.4, *Conservation Strategy for Focal Species*, below, along with a link to additional climate-specific information for each species or taxonomic group, which can be found on the California Department of Fish and Wildlife (CDFW) Climate Science Program website.[6] The various climate change resources cited each focal species can be found on this CDFW website.

## 3.4.4 Transplanting Plants to Create New Populations

Transplantation of plant material (e.g., seeds, cuttings, etc.) is one type of action in the RCIS toolkit to assist in the conservation and recovery of populations of focal plant species. When it is infeasible to permanently protect enough populations of rare plants to secure long-term viability of a species or subspecies, transplantation may be considered as a means to enhance degraded populations or create new populations to increase a species' likelihood of long-term viability.

This RCIS does not intend for transplantation to be used to compensate for impacts on rare plants, unless a transplanted occurrence has been documented to be well established through long-term monitoring, and with approval by the permitting wildlife agency. Transplantation of rare plants is rarely successful in establishing a new occurrence. Because of the low likelihood of successful transplantation of rare plants at a new location, transplantation is opposed by conservation organizations as a primary mitigation tool (Howald 1996, California Native Plant Society 1998).

Transplantation to assist in the conservation and recovery of populations of focal plant species should only be done after developing a thorough plan in coordination with botanists with expertise

[6] https://www.wildlife.ca.gov/Conservation/Climate-Science/Resources/Vulnerability

on the species or subspecies (or closely related taxa) to be transplanted, and in coordination with CDFW and the U.S. Fish and Wildlife Service (USFWS), particularly if the plant is state or federally listed, or considered rare by the California Native Plant Society.

Careful planning for transplantation should include consideration of the plant's biological and environmental requirements, as transplantation can be extremely stressful. Transplantation of rare plants should not be done close to an existing population of that species, as measured by the potential for genetic exchange among individuals through pollen or propagule (e.g., seed, fruit) dispersal, unless transplantation propagules are from a local population (i.e., there is genetic exchange between the propagule source and the existing population that will be enhanced through transplantation). Transplanting or seeding receptor sites (i.e., habitat suitable for establishing a new population) should be carefully selected on the basis of physical, biological, and logistical considerations (Fiedler and Laven 1996, ICF International 2012). It is crucial that the soil and habitat requirements of the species must be fully understood before successful establishment can be assured (Fiedler 1991). Both the source location and the receptor site must be carefully prepared to ensure that plants are removed and planted in a manner that provides them with the best chance of reestablishment, including disease-free soils. Thus, transplantation should only occur on a case-by-case basis using pilot studies and in consultation with CDFW, USFWS, and species experts in the RCIS area to ensure that both the species' biological requirements and site-specific conditions are fully understood.

### 3.4.5 Conservation Strategy for Focal Species

The conservation strategy for each focal species is to protect, connect, and enhance suitable habitat in a site-specific and species-specific manner within the RCIS area. A suite of species-specific actions has been developed for each focal species to achieve the conservation goals and objectives, which includes acquisition and non-acquisition actions.

Although the conservation goals, objectives, and actions are specific to focal species, they are also developed for other conservation elements, such as imperiled communities, areas critical for habitat connectivity, and areas necessary to protect ecological processes. In all situations, when applying actions, the general principles of conservation biology should be used to inform and prioritize actions (e.g., Primack and Sher 2019; Sodhi and Ehrlich 2010; Groom et al. 2006; Margules and Pressey 2000; Noss et al. 1997; Soule 1986; Soule and Wilcox 1980). Specifically, conservation priorities and actions should seek to accomplish one or more of the following goals:

- Permanently protect occurrences of focal species and other conservation elements,
- Permanently protect large intact blocks of habitat,
- Focus permanent protection in areas that expand existing protected areas and/or connect existing protected areas within the RCIS area and to existing protected areas adjacent to the RCIS area, and
- Permanently protect wildlife corridors and linkages.

### 3.4.5.1 Alkali Mariposa-Lily

#### Conservation Goals and Objectives

**Goal 1:** Sustain the alkali mariposa-lily population in the RCIS area by permanently protecting known extant populations and 30,385 acres of habitat and maintaining or enhancing habitat and ecological processes to support the species.

- **Objective 1.1** Reduce the threat of habitat loss by permanently protecting at least 12,360 acres of unprotected alkali mariposa-lily habitat as indicated by habitat model and site conditions determined from surveys (Minimum Permanent Protection Gap in Table 3-10). Measure progress toward achieving this objective in acres of permanently protected alkali mariposa-lily habitat.
- **Objective 1.2.** Provide uplift to the conservation status of up to 18,025 acres of protected alkali mariposa-lily habitat (Potential Maximum Uplift for Currently Protected Lands Gap in Table 3-10). Measure progress toward achieving this objective in acres of permanently protected alkali mariposa-lily habitat.
- **Objective 1.3:** Increase the number of permanently protected known alkali mariposa-lily populations in the RCIS area. Measure progress toward achieving this objective in the number of populations protected.
- **Objective 1.4:** Enhance degraded saltbush scrub habitat and target areas suitable for alkali mariposa-lily, including areas with claypans and sand dunes, especially along drainages. Measure progress toward achieving this objective in the number of acres of enhanced saltbush scrub habitat.
- **Objective 1.5:** Maintain hydrological and sand-transport processes to support suitable habitat conditions for alkali mariposa-lily by permanently protecting and enhancing the ecological function of Little Rock Wash. Measure progress toward achieving this objective in the number of bioswales or other method of positive filtration to control runoff to Little Rock Wash.

#### Actions and Conservation Priorities

Implementing the actions in Table 3-11 will support achieving the conservation goal and objectives for this species.

**Table 3-11. Actions for Alkali Mariposa-lily**

| Action ID | Cons. Obj. | Action |
|---|---|---|
| AMLI-1 | 1.1, 1.2, 1.3 | Permanently protect, through a conservation easement or other approved real estate instrument, parcels with known occurrences of alkali mariposa-lily and suitable habitat. |
| AMLI-2 | 1.2, 1.4 | Develop and implement management plans to guide maintaining or enhancing alkali desert scrub habitat on protected lands to benefit alkali mariposa-lily. |
| AMLI-3 | 1.4, 1.5 | Develop and implement management plans to guide maintaining or restoring desert wash woodland scrub habitat on protected lands to benefit alkali mariposa-lily. |

| | | |
|---|---|---|
| AMLI-4 | 1.1, 1.2 | Fence known populations of alkali mariposa-lily to exclude recreational vehicle entry. |
| AMLI-5 | 1.5 | Control runoff to Little Rock Wash with bioswale filtration and other methods of positive filtration. |

The priority conservation areas for implementing actions for alkali mariposa-lily in the RCIS area are generally in the portions of habitat core areas and landscape linkages with high conservation value for this species that are away from foreseeable potential future urbanization. Approximately 33,761 acres of habitat of high conservation value for alkali mariposa-lily occurs within the habitat core areas and landscape linkages (Table 3-10). Refer to Appendix H, *Species Conservation Values Maps and Graphs,* for a map of habitat of high conservation value for Alkali mariposa-lily and a set of graphs showing the proportion of high conservation value in each habitat core area and landscape linkage.

Prior to implementation of actions to benefit this species, conduct on-the-ground assessments to identify potential unintended negative effects of the actions on other focal or otherwise regulated species. Actions should be modified to reduce or eliminate unintended potential negative effects. Similarly, an on-the-ground assessment should be conducted to determine what environmental regulations may apply to implementation of the actions.  CDFW and any other relevant regulatory agencies should be consulted prior to implementing any actions that have any potential for impacts to regulated resource.

## Additional Information Needs

Funding or conducting the following studies will provide information that will improve the conservation of this species by identifying additional areas for conservation and mechanisms to improve habitat restoration for this species:

- Fund surveys of alkali mariposa-lily habitat during suitable flower periods to identify previously undocumented populations in the RCIS area.
- Assemble known information on propagating the saltgrass meadow and desert wash vegetation community and conduct trials to determine if habitat expansion and/or additional alkali mariposa-lily plantings are feasible.

## Climate Change Issues and Considerations

Alkali mariposa-lily is dependent on seasonally moist alkaline habitats, which are likely to be threatened by a warming climate. Conservation of this species will require active monitoring of environmental conditions where known populations exist. Permanent protection of large, interconnected blocks of habitat will give this species the best opportunity for adapting to changing environmental conditions; however, proactive conservation and habitat enhancement actions may be required in the future given the species' limited distribution in the RCIS area, limited habitat availability, and dispersal capabilities.

Additional resources for conservation and management of rare plants in the face of climate change can be found on the CDFW Climate Science Program website, including the *Climate Change Vulnerability Assessment of Rare Plants in California* (Anacker et al. 2012).

### 3.4.5.2 California Juniper

#### Conservation Goals and Objectives

**Goal 2:** Sustain California juniper in the RCIS area by permanently protecting 13,637 acres of existing stands and managing habitat to address stressors and pressures, including the effects of climate change.

- **Objective 2.1:** Reduce the threat of habitat loss by permanently protecting at least 13,281 acres of unprotected California juniper (Minimum Permanent Protection Gap in Table 3-10). Emphasis should be placed on prioritizing the permanent protection of large woodland patches (greater than 100 acres) in predicted highest climate stability areas, which have connectivity to climate refugia. Measure progress toward achieving this objective in acres of permanently protected California juniper stands.
- **Objective 2.2**: Provide uplift to the conservation status of up to 256 acres of protected California juniper habitat (Potential Maximum Uplift for Currently Protected Lands Gap in Table 3-10) to increase the long-term sustainability of varying age classes of California juniper stands. Measure progress toward achieving this objective in the acres of restored or rehabilitated California juniper stands on protected lands.

#### Actions and Conservation Priorities

Implementing the actions in Table 3-12 will support achieving the conservation goal and objectives for this species.

**Table 3-12. Actions for California Juniper**

| Action ID | Cons. Obj. | Action |
|---|---|---|
| CAJU-1 | 2.1 | Permanently protect, through a conservation easement or other approved real estate instrument, parcels with known California juniper stands. |
| CAJU-2 | 2.2 | Conduct mechanical thinning treatments in California juniper stands identified as needing fuel load reduction. Thinning treatments should be conducted according to a habitat management plan and based on biological principles that retains a mosaic of higher and lower canopy cover and enhances or maintains wildlife habitat value. The timing of thinning treatments should be planned to minimize impacts on sensitive or co-occurring focal species, including avian nesting periods. Thinned vegetation should be placed in brush-pile fashion and away from fuel loads to provide wildlife habitat and maintain the former carbon capture represented by piled cut brush. |

The priority conservation areas for implementing actions for California juniper in the RCIS area are generally in the portions of habitat core areas and landscape linkages with high conservation value for this species that are away from foreseeable potential future urbanization. Approximately 18,183 acres of mapped habitat of high conservation value for California juniper occurs within the habitat core areas and landscape linkages (Table 3-10). Refer to Appendix H, *Species Conservation Values*

*Maps and Graphs,* for a map of habitat of high conservation value for California juniper and a set of graphs showing the proportion of high conservation value in each habitat core area and landscape linkage.

Prior to implementation of actions to benefit this species, conduct on-the-ground assessments to identify potential unintended negative effects of the actions on other focal or otherwise regulated species. Actions should be modified to reduce or eliminate unintended potential negative effects. Similarly, an on-the-ground assessment should be conducted to determine what environmental regulations may apply to implementation of the actions. CDFW and any other relevant regulatory agencies should be consulted prior to implementing any actions that have any potential for impacts to regulated resource.

#### Additional Information Needs

Funding or conducting the following studies will provide information that will improve the conservation of this species by identifying additional areas for conservation and mechanisms to improve habitat restoration for this species:

- Identify large areas of multi-age class stands (including old-growth) California juniper to prioritize for conservation and protection from fire risk.

#### Climate Change Issues and Considerations

Although California juniper is adapted to very dry habitat conditions and locally abundant in the southern portions of the RCIS area, it is likely to undergo some shifts in distribution in response to climate change (e.g., shifts to higher elevations). Conservation of this species will require active monitoring of environmental conditions. Protection of large, interconnected blocks of habitat will give this species the best opportunity for adapting to changing environmental conditions.

Additional resources for conservation and management of natural communities in the face of climate change can be found on the CDFW Climate Science Program website, including the *Climate Vulnerability Analysis of Natural Vegetation Community Types Statewide in California* (Thorne et al. 2016).

### 3.4.5.3 Joshua Tree

#### Conservation Goals and Objectives

**Goal 3:** Sustain and enhance the quality of Joshua tree woodland in the RCIS area by permanently protecting 23,901 acres of Joshua tree stands and implementing actions to address present and future pressures on the species, including climate change.

- **Objective 3.1:** Reduce the threat of habitat loss by permanently protecting at least 19,052 acres of unprotected Joshua tree woodlands as indicated by habitat model and site conditions determined from surveys (Minimum Permanent Protection Gap in Table 3-10). Measure progress toward achieving this objective in acres of permanently protected Joshua tree woodland.
- **Objective 3.2:** Provide uplift to the conservation status of up to 4,849 acres of protected Joshua tree woodland to meet the conservation goal for the species (Potential Maximum Uplift for

Currently Protected Lands Gap in Table 3-10). Measure progress toward achieving this objective in acres of permanently protected Joshua tree woodland.

- **Objective 3.3:** Enhance Joshua tree woodland, targeting areas of low or moderate terrestrial intactness in cores and linkages with proximity to Joshua tree woodland habitat of high intactness. Measure progress toward achieving this objective in the acres of enhanced Joshua tree woodland.
- **Objective 3.4:** Manage Joshua tree woodland habitat adaptively to address climate change effects, incorporating best available science as a basis for management actions. Measure progress toward achieving this objective in acres of Joshua tree woodland under adaptive management plans.
- **Objective 3.5:** Support existing ordinances and previously established local regulations and permitting processes for private property development and authorized projects that result in the removal of a limited number of Joshua trees.

## Actions and Conservation Priority Areas

Implementing the actions in Table 3-13 will support achieving the conservation goal and objectives for this species.

**Table 3-13. Actions for Joshua Tree**

| ID | Cons. Obj. | Action |
|---|---|---|
| JOTR-1 | 3.1, 3.2 | Permanently protect, through a conservation easement or other approved real estate instrument, parcels with Joshua tree woodland, prioritizing large patches of continuous Joshua tree woodland or areas adjacent to already-protected lands. Monitor and manage protected habitat to ensure long-term survival of the species, with sufficient short- and long-term reserve maintenance endowment funding |
| JOTR-2 | 3.3 | Restore burned areas by planting young Joshua trees (caged to prevent herbivory), native shrubs, and perennial grasses to restrict invasion by annual invasive species. Burned Joshua trees should not be removed because they can resprout on occasion and provide habitat for wildlife. |
| JOTR-3 | 3.3 | Fence protected Joshua tree woodlands, excluding vehicle access that can increase human-caused ignitions of wildfire and garbage dumping. |
| JOTR-4 | 3.3 | Periodically patrol protected Joshua tree woodlands to monitor human uses. |
| JOTR-5 | 3.3, 3.4 | Prepare wildfire suppression plans for protected Joshua tree woodlands to minimize resource impacts from fire suppression tactics. |
| JOTR-6 | 3.1, 3.2 | Conduct a fine-scale regional assessment to determine the most intact, largest extent of the oldest Joshua tree stands remaining in the RCIS area. |
| JOTR-7 | 3.5, 3.4 | Expand the capacity of existing Joshua tree mitigation banks in California with mitigation credit agreements that are consistent with existing ordinances. Encourage the application of mitigation ratios |

| ID | Cons. Obj. | Action |
|---|---|---|
| | | based on the density, habitat conditions, and location of Joshua tree woodland to be impacted. |
| JOTR-8 | 3.5 | Evaluate the success of existing Joshua tree removal ordinances in Kern, Los Angeles, and San Bernardino counties, and specifically, within the communities of Apple Valley, Hesperia, Joshua Tree, Lancaster, Palmdale, Victorville, and Yucca Valley. Encourage adoption of the most successful mitigation strategies. |
| JOTR-9 | 3.3 | Discourage the use of transplanted Joshua trees to establish Joshua tree mitigation credits in MCAs until a better transplantation method with a minimum of 75% long-term survival has been demonstrated (see Section 3.4.4, *Transplanting Plants to Create New Populations*). |

The priority conservation areas for implementing actions for Joshua tree in the RCIS area are generally in the portions of habitat core areas and landscape linkages with high conservation value for this species that are away from foreseeable potential future urbanization. Approximately 31,868 acres of mapped habitat of high conservation value for Joshua tree occurs within the habitat core areas and landscape linkages. Refer to Appendix H, *Species Conservation Values Maps and Graphs*, for a map of habitat of high conservation value for Joshua tree and a set of graphs showing the proportion of high conservation value in each habitat core area and landscape linkage.

Prior to implementation of actions to benefit this species, conduct on-the-ground assessments to identify potential unintended negative effects of the actions on other focal or otherwise regulated species. Actions should be modified to reduce or eliminate unintended potential negative effects. Similarly, an on-the-ground assessment should be conducted to determine what environmental regulations may apply to implementation of the actions. CDFW and any other relevant regulatory agencies should be consulted prior to implementing any actions that have any potential for impacts to regulated resource.

## Additional Information Needs

Funding or conducting the following studies will provide information that will improve the conservation of this species by identifying additional areas for conservation and mechanisms to improve habitat restoration for this species:

- Conduct monitoring and aid in research of Joshua tree populations—including, but not limited to, flowering timing and frequency, seed germination, sprout dispersal, and Yucca moth activity—to better understand effects of climate change on these populations and identify actions to facilitate adaptation to these effects.

## Climate Change Issues and Considerations

Joshua tree is currently distributed broadly throughout the RCIS area; however, suitable climatic conditions for Joshua Tree may shift to higher elevations in response to climate change. Conservation of this species will require active monitoring of environmental conditions. Protection of large, interconnected blocks of habitat will give this species the best opportunity for adapting to changing environmental conditions.

Additional resources for conservation and management of natural communities in the face of climate change can be found on the CDFW Climate Science Program website, including the *Climate Vulnerability Analysis of Natural Vegetation Community Types Statewide in California* (Thorne et al. 2016).

### 3.4.5.4 Spreading Navarretia

#### Conservation Goals and Objectives

**Goal 4**: Permanently protect existing populations and maintain and enhance suitable habitat for spreading navarretia within the RCIS area.

- **Objective 4.1**: Reduce the threat of habitat loss by permanently protecting extant occurrences of spreading navarretia in the RCIS area. Measure progress toward achieving this objective in the number of occurrences protected.
- **Objective 4.2**: Enhance suitable habitat for spreading navarretia in the RCIS area. Measure progress toward achieving this objective in the acres of habitat enhanced.
- **Objective 4.3**: Expand spreading navarretia populations to additional habitat locations if suitable habitat is determined to occur in the RCIS area and successful transplantation/revegetation techniques are available to improve conservation of the species within the RCIS area (see Section 3.4.4, *Transplanting Plants to Create New Populations*). Measure progress toward achieving this objective in number of spreading navarretia populations and the long-term success of transplanted populations.

#### Actions and Conservation Priorities

Implementing the actions in Table 3-14 will support achieving the conservation goal and objectives for this species.

**Table 3-14. Actions for Spreading Navarretia**

| ID | Cons. Obj. | Action |
|---|---|---|
| SPNA-1 | 4.1 | Permanently protect, through a conservation easement or other approved real estate instrument, parcels with occurrences of spreading navarretia within desert vernal pool and alkaline playa ecosystems. |
| SPNA-2 | 4.2 | Conduct invasive species removal in suitable habitat, as determined by the targeted studies. |
| SPNA-3 | 4.3 | If successful transplantation/revegetation techniques are available to improve conservation of the species, transplant spreading navarretia in suitable habitat identified through proposed action SPNA-3 (see Section 3.4.4, *Transplanting Plants to Create New Populations*). |
| SPNA-4 | 4.2 | Protect spreading navarretia habitat from domestic livestock with fencing that still permits common animal vector access to the pools. |
| SPNA-5 | 4.2 | Protect water sources and drainages supporting ephemeral surface water and spreading navarretia habitat. |

Occurrences of spreading navarretia are not well documented in the RCIS area; only a single occurrence is documented in the Poppy Preserve Core Area. Therefore, more studies and surveys are needed to determine where implementing actions for the species will provide the greatest conservation benefit. Vernal pools and alkali playa habitat should be surveyed for the species. These habitat types exist in these habitat core areas (i.e., Kings Canyon, Poppy Preserve, Munz Ranch Road, Portal Ridge, Brainard Canyon, Devil's Punchbowl). The Portal Ridge – Poppy Preserve linkage may also contain vernal pool and alkali playa habitat that provides suitable conditions for spreading navarretia and warrants protection, pending surveys and confirmation of species presence.

Prior to implementation of actions to benefit this species, conduct on-the-ground assessments to identify potential unintended negative effects of the actions on other focal or otherwise regulated species. Actions should be modified to reduce or eliminate unintended potential negative effects. Similarly, an on-the-ground assessment should be conducted to determine what environmental regulations may apply to implementation of the actions. CDFW and any other relevant regulatory agencies should be consulted prior to implementing any actions that have any potential for impacts to regulated resource.

### Additional Information Needs

Funding or conducting the following studies will provide information that will improve the conservation of this species by identifying additional areas for conservation and mechanisms to improve habitat restoration for this species:

- Conduct surveys for spreading navarretia to determine its distribution in the RCIS area. Scrutinize aerial photos in likely areas for wet and dry years as a first step in finding locations to check.
- Conduct targeted studies to determine the species' management and micro-site needs.

### Climate Change Issues and Considerations

Spreading navarretia occurs on vernal pools and alkali playa habitats, which are likely to be threatened by a warming climate. Conservation of this species will require active monitoring of environmental conditions where known populations exist. Permanent protection of large, interconnected blocks of habitat will give this species the best opportunity for adapting to changing environmental conditions; however, proactive conservation and habitat enhancement actions may be required in the future, given the species' limited distribution in the RCIS area, limited habitat availability, and dispersal capabilities.

Additional resources for conservation and management of rare plants in the face of climate change can be found on the CDFW Climate Science Program website, including the *Climate Change Vulnerability Assessment of Rare Plants in California* (Anacker et al. 2012).

## 3.4.5.5 Short-Joint Beavertail Cactus

### Conservation Goals and Objectives

**Goal 5:** Sustain short-joint beavertail cactus in the RCIS area by permanently protecting existing occurrences and 9,605 acres of habitat and managing habitat to address stressors and pressures, including the effects of climate change.

- **Objective 5.1:** Reduce the threat of habitat loss by permanently protecting at least 8,502 acres of unprotected habitat for short-joint beavertail cactus (Minimum Permanent Protection Gap in

Table 3-10).). Measure progress toward achieving this objective in acres of permanently protected alkali short-joint beavertail cactus.

- **Objective 5.2:** Provide uplift to the conservation status of up to 1,103 acres of protected short-joint beaver tail cactus habitat (Potential Maximum Uplift for Currently Protected Lands Gap in Table 3-10). Measure progress toward achieving this objective in acres of permanently protected short-joint beavertail cactus habitat.
- **Objective 5.3:** Enhance habitat for short-joint beavertail cactus in the RCIS area. Measure progress toward achieving this objective in the acres of enhanced habitat.
- **Objective 5.4**: Manage short-joint beavertail cactus habitat for restoration and rehabilitation to lower or eliminate fire risk, including reducing fuels strategically to reduce risk of fire within habitat. Measure progress toward achieving this objective in the acres of managed habitat.
- **Objective 5.5:** Maintain the short-joint beavertail cactus population in the RCIS area by minimizing destruction of individuals through education and transplantation. Measure progress toward achieving this objective in the number of education programs and transplant efforts (see Section 3.4.4, *Transplanting Plants to Create New Populations*). Transplantation of other *Opuntia* species (Bakersfield cactus, *Opuntia basilaris* var. *treleasei*) has been shown to be successful (Cypher et al. 2014).

## Actions and Conservation Priorities

Implementing the actions in Table 3-15 will support achieving the conservation goal and objectives for this species.

**Table 3-15. Actions for Short-joint Beavertail Cactus**

| Cons. Action ID | Cons. Obj. | Action |
|---|---|---|
| SBTC-1 | 5.1, 5.2 | Permanently protect, through a conservation easement or other approved real estate instrument, parcels with known occurrences of short-joint beavertail cactus and suitable habitat. |
| SBTC-2 | 5.3 | Enhance habitat for short-joint beavertail cactus by planting native shrubs and perennial grasses to restrict invasion by annual invasive species as well as salvaging and transplanting the species from affected areas to protected areas (see Section 3.4.4, *Transplanting Plants to Create New Populations*). |
| SBTC-3 | 5.4 | Remove invasive vegetation species by manual methods, preferably before maturation of invasive seeds. Develop invasive species control strategies that benefit or do not cause harm to co-occurring focal species. Do not use herbicides or other chemicals. |
| SBTC-4 | 5.5 | Identify suitable habitat within protected areas to transplant short-joint beavertail cacti that are salvaged from authorized disturbance actions (see Section 3.4.4, *Transplanting Plants to Create New Populations*). |
| SBTC-5 | 5.5 | Prepare educational materials for private landowners within the range of short-joint beavertail cactus to become informed about the ease and necessity of short-joint beavertail cactus salvage. Provide such information to local community/county building permit issuance entities. |

| Cons. Action ID | Cons. Obj. | Action |
|---|---|---|
| SBTC-6 | 5.1, 5.2 | Conduct a step-wise inventory using existing California Natural Diversity Database (CNDDB) entries to determine northernmost and westernmost populations of the species and inform protection and management actions. |

The priority conservation areas for implementing actions for short-joint beavertail cactus in the RCIS area are generally in the portions of habitat core areas and landscape linkages with high conservation value for this species that are away from foreseeable potential future urbanization. Approximately 12,806 acres of habitat of high conservation value for short-joint beavertail cactus occurs within the habitat core areas and landscape linkages (Table 3-10). Refer to Appendix H, *Species Conservation Values Maps and Graphs*, for a map of habitat of high conservation value for short-joint beavertail cactus and a set of graphs showing the proportion of high conservation value in each habitat core area and landscape linkage.

Prior to implementation of actions to benefit this species, conduct on-the-ground assessments to identify potential unintended negative effects of the actions on other focal or otherwise regulated species. Actions should be modified to reduce or eliminate unintended potential negative effects. Similarly, an on-the-ground assessment should be conducted to determine what environmental regulations may apply to implementation of the actions.  CDFW and any other relevant regulatory agencies should be consulted prior to implementing any actions that have any potential for impacts to regulated resource.

### Climate Change Issues and Considerations

Short-joint beavertail cactus occurs in scattered patches in dry scrub and woodlands (Joshua tree and California juniper) in the RCIS area. Conservation of this species will require active monitoring of environmental conditions where known populations exist. Permanent protection of large, interconnected blocks of habitat will give this species the best opportunity for adapting to changing environmental conditions; however, proactive conservation and habitat enhancement actions may be required in the future, including potential transplantation of cactus to areas of more suitable habitat (salvage transplantations need to consider future climate conditions). See Section 3.4.4, *Transplanting Plants to Create New Populations.*

Additional resources for conservation and management of rare plants in the face of climate change can be found on the CDFW Climate Science Program website, including the *Climate Change Vulnerability Assessment of Rare Plants in California* (Anacker et al. 2012) and *Climate Vulnerability Analysis of Natural Vegetation Community Types Statewide in California* (Thorne et al. 2016).

## 3.4.5.6 Coast Horned Lizard

### Conservation Goals and Objectives

**Goal 6:** Sustain the coast horned lizard population in the RCIS area by permanently protecting 6,970 acres of coast horned lizard habitat.

- **Objective 6.1:** Reduce the threat of habitat loss by permanently protecting at least 3,055 acres of unprotected coast horned lizard habitat (Minimum Permanent Protection Gap in Table 3-10)).

Measure progress toward achieving this objective in acres of permanently protected coast horned lizard habitat.

- **Objective 6.2.** Provide uplift to the conservation status of up to 3,915 acres of protected coast horned lizard habitat (Potential Maximum Uplift for Currently Protected Lands Gap in Table 3-10). Measure progress toward achieving this objective in acres of permanently protected coast horned lizard habitat.
- **Objective 6.3:** Enhance coast horned lizard habitat (e.g., reducing invasive vegetation and animal species and re-establishing native grass species to support harvester ant populations). Measure progress toward achieving this objective in the acres of enhanced habitat.
- **Objective 6.4:** For residential developments within or adjacent to occupied habitat for coast horned lizard, develop an information program about the significance of impacts on coast horned lizards from collecting, driving off road, and bringing uncontrolled pets to the area. Measure progress toward achieving this objective in the number of information programs implemented.

## Actions and Conservation Priorities

Implementing the actions in Table 3-16 will support achieving the conservation goal and objectives for this species.

**Table 3-16. Actions for Coast Horned Lizard**

| Cons. Action ID | Cons. Obj. | Action |
|---|---|---|
| CHL-1 | 6.1, 6.2 | Permanently protect, through a conservation easement or other approved real estate instrument, parcels with habitat for coast horned lizard. |
| CHL-2 | 6.3 | Implement an invasive species management program to re-establish shrublands with scattered patches of native grassland and sand and encourage harvester ant colonization. Develop invasive species control strategies that benefit or do not cause harm to co-occurring focal species. Do not use herbicides or other chemicals. |
| CHL-3 | 6.3 | Monitor for and control non-native invasive ant species (e.g., Argentine ant) on protected habitat for coast horned lizard. Assess irrigation practices on these lands and curtail if feasible (if irrigation is correlated with the presence of Argentine ants). Develop control measures that do not harm co-occurring species. |
| CHL-4 | 6.4 | Develop educational programs for land managers and private landowners within or adjacent to habitat for coast horned lizard regarding management strategies to minimize impacts on the species. |
| CHL-5 | 6.3 | Clean up dumps and trash piles and reduce human waste and trash that attracts lizard predators such as coyotes and ravens. |
| CHL-6 | 6.3 | Create an education program about desert wildlife, including coast horned lizard. Educate the public about the damage that subsidizing ravens does to the desert ecosystem by creating abnormally high raven populations. Subsidy includes unguarded, excessive pet food, uncovered trash, and pools of standing water. |

The priority conservation areas for implementing actions for coast horned lizard in the RCIS area are generally in the portions of habitat core areas and landscape linkages with high conservation value for this species that are away from foreseeable potential future urbanization. Approximately 13,940 acres of mapped habitat of high conservation value for coast horned lizard occurs within the habitat core areas and landscape linkages (Table 3-10). Refer to Appendix H, *Species Conservation Values Maps and Graphs*, for a map of habitat of high conservation value for coast horned lizard and a set of graphs showing the proportion of high conservation value in each habitat core area and landscape linkage.

Prior to implementation of actions to benefit this species, conduct on-the-ground assessments to identify potential unintended negative effects of the actions on other focal or otherwise regulated species. Actions should be modified to reduce or eliminate unintended potential negative effects. Similarly, an on-the-ground assessment should be conducted to determine what environmental regulations may apply to implementation of the actions. CDFW and any other relevant regulatory agencies should be consulted prior to implementing any actions that have any potential for impacts to regulated resource.

### Climate Change Issues and Considerations

Coast horned lizard generally occurs along the southern toeslopes in the RCIS area. The species is closely associated with the distribution of its primary prey base (harvester ants). Conservation of this species will require active monitoring of environmental conditions where known populations exist. Permanent protection of large, interconnected blocks of habitat will give this species and its prey base the best opportunity for adapting to changing environmental conditions.

Additional resources for conservation and management of reptiles in the face of climate change can be found on the CDFW Climate Science Program website, including *California Amphibian and Reptile Species of Future Concern: Conservation and Climate Change* (Wright et al. 2013).

## 3.4.5.7 Desert Horned Lizard

### Conservation Goals and Objectives

**Goal 7:** Sustain the desert horned lizard population in the RCIS area by permanently protecting 11,858 acres of habitat.

- **Objective 7.1:** Reduce the threat of habitat loss by permanently protecting at least 9,894 acres of unprotected modeled habitat for desert horned lizard (Minimum Permanent Protection Gap in Table 3-10). Measure progress toward achieving this objective in acres of permanently protected desert horned lizard habitat.
- **Objective 7.2.** Provide uplift to the conservation status of up to 1,964 acres of protected desert horned lizard habitat (Potential Maximum Uplift for Currently Protected Lands Gap in Table 3-10). Measure progress toward achieving this objective in acres of permanently protected desert horned lizard habitat.
- **Objective 7.3**: Enhance habitat for desert horned lizard (e.g., reducing invasive vegetation and animal species and re-establishing native grass species to support harvester ant populations). Measure progress toward achieving this objective in the acres of enhanced habitat.

- **Objective 7.4:** For residential developments within or adjacent to occupied habitat for desert horned lizard, develop an information program about the significance of impacts on desert horned lizards from collecting, driving off road, and bringing uncontrolled pets to the area. Measure progress toward achieving this objective in the number of information programs implemented.

## Actions and Conservation Priorities

Implementing the actions in Table 3-17 will support achieving the conservation goal and objectives for this species.

**Table 3-17. Actions for Desert Horned Lizard**

| Cons. Action ID | Cons. Obj. | Action |
|---|---|---|
| DHL-1 | 7.1, 7.2 | Permanently protect, through a conservation easement or other approved real estate instrument, desert horned lizard habitat. |
| DHL-2 | 7.3 | Implement an invasive species management program to re-establish native shrubland and grassland and encourage harvester ant colonization. Develop invasive species control strategies that benefit or do not cause harm to co-occurring focal species. Do not use herbicides or other chemicals. |
| DHL-3 | 7.3 | Monitor for and control non-native invasive ant species (e.g., Argentine ant) on protected habitat for desert horned lizard. Assess irrigation practices on these lands and curtail if feasible (if irrigation is correlated with the presence of Argentine ants). Develop control measures that do not harm co-occurring species. |
| DHL-4 | 7.4 | Develop educational program for land managers and private landowners within or adjacent to habitat for desert horned lizard regarding management strategies to minimize impacts on the species. |
| DHL-5 | 7.1, 7.2 | Fence representative high-density populations on protected lands to exclude vehicle use, native plant community disturbance, pet collection, garbage dumping, and grading. |
| DHL-6 | 7.3 | Clean up dumps and trash piles and reduce human waste and trash that attracts lizard predators such as coyotes and ravens. |
| DHL-7 | 7.3 | Create an education program about desert wildlife, including desert horned lizard. Educate the public about the damage that subsidizing ravens does to the desert ecosystem by creating abnormally high raven populations. Subsidy includes unguarded, excessive pet food, uncovered trash, and pools of standing water. |

The priority conservation areas for implementing actions for desert horned lizard in the RCIS area are generally in the portions of habitat core areas and landscape linkages with high conservation value for this species that are away from foreseeable potential future urbanization. Approximately 15,811 acres of mapped habitat of high conservation value for desert horned lizard occurs within the habitat core areas and landscape linkages (Table 3-10). Refer to Appendix H, *Species Conservation Values Maps and Graphs*, for a map of habitat of high conservation value for desert horned lizard and a set of graphs showing the proportion of high conservation value in each habitat core area and landscape linkage.

Prior to implementation of actions to benefit this species, conduct on-the-ground assessments to identify potential unintended negative effects of the actions on other focal or otherwise regulated species. Actions should be modified to reduce or eliminate unintended potential negative effects. Similarly, an on-the-ground assessment should be conducted to determine what environmental regulations may apply to implementation of the actions.  CDFW and any other relevant regulatory agencies should be consulted prior to implementing any actions that have any potential for impacts to regulated resource.

### Climate Change Issues and Considerations

Desert horned lizard generally are found throughout the desert habitats in the RCIS area, primarily in the eastern portions where patches of sand are generally present. Conservation of this species will require active monitoring of environmental conditions where known populations exist. Permanent protection of large, interconnected blocks of habitat will give this species the best opportunity for adapting to changing environmental conditions.

Additional resources for conservation and management of reptiles in the face of climate change can be found on the CDFW Climate Science Program website, including C*alifornia Amphibian and Reptile Species of Future Concern: Conservation and Climate Change* (Wright et al. 2013).

## 3.4.5.8 Agassiz's Desert Tortoise

### Conservation Goals and Objectives

**Goal 8**: Sustain and enhance 55,424 acres of Agassiz's desert tortoise habitat in the RCIS area to maintain or increase the population and allow future range shifts due to climate change effects.

- **Objective 8.1:** Reduce the threat of habitat loss by permanently protecting at least 15,189 acres of unprotected habitat for Agassiz's desert tortoise (Minimum Permanent Protection Gap in Table 3-10). Measure progress toward achieving this objective in acres of permanently protected alkali mariposa-lily habitat.
- **Objective 8.2.** Provide uplift to the conservation status of up to 40,235 acres of protected Agassiz's desert tortoise habitat (Potential Maximum Uplift for Currently Protected Lands Gap in Table 3-10). Measure progress toward achieving this objective in acres of permanently protected Agassiz's desert tortoise habitat.
- **Objective 8.3:** Enhance habitat for Agassiz's desert tortoise in protected areas, targeting areas of low or moderate terrestrial intactness with proximity to modeled habitat areas with high intactness. Measure progress toward achieving this objective in the acres of enhanced habitat in protected areas.
- **Objective 8.4.** Increase habitat connectivity for Agassiz's desert tortoise in the RCIS area to provide for population and range changes on the landscape in response to biophysical changes due to climate change, shifting vegetation communities, and Agassiz's desert tortoise populations. Measure progress toward achieving this objective in the number of Agassiz's desert tortoise connectivity projects.

## Actions and Conservation Priorities

Implementing the actions in Table 3-18 will support achieving the conservation goal and objectives for this species.

**Table 3-18. Actions for Agassiz's Desert Tortoise**

| Cons. Action ID | Cons. Obj. | Action |
|---|---|---|
| DETO-1 | 8.1, 8.2 | Permanently protect, through a conservation easement or other approved real estate instrument, known suitable habitat in the northeastern corner of the RCIS planning area that connects tortoise populations on the Edwards Air Force Base to the southwestern portion of the Fremont-Kramer critical habitat unit and the Fremont-Kramer Area of Critical Environmental Concern on public lands to the northeast. Identify areas targeted for protection in coordination with the Recovery Implementation Team for the Western Mojave Recovery Unit. |
| DETO-2 | 8.3 | Control non-native invasive plants, including annual grasses, by mechanical means in targeted areas. Develop invasive species control strategies that benefit or do not cause harm to co-occurring focal species. Do not use herbicides or other chemicals. Remove livestock grazing and effectively control unauthorized recreational vehicle use if these activities are contributing to the spread of non-native plants. |
| DETO-3 | 8.3 | Clean up dumps and trash piles and reduce human waste and trash that attracts tortoise predators such as coyotes and ravens. |
| DETO-4 | 8.1, 8.2 | Fence protected lands that contain Agassiz's desert tortoise populations to exclude trespassers, domestic sheep, and recreational vehicles. If installation of fencing is anticipated to increase the potential for tortoise predation by ravens, incorporate project-specific fence designs to minimize the predation threat. |
| DETO-5 | 8.1, 8.2 | Provide periodic patrols of protected lands with Agassiz's desert tortoise populations. |
| DETO-6 | 8.1, 8.2, 8.3 | Inventory lands with potential to support suitable Agassiz's desert tortoise habitat to assess relative population density and prioritize lands having higher densities for protection. |
| DETO-7 | 8.3 | Create an education program about desert wildlife, including Agassiz's desert tortoise. Educate the public about the damage that subsidizing ravens does to the desert ecosystem by creating abnormally high raven populations. Subsidy includes unguarded, excessive pet food; uncovered trash; and pools of standing water. Install high-visibility kiosks with relevant interpretive panels and maps next to trailheads and points of entry for recreational vehicle use. |
| DETO-8[1] | 8.3 | Educate the public about upper respiratory tract disease in Agassiz's tortoises and the importance of not releasing captive tortoise back into the wild to prevent the spread of the disease. |
| DETO-9 | 8.3, 8.4 | Identify crossing areas for desert tortoise on existing and new roads. Incorporate road fencing and under-road passage (such as culverts) or bridges in project design to maintain connectivity for desert tortoise and reduce mortality. Include signage for a 25-mph speed limit on all unpaved roads in desert tortoise to reduce mortality. |

[1] Action identified in the Revised Recovery Plan for the Mojave Population of the Desert Tortoise (*Gopherus agassizii*) (USFWS 2011).

The priority conservation areas for implementing actions for Agassiz's desert tortoise in the RCIS area are generally in the portions of habitat core areas and landscape linkages with high conservation value for this species that are away from foreseeable potential future urbanization. Approximately 73,898 acres of mapped habitat of high conservation value for Agassiz's desert tortoise occurs within the habitat core areas and landscape linkages (Table 3-10). Refer to Appendix H, *Species Conservation Values Maps and Graphs*, for a map of habitat of high conservation value for Agassiz's desert tortoise and a set of graphs showing the proportion of high conservation value in each habitat core area and landscape linkage.

Prior to implementation of actions to benefit this species, conduct on-the-ground assessments to identify potential unintended negative effects of the actions on other focal or otherwise regulated species. Actions should be modified to reduce or eliminate unintended potential negative effects. Similarly, an on-the-ground assessment should be conducted to determine what environmental regulations may apply to implementation of the actions.  CDFW and any other relevant regulatory agencies should be consulted prior to implementing any actions that have any potential for impacts to regulated resource.

### Climate Change Issues and Considerations

Agassiz's desert tortoise is found in a wide variety of habitats, such as alluvial fans, washes, canyons, and saltbush plains; however, in the RCIS area, the species is limited to a relatively small area of suitable habitat in the northeast portion of the RCIS area. This species has been shown to be sensitive to extended drought (Lovich et al. 2014), which is expected to increase in frequency with climate change. Conservation of this species will require active monitoring of environmental conditions where known populations exist. Permanent protection of large, interconnected blocks of habitat will give this species the best opportunity for adapting to changing environmental conditions.

Additional resources for conservation and management of reptiles in the face of climate change can be found on the CDFW Climate Science Program website, including *California Amphibian and Reptile Species of Future Concern: Conservation and Climate Change* (Wright et al. 2013).

## 3.4.5.9 Western Pond Turtle

### Conservation Goals and Objectives

**Goal 9**: Sustain the western pond turtle populations in the RCIS area by permanently protecting and key aquatic habitats with suitable adjacent upland habitat.

- **Objective 9.1:** Identify areas with high potential for supporting western pond turtles, including sag ponds along the San Andreas fault. Conduct surveys for western pond turtle in those areas where access is permissible to determine where western pond turtles occur. To reduce the threat of habitat loss, permanently protect areas that currently have western pond turtles or that have high potential for supporting western pond turtles. Measure progress toward achieving this objective in acres of occupied habitat or habitat with high potential for occurrence.

- **Objective 9.2:** Permanently protect terrestrial habitat adjacent to permanently protected aquatic resources with western pond turtle populations or with high potential for supporting western pond turtle. Measure progress toward achieving this objective in the acres of adjacent upland habitat protected.
- **Objective 9.3:** Enhance aquatic habitat for western pond turtle at ponds, wetlands, and streams in the RCIS area. Measure progress toward achieving this objective in the acres of enhanced aquatic habitat.
- **Objective 9.4:** Increase connectivity to aquatic habitat, and enhance terrestrial habitat for western pond turtle adjacent to aquatic habitat with known western pond turtle occurrences. Measure progress toward achieving this objective in the number of connections to upland habitat and enhanced acres of upland habitat.

## Actions and Conservation Priorities

Implementing the actions in Table 3-19 will support achieving the conservation goal and objectives for this species.

**Table 3-19. Actions for Western Pond Turtle**

| Cons. Action ID | Cons. Obj. | Action |
|---|---|---|
| WPTU -1 | 9.1, 9.2 | Permanently protect, through a conservation easement or other approved real estate instrument, parcels within or adjacent to aquatic habitat supporting western pond turtles. Along the length of the San Andreas fault, perpetually protect, through a conservation easement or other approved real estate instrument, sag ponds to enable institution of whatever methods are needed to ensure water quality. |
| WPTU-2 | 9.3 | Coordinate with private landowners, water agencies, and wildlife agencies to implement bullfrog eradication, remove red-eared sliders, and control non-native predators in occupied habitat for western pond turtle. |
| WPTU-3 | 9.3, 9.4 | Remove obstructions and clear out culverts as needed to retain streamflow and reduce sedimentation. Periodically remove garbage from occupied aquatic habitat for western pond turtle. |
| WPTU-4 | 9.3 | Install woody debris around the perimeter and in submerged banks of ponds and wetlands to create basking habitat and cover for juvenile turtles. |
| WPTU-5 | 9.4 | Annually identify and maintain upland breeding sites for western pond turtles because of the high fidelity of use from year to year. |
| WPTU-6 | 9.3 | Excavate sections of ponds to provide deeper pools for use by western pond turtles while maintaining shallow areas that provide rearing habitat for their hatchlings. |
| WPTU-7 | 9.2 | Post signs at protected areas with information regarding prohibitions on reptile (not specifically turtles) collection, the release of pet animals into native habitat, and disposal of garbage. |
| WPTU-8 | 9.2 | Monitor water levels/size of pools known to be occupied by western pond turtles in tandem with actions to ensure that levels do not drop below a certain level (by providing supplemental water in times of severe drought). |

| Cons. Action ID | Cons. Obj. | Action |
|---|---|---|
| WPTU-9 | 9.2 | Ensure that flood control and transportation agencies have been alerted to the presence of western pond turtles residing on protected lands. |
| WPTU-10 | 9.2 | Upon discovery of occupied habitat, coordinate with all relevant land managers to ensure that water flow/maintenance activities take into account the presence of western pond turtle. |
| WPTU-11 | 9.2 | Reduce adverse effects from urban runoff on occupied habitat for western pond turtle by filtering with use of bioswales or other means. |
| WPTU-12 | 9.3 | Tricolored blackbird and western pond turtle use similar aquatic habitats. At preserves and other sites managed for these two species, develop management plans to support different habitat requirements for each species. |

Occurrences of western pond turtle are not well documented in the RCIS area, although they are able to use a variety of open-water aquatic habitat types, including streams, rivers, marshes, and ponds. Therefore, more studies and surveys are needed to determine the areas where implementing actions for the species will provide the greatest conservation benefit. Refer to Figure F-9 in Appendix F, *Focal Species Habitat Models*, for a map of known occurrences and aquatic habitats for western pond turtle in the RCIS area.

Prior to implementation of actions to benefit this species, conduct on-the-ground assessments to identify potential unintended negative effects of the actions on other focal or otherwise regulated species. Actions should be modified to reduce or eliminate unintended potential negative effects. Similarly, an on-the-ground assessment should be conducted to determine what environmental regulations may apply to implementation of the actions.  CDFW and any other relevant regulatory agencies should be consulted prior to implementing any actions that have any potential for impacts to regulated resource.

## Additional Information Needs

Funding or conducting the following studies will provide information that will improve the conservation of this species by identifying additional areas for conservation and mechanisms to improve habitat restoration for this species:

- Conduct periodic surveys of protected areas to estimate western pond turtle occupancy and/or populations in the RCIS area.

## Climate Change Issues and Considerations

Western pond turtles are dependent on aquatic habitats and have occurred historically within the Amargosa Creek, Big Rock Wash, and Little Rock Creek watersheds in the RCIS area. There was an unconfirmed observation of western pond turtle at Una Lake in 2017 (Kohn pers. comm.). The persistence of perennial water sources is adversely affected by extended drought, which is expected to increase in frequency with climate change. Therefore, the amount and distribution of suitable aquatic habitat for this species are likely to decrease with a warming climate. Furthermore, western pond turtles have temperature-determined sex ratios (i.e., more turtles develop as females in warmer conditions), which is another concern with a warming climate (Christie and Geist 2016). Conservation of this species will require active monitoring of environmental conditions where known populations exist. Permanent protection of large, interconnected blocks of habitat will give this species the best opportunity for adapting to changing environmental conditions; however, translocation and reintroduction into suitable habitats (assisted migration) may be needed where opportunities for movement to suitable habitats are not available (note that regulatory agencies would need to be consulted prior to any translocation project).

Additional resources for conservation and management of reptiles in the face of climate change can be found on the CDFW Climate Science Program website, including *California Amphibian and Reptile Species of Future Concern: Conservation and Climate Change* (Wright et al. 2013).

## 3.4.5.10 Burrowing Owl

### Conservation Goals and Objectives

**Goal 10:** Sustain the burrowing owl population within the RCIS area by permanently protecting 92,151 acres of natural and agricultural habitats that support burrowing owls at a landscape scale.

- **Objective 10.1:** Reduce the threat of habitat loss by permanently protecting at least 55,620 acres of unprotected habitat for burrowing owl (Minimum Permanent Protection Gap in Table 3-10). Measure progress toward achieving this objective in acres of permanently protected burrowing owl habitat.

  Prioritize areas around concentrated burrowing owl occurrences within the RCIS area with the size and configuration needed to maintain and expand burrowing owl populations. Known population concentrations are found in the following areas:

  - Residential and agricultural areas north of Lancaster Road,
  - Residential and agricultural areas east of the Antelope Valley Poppy Reserve,
  - Residential and agricultural areas west and east of Lancaster,
  - Residential and agricultural areas south of Edwards Air Force Base,
  - Residential and agricultural areas south of Palmdale, and
  - Agricultural areas west of the Palmdale Reservoir area and Big Rock Creek Wildlife Sanctuary.
- **Objective 10.2.** Provide uplift to the conservation status of up to 36,531 acres of protected burrowing owl habitat (Potential Maximum Uplift for Currently Protected Lands Gap in Table 3-10). Measure progress toward achieving this objective in acres of permanently protected burrowing owl habitat.
- **Objective 10.3:** Permanently protect all burrowing owl nest sites, including surrounding foraging habitat (extending approximately 1 kilometer from burrows) (Figure F-10, Appendix F, *Focal Species Habitat Models*), in the RCIS area. Measure progress toward achieving this objective in the number of nest sites protected.
- **Objective 10.4:** Enhance and restore occupied nesting habitat for western burrowing owl on protected lands with suitable habitat for burrowing owl, including grasslands or grasslands with shrub cover amounting to less than 30 percent. Measure progress toward achieving this objective in the number of acres enhanced or restored occupied habitat.

## Actions and Conservation Priorities

Implementing the actions in Table 3-20 will support achieving the conservation goal and objectives for this species.

**Table 3-20. Actions for Burrowing Owl**

| Cons. Action ID | Cons. Obj. | Action |
|---|---|---|
| BUOW-1 | 10.1, 10.2, 10.3 | Permanently protect, through a conservation easement or other approved real estate instrument, occupied nest sites for burrowing owl and adjacent suitable foraging habitat. |
| BUOW-2 | 10.1, 10.2, 10.3 | Perpetually protect, through a conservation easement or other approved real estate instrument, parcels with historical burrowing owl nesting habitat in the subset of the RCIS area. |
| BUOW-3 | 10.4 | Adopt and implement all applicable conservation management practices from the CDFW's *Staff Report on Burrowing Owl Mitigation* (California Department of Fish and Game 2012). |
| BUOW-4[1] | 10.4 | Include species-specific measures in management plans that address long-term ecological sustainability and maintenance of a site for burrowing owls, including prohibiting rodenticides or insecticides, and emphasizing the conservation and expansion of ground squirrel colonies. |
| BUOW-6 | 10.42 | Prepare an educational pamphlet about burrowing owl, outlining what the public can do to avoid affecting this focal species. Provide information about existing land management strategies and how they can contribute to the long-term conservation of burrowing owls regionally. Distribute as needed to landowners living proximal to lands protected for the burrowing owl. |
| BUOW-7 | 10.1, 10.2, 10.3 | Prepare an assessment of habitat within the RCIS area to inform the permanent protection of land identified in BUOW-1 to BUOW-3. |
| BUOW-7 | 10.4 | Reduce the density and/or use frequency of recreational vehicle routes proximal to burrowing owl use areas. Fence high-density burrow areas that support nesting to exclude recreational vehicle use. |
| BUOW-8 | 10.4 | Work with agricultural land operators on agricultural easements to minimize potential impacts on burrowing owls that may occupy these areas, including use of poisons, herbicides, and rodenticides with anticoagulant. Work cooperatively with agricultural producers to coordinate crop plantings that benefit burrowing owl |
| BUOW-9 | 10.4 | Enhance the carrying capacity of protected lands through careful placement of artificial nesting burrow systems in appropriate habitat. |
| BUOW-10 | 10.4 | Protect and conserve fossorial mammal populations on suitable habitat for burrowing owl that is not within agricultural fields. |
| BUOW-11[1] | 10.4 | Work with agricultural producers and ranchers to employ grazing or vegetation management practices that would enhance burrowing owl forage and fossorial mammal populations, and reduce potential presence of burrowing owl predators. |
| BUOW-12[1] | 10.4 | Enhance habitat suitability for nesting or foraging burrowing owls on protected lands through actions to decompact soil and revegetation, where necessary |

[1]Additional actions from CDFW 2012. *Staff Report on Burrowing Owl Mitigation*. State of California Natural Resources Agency. March.

The priority conservation areas for implementing actions for burrowing owl in the RCIS area are generally in the portions of habitat core areas and landscape linkages with high conservation value for this species that are away from foreseeable potential future urbanization. Approximately 184,301 acres of mapped habitat of high conservation value for burrowing owl occurs within the habitat core areas and landscape linkages (Table 3-10). Refer to Appendix H, *Species Conservation Values Maps and Graphs*, for a map of habitat of high conservation value for burrowing owl and a set of graphs showing the proportion of high conservation value in each habitat core area and landscape linkage.

Prior to implementation of actions to benefit this species, conduct on-the-ground assessments to identify potential unintended negative effects of the actions on other focal or otherwise regulated species. Actions should be modified to reduce or eliminate unintended potential negative effects. Similarly, an on-the-ground assessment should be conducted to determine what environmental regulations may apply to implementation of the actions. CDFW and any other relevant regulatory agencies should be consulted prior to implementing any actions that have any potential for impacts to regulated resource.

## Additional Information Needs

Funding or conducting the following studies will provide information that will improve the conservation of this species by identifying additional areas for conservation and mechanisms to improve habitat restoration for this species:

- Implement an annual monitoring program for burrowing owl in coordination with local conservation groups.

## Climate Change Issues and Considerations

Burrowing owls occupy grasslands, deserts, sagebrush scrub, and agricultural areas, which are widely available throughout the RCIS area. Burrowing owls rely on other species, including ground squirrels, American badger, and desert tortoise, to excavate burrows that they eventually use for shelter and nesting. As climate change affects the distribution of these other fossorial animals, it will also affect the distribution of burrowing owls. Furthermore, burrowing owls generally forage near their burrow locations; therefore, any climate change effects on their prey base distribution will also affect the suitability and distribution of habitat. Conservation of this species will require active monitoring of environmental conditions where known populations exist. Permanent protection of large, interconnected blocks of habitat will give this species, and the fossorial animals and prey upon which it depends, the best opportunity for adapting to changing environmental conditions.

Additional resources for conservation and management of birds in the face of climate change can be found on the CDFW Climate Science Program website, including *A Climate Change Vulnerability Assessment of California's At-Risk Birds* (Gardali et al. 2012), and the interactive species-specific climate change maps and data developed through the climate vulnerability analysis of 358 California birds (Point Blue Conservation Science [formerly PRBO] 2011).

### 3.4.5.11 California Condor

#### Conservation Goals and Objectives

**Goal 11:** Contribute to recovery of the California condor by permanently protecting 8,453 acres of California condor habitat in the RCIS area as it is identified through monitoring.

- **Objective 11.1:** Reduce the threat of loss of California condor habitat by permanently protecting at least 3,813 acres of unprotected habitat for California condor (Minimum Permanent Protection Gap in Table 3-10). Measure progress toward achieving this objective in acres of permanently protected California condor habitat.
- **Objective 11.2.** Provide uplift to the conservation status of up to 4,640 acres of protected California condor habitat (Potential Maximum Uplift for Currently Protected Lands Gap in Table 3-10). Measure progress toward achieving this objective in acres of permanently protected California habitat.
- **Objective 11.3**: Enhance California condor habitat in the RCIS area. Measure progress toward achieving this objective in the acreage of enhanced California condor habitat.
- **Objective 11.4:** Remove or reduce potential threats and environmental stressors that negatively affect California condor populations within the RCIS area. Measure progress toward achieving this objective in the number of threats removed.
- **Objective 11.5**: Use monitoring and adaptive management to inform areas of conservation emphasis. Measure progress toward achieving this objective in acres of land under California condor monitoring and adaptive management plans.

#### Actions and Conservation Priorities

Implementing the actions in Table 3-21 will support achieving the conservation goal and objectives for this species.

**Table 3-21. Actions for California Condor**

| ID | Cons. Obj. | Action |
|---|---|---|
| CACO-1 | 11.1, 11.2 | Permanently protect, through a conservation easement or other approved real estate instrument, parcels with foraging habitat for California condor. |
| CACO-2 | 11.4 | Reduce mortality risk associated with exposure to microtrash ingestion by patrolling for and curtailing illegal dumping and cleaning dispersed campsites of microtrash in the RCIS area. |
| CACO-3 | 11.4 | Develop and promote public information programs that foster public awareness of and compliance with California condor conservation, management, and research efforts. Clearly describe the mortality risk associated with lead ammunition. |
| CACO-4 | 11.4 | Assess California condor use within RCIS area every 3 years or more frequently to inform permanent protection in action CACO-1. |
| CACO-5 | 11.1, 11.2 | Maintain wind-rows adjacent to agricultural fields and other structures observed to be used as perches by California condors in and adjacent to protected lands. |
| CACO-6 | 11.3 | Investigate the possibility of re-introduction of pronghorn to maintain grazing on protected grasslands in the RCIS area. |

| ID | Cons. Obj. | Action |
|---|---|---|
| CACO-7 | 11.3 | Implement management plans to protect and conserve fossorial mammal populations on suitable foraging habitat for California condor that is not within agricultural fields. |
| CACO-8 | 11.3 | Include species-specific measures in management plans that prohibit the use of poisons, herbicides, and rodenticides with anticoagulant. |
| CACO-9 | 11.4 | Reduce the mortality risk associated with exposure to lead by (a) implementing a lead reduction program within the RCIS area where lead ammunition may be used for non-wildlife hunting purposes (e.g. dispatching livestock) and (b) maintaining and enforcing a permanent ban on the use of lead ammunition for wildlife hunting, per the Ridley-Tree Condor Preservation Act and Assembly Bill (AB) 711, in appropriate portions of the RCIS area (primarily deer hunt zones D-9 and 10). |
| CACO-10 | 11.4 | Retrofit power lines in known foraging habitat for California condor to prevent electrocutions. Install line-marking devices or other collision reduction measures on power lines. |

The priority conservation areas for implementing actions for California condor in the RCIS area are generally in the portions of habitat core areas and landscape linkages with high conservation value for this species that are away from foreseeable potential future urbanization. Approximately 16,905 acres of foraging habitat of high conservation value for California condor occurs within the habitat core areas and landscape linkages (Table 3-10). Refer to Appendix H, *Species Conservation Values Maps and Graphs*, for a map of habitat of high conservation value for California condor and a set of graphs showing the proportion of high conservation value in each habitat core area and landscape linkage.

Prior to implementation of actions to benefit this species, conduct on-the-ground assessments to identify potential unintended negative effects of the actions on other focal or otherwise regulated species. Actions should be modified to reduce or eliminate unintended potential negative effects. Similarly, an on-the-ground assessment should be conducted to determine what environmental regulations may apply to implementation of the actions. CDFW and any other relevant regulatory agencies should be consulted prior to implementing any actions that have any potential for impacts to regulated resource.

## Additional Information Needs

Funding or conducting the following studies will provide information that will improve the conservation of this species by identifying additional areas for conservation and mechanisms to improve habitat restoration for this species:

- Fund monitoring programs for California condor to increase understanding of breeding, roosting, and foraging behavior in the RCIS area.

## Climate Change Issues and Considerations

Within the RCIS area, habitat for California condor is concentrated along the foothills of the San Gabriel Mountains and the northern expression of the Castaic Ranges. Potential effects of climate change on this species are unclear; however, the shifting habitat distributions of its prey base in response to climate change will change the distribution and abundance of its foraging resources. Permanent protection of large, interconnected blocks of habitat will give this species, and its prey, the best opportunity for adapting to changing environmental conditions.

Additional resources for conservation and management of birds in the face of climate change can be found on the CDFW Climate Science Program website, including *A Climate Change Vulnerability Assessment of California's At-Risk Birds* (Gardali et al. 2012), and the interactive species-specific climate change maps and data developed through the climate vulnerability analysis of 358 California birds (Point Blue Conservation Science [formerly PRBO] 2011).

### 3.4.5.12 Golden Eagle

#### Conservation Goals and Objectives

**Goal 12:** Maintain a robust and resilient population of golden eagles in the RCIS area that is adaptive to changing conditions by protecting 20,239 acres of habitat.

- **Objective 12.1:** Reduce the threat of loss of foraging habitat by protecting at least 15,574 acres[7] of unprotected agriculture/grassland foraging habitat for golden eagle (Minimum Permanent Protection Gap in Table 3-10). Measure progress toward achieving this objective in acres of permanently protected golden eagle habitat.
- **Objective 12.2.** Provide uplift to the conservation status of up to 4,665 acres of protected golden eagle agriculture/grassland habitat (Potential Maximum Uplift for Currently Protected Lands Gap in Table 3-10). Measure progress toward achieving this objective in acres of permanently protected golden eagle habitat**.**
- **Objective 12.3:** Permanently protect known nest sites for golden eagle in the RCIS area. Measure progress toward achieving this objective in the number of nests protected.
- **Objective 12.4**: Enhance habitat for golden eagle in the RCIS area. Measure progress toward achieving this objective in the acres of enhanced habitat.
- **Objective 12.5:** Remove or reduce potential threats and environmental stressors that negatively affect golden eagles within the RCIS area. Measure progress toward achieving this objective in the number of environmental stresses removed or reduced.
- **Objective 12.6**: Use monitoring and adaptive management to inform areas of conservation emphasis. Measure progress toward achieving this objective in the number of acres under monitoring and adaptive management plans for golden eagle.

#### Actions and Conservation Priorities

Implementing the actions in Table 3-22 will support achieving the conservation goal and objectives for this species.

[7] This target is based on the golden eagle habitat with high conservation value from the agriculture/grassland species group. The golden eagle is also in the desert species group. Based on that group, 12,051 acres of golden eagle habitat has high conservation value. The greater of these two acreage targets was selected for the conservation goal for the species.

**Table 3-22. Actions for Golden Eagle**

| ID | Cons. Obj. | Action |
|---|---|---|
| GOEA-1 | 12.1, 12.2, 12.3 | Permanently protect, through a conservation easement or other approved real estate instrument, parcels with known golden eagle foraging habitat or nest sites. |
| GOEA-2 | 12.4 | Coordinate with agricultural landowners to review land management practices on working agricultural lands. Identify and promote practices that enhance and increase golden eagle foraging, including beneficial crop harvest timing and cropping patterns. |
| GOEA-3 | 12.4 | Reduce the mortality risk associated with exposure to lead by (a) implementing a lead reduction program within the RCIS area where lead ammunition may be used for non-wildlife hunting purposes (e.g. dispatching livestock) and (b) maintaining and enforcing a permanent ban on the use of lead ammunition for wildlife hunting, per the Ridley-Tree Condor Preservation Act and AB 711, in appropriate portions of the RCIS area (primarily deer hunt zones D-9 and 10). |
| GOEA-4 | 12.5 | Develop and promote public information programs that foster public awareness of and compliance with golden eagle conservation, management, and research efforts. Clearly describe the mortality risk associated with lead ammunition. |
| GOEA-5 | 12.5 | Retrofit power lines in known foraging habitat for golden eagle to prevent electrocutions. |
| GOEA-6 | 12.5 | Reduce the density of recreational vehicle routes in areas of foraging habitat for golden eagle. |
| GOEA-7 | 12.5 | Re-route recreational vehicle routes and other recreational activities (e.g., hiking and mountain biking trails) away from active nest sites during the nesting season. |
| GOEA-8 | 12.4 | Investigate the possibility of re-introduction of pronghorn to maintain grazing on protected grasslands in the RCIS area. |
| GOEA-9 | 12.6 | Implement management plans to protect and conserve fossorial mammal populations on suitable foraging habitat for golden eagle that is not within agricultural fields. |
| GOEA-110 | 12.4 | Include species-specific measures in management plans that prohibit the use of poisons, herbicides, and rodenticides with anticoagulant. |

The priority conservation areas for implementing actions for golden eagle in the RCIS area are generally in the portions of habitat core areas and landscape linkages with high conservation value for this species that are away from foreseeable potential future urbanization. Because golden eagle may forage in agricultural/grassland and desert habitats, this species was included in both species groups for mapping high biological values areas (Section 3.2.1.1*, Focal Species Habitat Groups*). Based on the agriculture/grassland group, the golden eagle has 40,477 acres of foraging habitat of high conservation value within the habitat core areas and landscape linkages. Based on the desert group, it has 30,135 acres of foraging habitat of high conservation value in the habitat core areas and landscape linkages. (Table 3-10). Refer to Appendix H, *Species Conservation Values Maps and Graphs,* for a map of habitat of high conservation value for golden eagle and a set of graphs showing the proportion of high conservation value in each habitat core area and landscape linkage.

Prior to implementation of actions to benefit this species, conduct on-the-ground assessments to identify potential unintended negative effects of the actions on other focal or otherwise regulated species. Actions should be modified to reduce or eliminate unintended potential negative effects. Similarly, an on-the-ground assessment should be conducted to determine what environmental regulations may apply to implementation of the actions. CDFW and any other relevant regulatory agencies should be consulted prior to implementing any actions that have any potential for impacts to regulated resource.

### Additional Information Needs

Funding or conducting the following studies will provide information that will improve the conservation of this species by identifying additional areas for conservation and mechanisms to improve habitat restoration for this species:

- Fund golden eagle monitoring programs to increase understanding of breeding, roosting, and foraging behavior in the RCIS area.

### Climate Change Issues and Considerations

Much of the golden eagle habitat in the RCIS area is situated to the west and south in the foothills of the San Gabriel Mountains and Castaic Ranges. Potential effects of climate change on this species are unclear; however, the shifting habitat distributions of its prey base in response to climate change will change the distribution and abundance of its foraging resources. Permanent protection of large, interconnected blocks of habitat will give this species, and its prey, the best opportunity for adapting to changing environmental conditions.

Additional resources for conservation and management of birds in the face of climate change can be found on the CDFW Climate Science Program website, including *A Climate Change Vulnerability Assessment of California's At-Risk Birds* (Gardali et al. 2012), and the interactive species-specific climate change maps and data developed through the climate vulnerability analysis of 358 California birds (Point Blue Conservation Science [formerly PRBO], 2011).

## 3.4.5.13 LeConte's Thrasher

### Conservation Goals and Objectives

**Goal 13:** Sustain or increase the LeConte's thrasher population and permanently protect 97,886 acres of habitat in the RCIS area.

- **Objective 13.1:** Reduce the threat of habitat loss by permanently protecting 53,253 acres[8] of unprotected habitat for LeConte's thrasher (Minimum Permanent Protection Gap in Table 3-10). Measure progress toward achieving this objective in acres of permanently protected LeConte's thrasher habitat.
- **Objective 13.2:** Provide uplift to the conservation status of up to 44,633 acres of protected nesting and foraging habitat for LeConte's thrasher by excluding recreational vehicle use in wash areas with creosote bush, saltbush, chollas (*Opuntia* spp.), or Joshua tree (Potential

[8] This target is based on LeConte's thrasher habitat with high conservation value from the agriculture/grassland species group. LeConte's thrasher is also in the desert species group. Based on that group, 49,745 acres of LeConte's thrasher habitat has high conservation value. The greater of these two acreage targets was selected for the conservation goal for the species.

Maximum Uplift for Currently Protected Lands Gap in Table 3-10). Measure progress toward achieving this objective in the acres of habitat excluded from recreational vehicle use.

## Actions and Conservation Priorities

**Table 3-23. Actions for LeConte's Thrasher**

| ID | Cons. Obj. | Action |
|---|---|---|
| LECT-1 | 13.1 | Permanently protect, through a conservation easement or other approved real estate instrument, parcels with suitable habitat for LeConte's thrasher. |
| LECT-2 | 13.2 | Implement best management practices to reduce the density and threat of invasive species by removing livestock grazing and controlling unauthorized off-highway vehicle use within habitat for LeConte's thrasher in protected areas. Develop invasive species control strategies that benefit or do not cause harm to co-occurring focal species. Do not use herbicides or other chemicals. |
| LECT-3 | 13.2 | Fence occupied wash habitat for LeConte's thrasher with channel-entrance boulders, which are necessary in some flow areas to exclude vehicle entry. |
| LECT-4 | 13.2 | Perform a fine-scale surveys of known nesting locales for LeConte's thrasher to confirm occupancy and inform action LECT-1. |

The priority conservation areas for implementing actions for LeConte's thrasher in the RCIS area are generally in the portions of habitat core areas and landscape linkages with high conservation value for this species that are away from foreseeable potential future urbanization. Because LeConte's thrashers occur in agricultural/grassland and desert habitats, this species was included in both species groups for mapping high biological values areas (see Section 3.2.1.1*, Focal Species Habitat Groups*). Based on the agriculture/grassland group, LeConte's thrasher has 195,772 acres of foraging habitat of high conservation value within the habitat core areas and landscape linkages. Based on the desert group, it has 222,949 acres of foraging habitat of high conservation value in the habitat core areas and landscape linkages (Table 3-10). Refer to Appendix H, *Species Conservation Values Maps and Graphs*, for a map of habitat of high conservation value for LeConte's thrasher and a set of graphs showing the proportion of high conservation value in each habitat core area and landscape linkage.

Prior to implementation of actions to benefit this species, conduct on-the-ground assessments to identify potential unintended negative effects of the actions on other focal or otherwise regulated species. Actions should be modified to reduce or eliminate unintended potential negative effects. Similarly, an on-the-ground assessment should be conducted to determine what environmental regulations may apply to implementation of the actions.  CDFW and any other relevant regulatory agencies should be consulted prior to implementing any actions that have any potential for impacts to regulated resource.

## Climate Change Issues and Considerations

LeConte's thrasher is typically found in desert wash woodland and scrub, as well as sparsely vegetated desert dune habitats, and distributed predominantly throughout the valley floor in the eastern portion of the RCIS area. Although this species is adapted to dry desert-habitat conditions, it is likely to undergo some shifts in distribution (e.g., shifts to higher elevations) as the natural communities in which it occurs change their distribution in response to climate change. Permanent protection of large, interconnected blocks of habitat will give this species the best opportunity for adapting to changing environmental conditions.

Additional resources for conservation and management of birds in the face of climate change can be found on the CDFW Climate Science Program website, including *A Climate Change Vulnerability Assessment of California's At-Risk Birds* (Gardali et al. 2012), and the interactive species-specific climate change maps and data developed through the climate vulnerability analysis of 358 California birds (Point Blue Conservation Science [formerly PRBO] 2011).

### 3.4.5.14 Least Bell's Vireo

#### Conservation Goals and Objectives

**Goal 14:** Sustain or increase the least Bell's vireo population and permanently protect 4,361 acres of habitat in the RCIS area.

- **Objective 14.1:** Reduce the threat of habitat loss by permanently protecting at least 2,352 acres of unprotected habitat for least Bell's vireo (Minimum Permanent Protection Gap in Table 3-10). Measure progress toward achieving this objective in acres of permanently protected least Bell's vireo habitat.
- **Objective 14.2.** Provide uplift to the conservation status of up to 2,009 acres of protected least Bell's vireo habitat (Potential Maximum Uplift for Currently Protected Lands Gap in Table 3-10). Measure progress toward achieving this objective in acres of permanently protected least Bell's vireo habitat. Restoration and habitat enhancement design should include site-specific invasive plant control, riparian habitat fencing, and wildfire suppression/post-fire reclamation plans, and associated implementation.
- **Objective 14.3:** Enhance suitable habitat for least Bell's vireo (e.g., by carefully managing allowed uses, removing non-native plants/planting native vegetation, controlling nest parasitism by brown-headed cowbird). Measure progress toward achieving this objective in acres of enhanced habitat.
- **Objective 14.4:** Enhance habitat for least Bell's vireo by assessing uses of suitable habitat for least Bell's vireo and managing uses, including livestock and equestrian use, recreational vehicle travel, and hiking, to eliminate or minimize impacts and contribute to the conservation of this species. Measure progress toward achieving this objective in the number of eliminated or minimized impacts.

#### Actions and Conservation Priorities

Implementing the actions in Table 3-24 will support achieving the conservation goal and objectives for this species.

**Table 3-24. Least Bell's Vireo Actions**

| ID | Cons. Obj. | Action |
|---|---|---|
| LBVI-1 | 14.1, 14.2 | Permanently protect, through a conservation easement or other approved real estate instrument, parcels with known breeding occurrences of least Bell's vireo, or within the same watershed, in priority conservation areas. Parcels with current/perennial water flow and extensive willow growth should be prioritized for permanent protection. |

| ID | Cons. Obj. | Action |
|---|---|---|
| LBVI-2 | 14.3, 14.4 | If non-native plant invasion is found within protected lands that support suitable habitat for least Bell's vireo, initiate a control program with non-native plant removal and native plant revegetation components. Target invasive species, including removal of non-native giant reed (Arundo donax), saltcedar (*Tamarix ramosissima*), and pepperweed (*Lepidium latifolium*), from suitable east Bell's vireo habitat. Develop invasive species control strategies that benefit or do not cause harm to co-occurring focal species. Do not use herbicides or other chemicals. Monitor this removal effort for efficacy and adaptive management purposes. |
| LBVI-3 | 14.3, 14.4 | If cowbirds are determined to be adversely affecting least Bell's vireo populations on protected lands through nest parasitism, a cowbird trapping control program will be initiated by qualified permitted individuals. This removal effort will be monitored for efficacy and adaptive management purposes. |
| LBVI-4 | 14.3, 14.4 | Minimize or eliminate activities that substantially reduce riparian habitat value, such as livestock grazing, recreational vehicle use, homeless encampments, littering, high camping/swimming use, and water diversions. |
| LBVI-5 | 14.3, 14.4 | Route all hiking and equestrian trails, as well as recreational use infrastructure, on protected lands that support habitat for least Bell's vireo away from suitable nesting habitat for least Bell's vireo. |
| LBVI-6 | 14.3, 14.4 | Restrict water diversions that affect riparian habitat used by least Bell's vireo. |

The priority conservation areas for implementing actions for least Bell's vireo in the RCIS area are generally in the portions of habitat core areas and landscape linkages with high conservation value for this species that are away from foreseeable potential future urbanization. Approximately 4,845 acres of foraging habitat of high conservation value for least Bell's vireo occurs within the habitat core areas and landscape linkages (Table 3-10). Refer to Appendix H, *Species Conservation Values Maps and Graphs*, for a map of habitat of high conservation value for least Bell's vireo and a set of graphs showing the proportion of high conservation value in each habitat core area and landscape linkage.

Prior to implementation of actions to benefit this species, conduct on-the-ground assessments to identify potential unintended negative effects of the actions on other focal or otherwise regulated species. Actions should be modified to reduce or eliminate unintended potential negative effects. Similarly, an on-the-ground assessment should be conducted to determine what environmental regulations may apply to implementation of the actions.  CDFW and any other relevant regulatory agencies should be consulted prior to implementing any actions that have any potential for impacts to regulated resource.

## Climate Change Issues and Considerations

Least Bell's vireo is a riparian bird species that is generally restricted to small patches of riparian habitat in the western foothills of the RCIS area as well as some small patches of habitat east of the RCIS area along the valley floor. The persistence of riparian habitat is adversely affected by extended drought, which is expected to increase in frequency with climate change. Therefore, the amount and distribution of suitable riparian habitat for this species are likely to decrease with a warming climate. Permanent protection of large, interconnected blocks of habitat and protection of groundwater and surface water sources that support riparian habitats will give this species the best opportunity for adapting to changing environmental conditions.

Additional resources for conservation and management of birds in the face of climate change can be found on the CDFW Climate Science Program website, including *A Climate Change Vulnerability Assessment of California's At-Risk Birds* (Gardali et al. 2012), and the interactive species-specific climate change maps and data developed through the climate vulnerability analysis of 358 California birds (Point Blue Conservation Science [formerly PRBO] 2011).

## 3.4.5.15 Loggerhead Shrike

### Conservation Goals and Objectives

**Goal 15:** Sustain the loggerhead shrike population in the RCIS area by permanently protecting 105,547 acres of high-quality native habitat for loggerhead shrike and enhancing non-native grasslands.

- **Objective 15.1**: Reduce the threat of habitat loss by permanently protecting at least 67,984 acres of unprotected habitat for loggerhead shrike (Minimum Permanent Protection Gap in Table 3-10). Measure progress toward achieving this objective in acres of permanently protected loggerhead shrike habitat.
- **Objective 15.2**: Provide uplift to the conservation status of up to 37,563acres of protected loggerhead shrike habitat (Potential Maximum Uplift for Currently Protected Lands Gap in Table 3-10). Measure progress toward achieving this objective in acres of permanently protected loggerhead shrike habitat.
- **Objective 15.3**: Enhance suitable habitat for loggerhead shrike in protected lands and on working lands (i.e., rangelands, pastures) in the RCIS area, targeting areas of moderate terrestrial intactness with proximity to suitable habitat of high intactness, including desert scrub and grassland, Joshua tree woodland, and southwest riparian forest. Measure progress toward achieving this objective in the acres of habitat enhancement.

### Actions and Conservation Priorities

Implementing the actions in Table 3-25 will support achieving the conservation goal and objectives for this species.

**Table 3-25. Actions for Loggerhead Shrike**

| ID | Cons. Obj. | Action |
|---|---|---|
| LGHS-1 | 15.1, 15.2 | Permanently protect, through a conservation easement or other approved real estate instrument, suitable habitat in the RCIS areas (both desert and adjacent grassland habitat). Consider the establishment of agricultural easements for working agricultural landscapes that support both nesting and foraging habitat. Focus habitat protection in areas that would increase the size and connectivity of grassland and desert habitat patches. |
| LGHS-2 | 15.3 | Plant and/or maintain wind-rows of trees adjacent to working agricultural landscapes. |
| LGHS-3 | 15.2 | Coordinate with agricultural land operators in reviewing agricultural chemical/pesticide use in the region to determine if such use adversely affects loggerhead shrike on protected lands. |

| | | |
|---|---|---|
| LGHS-4 | 15.3 | Reduce the number of recreational vehicle routes on protected lands that support suitable foraging and nesting habitat for loggerhead shrike. |

The priority conservation areas for implementing actions for loggerhead shrike in the RCIS area are generally in the portions of habitat core areas and landscape linkages with high conservation value for this species that are away from foreseeable potential future urbanization. Approximately 211,094 acres of foraging habitat of high conservation value for loggerhead shrike occurs within the habitat core areas and landscape linkages (Table 3-10). Refer to Appendix H, *Species Conservation Values Maps and Graphs*, for a map of habitat of high conservation value for loggerhead shrike and a set of graphs showing the proportion of high conservation value in each habitat core area and landscape linkage.

Prior to implementation of actions to benefit this species, conduct on-the-ground assessments to identify potential unintended negative effects of the actions on other focal or otherwise regulated species. Actions should be modified to reduce or eliminate unintended potential negative effects. Similarly, an on-the-ground assessment should be conducted to determine what environmental regulations may apply to implementation of the actions. CDFW and any other relevant regulatory agencies should be consulted prior to implementing any actions that have any potential for impacts to regulated resource.

### Climate Change Issues and Considerations

Loggerhead shrike is typically found in desert woodland and scrub habitats throughout the valley floor of the RCIS area. Although this species is adapted to dry desert-habitat conditions, it is likely to undergo some shifts in distribution (e.g., shifts to higher elevations) as the natural communities in which it occurs change their distribution in response to climate change. Permanent protection of large, interconnected blocks of habitat will give this species the best opportunity for adapting to changing environmental conditions.

Additional resources for conservation and management of birds in the face of climate change can be found on the CDFW Climate Science Program website, including *A Climate Change Vulnerability Assessment of California's At-Risk Birds* (Gardali et al. 2012), and the interactive species-specific climate change maps and data developed through the climate vulnerability analysis of 358 California birds (Point Blue Conservation Science [formerly PRBO], 2011).

## 3.4.5.16 Long-Billed Curlew

### Conservation Goals and Objectives

**Goal 16:** Sustain the long-billed curlew population within the RCIS area by permanently protecting 38,223 acres of natural and agricultural habitats that support long-billed curlew at a landscape scale.

- **Objective 16.1:** Reduce the threat of habitat loss by permanently protecting at least 23,061 acres of unprotected habitat for long-billed curlew (Minimum Permanent Protection Gap in Table 3-10). Measure progress toward achieving this objective in acres of permanently protected long-billed curlew habitat).
- **Objective 16.2.** Provide uplift to the conservation status of up to 15,162 acres of protected long-billed curlew habitat (Potential Maximum Uplift for Currently Protected Lands Gap in Table 3-

10). Measure progress toward achieving this objective in acres of permanently protected long-billed curlew habitat.

- **Objective 16.3**: Increase the number of permanently protected occupied habitats for long-billed curlew. Measure progress toward achieving this objective in the number of occupied habitats protected.
- **Objective 16.4:** Support land management and water use practices that maintain habitat for the long-billed curlew in the RCIS area. Measure progress toward achieving this objective in acres of land and water with improved management practices.
- **Objective 16.5**: Enhance suitable habitat for long-billed curlew in protected lands and on working lands (i.e., rangelands, pastures) in the RCIS area, targeting areas of moderate terrestrial intactness with proximity to suitable habitat of high intactness. Measure progress toward achieving this objective in the acres of habitat enhancement.

## Actions and Conservation Priorities

Implementing the actions in Table 3-26 will support achieving the conservation goal and objectives for this species.

**Table 3-26. Actions for Long-Billed Curlew**

| ID | Cons. Obj. | Action |
|---|---|---|
| LBCU-1 | 16.1, 16.2 | Permanently protect, through a conservation easement, agricultural conservation easement, or other approved real estate instrument, parcels with documented overwintering habitat for long-billed curlew. |
| LBCU-2 | 16.4, 16.5 | Work with private landowners on agricultural lands (e.g., alfalfa, sod) to help them determine whether long-billed curlew are using their fields during breeding season and develop land management strategies to enhance and increase overwintering habitat. |
| LBCU-3 | 16.4, 16.5 | Include species-specific measures in management plans that prohibit use of poisons, herbicides, and rodenticides with anticoagulant. |

The priority conservation areas for implementing actions for long-billed curlew in the RCIS area are generally in the portions of habitat core areas and landscape linkages with high conservation value for this species that are away from foreseeable potential future urbanization. Approximately 76,445 acres of habitat of high conservation value for long-billed curlew occurs within the habitat core areas and landscape linkages (Table 3-10). Refer to Appendix H, *Species Conservation Values Maps and Graphs,* for a map of habitat of high conservation value for long-billed curlew and a set of graphs showing the proportion of high conservation value in each habitat core area and landscape linkage.

Prior to implementation of actions to benefit this species, conduct on-the-ground assessments to identify potential unintended negative effects of the actions on other focal or otherwise regulated species. Actions should be modified to reduce or eliminate unintended potential negative effects. Similarly, an on-the-ground assessment should be conducted to determine what environmental regulations may apply to implementation of the actions.  CDFW and any other relevant regulatory agencies should be consulted prior to implementing any actions that have any potential for impacts to regulated resource.

### Additional Information Needs

Funding or conducting the following studies will provide information that will improve the conservation of this species by identifying additional areas for conservation and mechanisms to improve habitat restoration for this species:

- Implement an annual monitoring program for long-billed curlew in coordination with local conservation groups.

### Climate Change Issues and Considerations

Habitat for long-billed curlew is mostly distributed throughout the wetland and agricultural areas north and east of Lancaster. Changes in agriculture practices in response to climate change will very likely affect the distribution of available wintering and migratory habitat for this species. Consideration of this species when developing actions on working landscapes that promote agricultural practices that support suitable habitat will give this species the best opportunity for adapting to changing environmental conditions.

Additional resources for conservation and management of birds in the face of climate change can be found on the CDFW Climate Science Program website, including *A Climate Change Vulnerability Assessment of California's At-Risk Birds* (Gardali et al. 2012), and the interactive species-specific climate change maps and data developed through the climate vulnerability analysis of 358 California birds (Point Blue Conservation Science [formerly PRBO] 2011).

## 3.4.5.17 Mountain Plover

### Conservation Goals and Objectives

**Goal 17:** Sustain and increase the overwintering population of mountain plover by permanently protecting 26,739 acres of agricultural habitat in the RCIS area.

- **Objective 17.1:** Reduce the threat of habitat loss by permanently protecting at least 22,984 acres of unprotected habitat for mountain plover (Minimum Permanent Protection Gap in Table 3-10). Measure progress toward achieving this objective in acres of permanently protected mountain plover habitat).
- **Objective 17.2.** Provide uplift to the conservation status of up to 3,755 acres of protected mountain plover habitat (Potential Maximum Uplift for Currently Protected Lands Gap in Table 3-10). Measure progress toward achieving this objective in acres of permanently protected mountain plover habitat.
- **Objective 17.3:** Eliminate or alleviate threats to mountain plovers that could further reduce the size of the population or constrain recovery of the species' population in the study area, including identifying lands with detrimental range management or agricultural practices that could threatened habitat suitability for mountain plover and targeting these areas for conservation. Measure progress toward achieving this objective in acres with improved management practices.

### Actions and Conservation Priorities

Implementing the actions in Table 3-27 will support achieving the conservation goal and objectives for this species.

**Table 3-27. Actions for Mountain Plover**

| ID | Cons. Obj. | Action |
|---|---|---|
| MOPL-1 | 17.1, 17.2, 17.3 | Permanently protect, through a conservation easement or other approved real estate instrument, parcels with wintering habitat for mountain plover. |
| MOPL-2 | 17.3 | Work with private landowners on agricultural lands (e.g., grazed pastures, alfalfa fields, fields that have been burned or tilled post-harvest) to help them determine whether mountain plover are using their fields during the winter and develop land management strategies for mountain plover to enhance and increase wintering habitat. |
| MOPL-3 | 17.3 | Work with private landowners to avoid range management or agricultural practices that are detrimental to habitat suitability for mountain plover. |

The priority conservation areas for implementing actions for mountain plover in the RCIS area are generally in the portions of habitat core areas and landscape linkages with high conservation value for this species that are away from foreseeable potential future urbanization. Approximately 53,477 acres of habitat of high conservation value for mountain plover occurs in the habitat core areas and landscape linkages (Table 3-10). Refer to Appendix H, *Species Conservation Values Maps and Graphs,* for a map of habitat of high conservation value for mountain plover and a set of graphs showing the proportion of high conservation value in each habitat core area and landscape linkage.

Prior to implementation of actions to benefit this species, conduct on-the-ground assessments to identify potential unintended negative effects of the actions on other focal or otherwise regulated species. Actions should be modified to reduce or eliminate unintended potential negative effects. Similarly, an on-the-ground assessment should be conducted to determine what environmental regulations may apply to implementation of the actions. CDFW and any other relevant regulatory agencies should be consulted prior to implementing any actions that have any potential for impacts to regulated resource.

## Additional Information Needs

Funding or conducting the following studies will provide information that will improve the conservation of this species by identifying additional areas for conservation and mechanisms to improve habitat restoration for this species:

- Implement an annual monitoring program for mountain plover in coordination with local conservation groups.

## Climate Change Issues and Considerations

Mountain plover wintering habitat in the RCIS area is primarily in the large area of grassland habitat and the agricultural areas just east and west of Lancaster. Changes in agriculture practices in response to climate change will very likely affect the distribution of available habitat for this species. Consideration of this species when developing actions on working landscapes that promote agricultural practices that support suitable habitat will give this species the best opportunity for adapting to changing environmental conditions.

Additional resources for conservation and management of birds in the face of climate change can be found on the CDFW Climate Science Program website, including *A Climate Change Vulnerability Assessment of California's At-Risk Birds* (Gardali et al. 2012), and the interactive species-specific climate change maps and data developed through the climate vulnerability analysis of 358 California birds (Point Blue Conservation Science [formerly PRBO] 2011).

### 3.4.5.18 Northern Harrier

#### Conservation Goals and Objectives

**Goal 18:** Sustain the northern harrier population in the RCIS area by permanently protecting 2,148 acres of natural and agricultural habitats that support northern harrier at a landscape scale.

- **Objective 18.1:** Reduce the threat of habitat loss by permanently protecting at least 236 acres of unprotected habitat for northern harrier (Minimum Permanent Protection Gap in Table 3-10). Measure progress toward achieving this objective in acres of permanently protected northern harrier habitat).
- **Objective 18.2.** Provide uplift to the conservation status of up to 1,912 acres of protected northern harrier habitat (Potential Maximum Uplift for Currently Protected Lands Gap in Table 3-10). Measure progress toward achieving this objective in acres of permanently protected northern harrier habitat.
- **Objective 18.3:** Permanently protect nesting sites for northern harrier as well as nesting habitat in the RCIS area, including dense riparian or marsh vegetation such as willows, grasses, sedges, reeds, and cattails. Measure progress toward achieving this objective in number of nesting sites and nesting habitat protected.
- **Objective 18.4**: Enhance nesting and foraging habitat for northern harrier in natural habitats or on working lands. Measure progress toward achieving this objective in acres of enhanced foraging habitat within natural habitats or on working lands.

#### Actions and Conservation Priorities

Implementing the actions in Table 3-28 will support achieving the conservation goal and objectives for this species.

**Table 3-28. Actions for Northern Harrier**

| ID | Cons. Obj. | Action |
|---|---|---|
| NOHA-1 | 18.4 | Work with private landowners on working lands, including rangelands and agricultural fields, to implement practices conducive to maintaining nesting and foraging habitat for northern harrier. |
| NOHA-2 | 18.1, 18.2, 18.3 | Permanently protect, through a conservation easement, agricultural conservation easement, or other approved real estate instrument, parcels with habitat for northern harrier. |
| NOHA-3 | 18.4 | Install perch sites in suitable foraging habitat for northern harrier. |
| NOHA-4 | 18.4 | Identify suitable wetland habitat that could benefit from increased or better-timed water delivery and partner with water managers to procure water for nesting habitat. |
| NOHA-5 | 18.4 | Protect and conserve fossorial mammal populations on suitable foraging habitat for northern harrier that is not within agricultural fields. |
| NOHA-6 | 18.4 | Include species-specific measures in management plans that prohibit use of poisons, herbicides, and rodenticides with anticoagulant. |

The priority conservation areas for implementing actions for northern harrier in the RCIS area are generally in the portions of habitat core areas and landscape linkages with high conservation value for this species that are away from foreseeable potential future urbanization. Approximately 4,295 acres of habitat of high conservation value for northern harrier occurs within the habitat core areas and landscape linkages (Table 3-10). Refer to Appendix H, *Species Conservation Values Maps and Graphs,* for a map of habitat of high conservation value for northern harrier and a set of graphs showing the proportion of high conservation value in each habitat core area and landscape linkage.

Prior to implementation of actions to benefit this species, conduct on-the-ground assessments to identify potential unintended negative effects of the actions on other focal or otherwise regulated species. Actions should be modified to reduce or eliminate unintended potential negative effects. Similarly, an on-the-ground assessment should be conducted to determine what environmental regulations may apply to implementation of the actions.  CDFW and any other relevant regulatory agencies should be consulted prior to implementing any actions that have any potential for impacts to regulated resource.

## Additional Information Needs

Funding or conducting the following studies will provide information that will improve the conservation of this species by identifying additional areas for conservation and mechanisms to improve habitat restoration for this species:

- Conduct surveys for northern harriers, including nest sites, in habitat.
- Monitor nest sites and protect them from human disturbance.

## Climate Change Issues and Considerations

Habitats in the RCIS area that support northern harrier include freshwater and brackish marshes; wet meadows; weedy borders of lakes, rivers, and streams; annual and perennial grasslands; weedy fields; ungrazed or lightly grazed pastures; some croplands; sagebrush flats; and desert sinks.

Changes in agriculture practices in response to climate change will very likely affect the distribution of available agricultural habitat for this species, and other natural habitat is likely to undergo some shifts in distribution as the natural communities in which it occurs change their distribution in response to climate change. Consideration of this species when developing actions on working landscapes that promote agricultural practices that support suitable habitat and permanent protection of large, interconnected blocks of habitat will give this species the best opportunity for adapting to changing environmental conditions.

Additional resources for conservation and management of birds in the face of climate change can be found on the CDFW Climate Science Program website, including *A Climate Change Vulnerability Assessment of California's At-Risk Birds* (Gardali et al. 2012), and the interactive species-specific climate change maps and data developed through the climate vulnerability analysis of 358 California birds (Point Blue Conservation Science [formerly PRBO] 2011).

## 3.4.5.19 Prairie Falcon

### Conservation Goals and Objectives

**Goal 19:** Sustain the prairie falcon population in the RCIS area by permanently protecting 102,127 acres of natural and agricultural habitats that support prairie falcon at a landscape scale.

- **Objective 19.1:** Reduce the threat of habitat loss by permanently protecting at least 70,377 acres of habitat for prairie falcon (Minimum Permanent Protection Gap in Table 3-10). Measure progress toward achieving this objective in acres of permanently protected prairie habitat).
- **Objective 19.2.** Provide uplift to the conservation status of up to 31,750 acres of protected prairie falcon habitat (Potential Maximum Uplift for Currently Protected Lands Gap in Table 3-10). Measure progress toward achieving this objective in acres of permanently protected prairie falcon habitat.
- **Objective 19.3:** Permanently protect nesting sites for prairie falcon as well as nesting habitat in the RCIS area, including rock outcrops and cliffs. Measure progress toward achieving this objective in number of nesting sites protected.
- **Objective 19.4**: Enhance foraging habitat for prairie falcon in natural habitats or on working lands. Measure progress toward achieving this objective in acres of enhanced habitat.

### Actions and Conservation Priorities

Implementing the actions in Table 3-29 will support achieving the conservation goal and objectives for this species.

**Table 3-29. Actions for Prairie Falcon**

| ID | Cons. Obj. | Action |
|---|---|---|
| PRFA-1 | 19.4 | Work with private landowners in grazed lands and agricultural fields to implement practices conducive to maintaining foraging habitat for prairie falcon. |
| PRFA-2 | 19.1, 19.2, 19.3 | Permanently protect. through a conservation easement or other approved real estate instrument. parcels with habitat for prairie falcon. |
| PRFA-3 | 19.4 | Reduce recreational vehicle routes and eliminate all shooting ranges within 0.5 mile of known nests of prairie falcon. Educate the public and nearby landowners about the importance of minimizing nest disturbance. |
| PRFA-4 | 19.4 | Protect and conserve fossorial mammal populations on suitable foraging habitat for prairie falcon that is not within agricultural fields. |
| PRFA-5 | 19.4 | Include species-specific measures in management plans that prohibit use of poisons, herbicides, and rodenticides with anticoagulant. |

The priority conservation areas for implementing actions for prairie falcon in the RCIS area are generally in the portions of habitat core areas and landscape linkages with high conservation value for this species that are away from foreseeable potential future urbanization. Approximately 204,254 acres of habitat of high conservation value for prairie falcon occurs within the habitat core areas and landscape linkages (Table 3-10). Refer to Appendix H, *Species Conservation Values Maps and Graphs,* for a map of habitat of high conservation value for prairie falcon and a set of graphs showing the proportion of high conservation value in each habitat core area and landscape linkage.

Prior to implementation of actions to benefit this species, conduct on-the-ground assessments to identify potential unintended negative effects of the actions on other focal or otherwise regulated species. Actions should be modified to reduce or eliminate unintended potential negative effects. Similarly, an on-the-ground assessment should be conducted to determine what environmental regulations may apply to implementation of the actions.  CDFW and any other relevant regulatory agencies should be consulted prior to implementing any actions that have any potential for impacts to regulated resource.

### Additional Information Needs

Funding or conducting the following studies will provide information that will improve the conservation of this species by identifying additional areas for conservation and mechanisms to improve habitat restoration for this species:

- Conduct surveys for prairie falcons, including nest sites, in habitat.

  Monitor nest sites and protect them from human disturbance.

### Climate Change Issues and Considerations

Prairie falcon habitat in the RCIS area includes open desert scrub, grassland, mixed-shrub grasslands, and some agricultural fields, including pasturelands, and occasionally grain and hay fields. Changes in agriculture practices in response to climate change will very likely affect the distribution of available agricultural habitat for this species, and other natural habitat is likely to undergo some shifts in distribution as the natural communities in which it occurs change their distribution in response to climate change. Consideration of this species when developing actions on working landscapes that promote agricultural practices that support suitable habitat and permanent protection of large, interconnected blocks of habitat will give this species the best opportunity for adapting to changing environmental conditions.

Additional resources for conservation and management of birds in the face of climate change can be found on the CDFW Climate Science Program website, including *A Climate Change Vulnerability Assessment of California's At-Risk Birds* (Gardali et al. 2012), and the interactive species-specific climate change maps and data developed through the climate vulnerability analysis of 358 California birds (Point Blue Conservation Science [formerly PRBO] 2011).

## 3.4.5.20 Swainson's Hawk

### Conservation Goals and Objectives

**Goal 20:** Sustain or increase the number of Swainson's hawk nesting pairs in the RCIS area by permanently protecting and enhancing 63,176 acres of habitat.

- **Objective 20.1**: Reduce the threat of habitat loss by permanently protecting at least 52,745 acres of unprotected habitat for Swainson's hawk (Minimum Permanent Protection Gap in Table 3-10). Measure progress toward achieving this objective in acres of permanently protected Swainson's hawk habitat.
- **Objective 20.2.** Provide uplift to the conservation status of up to 10,431 acres of protected Swainson's hawk habitat (Potential Maximum Uplift for Currently Protected Lands Gap in Table 3-10). Measure progress toward achieving this objective in acres of permanently protected Swainson's hawk habitat.
- **Objective 20.3:** Permanently protect 15 known Swainson's hawk nesting trees in the RCIS area, based on surveys that documented breeding activity and suitability. Measure progress toward achieving this objective in number of nesting trees permanently protected.
- **Objective 20.4:** Enhance habitat for Swainson's hawk on natural habitats and working lands in the RCIS area, targeting areas of moderate terrestrial intactness with proximity to suitable habitat of high intactness. Measure progress toward achieving this objective in acres of enhanced habitat.

## Actions and Conservation Priorities

Implementing the actions in Table 3-30 will support achieving the conservation goal and objectives for this species.

**Table 3-30. Actions for Swainson's Hawk**

| ID | Cons. Obj. | Action |
|---|---|---|
| SWHA-1 | 20.3 | Permanently protect, through a conservation easement or other approved real estate instrument, 15 known Swainson's hawk nest trees, based on surveys that documented breeding activity and suitability. |
| SWHA-2 | 20.1 20.2 | Perpetually protect, through a conservation easement or other approved real estate instrument, parcels of at least 20 acres (or adjacent to habitat patches of at least 20 acres) with habitat for Swainson's hawk, prioritizing lands within 1 mile of known or suitable nest trees (Bloom and England pers. comm.). |
| SWHA-3 | 20.4 | Work with private landowners on working lands to develop land management strategies for Swainson's hawk that enhance and increase foraging and nesting habitat on patches greater than 20 acres within 1 mile of known nest trees, including protecting suitable and potential nest trees, and maintaining or increasing crop diversity and cropping patterns beneficial to Swainson's hawks (e.g., alfalfa). Crop types and cropping pattern should be monitored and rotated regionally, to provide adequate quantities of foraging habitat to support the population of Swainson's hawk at the scale of the RCIS area (Battistone et al. 2019). |
| SWHA-4 | 20.4. | Protect and conserve fossorial mammal populations on suitable foraging habitat for Swainson's hawk that is not within agricultural fields. |
| SWHA-5 | 20.4 | Include species-specific measures in management plans that prohibit use of poisons, herbicides, and rodenticides with anticoagulant. |
| SWHA-6 | 20.4 | Enhance breeding habitat by protecting additional trees suitable for nesting, planting trees, and protecting young trees until they have matured to become suitable for nesting. |

The priority conservation areas for implementing actions for Swainson's hawk in the RCIS area are generally in the portions of habitat core areas and landscape linkages with high conservation value for this species that are away from foreseeable potential future urbanization. Suitable foraging habitat within 1 mile of a documented nesting site or potentially suitable nesting site is also a high priority for conservation, including the Alpine Butte, Edwards, and Poppy Preserve Core Habitats as well as the Alpine Butte-Edwards, Little Rock Wash, and Portal Ridge to Poppy Preserve Landscape Linkages.

Approximately 84,234 acres of habitat of high conservation value for Swainson's hawk occurs within the habitat core areas and landscape linkages (Table 3-10). Refer to Appendix H, *Species Conservation Values Maps and Graphs,* for a map of habitat of high conservation value for Swainson's hawk and a set of graphs showing the proportion of high conservation value in each habitat core area and landscape linkage.

Prior to implementation of actions to benefit this species, conduct on-the-ground assessments to identify potential unintended negative effects of the actions on other focal or otherwise regulated species. Actions should be modified to reduce or eliminate unintended potential negative effects. Similarly, an on-the-ground assessment should be conducted to determine what environmental regulations may apply to implementation of the actions.  CDFW and any other relevant regulatory agencies should be consulted prior to implementing any actions that have any potential for impacts to regulated resource.

## Additional Information Needs

Funding or conducting the following studies will provide information that will improve the conservation of this species by identifying additional areas for conservation and mechanisms to improve habitat restoration for this species:

- Conduct surveys of historically documented nesting sites and potential new nesting sites to understand breeding activity in the RCIS area.

## Climate Change Issues and Considerations

In the RCIS area, Swainson's hawks nest primarily in Joshua trees and non-native ornamental trees, or trees planted as windbreaks, and forage in the alfalfa fields and other agricultural areas as well as grasslands, Joshua tree woodlands, and other desert scrub habitats that support a suitable prey base of small rodents, birds, snakes, and insects such as grasshoppers and crickets. Changes in agriculture practices in response to climate change will very likely affect the distribution of available agricultural habitat for this species, and other natural habitat is likely to undergo some shifts in distribution as the natural communities in which it occurs change their distribution in response to climate change. The presence of large, suitable nest trees is essential for breeding in the RCIS area; therefore, long-term persistence and the recruitment of suitable tree species for nesting is important. Consideration of this species when developing actions on working landscapes that promote agricultural practices that support suitable habitat and permanent protection of large, interconnected blocks of habitat will give this species the best opportunity for adapting to changing environmental conditions.

Additional resources for conservation and management of birds in the face of climate change can be found on the CDFW Climate Science Program website, *including A Climate Change Vulnerability*

*Assessment of California's At-Risk Birds* (Gardali et al. 2012), and the interactive species-specific climate change maps and data developed through the climate vulnerability analysis of 358 California birds (Point Blue Conservation Science [formerly PRBO] 2011).

## 3.4.5.21 Tricolored Blackbird

### Conservation Goals and Objectives

**Goal 21:** Increase the number of tricolored blackbird nesting colonies and the amount of habitat for tricolored blackbird by permanently protecting 82,596 acres of habitat in the RCIS area.

- **Objective 21.1:** Reduce the threat of habitat loss by permanently protecting 71,962 acres of unprotected foraging habitat for tricolored blackbird (Minimum Permanent Protection Gap in Table 3-10)), with emphasis on areas within 3 miles of known colonies. Measure progress toward achieving this objective in acres of permanently protected tricolored blackbird habitat.
- **Objective 21.2.** Provide uplift to the conservation status of up to 10,634 acres of protected tricolored blackbird habitat (Potential Maximum Uplift for Currently Protected Lands Gap in Table 3-10). Measure progress toward achieving this objective in acres of permanently protected tricolored blackbird habitat.
- **Objective 21.3:** Increase the number of breeding sites that support, historically supported, or could support tricolored blackbird colonies on protected lands in the RCIS area (Figure F-20 in Appendix F, *Focal Species Habitat Models*). Measure progress toward achieving this objective in number of breeding sites protected.
- **Objective 21.4:** Enhance habitat for tricolored blackbird in the RCIS area. Measure progress toward achieving this objective in acres of enhanced habitat.

### Actions and Conservation Priorities

Implementing the actions in Table 3-31 will support achieving the conservation goal and objectives for this species.

**Table 3-31. Actions for Tricolored Blackbird**

| ID | Cons. Obj. | Action |
|---|---|---|
| TRIB-1 | 21.1, 21.2, 21.3 | Permanently protect, through a conservation easement or other approved real estate instrument, tricolored blackbird colony sites and parcels with modeled breeding and foraging habitat (including but not limited to Myrick Canyon and Fairmont Reservoir). |
| TRIB-2 | 21.1, 21.2 | Permanently protect, through a conservation easement or other approved real estate instrument, on land surrounding tricolored blackbird nest colonies or potential nest sites to protect foraging habitat for tricolored blackbird. |
| TRIB-3 | 21.4 | Enhance breeding habitat through stable water delivery, reductions in non-native invasive plants, and sediment removal during the inactive nesting season. |
| TRIB-4 | 21.4 | Incentivize (e.g., Safe Harbor Agreement) private landowners to promote pond and marshland management practices that improve breeding habitat for tricolored blackbird and maintain foraging habitat. Prioritize opportunities to integrate habitat protection, restoration, and enhancements |

| ID | Cons. Obj. | Action |
|---|---|---|
| | | into wetland and uplands projects that benefit nesting and wintering populations. |
| TRIB-5 | 21.4 | Partner with water managers to procure water for nesting habitat. |
| TRIB-6 | 21.4 | Alert nearby landowners, flood control, and other county maintenance personnel of occupied tricolored blackbird habitat to avoid unintended land use or maintenance impacts. |
| TRIB-7 | 21.4 | Tricolored blackbird and western pond turtle use similar aquatic habitats. At preserves and other sites managed for these two species, develop management plans to support different habitat requirements for each species. |

The priority conservation areas for implementing actions for tricolored blackbird in the RCIS area are generally in the portions of habitat core areas and landscape linkages with documented colonies in habitat of high conservation value for this species that are away from foreseeable potential future urbanization. Approximately 110,128 acres of habitat of high conservation value for tricolored blackbird occurs within the habitat core areas and landscape linkages (Table 3-10). Refer to Appendix H, *Species Conservation Values Maps and Graphs*, for a map of habitat of high conservation value for tricolored blackbird and a set of graphs showing the proportion of high conservation value in each habitat core area and landscape linkage.

Prior to implementation of actions to benefit this species, conduct on-the-ground assessments to identify potential unintended negative effects of the actions on other focal or otherwise regulated species. Actions should be modified to reduce or eliminate unintended potential negative effects. Similarly, an on-the-ground assessment should be conducted to determine what environmental regulations may apply to implementation of the actions. CDFW and any other relevant regulatory agencies should be consulted prior to implementing any actions that have any potential for impacts to regulated resource.

## Additional Information Needs

Funding or conducting the following studies will provide information that will improve the conservation of this species by identifying additional areas for conservation and mechanisms to improve habitat restoration for this species:

- Implement an annual monitoring program, in coordination with local conservation groups, for tricolored blackbird nesting colonies in modeled breeding habitat in the RCIS area.

## Climate Change Issues and Considerations

Tricolored blackbird requires three basic habitat elements for selecting its breeding colony site: open, accessible water; a protected nesting substrate, including flooded, thorny, or spiny vegetation; and suitable foraging habitat that provides adequate insect prey within a few miles of the nesting colony. In the RCIS area, habitat for tricolored blackbird is limited to human-made lakes, agricultural fields around Palmdale and Lancaster, and the emergent water areas along the San Andreas fault in the western RCIS area. Sizeable breeding colonies have been reported in the small marshes in Fairmont Reservoir. Preferred foraging habitats include agricultural crops, such as alfalfa, as well as annual grasslands; remnant native habitats, including seasonal wetlands; and riparian scrub habitats.

The persistence of wetlands is adversely affected by extended drought, which is expected to increase in frequency with climate change. Therefore, the amount and distribution of suitable breeding colony habitat for this species are likely to decrease with a warming climate. Changes in agriculture practices in response to climate change will very likely affect the distribution of available agricultural foraging habitat for this species. Other natural habitats are likely to undergo some shifts in distribution as they change their distribution in response to climate change.

Consideration of this species when developing actions on working landscapes that promote agricultural practices that support suitable foraging habitat, protection of groundwater and surface water sources that support breeding colony habitat, and permanent protection of large, interconnected blocks of natural habitat will give this species the best opportunity for adapting to changing environmental conditions.

Additional resources for conservation and management of birds in the face of climate change can be found on the CDFW Climate Science Program website, including *A Climate Change Vulnerability Assessment of California's At-Risk Birds* (Gardali et al. 2012), and the interactive species-specific climate change maps and data developed through the climate vulnerability analysis of 358 California birds (Point Blue Conservation Science [formerly PRBO] 2011).

## 3.4.5.22 Willow Flycatcher

### Conservation Goals and Objectives

**Goal 22:** Sustain or increase the breeding population of willow flycatcher (including the southwestern subspecies, *extimus*) in the RCIS area by permanently protecting and enhancing 1,386 acres of habitat in the RCIS area.

- **Objective 22.1:** Reduce the threat of habitat loss by permanently protecting at least 1,165 acres of unprotected habitat for willow flycatcher (Minimum Permanent Protection Gap in Table 3-10). Measure progress toward achieving this objective in acres of permanently protected willow flycatcher habitat.
- **Objective 22.2.** Provide uplift to the conservation status of up to 221 acres of protected willow flycatcher habitat (Potential Maximum Uplift for Currently Protected Lands Gap in Table 3-10). Measure progress toward achieving this objective in acres of permanently protected willow flycatcher habitat. Restoration and habitat enhancement design should include site-specific invasive plant control, riparian habitat fencing, and wildfire suppression/post-fire reclamation plans, and associated implementation.
- **Objective 22.3:** Restore, maintain, and protect natural hydrological and geomorphological conditions in streams, springs, and seeps to enhance and increase suitable habitat for willow flycatcher. Measure progress toward achieving this objective in the number of acres of restored or enhanced stream, seep, or spring habitat.
- **Objective 22.4:** Enhance habitat for willow flycatcher, carefully managing allowed uses, removing non-native plants/planting native vegetation, and controlling nest parasitism by brown-headed cowbird. Measure progress toward achieving this objective in acres of habitat enhancement on existing protected lands.
- **Objective 22.5:** Reduce the numerical abundance of non-native biological stressors (both plants and flycatcher nest parasites) on protected lands that support breeding habitat for willow

flycatcher. Measure progress toward achieving this objective in the numerical abundance of non-native biological stressors reduced.

## Actions and Conservation Priorities

Implementing the actions in Table 3-32 will support achieving the conservation goal and objectives for this species.

**Table 3-32. Actions for Willow Flycatcher**

| ID | Cons. Obj. | Action |
|---|---|---|
| WIFL-1 | 22.1, 22.2 | Permanently protect, through a conservation easement or other approved real estate instrument, parcels of with suitable habitat for migrating and breeding willow flycatcher. |
| WIFL-2 | 22.1, 22.2, 22.3 | Target permanent protection of streams that currently have, or historically had, hydrological conditions suitable for willow flycatcher and look for opportunities to enhance hydrological functions to streams, seeps, and other aquatic features in areas with known suitable habitat for willow flycatcher. |
| WIFL-3 | 22.4 | Target permanent protection of streams and riparian areas where there are opportunities for habitat enhancement efforts to improve suitable habitat for willow flycatcher. |
| WIFL-4 | 22.4, 22.5 | Implement non-native invasive species control programs on protected lands to reduce invasive species' impact on willow flycatcher and its habitat. Target invasive species, including removal of non-native giant reed (Arundo donax), saltcedar (*Tamarix ramosissima*), and pepperweed (*Lepidium latifoium*). Develop invasive species control strategies that benefit or do not cause harm to co-occurring focal species. Do not use herbicides or other chemicals. |
| WIFL-5 | 22.4 | Minimize or eliminate activities that substantially reduce riparian habitat value, such as livestock grazing, recreational vehicle use, homeless encampments, littering, high camping/swimming use, and water diversions. |
| WIFL-6 | 22.4 | Remove off-highway vehicle routes from areas within or near habitat for willow flycatcher on protected lands. |

The priority conservation areas for implementing actions for willow flycatcher in the RCIS area are generally in the portions of habitat core areas and landscape linkages with high conservation value for this species that are away from foreseeable potential future urbanization. Approximately 1,540 acres of habitat of high conservation value for willow flycatcher occurs within the habitat core areas and landscape linkages (Table 3-10). Refer to Appendix H, *Species Conservation Values Maps and Graphs*, for a map of habitat of high conservation value for willow flycatcher and a set of graphs showing the proportion of high conservation value in each habitat core area and landscape linkage.

Prior to implementation of actions to benefit this species, conduct on-the-ground assessments to identify potential unintended negative effects of the actions on other focal or otherwise regulated species. Actions should be modified to reduce or eliminate unintended potential negative effects. Similarly, an on-the-ground assessment should be conducted to determine what environmental regulations may apply to implementation of the actions. CDFW and any other relevant regulatory agencies should be consulted prior to implementing any actions that have any potential for impacts to regulated resource.

### Additional Information Needs

Funding or conducting the following studies will provide information that will improve the conservation of this species by identifying additional areas for conservation and mechanisms to improve habitat restoration for this species:

- Conduct surveys, studies, and research programs to understand species' abundance in the RCIS area and inform management actions.

### Climate Change Issues and Considerations

Willow flycatcher is a riparian bird species that is limited to a few suitable riparian habitats in the western foothills of the RCIS area and habitats east of the RCIS area along the valley floor. The persistence of riparian habitat is adversely affected by extended drought, which is expected to increase in frequency with climate change. Therefore, the amount and distribution of suitable riparian habitat for this species are likely to decrease with a warming climate. Permanent protection of large, interconnected blocks of habitat and protection of groundwater and surface water sources that support riparian habitats will give this species the best opportunity for adapting to changing environmental conditions.

Additional resources for conservation and management of birds in the face of climate change can be found on the CDFW Climate Science Program website, *including A Climate Change Vulnerability Assessment of California's At-Risk Birds* (Gardali et al. 2012), and the interactive species-specific climate change maps and data developed through the climate vulnerability analysis of 358 California birds (Point Blue Conservation Science [formerly PRBO] 2011).

## 3.4.5.23 American Badger

### Conservation Goals and Objectives

**Goal 23:** Retain habitat for American badger and important habitat linkages for the species by permanently protecting 105,173 acres of habitat in the RCIS area.

- **Objective 23.1:** Reduce the threat of habitat loss by permanently protecting at least 64,728 acres[9] of unprotected habitat for American badger (Minimum Permanent Protection Gap in Table 3-10). Measure progress toward achieving this objective in acres of permanently protected American badger habitat.
- **Objective 23.2.** Provide uplift to the conservation status of up to 40,445 acres of protected American badger habitat (Potential Maximum Uplift for Currently Protected Lands Gap in Table 3-10). Measure progress toward achieving this objective in acres of permanently protected American badger habitat.
- **Objective 23.3:** Increase the connectivity of suitable habitat in areas that are likely to be important habitat linkages for American badger. Measure progress toward achieving this objective in number of habitat linkages made between areas of badger habitat.

[9] This target is based on the American badger habitat with high conservation value from the agriculture/grassland species group. The American badger is also in the desert species group. Based on that group, 59,604 acres of American badger habitat has high conservation value. The greater of these two acreage targets was selected for the conservation goal for the species.

- **Objective 23.4:** Enhance habitat for American badger on protected or working lands in the RCIS area**.** Measure progress toward achieving this objective in acres of enhanced habitat.

## Actions and Conservation Priorities

Implementing the actions in Table 3-33 will support achieving the conservation goal and objectives for this species.

**Table 3-33. Actions for American Badger**

| ID | Cons. Obj. | Action |
|---|---|---|
| AMB-1 | 23.1, 23.2 | Permanently protect, through a conservation easement or other approved real estate instrument, parcels with habitat for American badger, including habitat and known occupied habitat. |
| AMBA-2 | 23.3, 23.4 | Enhance existing linkages for American badger and other medium-sized and large mammals in movement/foraging habitat in the RCIS area. Use connectivity studies and roadway mortality data from the RCIS area to identify locations for wildlife crossing structures at places identified as high-value wildlife crossing areas across major roadways and the California Aqueduct. |
| AMBA-3 | 23.4 | Prepare a pamphlet on American badger for use in outreach efforts at agricultural operations. Using rodenticides and plowing potentially occupied burrows on the edge of agricultural fields should be discouraged. |
| AMBA-4 | 23.4 | Work with private landowners in areas that are likely to support American badger and develop land management strategies that are conducive to the species. |
| AMBA-5 | 23.4 | Protect and conserve fossorial mammal populations on suitable foraging habitat for American Badger that is not within agricultural fields. |
| AMBA-6 | 23.4 | Include species-specific measures in management plans that prohibit use of poisons, herbicides, and rodenticides with anticoagulant. |

The priority conservation areas for implementing actions for American badger in the RCIS area are generally in the portions of habitat core areas and landscape linkages with high conservation value for this species that are away from foreseeable potential future urbanization. Because American badgers occur in agricultural/grassland and desert habitats, this species was included in both species groups for mapping areas of high biological values (see Section 3.2.1.1, *Focal Species Habitat Groups*). Based on the agriculture/grassland group, the American badger has 210,346 acres of foraging habitat of high conservation value within the habitat core areas and landscape linkages. Based on the desert group, it has 208,834 acres of foraging habitat of high conservation value in the habitat core areas and landscape linkages (Table 3-10). Refer to Appendix H, *Species Conservation Values Maps and Graphs*, for a map of habitat of high conservation value for American badger and a set of graphs showing the proportion of high conservation value in each habitat core area and landscape linkage.

Prior to implementation of actions to benefit this species, conduct on-the-ground assessments to identify potential unintended negative effects of the actions on other focal or otherwise regulated species. Actions should be modified to reduce or eliminate unintended potential negative effects. Similarly, an on-the-ground assessment should be conducted to determine what environmental regulations may apply to implementation of the actions.  CDFW and any other relevant regulatory agencies should be consulted prior to implementing any actions that have any potential for impacts to regulated resource.

### Additional Information Needs

Funding or conducting the following studies will provide information that will improve the conservation of this species by identifying additional areas for conservation and mechanisms to improve habitat restoration for this species:

- Conduct movement corridor studies of small to large mammals to identify the targeted permanent protection areas needed to improve connectivity.
- Monitor American badger roadway mortality to identify areas where safe roadway passages can be constructed or where roadway management practices can be implemented to discourage roadway use by badgers and other fossorial mammals.

### Climate Change Issues and Considerations

American badgers occur in a variety of habitat types throughout the RCIS area but are most abundant in open habitats with dry, friable soils that are suitable for burrowing, including grasslands; meadows; open scrub communities, such as creosote and sagebrush; and open woodland communities, such as juniper and Joshua tree. Conservation of this species will require active monitoring of environmental conditions where known populations exist. Badgers can disperse up to 70 miles; therefore, permanent protection of large, interconnected blocks of habitat will give this species the best opportunity for adapting to changing environmental conditions.

Additional resources for conservation and management of mammals in the face of climate change can be found on the CDFW Climate Science Program website, including *A Climate Change Vulnerability Assessment for Twenty California Mammal Taxa* (Stewart et al. 2013).

## 3.4.5.24 Desert Kit Fox

### Conservation Goals and Objectives

**Goal 24.** Retain habitat and important habitat linkages for desert kit fox by permanently protecting 87,390 acres of habitat in the RCIS area.

- **Objective 24.1:** Reduce the threat of habitat loss by permanently protecting at least 49,757 acres[10] of unprotected suitable habitat for desert kit fox (Minimum Permanent Protection Gap in Table 3-10). Measure progress toward achieving this objective in acres of permanently protected desert kit fox habitat.
- **Objective 24.2.** Provide uplift to the conservation status of up to 37,633 acres of protected desert kit fox habitat (Potential Maximum Uplift for Currently Protected Lands Gap in Table 3-

[10] This target is based on the desert kit fox habitat with high conservation value from the agriculture/grassland species group. The desert kit fox is also in the desert species group. Based on that group, 44,881 acres of desert kit fox habitat has high conservation value. The greater of these two acreage targets was selected for the conservation goal for the species.

10). Measure progress toward achieving this objective in acres of permanently protected desert kit fox habitat.

- **Objective 24-3.** Increase the connectivity of suitable habitat in areas that are likely to be important habitat linkages for desert kit fox. Measure progress toward achieving this objective in habitat linkages protected between suitable habitat areas.
- **Objective 24.4.** Enhance modeled suitable habitat for kit fox on protected land in the RCIS area. Measure progress toward achieving this objective in acres of protected suitable habitat.

## Actions and Conservation Priorities

Implementing the actions in Table 3-34 will support achieving the conservation goal and objectives for this species.

**Table 3-34. Actions for Desert Kit Fox**

| ID | Cons. Obj. | Action |
|---|---|---|
| DEKF-1 | 24.1, 24.2 | Permanently protect, through a conservation easement or other approved real estate instrument, parcels with desert kit fox habitat, including potential habitat and known occupied habitat. |
| DEKF-2 | 24.4 | Include species-specific measures in management plans that prohibit use of poisons, herbicides, and rodenticides with anticoagulant and emphasize the conservation and expansion of ground squirrel colonies. |
| DEKF-3 | 24.4 | Work with private landowners in areas that are likely to support desert kit fox and develop land management strategies conducive to desert kit fox. |
| DEKF-4 | 24.3, 24.4 | Enhance existing linkages for desert kit fox and other medium-sized and large mammals in movement/foraging habitat in the RCIS area. Use connectivity studies and roadway mortality data from the RCIS area to identify locations for wildlife crossing structures at places identified as high-value wildlife crossing areas across major roadways and the California Aqueduct. |

The priority conservation areas for implementing actions for desert kit fox in the RCIS area are generally in the portions of habitat core areas and landscape linkages with high conservation value for this species that are away from foreseeable potential future urbanization. Because desert kit fox occur in agricultural/grassland and desert habitats, this species was included in both species groups for mapping areas of high biological values (see Section 3.2.1.1, *Focal Species Habitat Groups*). Based on the agriculture/grassland group, the desert kit fox has 174,780 acres of foraging habitat of high conservation value within the habitat core areas and landscape linkages. Based on the desert group, it has 171,749 acres of foraging habitat of high conservation value in the habitat core areas and landscape linkages (Table 3-10). Refer to Appendix H, *Species Conservation Values Maps and Graphs*, for a map of habitat of high conservation value for desert kit fox and a set of graphs showing the proportion of high conservation value in each habitat core area and landscape linkage.

Prior to implementation of actions to benefit this species, conduct on-the-ground assessments to identify potential unintended negative effects of the actions on other focal or otherwise regulated species. Actions should be modified to reduce or eliminate unintended potential negative effects. Similarly, an on-the-ground assessment should be conducted to determine what environmental regulations may apply to implementation of the actions. CDFW and any other relevant regulatory agencies should be consulted prior to implementing any actions that have any potential for impacts to regulated resource.

### Additional Information Needs

Funding or conducting the following studies will provide information that will improve the conservation of this species by identifying additional areas for conservation and mechanisms to improve habitat restoration for this species:

- Conduct movement corridor studies of small to large mammals to identify the targeted permanent protection areas needed to improve connectivity.

### Climate Change Issues and Considerations

Desert kit fox can be found throughout the RCIS area but primarily in the lower-elevation portions of the Antelope Valley, areas with gently sloping terrain and open, arid vegetation communities such as desert grasslands and scrub where friable soils are suitable for burrowing and den construction. Conservation of this species will require active monitoring of environmental conditions where known populations exist. Habitat connectivity is important in order to allow long-distance dispersal and movement. Permanent protection of large, interconnected blocks of habitat will give this species the best opportunity for adapting to changing environmental conditions.

Additional resources for conservation and management of mammals in the face of climate change can be found on the CDFW Climate Science Program website, including *A Climate Change Vulnerability Assessment for Twenty California Mammal Taxa* (Stewart et al. 2013).

## 3.4.5.25 Mohave Ground Squirrel

### Conservation Goals and Objectives

**Goal 25:** Conserve the suitable habitat required for the long-term management and conservation of Mohave ground squirrel by permanently protecting 80,972 acres of habitat, emphasizing conservation in 1) key population centers for Mohave ground squirrel, 2) habitat linkages and corridors, 3) expansion areas, and 4) areas where Mohave ground squirrel are likely to be adaptive and resilient in response to ecological changes, including the effects of climate change.

- **Objective 25.1:** Reduce the threat of habitat loss by permanently protecting at least 18,884 acres of unprotected habitat for Mohave ground squirrel (Minimum Permanent Protection Gap in Table 3-10). Emphasize protection, based on results of small-mammal trapping or camera studies, to confirm occupancy. Measure progress toward achieving this objective in acres of permanently protected Mohave ground squirrel habitat.
- **Objective 25.2.** Provide uplift to the conservation status of up to 62,088 acres of protected Mohave ground squirrel habitat (Potential Maximum Uplift for Currently Protected Lands Gap in Table 3-10). Measure progress toward achieving this objective in acres of permanently protected Mohave ground squirrel habitat.
- **Objective 25.3**: Enhance habitat for Mohave ground squirrel. Measure progress toward achieving this objective in acres of enhanced habitat on protected lands.

## Actions and Conservation Priorities

Implementing the actions in Table 3-35 will support achieving the conservation goal and objectives for this species.

**Table 3-35. Actions for Mohave Ground Squirrel**

| ID | Cons. Obj. | Action |
|---|---|---|
| MGSQ-1 | 25.1, 25.2 | Permanently protect, through a conservation easement or other approved real estate instrument, parcels with occupied or suitable habitat in or within 5 miles of key population areas, including but not limited to areas adjacent to Edwards Air Force Base, the vicinity of the Rio Tinto Borax mine, and Kramer Junction. Prioritize permanent protection, based on trapping results, to confirm occupancy. |
| MGSQ-2 | 25.1, 25.2 | Work with Edwards Air Force Base to permanently protect habitat adjacent to base property, provide buffers, and allow for range shifts. |
| MGSQ-3 | 25.3 | Reduce the number of recreational vehicle routes on protected lands within suitable habitat for Mohave ground squirrel using state-of-the-art disturbed soil reclamation and arid lands revegetation techniques. |
| MGSQ-4 | 25.3 | Fence protected lands that support suitable habitat for Mohave ground squirrel to limit unauthorized vehicle use, trespass, and livestock grazing. |
| MGSQ-5 | 25.3 | Fund law enforcement patrol or site host on protected lands that support habitat for Mohave ground squirrel to ensure compliance with site rule. |
| MGSQ-6 | 25.3 | Include species-specific measures in management plans that benefit Mohave ground squirrel, including prohibiting use of poisons, herbicides, and rodenticides with anticoagulant, especially in potential expansion habitat. |
| MGSQ-7 | 25.3 | Develop and implement programs to reduce litter, trash dumping, and other food subsidies for predators, such as common ravens. |
| MGSQ-8 | 25.3 | Develop outreach and education programs to inform the public and industry (mining, construction, and agricultural) about the species and conservation. Work with California Department of Parks and Recreation Off-Highway Vehicle (OHV) associations to educate OHV recreationists on the importance of avoiding closed areas and staying on existing roads. |
| MGSQ-9[1] | 25.1, 25.2 | For private lands within core population areas, peripheral population areas, or linkages, work with willing landowners and partner agencies to secure protection of Mohave ground squirrel habitat. |
| MGSQ-10[1] | 25.3 | Encourage participation of agricultural landowners in conservation easements or Safe Harbor Agreements to encourage Mohave ground squirrel actions while providing regulatory certainty for landowners. |

[1] Actions identified in the *Conservation Strategy for the Mohave Ground Squirrel* Xerospermophilus mohavensis (CDFW 2019).

The priority conservation areas for implementing actions for Mohave ground squirrel in the RCIS area are generally in the portions of habitat core areas and landscape linkages with high conservation value for this species that are away from foreseeable potential future urbanization.

Approximately 107,962 acres of habitat of high conservation value for Mohave ground squirrel occurs within the habitat core areas and landscape linkages (Table 3-10). Refer to Appendix H, *Species Conservation Values Maps and Graphs,* for a map of habitat of high conservation value for Mohave ground squirrel and a set of graphs showing the proportion of high conservation value in each habitat core area and landscape linkage.

Prior to implementation of actions to benefit this species, conduct on-the-ground assessments to identify potential unintended negative effects of the actions on other focal or otherwise regulated species. Actions should be modified to reduce or eliminate unintended potential negative effects. Similarly, an on-the-ground assessment should be conducted to determine what environmental regulations may apply to implementation of the actions. CDFW and any other relevant regulatory agencies should be consulted prior to implementing any actions that have any potential for impacts to regulated resource.

## Additional Information Needs

While there have been ongoing research efforts to support recovery efforts for the Mohave ground squirrel by state and federal agencies, funding or conducting the following studies will provide information that will improve the conservation of this species by identifying additional areas for conservation and mechanisms to improve habitat restoration for this species:

- Identify locations within the RCIS area where existing data Mohave ground squirrel habitat and population data does not exist or is not current enough to inform conservation actions.
- Fund and implement a monitoring program in coordination with CDFW and local conservation groups for Mohave ground squirrel to measure population trends, threats to this species, and impacts from conservation strategies that considers new information on this species as it is developed and published.
- Establish a long-term Mohave ground squirrel monitoring program in core population areas and other areas of interest, in coordination with existing monitoring efforts. Support research that addresses conservation issues relevant to long-term Mohave ground squirrel population trends.

## Climate Change Issues and Considerations

Mohave ground squirrel is distributed predominantly in the northeast portion of the RCIS area, south of Edwards Air Force Base, along the valley floor. The species occurs in a variety of desert shrubland habitats, including desert saltbush scrub, desert sink scrub, desert greasewood scrub, shadscale scrub, and Joshua tree woodland, but is most often found in creosote bush scrub.

Connectivity from remaining occupied habitat patches to areas with greater climate stability or with the potential to support suitable habitat under future climate conditions will be essential in allowing the species to disperse in response to climate change. Conservation of this species will require active monitoring of environmental conditions where known populations exist, and permanent protection of large, interconnected blocks of habitat will give this species the best opportunity for adapting to changing environmental conditions.

Additional resources for conservation and management of mammals in the face of climate change can be found on the CDFW Climate Science Program website, including *A Climate Change Vulnerability Assessment for Twenty California Mammal Taxa* (Stewart et al. 2013).

### 3.4.5.26 Mountain Lion

#### Conservation Goals and Objectives

**Goal 26:** Contribute to the support of a genetically sustainable population of mountain lion in the RCIS area and surrounding ecoregions by permanently protecting 24,243 acres of habitat and improving habitat connectivity and public awareness.

- **Objective 26.1:** Reduce the threat of habitat loss by permanently protecting at least 14,721 acres of unprotected habitat for mountain lion (Minimum Permanent Protection Gap in Table 3-10). Measure progress toward achieving this objective in acres of permanently protected mountain lion habitat.
- **Objective 26.2.** Provide uplift to the conservation status of up to 9,522 acres of protected mountain lion habitat (Potential Maximum Uplift for Currently Protected Lands Gap in Table 3-10). Measure progress toward achieving this objective in acres of permanently protected mountain lion habitat.
- **Objective 26.3:** Improve habitat connectivity for mountain lion in the RCIS area. Measure progress toward achieving this objective in number of improvements to habitat connectivity.
- **Objective 26.4:** Remove barriers to movement and, where possible, install or repair known or potential mountain lion crossings to increase permeability within the RCIS area. Measure progress toward achieving this objective in the number of barriers removed or repaired and the number of installed crossings.
- **Objective 26.5:** Implement a public outreach campaign to educate the public about mountain lions in areas where encounters are likely to occur. Measure progress toward achieving this objective in the number of outreach campaigns implemented.

#### Actions and Conservation Priorities

Implementing the actions in Table 3-36 will support achieving the conservation goal and objectives for this species.

**Table 3-36. Actions for Mountain Lion**

| ID | Cons. Obj. | Action |
|---|---|---|
| MOLI-1 | 26.1, 26.2 | Permanently protect, through a conservation easement or other approved real estate instrument, unprotected parcels adjacent to suitable, protected mountain lion habitat that is important for wildlife connectivity. |
| MOLI-2 | 26.1, 26.2, 26.3, 26.4 | Determine, through literature review and field study, where mountain lion connectivity pinch points exist and remove barriers; where possible, install or repair known or potential mountain lion crossings to increase permeability within the RCIS area. |
| MOLI-3 | 26.1, 26.2 | Include species-specific measures in management plans that prohibit use of poisons, herbicides, and rodenticides with anticoagulant, especially in habitat within mountain lion range. |
| MOLI-4 | 26.5 | Prepare mountain lion co-existence educational materials for private landowners living in proximity to protected lands and ensure this outreach |

| ID | Cons. Obj. | Action |
|---|---|---|
| | | material reaches appropriate residents. Address legal and unlawful hunting of mule deer, the primary prey of mountain lion. |
| MOLI-5 | 26.5 | Conduct public education to improve public awareness of mountain lion (e.g., signs at trailheads), particularly in urban areas adjacent to natural lands. |
| MOLI-6 | 26.2 | Enhance mule deer populations where appropriate in the RCIS area to increase the prey base for mountain lion. |

Generally, the priority conservation areas for implementing actions for mountain lion in the RCIS area are generally in the portions of habitat core areas and landscape linkages with high conservation value for this species that are away from foreseeable potential future urbanization. In some cases, conservation priorities may focus on mountain lion movement and connectivity across major roadways in existing or future urbanizing areas to maintain or enhance the functionality of the wildlife crossing. Approximately 48,486 acres of habitat of high conservation value for mountain lion occurs within the habitat core areas and landscape linkages (Table 3-10). Refer to Appendix H, *Species Conservation Values Maps and Graphs,* for a map of habitat of high conservation value for mountain lion and a set of graphs showing the proportion of high conservation value in each habitat core area and landscape linkage.

Prior to implementation of actions to benefit this species, conduct on-the-ground assessments to identify potential unintended negative effects of the actions on other focal or otherwise regulated species. Actions should be modified to reduce or eliminate unintended potential negative effects. Similarly, an on-the-ground assessment should be conducted to determine what environmental regulations may apply to implementation of the actions.  CDFW and any other relevant regulatory agencies should be consulted prior to implementing any actions that have any potential for impacts to regulated resource.

## Additional Information Needs

Funding or conducting the following studies will provide information that will improve the conservation of this species by identifying additional areas for conservation and mechanisms to improve habitat restoration for this species:

- Conduct targeted studies to determine mule deer use areas and mountain lion travel movement patterns in the RCIS area, particularly between the southernmost (Castaic Ranges) and western (Tehachapi Mountains) portions of the RCIS area. The data should be used to inform MOLI-1. Where barriers to movement or high numbers of vehicle collisions are identified, facilitate improved non-conflict travel areas through adaptive management measures.

## Climate Change Issues and Considerations

Mountain lions are habitat generalists but require extensive areas of riparian vegetation as well as brushy stages of various habitats with rocky outcrops and trees, shrubs, and grassland edges. In the RCIS area, mountain lions occur primarily along the southwestern border of the RCIS area, in the foothills of the San Gabriel Mountains. Home ranges can easily cover 100 square miles; therefore, habitat connectivity is essential for this species. Conservation of this species will require active monitoring of environmental conditions, including wildlife crossings where mountain lions are known to occur. Permanent protection of large, interconnected blocks of habitat will give this species the best opportunity for adapting to changing environmental conditions.

Additional resources for conservation and management of mammals in the face of climate change can be found on the CDFW Climate Science Program website, including *A Climate Change Vulnerability Assessment for Twenty California Mammal Taxa* (Stewart et al. 2013).

## 3.4.5.27 Tehachapi Pocket Mouse

### Conservation Goals and Objectives

**Goal 27:** Maintain or increase the Tehachapi pocket mouse population in the RCIS area by permanently protecting 765 acres of suitable habitat for the long-term management and conservation of the species.

- **Objective 27.1**: Reduce the threat of habitat loss by permanently protecting at least 563 acres of unprotected suitable habitat for Tehachapi pocket mouse (Minimum Permanent Protection Gap in Table 3-10). Prioritize locations that enhance connectivity as well as areas that are near already-protected or occupied habitat. Measure progress toward achieving this objective in acres of permanently protected Tehachapi pocket mouse habitat.
- **Objective 27.2.** Provide uplift to the conservation status of up to 202 acres of protected Tehachapi pocket mouse habitat (Potential Maximum Uplift for Currently Protected Lands Gap in Table 3-10). Measure progress toward achieving this objective in acres of permanently protected Tehachapi pocket mouse habitat.

### Actions and Conservation Priorities

Implementing the actions in Table 3-37 will support achieving the conservation goal and objectives for this species.

**Table 3-37. Actions for Tehachapi Pocket Mouse**

| ID | Cons. Obj. | Action |
|---|---|---|
| TEMO-1 | 27.1, 27.2 | Permanently protect, through a conservation easement or other approved real estate instrument, parcels with documented Tehachapi pocket mouse in the subset of the RCIS area. |
| TEMO-2 | 27.1, 27.2 | Include species-specific measures in management plans that prohibit use of poisons, herbicides, and rodenticides with anticoagulant, especially within or adjacent to Tehachapi pocket mouse habitat. |

The priority conservation areas for implementing actions for Tehachapi pocket mouse in the RCIS area are generally in the portions of habitat core areas and landscape linkages with high conservation value for this species that are away from foreseeable potential future urbanization. Approximately 850 acres of habitat of high conservation value for Tehachapi pocket mouse occurs within the habitat core areas and landscape linkages (Table 3-10). Refer to Appendix H, *Species Conservation Values Maps and Graphs,* for a map of habitat of high conservation value for Tehachapi pocket mouse and a set of graphs showing the proportion of high conservation value in each habitat core area and landscape linkage.

Prior to implementation of actions to benefit this species, conduct on-the-ground assessments to identify potential unintended negative effects of the actions on other focal or otherwise regulated species. Actions should be modified to reduce or eliminate unintended potential negative effects.

Similarly, an on-the-ground assessment should be conducted to determine what environmental regulations may apply to implementation of the actions. CDFW and any other relevant regulatory agencies should be consulted prior to implementing any actions that have any potential for impacts to regulated resource.

### Additional Information Needs

Funding or conducting the following studies will provide information that will improve the conservation of this species by identifying additional areas for conservation and mechanisms to improve habitat restoration for this species:

- Conduct surveys for Tehachapi pocket mouse to determine its abundance within the RCIS area and further study habitat requirements for the species.

### Climate Change Issues and Considerations

Tehachapi pocket mouse habitat includes Joshua tree woodland, pinyon-juniper woodland, oak savannah, and native and non-native grasslands. Habitat for the Tehachapi pocket mouse is limited in distribution to small patches in the northwest region of the RCIS area, along the western borders around State Route 138. These habitats are likely to undergo some shifts in distribution in response to climate change (e.g., shifts to higher elevations), which could affect the distribution of this species in the RCIS area. Conservation of this species will require active monitoring of environmental conditions where known populations exist, and translocation as a means of assisted migration to areas of suitable habitat in the future may be required if habitat connectivity is insufficient with respect to allowing the species to reach these areas (note that regulatory agencies would need to be consulted prior to any translocation project). Permanent protection of large, interconnected blocks of habitat will give this species the best opportunity for adapting to changing environmental conditions.

Additional resources for conservation and management of mammals in the face of climate change can be found on the CDFW Climate Science Program website, including *A Climate Change Vulnerability Assessment for Twenty California Mammal Taxa* (Stewart et al. 2013).

## 3.4.6 Conservation Strategy for Conservation Elements

The conservation strategy for the other conservation elements aims to protect and enhance the unique land cover types and other ecological resources in the RCIS area, as identified in Chapter 2, *Environmental Setting*. The conservation strategy focuses on continued provision of identified ecosystem services through the protection and persistence of these important ecological processes and also through permanent protection, habitat enhancement, and public education. Conservation goals, objectives, actions, and priorities are discussed in this section.

The distribution of natural communities and land cover types relative to the habitat cores and landscape linkages are shown in Appendix I, *Land Cover Conservation Values Maps and Graphs*. When considering actions and conservation priorities for natural communities and land cover types, it will be helpful to consult the maps in Appendix I, along with the graphs of the quantitative distribution and conservation value of each land cover type in each habitat core area and landscape linkage.

### 3.4.6.1 Habitat Connectivity and Wildlife Linkage

#### Conservation Goal and Objectives

**Goal 28.** Increase connectivity for native wildlife species across the landscape by improving the condition of natural and semi-natural lands and the permeability of infrastructure.

- **Objective 28.1:** Permanently protect important habitat linkages for the focal species and other native species in the RCIS area. Measure progress toward achieving this objective in the number of linkages permanently protected for focal or native species.
- **Objective 28.2:** Enhance wildlife permeability along State Route 138, State Route 14, and other major roadways in the RCIS area. Measure progress toward achieving this objective in the number of wildlife permeability measures included in projects on State Route 138, State Route 14, or other major roadways.

#### Actions and Conservation Priorities

Implementing the actions in Table 3-38 will support achieving the conservation goal and objectives for this conservation element.

**Table 3-38. Actions for Habitat Connectivity and Wildlife Linkage**

| ID | Cons. Obj. | Action |
|---|---|---|
| HCWL-1 | 28.1 | Identify known or potential road crossings with suitable habitat on both sides of the roadway for focal species or other native species. |
| HCWL -2 | 28.2 | Remove or modify barriers to increase permeability for wildlife and, where possible, install or repair crossings to increase permeability within the RCIS area for focal species or other native species. Identify wildlife movement corridors that are disrupted by the California Aqueduct and provide crossings over the aqueduct of adequate size to facilitate wildlife movement across the aqueduct. All road stream crossings should have a natural bottom substrate; be lined with native vegetation, if possible; and be adequately sized to allow for the comfortable passage of deer. Whenever possible, install appropriately sized bridges at road stream crossings on State Route 138, State Route 14, and other roadways (bridge design should also consider features important to some nesting bird species and roosting bat species). Install fencing and/or native vegetation that leads animals to the undercrossing when transiting in the drainage and inhibits climbing onto the roadway. |
| HCWL-3 | 28.1, 28.2 | Implement a public education campaign that is aimed at informing the public of the benefits of wildlife corridors and opportunities to improve permeability for wildlife. |
| HCWL-4 | 28.1, 28.2 | Implement habitat connectivity enhancement measures to facilitate antelope movement along the southern border of the RCIS and allow dispersal of the re-introduced herd in the Tehachapi Mountains. |

Prioritize habitat connectivity improvements where major roadways cross known wildlife movement corridors and in the landscape linkages delineated for this RCIS.

Prior to implementation of actions to benefit this conservation element, conduct on-the-ground assessments to identify potential unintended negative effects of the actions on focal or otherwise regulated species. Actions should be modified to reduce or eliminate unintended potential negative effects. Similarly, an on-the-ground assessment should be conducted to determine what environmental regulations may apply to implementation of the actions. CDFW and any other relevant regulatory agencies should be consulted prior to implementing any actions that have any potential for impacts to regulated resource.

#### Climate Change Issues and Considerations

Maintaining and enhancing wildlife movement corridors and landscape linkages are essential to a long-term conservation strategy that addresses the potential effects of climate change. Most of the habitats and natural communities in the Antelope Valley RCIS area will undergo some change in distribution in response to climate change. Permanent protection of large, interconnected blocks of habitat with functional wildlife movement corridors and landscape linkages will give species in the RCIS area the best opportunity for adapting to changing environmental conditions.

Additional resources for wildlife movement corridors and landscape linkages in the face of climate change can be found on the CDFW Habitat Connectivity Planning for Fish and Wildlife website.[11]

### 3.4.6.2 Working Landscapes

#### Conservation Goals and Objectives

**Goal 29.** Retain working lands for the benefit of focal species as well as other native species and agricultural uses in the RCIS area to the maximum extent practicable.

- **Objective 29.1:** Work with agriculture producers to manage croplands in ways that both maintain economically viable agricultural operations and benefit wildlife use in the RCIS area. Measure progress toward achieving this objective in the acres of croplands incorporating management measures to benefit wildlife.
- **Objective 29.2:** Work with the ranching community to incorporate conservation ranching on public and private lands. Measure progress toward achieving this objective in number and size of ranching operations incorporating conservation ranching practices.

#### Actions and Conservation Priorities

Implementing the actions in Table 3-39 will support achieving the conservation goal and objectives for this conservation element.

**Table 3-39. Actions for Working Landscapes**

| ID | Cons. Obj. | Action |
|---|---|---|
| WOLA-1 | 29.1, 29.2 | Provide education for agriculture producers and the ranching community regarding wildlife-friendly practices, such as wildlife-friendly fencing, vegetation conditions that benefit wildlife, and management that practices that promote ground squirrels and other keystone fossorial mammals. |
| WOLA-2 | 29.1, 29.2 | Offer financial and regulatory incentives to private landowners to maintain and enhance habitat for focal species. |

[11] https://www.wildlife.ca.gov/Conservation/Planning/Connectivity

| | | |
|---|---|---|
| WOLA-3 | 29.1, 29.2 | Work with agricultural producers and the ranching community to provide, protect, and enhance water sources for wildlife. At any pump station for the provision of water, especially for crops or grazing animals, a small amount of surface water of good quality should be provided to wildlife. This is especially important in any area that has or had a historical spring or seep. |

Implement these actions on ranchland and farmland throughout the Antelope Valley with landowners who are willing to implement them. Prioritize areas around habitat core areas and landscape linkages or where site information confirms use by focal species that would benefit from wildlife-friendly land management practices. Rangeland is concentrated in the western portion of the Antelope Valley, areas where efforts to implement wildlife-friendly grazing practices could benefit grassland/agriculture focal species.

Prior to implementation of actions to benefit this conservation element, conduct on-the-ground assessments to identify potential unintended negative effects of the actions on focal or otherwise regulated species. Actions should be modified to reduce or eliminate unintended potential negative effects. Similarly, an on-the-ground assessment should be conducted to determine what environmental regulations may apply to implementation of the actions. CDFW and any other relevant regulatory agencies should be consulted prior to implementing any actions that have any potential for impacts to regulated resource.

### Climate Change Issues and Considerations

Working landscapes on agricultural lands provide important habitat for many species in the RCIS area. Changes in agriculture practices in response to climate change will very likely affect the distribution of available habitat for these species. Consideration of native species' use of agricultural lands is important when developing actions on working landscapes. Actions that promote agricultural practices and support suitable habitat will give species that use these lands the best opportunity for adapting to changing environmental conditions.

Additional resources for conservation and management of working landscapes in the face of climate change can be found on the CDFW State Wildlife Action Plan 2015 Update – Companion Plans website, which is where the Agriculture Companion Plan can be found.[12]

## 3.4.6.3 Natural Communities of Conservation Importance

### Conservation Goals and Objectives

**Goal 30.** Retain unique land cover types to the maximum extent practicable in the RCIS area.

- **Objective 30.1:** Permanently protect and enhance unique land cover types in the RCIS area. Measure progress toward achieving this objective in acres of permanently protected or enhanced unique land cover types.
- **Objective 30.2:** Work with the land managers to incorporate management practices that benefit unique land cover types on public and private lands. Measure progress toward achieving this

[12] https://www.wildlife.ca.gov/SWAP/Final/Companion-Plans

objective in acres of lands where managers are incorporating management practices that benefit unique land cover types.

## Actions and Conservation Priorities

The distribution of natural communities and land cover types relative to the habitat cores and landscape linkages are shown in Appendix I, *Land Cover Conservation Values Maps and Graphs*. When considering actions and priorities for natural communities of conservation importance, it will be helpful to consult the maps in Appendix I, along with the graphs of the quantitative distribution and conservation value of each land cover type in each habitat core area and landscape linkage.

Implementing the actions in Table 3-40 will support achieving the conservation goal and objectives for this conservation element.

**Table 3-40. Actions for Natural Communities of Conservation Importance**

| ID | Cons. Obj. | Action |
|---|---|---|
| NCCI-1 | 30.2 | Create a field guide that describes the ideal condition for each unique land cover type that could be used by policy makers, landowners, and land managers alike to strive for an improved vegetative condition for unique land cover types in the RCIS area. |
| NCCI-2 | 30.1 | Fund surveys to document the condition of rare and imperiled community types in the RCIS area. |
| NCCI-3 | 30.1, 30.2 | Offer financial and regulatory incentives to private landowners to maintain and enhance unique land cover types that provide habitat for focal species. |

In areas with foreseeable potential future urbanization, rare and imperiled communities should be conserved as much as possible through avoidance and minimization of impacts and the protection of large blocks of contiguous habitat. Conservation of small, isolated, fragmented areas are generally not viable for long-term protection and should be avoided. Natural communities of conservation importance were identified in Section 3.2.1.2, *Natural Communities of Conservation Importance*. The analysis was applied at the *Alliance* level of the NVCS classification hierarchy, which is the finest resolution of vegetation mapping available in the RCIS area. All alliances that were ranked with a Highest or Very High conservation priority are addressed by these conservation goals and objectives.

**Table 3-41. Conservation Priorities for Rare and Imperiled Community Types**

| Natural Community Prioritization Level | NVCS Alliance Name |
|---|---|
| **Highest** | *Achnatherum hymenoides* |
| | *Achnatherum speciosum* |
| | *Ceanothus greggi – Fremontodendron californicum* |
| | *Rhus trilobata – Crataegus rivularis – Forestiera pubescens* |
| | *Suaeda moquinii* |
| | *Yucca brevifolia* |
| **Very High** | *Aesculus californica* |
| | *Artemisia tridentata* spp. *parishii* |

*Encelia [actonii, virginensis] – Viguiera reticulata*
*Ephedra nevadensis – Lycium andersonii – Grayia spinosa*
*Ericameria linearifolia – Cleome isomeri*
*Krascheninnikovia lanata*
*Lepidospartum squamatum*
*Platanus racemosa – Quercus agrifolia*
*Populus fremontii – Fraxinus velutina – Salix gooddingii*
*Prosopis glandulosa – Prosopis velutina – Prosopis pubescens*
*Prunus fasciculata – Salazaraia mexicana*
*Pseudotsuga macrocarpa*
*Purshia tridentata – Artemisia tridentata*
*Quercus lobata*
*Salix gooddingii – Salix laevigata*

Prior to implementation of actions to benefit this conservation element, conduct on-the-ground assessments to identify potential unintended negative effects of the actions on focal or otherwise regulated species. Actions should be modified to reduce or eliminate unintended potential negative effects. Similarly, an on-the-ground assessment should be conducted to determine what environmental regulations may apply to implementation of the actions. CDFW and any other relevant regulatory agencies should be consulted prior to implementing any actions that have any potential for impacts to regulated resource.

### Climate Change Issues and Considerations

Most if not all of the rare and imperiled community types are likely to undergo some shifts in distribution in response to climate change. Conservation of these rare and imperiled community types will require active monitoring of environmental conditions, and permanent protection of large, interconnected blocks of habitat will give these communities the best opportunity for adapting to changing environmental conditions.

Additional resources for conservation and management of natural communities in the face of climate change can be found on the CDFW Climate Science Program website, including the *Climate Vulnerability Analysis of Natural Vegetation Community Types Statewide in California* (Thorne et al. 2016).

## 3.4.6.4 Key Aquatic Habitats

### Conservation Goals and Objectives

**Goal 31.** Permanently protect and enhance key aquatic habitats in the RCIS area to benefit focal species.

- **Objective 31.1:** Permanently protect key aquatic habitat in the RCIS area, including streams, springs, ponds, lakes, and other ephemeral water sources. Measure progress toward achieving this objective in acres of permanently protected key aquatic habitats.

- **Objective 32.2:** Enhance key aquatic habitat in the RCIS area to benefit focal species. Measure progress toward achieving this objective in acres of enhanced key aquatic habitats.

## Actions and Conservation Priorities

Implementing the actions in Table 3-42 will support achieving the conservation goal and objectives for this conservation element.

**Table 3-42. Actions for Key Aquatic Habitats**

| ID | Cons. Obj. | Action |
|---|---|---|
| AQUA-1 | 31.1, 31.2 | Incentivize private landowners to promote pond and marshland management practices that improve habitat. |
| AQUA-2 | 31.1, 31.2 | Partner with water managers to procure water and maintain, enhance, or restore aquatic habitat. |
| AQUA-3 | 31.2 | Remove non-native invasive plant species and non-native animal species from key aquatic habitat when deemed to be degrading habitat value for covered species. |
| AQUA-4 | 31.1 | Monitor ephemeral water sources for focal species and other special-status species. |
| AQUA-5 | 31.2 | Manage human uses, including recreational uses and livestock grazing, in key aquatic habitat to minimize habitat degradation and impacts on focal species. |

Implement these actions in and around key aquatic resources throughout the Antelope Valley with landowners who are willing to implement them. Prioritize areas around habitat core areas and landscape linkages or where site information confirms use by focal species that would benefit from wildlife-friendly land management practices.

Prior to implementation of actions to benefit this conservation element, conduct on-the-ground assessments to identify potential unintended negative effects of the actions on focal or otherwise regulated species. Actions should be modified to reduce or eliminate unintended potential negative effects. Similarly, an on-the-ground assessment should be conducted to determine what environmental regulations may apply to implementation of the actions. CDFW and any other relevant regulatory agencies should be consulted prior to implementing any actions that have any potential for impacts to regulated resource.

## Climate Change Issues and Considerations

The persistence of key aquatic habitat is adversely affected by extended drought, which is expected to increase in frequency with climate change. Therefore, the amount and distribution of key aquatic habitat types in the RCIS area are likely to decrease with a warming climate. Monitoring and managing water resources, as well as their distribution, will be important in understanding potential effects on key aquatic habitats. Permanent protection of large, interconnected blocks of habitat, as well as protection of groundwater and surface water sources that support key aquatic habitats, will give species that rely on these key aquatic habitats the best opportunity for adapting to changing environmental conditions.

Additional resources for conservation and management of natural communities in the face of climate change can be found on the CDFW Climate Science Program website, including the *climate Vulnerability Analysis of Natural Vegetation Community Types Statewide in California* (Thorne et al. 2016).

# 3.5 Applying Actions and Conservation Priorities

The conservation strategy for the Antelope Valley RCIS is designed to function as a voluntary conservation resource and a toolkit for agencies, organizations, and individuals when pursuing mitigation and actions in the RCIS area. A detailed, science-based process identifies the areas with the highest conservation value for each focal species. The resulting conservation toolkit has three tools that will help a user of this RCIS understand what the conservation needs are and how to meet those needs most effectively.

## 3.5.1 Antelope Valley RCIS Conservation Toolkit

- Conservation goals, objectives, and actions for each focal species (Section 3.4.4, *Conservation Strategy for Focal Species*);
- Distribution maps of habitat of high conservation value for each focal species (Appendix H, *Species Conservation Value Maps and Graphs*); and
- Quantitative conservation goals for each focal species (Section 3.3*, Gap Analysis for Focal Species,* Table 3-10, *Gap Analysis Results and Quantitative Conservation Goals*).

The maps of habitat of high conservation value for each focal species provide the amount of habitat, and the pie graphs illustrate the relative conservation value of each habitat core area and landscape linkage. The conservation toolkit allows RCIS users to identify and select the conservation priorities that meet their needs (e.g., mitigation for a particular focal species), review habitat core areas and landscape linkages to identify areas with the greatest conservation opportunities for a given species, and select appropriate actions to support the goals and objectives for that species that will contribute to meeting the quantitative conservation goals established by this RCIS for each focal species.

Given that the spatial analyses, which describe the biological and conservation values in the RCIS area, are based predominantly on modeling of biological, physical, and anthropogenic factors, these conservation strategy tools should be used only for initial screening of potential conservation priority areas. Site-specific biological data and evaluation of the existing and future ecological and land use context, including the foreseeable potential future urbanization, along with the application of basic principles of conservation biology, are essential to further evaluation and consideration of a site for implementation of actions.

This Antelope Valley RCIS was developed to provide the maximum flexibility while using the best-available science and analytical approach. Although there are many ways to apply the information and guidance in this RCIS, the step-wise approach presented below is one that may be of value. To illustrate application of the conservation toolkit, below is a four-step process, using Joshua tree as an example.

## Step 1: Determine a Conservation or Mitigation Need

Identify one or more species for which there is a need for mitigation or an opportunity for implementation of actions. (Joshua tree will be used for this example.)

- Joshua tree is not state or federally listed; however, it is of special interest in the RCIS area, declining in distribution, and under threat from expanding infrastructure and rural/suburban development as well as the potential effects of climate change. Mitigation is often required under the California Environmental Quality Act (CEQA), and mitigation and conservation needs are likely to increase in the future. Joshua tree is a conservation goal in the Mojave Desert Ecoregion of the *California State Wildlife Action Plan* (SWAP) (California Department of Fish and Wildlife 2015), and Joshua tree woodland is a California Natural Diversity Database (CNDDB) sensitive community.
- Several future roadway projects, large-scale solar facility projects, and commercial/residential development projects have the potential to affect Joshua trees; therefore, there is a mitigation and conservation need for Joshua tree (see Foreseeable Potential Future Urbanizing Areas on Figure 3-24).
- The RCIS user may be associated with one of these project types, may be interested in creating advance mitigation for these or other projects (e.g., MCA [see Section 4.4, *Mitigation Credit Agreements*] or conservation bank), or may be interested in contributing to the conservation of the species independent of mitigation needs.
- A conservation goal is set for Joshua tree in Table 3-10 (*Gap Analysis Results and Quantitative Conservation Goals*), which indicates that, of the 31,868 acres of habitat of high conservation value for Joshua tree in the habitat core areas and landscape linkages, 4,849 acres are protected (15 percent). Joshua tree has a high species priority level, with a conservation goal of 75 percent, or 23,901 acres, and a remaining conservation need (Protection and Preservation Gap) of 19,052 acres (80 percent). This represents the acres on unprotected lands, but it should be noted that there is an additional Possible Preservation Gap on the 4,849 acres, which are on protected lands where additional management actions and monitoring could benefit this species. Management actions that include restoration and habitat enhancement can be used to create mitigation credits, even on lands that are already considered protected.

## Step 2: Review the Goals, Objectives, and Actions and Conservation Priorities for the Species

In the second step, review the conservation strategy for the species (Joshua tree). The goals, objectives, and actions and conservation priorities focus on permanently protecting and enhancing Joshua tree habitat and reducing threats that result in habitat loss. They also support climate adaptation strategies.

> **Goal 3:** Sustain and enhance the quality of Joshua tree woodland in the RCIS area by permanently protecting 23,901 acres of Joshua tree stands and implementing actions to address present and future pressures on the species, including climate change.
>
> - **Objective 3.1:** Reduce the threat of habitat loss by preserving an additional 19,052 acres of mapped Joshua tree woodlands to meet the conservation goal for the species (Protection and Preservation Gap in Table 3-10).

- **Objective 3.2:** Provide uplift to the conservation status of up to 4,849 acres of protected Joshua tree woodland to meet the conservation goal for the species (Potential Maximum Uplift for Currently Protected Lands Gap in Table 3-10). Measure progress toward achieving this objective in acres of permanently protected Joshua tree woodland.
- **Objective 3.3:** Enhance Joshua tree woodland, targeting areas of low or moderate terrestrial intactness in cores and linkages with proximity to Joshua tree woodland habitat of high intactness. Measure progress toward achieving this objective in the acres of enhanced Joshua tree woodland.
- **Objective 3.4:** Manage Joshua tree woodland habitat adaptively to address climate change effects, incorporating best available science as a basis for management actions. Measure progress toward achieving this objective in acres of Joshua tree woodland under adaptive management plans.
- **Objective 3.5:** Support existing ordinances and previously established local regulations and permitting processes for private property development and authorized projects that result in the removal of a limited number of Joshua trees.

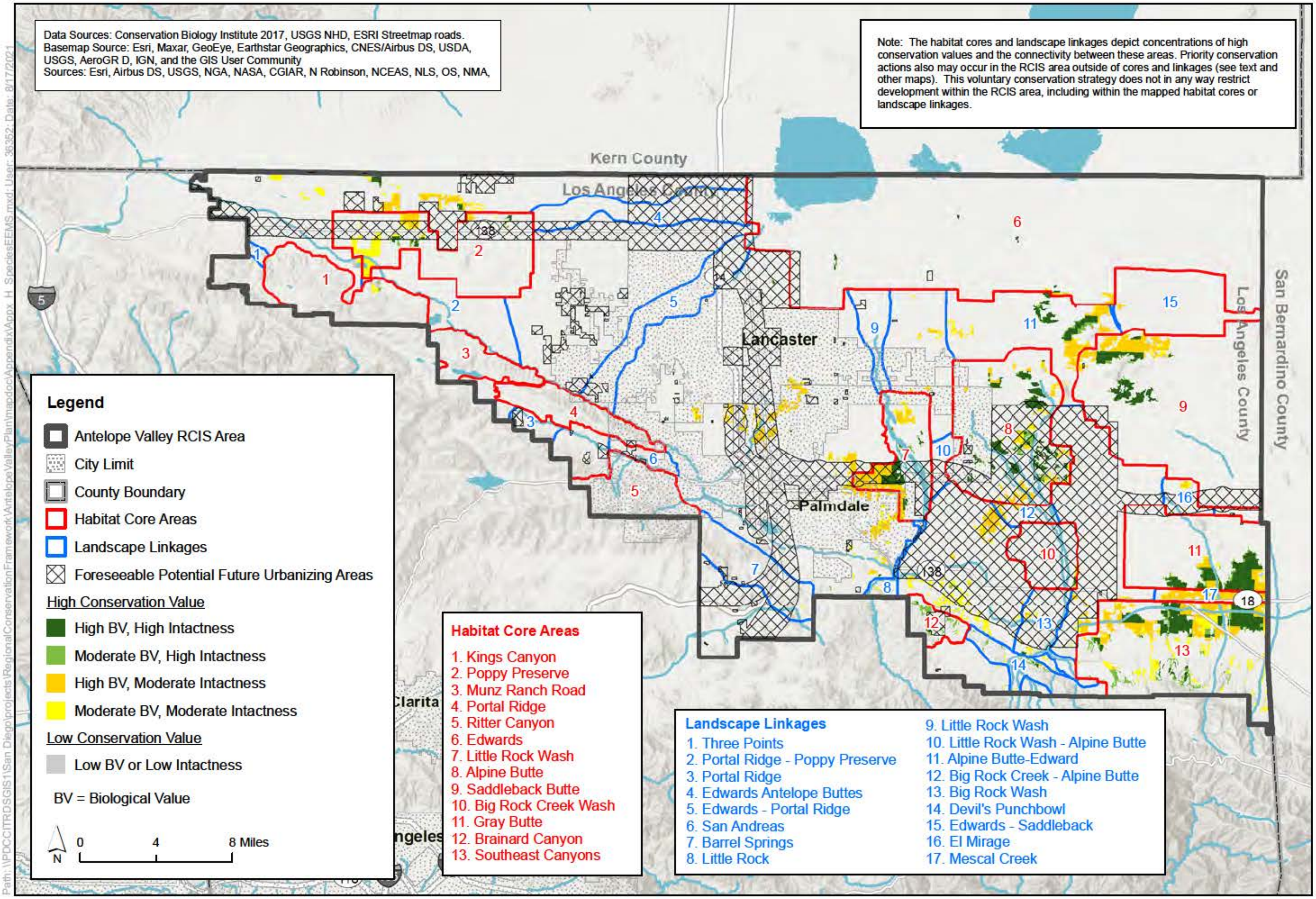


**Figure 3-24**
**Joshua Tree High Conservation Value Habitat (Desert Species Group)**

### Actions and Conservation Priorities

#### *Actions*

**JOTR-1.** Permanently protect through a conservation easement or other approved real estate instrument parcels with Joshua tree woodland, prioritizing large patches of continuous Joshua tree woodland or areas adjacent to already-protected lands. Monitor and manage protected habitat to ensure long-term survival of the species, with sufficient short- and long-term reserve maintenance endowment funding.

**JOTR-2.** Restore burned areas by planting young Joshua trees (caged to prevent herbivory), native shrubs, and perennial grasses to restrict invasion by annual invasive species. Burned Joshua trees should not be removed because they can resprout on occasion, and they provide habitat for wildlife.

**JOTR-3.** Fence protected Joshua tree woodlands, excluding vehicle access that can increase human-caused ignitions of wildfire and garbage dumping.

**JOTR-4.** Periodically patrol protected Joshua tree woodlands to monitor human uses.

**JOTR-5.** Prepare wildfire suppression plans for protected Joshua tree woodlands to minimize resource impacts from fire suppression tactics.

**JOTR-6.** Conduct a fine-scale regional assessment to determine the most intact, largest extent of the oldest Joshua tree stands remaining in the RCIS area.

**JOTR-7.** Conduct monitoring and aid in research of Joshua tree populations—including, but not limited to, flowering timing and frequency, seed germination, sprout dispersal, and Yucca moth activity—to better understand effects of climate change on these populations and identify actions to facilitate adaptation to these effects.

**JOTR-8.** Expand the capacity of existing Joshua tree mitigation banks in California with mitigation credit agreements that are consistent with existing ordinances. Encourage the application of mitigation ratios based on the density, habitat conditions, and location of Joshua tree woodland to be impacted.

**JOTR-9.** Evaluate the success of existing Joshua tree removal ordinances in Kern, Los Angeles, and San Bernardino counties, and, specifically, within the communities of Apple Valley, Hesperia, Joshua Tree, Lancaster, Palmdale, Victorville and Yucca Valley. Encourage adoption of the most successful mitigation strategies.

**JOTR-10.** Discourage the use of transplanted Joshua trees to establish Joshua tree mitigation credits in MCAs until a better transplantation method with a minimum of 75 percent long-term survival has been demonstrated (see Section 3.4.4, *Transplanting Plants to Create New Populations*).

#### *Conservation Priorities*

The priority conservation areas for implementing actions for Joshua tree in the RCIS area are generally in the portions of habitat core areas and landscape linkages with high conservation value for this species that are away from foreseeable potential future urbanization. Approximately 31,868 acres of high conservation value mapped Joshua tree habitat occurs within the habitat core areas and landscape linkages (see Figure 3-24).

## Step 3: Identify Specific Priority Conservation Areas, Mitigation, and Conservation Opportunities

In the third step, identify key conservation opportunities in the habitat core areas and landscape linkages for Joshua tree habitat.

- As described in the approach and analytical methods of the conservation strategy, we have identified the habitat of high conservation value within the habitat core areas and landscape linkages. Although mitigation and conservation opportunities certainly may exist outside of the habitat core areas and landscape linkages, we encourage the RCIS user to start by looking within the habitat core areas and landscape linkages. The accumulation of mitigation and actions within habitat core areas and landscape linkages will generally make a greater contribution to the overall viability of the focal species because these are the areas with the highest levels of habitat intactness and the greatest overall biological value. By contributing to the level of protection and management within the habitat core areas and landscape linkages, the size of protected areas will increase, and the connectivity throughout the RCIS will increase, giving the focal species better long-term population stability and an opportunity to adapt to or seek refuge from the effects of climate change.
- For all focal species, refer to Appendix H, *Species Conservation Priorities Maps and Graphs,* for a map of habitat of high conservation value for the species and the proportion of high conservation value in each habitat core area and landscape linkage. For this example, the map for Joshua tree is included here on Figure 3-24.
- Examine the map and observe the distribution of habitat of high conservation value across the RCIS area, particularly within habitat core areas and landscape linkages. Areas with larger contiguous areas of habitat of high conservation value (especially with the highest biological value and highest intactness) are generally the best places to start looking for conservation opportunity areas (e.g., permanent protection, restoration, and habitat enhancement).
- Now examine the accompanying page of pie graphs for the species (Appendix H, *Species Conservation Priorities Maps and Graphs*). This page quantifies the total acres of modeled or mapped habitat of high conservation value in the habitat core areas and landscape linkages (upper left of page) and then quantifies the total acres of all habitat (including habitat of low conservation value) in each pie graph. For this example, the pie graphs for Joshua tree are included as Figure 3-25.
- The pie graphs are numbered and named to correspond to the conservation value map for the species. Each pie graph represents the total acreage of habitat in each habitat core area and landscape linkage, with the proportions indicating the relative conservation value of that habitat.
- As noted in Step 1 of this example, Joshua tree has a high conservation priority level of 75 percent. The conservation need (Protection and Preservation Gap) is to protect an additional 19,052 acres (and, as noted, a Possible Preservation Gap of 4,849 acres). Potentially suitable locations for contributing to the protection of Joshua tree through mitigation and other actions can be found by examining the pie graphs. By doing so, the RCIS user can discover that the largest acreages of Joshua tree habitat are in the Southeast Canyons (9,684 acres), Alpine Butte (4,188 acres), and Saddleback Butte (3,776 acres) habitat core areas and are prime candidates for further investigation of conservation and mitigation opportunities at a parcel level. Note that nearly all of the habitat in these four habitat core areas is of high conservation value (colored portions of pie

graph [high or moderate biological value and high or moderate intactness]), with very little habitat of low conservation value (gray portion of pie graph).

### Step 4: Identify Key Parcels and Implement Conservation Priorities through Actions

In the fourth step, use the information and insight gained from the conservation values map and pie charts in Step 3.

- The RCIS user can now start to identify key parcels that may be available for permanent protection or existing protected areas where habitat restoration and habitat enhancement actions could be applied, along with a number of other suitable actions.
- Of the actions identified for Joshua tree, the RCIS user would then determine which actions identified in Step 2 are best suited for the parcels or protected areas of interest.
- Prior to implementation of actions to benefit Joshua tree, conduct on-the-ground assessments to identify potential unintended negative effects of the actions on focal or otherwise regulated species. Actions should be modified to reduce or eliminate unintended potential negative effects.
- Similarly, an on-the-ground assessment should be conducted to determine what environmental regulations may apply to implementation of the actions. CDFW and any other relevant regulatory agencies should be consulted prior to implementing any actions that have any potential for impacts to regulated resource.
- The final step would involve implementation of the actions, potentially including development of an MCA if the actions are intended to create advance mitigation credit with the CDFW (Section 4.4, *Mitigation Credit Agreements*).

There are 26,432 acres (6.51%) of High Conservation Value habitat in Cores and 5,436 acres (1%) in Linkages. The total acreages, including all habitat conservation values, are shown with each graph. Proportions indicate the relative Biological Value and Intactness of that habitat.


**Figure 3-25**
**Joshua Tree Core and Linkage Conservation Values Distribution**

# 3.6 Consistency with Approved Conservation Strategies and Recovery Plans

There are five approved recovery plans that overlap the RCIS area. The purpose of recovery plans is to provide a framework for the conservation and survival of the listed species that focuses and prioritizes threat abatement and restoration actions necessary to recover, and eventually delist, a species. This section briefly summarizes those recovery plans and explains how this RCIS is consistent with the plans that overlap the RCIS area, consistent with the requirements of California Fish and Game Code Section 1852(c)(11) and Section 4.2.4.2 of the Program Guidelines.

**Table 3-43. Consistency with Recovery Plans within the RCIS**

| Plan Name | Species | Recovery Plan Goals and Objectives | Antelope Valley RCIS Goal, Objectives, and Actions | Consistency |
|---|---|---|---|---|
| Recovery Plan for Vernal Pools of Southern California (U.S. Fish and Wildlife Service 1998) | Spreading navarretia | **Recovery Objective**. The goal of this plan is conserve and enhance southern California vernal pool ecosystems, with specific emphasis on stabilizing and protecting existing populations of *Eryngium aristulatum* var. *parishii*, *Pogogyne abramsii*, *Pogogyne nudiuscula*, *Orcuttia californica*, and San Diego and Riverside fairy shrimp so that these species may be reclassified from endangered to threatened status. The goal of this plan for *Navarretia fossalis*, currently proposed for listing as threatened, is to ensure the long-term conservation of this species. | **Goal**: 4<br>**Objectives**: 4.1–4.3<br>**Actions**: SPNA-1 through SPNA-5 | RCIS Goal 4 aims to protect, maintain, and enhance spreading navarretia habitat in the RCIS area, which overlaps with the recovery plan's transverse vernal pool management area. Achieving the RCIS goal is consistent with the recovery plan goal to recover and delist the spreading navarretia.<br><br>RCIS Objectives 4.1–4.3 aim to protect and enhance spreading navarretia habitat and expand populations to uninhabited habitat across the RCIS area. Achieving these objectives will contribute to the recovery and delisting of the spreading navarretia.<br><br>Implementing Actions SPNA-1 through SPNA-5 will contribute toward achieving RCIS goals and objectives and the recovery plan goal and objectives by protecting and enhancing habitat and protecting spreading navarretia and their habitat.<br><br>While other listed vernal pool species included in this recovery plan are not known to |

| Plan Name | Species | Recovery Plan Goals and Objectives | Antelope Valley RCIS Goal, Objectives, and Actions | Consistency |
|---|---|---|---|---|
| | | | | occur in the RCIS area, the goals, objectives, and actions identified to benefit spreading navarretia will also protect and enhance habitat for other vernal pool species. |
| Revised Recovery Plan for the Mojave Population of the Desert Tortoise (U.S. Fish and Wildlife Service 2011) | Desert tortoise | **Recovery Goal.** The goal of the recovery plan is recovery and delisting of the desert tortoise.<br><br>**Recovery Objective 1 (Demography).** Maintain self-sustaining populations of desert tortoises within each recovery unit into the future.<br><br>**Recovery Objective 2 (Distribution).** Maintain well-distributed populations of desert tortoises in each recovery unit.<br><br>**Recovery Objective 3 (Habitat).** Ensure that habitat within each recovery unit is protected and managed to support long-term viability of desert tortoise populations. | **Goal:** 8<br>**Objectives:** 8.1–8.4<br>**Actions** DETO-1 through DETO-8 | RCIS Goal 8 aims to maintain or increase the desert tortoise population in the RCIS area, which overlaps with the Western Mojave Recovery Unit for desert tortoise. Achieving the RCIS goal is consistent with the recovery plan goal to recover and delist the desert tortoise.<br><br>RCIS Objectives 8.1–8.4 aim to protect and enhance desert tortoise habitat and increase habitat connectivity across and beyond the RCIS area. Achieving these objectives will contribute to the recovery and delisting of the desert tortoise.<br><br>Implementing Actions DETO-1 through DETO-8 will contribute toward achieving RCIS goals and objectives and the recovery plan goal and objectives by protecting and enhancing habitat and protecting desert tortoises. |

| Plan Name | Species | Recovery Plan Goals and Objectives | Antelope Valley RCIS Goal, Objectives, and Actions | Consistency |
|---|---|---|---|---|
| Recovery Plan for the Southwestern Willow Flycatcher (U.S. Fish and Wildlife Service 2002) | Southwestern willow flycatcher | **Recovery Objective 1.** Recovery to the point that reclassification to "threatened" is warranted.<br>**Recovery Objective 2.** Recovery to the point that delisting is warranted. | **Goal:** 22<br>**Objectives**: 22.1–22.6<br>**Actions**: WIFL-1 through WIFL-6 | RCIS Goal 22 aims to maintain or increase the willow flycatcher (including the listed southwestern subspecies) population in the RCIS area, which overlaps with the Basin and Mojave Recovery Unit for the southwestern willow flycatcher. Achieving the RCIS goal is consistent with the recovery plan goal to recover and delist the southwestern willow flycatcher.<br><br>RCIS Objectives 22.1–22.6 aim to protect and enhance willow flycatcher habitat and protect, maintain, and enhance the hydrology that supports willow flycatcher habitat, and reduce nest parasitism within the RCIS area. Achieving these objectives will contribute to the recovery and delisting of the southwestern willow flycatcher.<br><br>Implementing Actions WIFL-1 through WIFL-6 will contribute toward achieving RCIS goals and objectives and the recovery plan goal and objectives by protecting and enhancing habitat and protecting southwestern willow flycatcher. |

| Plan Name | Species | Recovery Plan Goals and Objectives | Antelope Valley RCIS Goal, Objectives, and Actions | Consistency |
|---|---|---|---|---|
| Draft Recovery Plan for Least Bell's Vireo (U.S. Fish and Wildlife Service 1998c) | Least Bell's vireo | **Recovery Objective.** The objective of this plan is the reclassification of the least Bell's vireo to threatened, and, ultimately, delisting through recovery. | **Goal:** 14<br>**Objectives:** 14.1–14.4<br>**Actions**: LBVI-1 through LBVI-6 | RCIS Goal 14 aims to maintain or increase the least Bell's vireo population in the RCIS area. Achieving the RCIS goal is consistent with the recovery plan goal to recover and delist the least Bell's vireo.<br><br>RCIS Objectives 14.1 through 14.4 aim to protect and enhance least Bell's vireo habitat and reduce nest parasitism within the RCIS area. Achieving these objectives will contribute to the recovery and delisting of the least Bell's vireo.<br><br>Implementing Actions LBVI-1 through LBVI-6 will contribute toward achieving RCIS goals and objectives and the recovery plan goal and objectives by protecting and enhancing habitat, maintaining hydrology that supports riparian habitat, and protecting least Bell's vireo |
| Recovery Plan for the Arroyo Southwestern Toad (U.S. Fish and Wildlife Service 1999) | Arroyo southwestern toad | **Recovery Objective**. Downlist to threatened status, then delist. | **Goal:** 14<br>**Objectives:** 14.1–14.4<br>**Actions**: LBVI-1 through LBVI-6 | The arroyo southwestern toad is not an RCIS focal species; however, the willow flycatcher habitat within the RCIS area overlaps with the Desert Slope Recovery Unit for the arroyo toad. The goals, objectives, and actions identified above for the willow flycatcher will support the recovery plan goals to downlist and delist the arroyo toad, and are consistent with RCIS goals. |

## 3.6.1 Habitat Conservation Plan Consistency

There are no Habitat Conservation Plans (HCPs) within the RCIS area.

# 3.7 Monitoring and Adaptive Management Framework

In order for an individual or entity to develop an MCA under this Antelope Valley RCIS, the RCIS must include an adaptive management and monitoring strategy.[13] The monitoring and adaptive management plan included in an MCA will be consistent with the MCA adaptive management and monitoring plan template (California Department of Fish and Wildlife 2018a). Requirements and processes for creating an MCA, including a monitoring and adaptive management plan, will be provided in CDFW's MCA Guidelines. This section is intended to provide an overview of monitoring and adaptive management and describes the framework that can be used to inform the monitoring and adaptive management plans used in an MCA in the RCIS area.

Monitoring and adaptive management plans will only be required for conservation actions or habitat enhancement actions that are implemented under MCAs. A monitoring and adaptive management plan could be developed for any voluntary conservation or habitat enhancement action implemented in the RCIS area (unrelated to an MCA), but it is not required. Such a monitoring and adaptive management plan consistent with the framework described in this section would provide the same benefits as those described for mitigation actions.

The overarching objective of monitoring and adaptive management is to ensure that conservation and habitat enhancement actions are implemented in ways that benefit focal species and other resources credited under the MCA and contribute to the achievement of conservation goals and objectives stated in the RCIS. The level of detail and application of the framework will vary depending on the size and complexity of the MCA site or sites, the resources being monitored, and the nature of the conservation or habitat enhancement actions being executed.

## 3.7.1 Periods of Monitoring and Adaptive Management

Monitoring and adaptive management can be organized into two periods: interim management period and long-term management period. Key tasks in each phase are described in this section.

### 3.7.1.1 Interim Management Period

The interim management period is the period from when the MCA site is established to when performance standards have been met and the endowment fund for the MCA has matured (see CDFW's MCA Guidelines for more details). During this period, ecological performance monitoring is conducted to assess the progress and status of resources being enhanced or restored and management activities are being conducted, as necessary. During this time, the long-term endowment fund gains interest and earnings without being expended. If ecological performance standards are not met, remedial actions will be implemented. Monitoring is more intensive and frequent during this period than it is under long-term management, and there may be different or additional management actions required during the interim management period that are not required during the long-term management period.

During the interim management period, management of the site will be guided by an interim management plan (a component of a monitoring and adaptive management plan), which describes

[13] CDFW RCIS Guidelines, Section 4, page 4-7.

the conservation actions or habitat enhancement actions, monitoring, adaptive management, reporting, and other activities to be implemented by the MCA sponsor.

#### 3.7.1.2 Long-Term Management Period

The long-term management period begins upon conclusion of the interim management period and continues for the length of the durability agreement, which may be in perpetuity for conservation actions, or a shorter period for a habitat enhancement action with appropriate durability that does not involve acquiring land or permanently protecting habitat.

During the long-term management period, management of the site will be guided by a long-term management plan, which will include measures intended to ensure that the MCA site or sites are managed, monitored, and maintained in perpetuity (or a shorter period, as applicable, for a habitat enhancement action with species or habitat-appropriate durability that does not involve acquiring land or permanently protecting habitat), to conserve and protect the resources that support MCA credits, and other natural resources.

As much as possible, the long-term management plan should be a practical guide to management and monitoring actions that will occur on the mitigation site over time, written with the land manager and monitors in mind. The long-term management and monitoring plan should include reasonable management and monitoring tasks and a schedule appropriate for long-term management and monitoring of the species and resources. The anticipated management and monitoring tasks and schedule are to inform the initial calculation of the amount of the endowment. Identified tasks and schedule may be adjusted over time and decisions concerning those adjustments are to be made with consideration for the financial resources available.

Similar to adaptive management actions, the monitoring program can change over time in response to the information collected and the trends observed. This adaptive approach to monitoring ensures that enough data are being collected to determine whether the mitigation site is performing as expected, while also avoiding unnecessary monitoring costs, particularly once the effectiveness of the site has been documented through several years of monitoring.

### 3.7.2 Adaptive Management

Adaptive management is a decision-making process that adjusts actions as uncertainties become better understood or as conditions change. Documenting actions and monitoring the outcomes of management is the foundation of an adaptive approach, and thoughtful monitoring can both advance scientific understanding and modify management actions iteratively (Williams et al. 2007).

Adaptive management is necessary because of the degree of uncertainty and natural variability associated with ecosystems and their responses to management. It is possible that additional and different actions not described in this Antelope Valley RCIS or an MCA will be identified in the future and proven to be more effective. Results of monitoring may also indicate that some management measures are less effective than anticipated. To address these uncertainties, an adaptive approach will be used to inform management on land subject to MCAs.

The cornerstone of a monitoring and adaptive management program is an approach in which monitoring yields scientifically valid results that inform management decisions. Information collected through monitoring and other experiments is used to manage mitigation lands and help determine progress toward conservation objectives.

Adaptive management may involve the following.

- Evaluate efficacy of monitoring protocols.
- Incorporate best available scientific information into management decisions.
- Review any unexpected or unfavorable results and test hypotheses to achieve desired outcome.
- Adjust management actions and continue to monitor.
- Adjust success criteria and actions, if necessary.

### 3.7.3 Types of Monitoring

Types of monitoring that may be included in a monitoring plan include but are not limited to the following.

- **Ecological performance monitoring.** This is short-term monitoring implemented during the interim management period. Monitoring is conducted to assess progress of restoration or habitat enhancement actions toward achieving incremental performance criteria. The criteria are tied to the incremental availability of credits in a credit release schedule.
- **Conservation easement monitoring and long-term durability instrument monitoring.** This is monitoring implemented by the third-party conservation easement holder to monitor the conditions as described in the conservation easement. A similar type of monitoring may be used to track the status of a site used for a habitat enhancement action under a long-term durability instrument.
- **Effectiveness monitoring.** Effectiveness monitoring is often less-intensive and implemented at longer intervals than ecological performance monitoring, during the long-term management period. Effectiveness monitoring is implemented in perpetuity, Effectiveness monitoring is implemented to verify that the site is providing the intended mitigation/offset(s) or conservation values and to inform adaptive management.

# Chapter 4
# **Implementation Strategy**

After approval by the California Department of Fish and Wildlife (CDFW), a regional conservation investment strategy (RCIS) can be used to assist in informing decisions related to conservation, restoration, habitat enhancement, and management actions for focal species and other conservation elements addressed by the RCIS. Examples of how the RCIS may be used voluntarily include the following.

- Inform how conservation organizations make conservation investments in the RCIS area.
- Guide how state or federal agencies evaluate grant or permit applications for local conservation or research projects.
- Inform infrastructure planning, with respect to avoiding and minimizing project-level impacts in the RCIS area.
- Inform and guide project proponents in how they site and design compensatory mitigation to meet the permitting standards for the California Endangered Species Act, lake or streambed alteration agreement under California Fish and Game Code (CFGC) Section 1600, a California Environmental Quality Act (CEQA) document, or possibly other state or federal regulatory permits, such as Federal Endangered Species Act and Clean Water Act Sections 404 and 401.
- Provide an additional mechanism for identifying and developing compensatory mitigation.
- Support the design and creation of conservation and mitigation banks.
- Guide landowners, public agencies, indigenous tribes, private entities, or others in scoping advance mitigation projects when preparing a Mitigation Credit Agreement (MCA) with CDFW to provide a mechanism for compensatory mitigation under CEQA, the California Endangered Species Act, or CDFW's Lake and Streambed Alteration Agreement.

This chapter describes the RCIS implementation process and required RCIS implementation tasks for this RCIS. This chapter also provides an overview of how the tools enabled by the RCIS—the MCA—can be created.

The Regional Conservation Investment Strategies Program Guidelines (Program Guidelines) (California Department of Fish and Wildlife 2018a) define the RCIS proponent as the public agency or group of public agencies developing an RCIS for review and approval by CDFW and who is responsible for conducting technical and administrative updates of an RCIS (Section 4.2, *Required RCIS Implementation to Create MCAs*). As the RCIS proponent, Desert and Mountains Conservation Authority (DMCA) may share, designate, or transfer the RCIS proponent role to another entity or entities at any time, or elect to terminate its role as RCIS proponent.

This chapter also identifies optional implementation tasks that exceed what is required by the CFGC or the Program Guidelines, but that, if conducted, may improve the success of RCIS implementation. For example, an implementation committee, described in Section 4.3.1.1, *Implementation Committee*, is not required by the CFGC or the Program Guidelines, but is offered as a suggestion for how local entities may support implementation of the RCIS. Items that are suggestions and not requirements are denoted as those the RCIS proponent may do, as opposed to required elements that they will do or shall do. To make it explicit, Section 4.2 describes those elements required during implementation for this RCIS to be used to create MCAs, and Section 4.3, *Optional Implementation Activities*, describes elements that are optional, but are recommended and may prove helpful.

# 4.1 Conservation Partnerships: Keys to the Success of the Antelope Valley RCIS

The purpose of the RCIS is to provide a framework to facilitate conservation and habitat enhancement actions in the RCIS area. These actions include those driven by regulatory needs (primarily in the form of mitigation) as well as voluntary conservation actions. This Antelope Valley RCIS was developed to guide investments in conservation, infrastructure, and compensatory mitigation to help ensure that conservation actions in the RCIS area are occurring in an informed and strategic manner to achieve the highest degree of conservation benefit at a regional scale.

The Antelope Valley RCIS provides a framework for identifying regional conservation priorities and actions for focal species and other conservation elements within the RCIS area. The conservation goals and objectives are designed to be broad-based yet comprehensive in identifying those actions necessary to ensure the long-term conservation of the focal species and other conservation elements addressed by this RCIS. While centered on focal species, this RCIS also addresses other key conservation elements, including habitat connectivity and wildlife linkages, working landscapes, and unique land cover types in the RCIS area. As such, the RCIS proponent anticipates that, in addition to the conservation actions implemented within MCAs in the RCIS area, a combination of conservation investments, conservation actions, and compensatory mitigation completed outside of MCAs also will be needed to achieve the RCIS's conservation goals and objectives. This RCIS also anticipates that success in meeting the conservation goals and objectives will require flexibility, creativity, and establishment of strong and enduring partnerships in conservation.

To that end, this Antelope Valley RCIS encourages agencies and organizations that may use this RCIS to guide conservation investments to consider other agencies or organizations operating in the RCIS area if the needs of those agencies or organizations align in a way that would support more robust and more effective implementation of one or more conservation priorities. The organizations whose representatives have participated on the steering committee and advisory committee (listed in Section 4.3.1.1*, Implementation Committee*) have been engaged in the preparation and implementation of this RCIS, and/or are already supporting important conservation activities in the RCIS area.

The implementation committee (optional), when and where appropriate, will look for innovative ways to support others taking the lead in making conservation investments and developing MCAs, if they are consistent with this Antelope Valley RCIS and would help to achieve the goals and objectives of this RCIS.

This chapter describes the RCIS implementation process and provides an overview of MCAs. CDFW will describe the requirements and processes for creating an MCA in their MCA Guidelines, which have not been released at the time of submission of the Final Draft Antelope Valley RCIS to CDFW. In this chapter, items that are suggestions—not requirements—are noted as items the RCIS proponent may do, as opposed to required elements that proponents will do or shall do as specified by CFGC Sections 1850-1861 and CDFW's RCIS Program Guidelines (Program Guidelines) (California Department of Fish and Wildlife 2018a). The Antelope Valley RCIS is a non-binding, voluntary conservation strategy. As RCIS proponent, the DMCA is only responsible for updating the scientific information in this RCIS and evaluating the effectiveness of RCIS conservation actions, habitat enhancement actions, and progress toward achieving RCIS goals and objectives at least once every 10 years (Section 4.2). Entities pursuing MCAs under this RCIS are responsible for funding their involvement in and for developing those MCAs; the DMCA bears no financial or other responsibility for developing or monitoring those MCAs.

# 4.2 Required RCIS Implementation to Create MCAs

As a voluntary planning and guidance document, there are no implementation requirements for this RCIS. For an RCIS to be used to create MCAs, however, CFGC Section 1856(b) has requirements for what must be included in the RCIS, and what must be done after the RCIS is approved by CDFW, above and beyond what is required of an RCIS that does not support MCAs. This RCIS is intended to support creation of MCAs, so it includes additional required elements. For an RCIS to support an MCA, CFGC Section 1856(b) states the following.

> (b) For a conservation action or habitat enhancement action identified in a regional conservation investment strategy to be used to create mitigation credits pursuant to this section, the regional conservation investment strategy shall include, in addition to the requirements of Section 1852, all of the following:
>
> > (1) An adaptive management and monitoring strategy for conserved habitat and other conserved natural resources.
> >
> > (2) A process for updating the scientific information used in the strategy, and for tracking the progress of, and evaluating the effectiveness of, conservation actions and habitat enhancement actions identified in the strategy, in offsetting identified threats to focal species and in achieving the strategy's biological goals and objectives, at least once every 10 years, until all mitigation credits are used.
> >
> > (3) Identification of a public or private entity that will be responsible for the updates and evaluation required pursuant to paragraph (2).

This RCIS includes the following elements, to facilitate the creation of MCAs, as required by CFGC Section 1856(b).

- An adaptive management and monitoring strategy for focal species, conserved habitat, and other conserved natural resources (Section 3.7, *Monitoring and Adaptive Management Framework*).
- A process for updating the scientific information that pertains to focal species, other conservation elements, and conservation actions and habitat enhancement actions at least once every 10 years (Section 4.2.1, *Updating and Extending this RCIS*).
- A process for tracking the progress and effectiveness of conservation actions and habitat enhancement actions in achieving the goals and objectives for focal species and other conservation elements, including offsetting the effects of identified pressures and stressors at least once every 10 years (Section 4.2.2, *Assessing Progress*).
- Identification of a public or private entity that will be responsible for the updates and effectiveness evaluation (see below).

To facilitate the creation of new MCAs[1], DMCA will be responsible for updating the RCIS and assessing progress toward meeting the RCIS goals and objectives, through conservation investments and mitigation actions, at least once every 10 years.

CDFW may extend the duration of an approved RCIS for additional periods of up to 10 years after this RCIS is updated with new scientific information and CDFW finds that this RCIS continues to meet the requirements of CFGC Section 1852.

### 4.2.1 Updating and Extending this RCIS

According to the Program Guidelines, "an update to an RCIS means updates to the best available scientific information contained in a previously approved RCIS." The Program Guidelines distinguish between a data update and a more substantial update as follows.

> A data update is generally the submission of GIS data or minor changes to numbers or text in the document that require less than four hours of CDFW staff time. It does not include updates or amendments to the geographic area, focal species, or other conservation elements. An RCIS proponent may update the scientific information in the RCIS at any time.

The DMCA will contact CDFW to evaluate proposed data updates and incorporate those updates into the RCIS, as needed.

Under current state law, CDFW may extend the duration of an approved or amended RCIS for additional periods of up to 10 years. If DMCA or other entities intend to use this RCIS to create additional mitigation credits pursuant to CFGC Section 1856 after the RCIS approval period ends, the DMCA, CDFW,[2] or other entity, with permission from DMCA, shall update the scientific information in this RCIS at least once every 10 years. Once the Antelope Valley RCIS is updated with new scientific information and CDFW finds that the RCIS continues to meet the requirements of CFGC Section 1852, CDFW may extend the duration of this RCIS.

Because the Antelope Valley RCIS is intended to support the creation of mitigation credits, DMCA may at least once every 10 years undertake a more substantial update (i.e., not just a data update). This update may include updating and refining, if necessary, the RCIS based on current scientific information that pertains to focal species and other conservation elements addressed in this RCIS, and the goals, objectives, and conservation and habitat enhancement actions pertaining to those elements. The DMCA will determine when within the 10-year approval period to undertake updates (e.g., after 5 years, and/or toward the end of the 10-year approval period). Updates to the RCIS will be integrated into the RCIS at the end of the 10-year approval period as part of the RCIS renewal process.

DMCA may use various data sources to inform the updates, including, but not limited to, monitoring results, MCA progress reports (Section 4.2.2. *Assessing Progress*), recent scientific literature, technical reports or studies, and guidance from regulatory agencies. The assumptions on which the

[1] Existing, approved MCA credits can be sold after the RCIS term has expired if the RCIS term is not extended by CDFW. However, new MCAs cannot be created without a currently approved RCIS (California Department of Fish and Wildlife 2018a).

[2] According to the Program Guidelines, if "CDFW determines that an approved RCIS needs to be updated or evaluated more frequently and the RCIS proponent or responsible party declines to do so, CDFW may elect to update the RCIS or authorize a third-party public agency to amend an RCIS. Any such updates shall become part of the approved RCIS, pending an evaluation by CDFW."

RCIS conservation strategy was built, particularly related to focal species, other conservation elements, and conservation priorities may be revised, as necessary, based on new data or information. If the results of this review reveal that fundamental aspects of this Antelope Valley RCIS are no longer valid, DMCA, in consultation with the CDFW, may elect to amend this RCIS to address the changes, as outlined in 4.5, *Amending the RCIS*.

## 4.2.2 Assessing Progress

In compliance with CFGC Section 1856(b), DMCA, in coordination with CDFW, will assess the effectiveness of RCIS conservation actions and habitat enhancement actions in achieving the RCIS conservation goals and objectives, including offsetting the effects of identified pressures and stressors. This assessment may take the form of an RCIS progress report or may be integrated into the RCIS at the end of the 10-year approval period as part of the RCIS renewal process.

### 4.2.2.1 Progress Reporting

The RCIS proponent may prepare an RCIS implementation progress report at any point during the 10-year period. Progress reports are not required by CFGC or the Program Guidelines, but they may prove useful in communicating the progress made toward achieving the conservation goals and objectives in the RCIS. If prepared, the progress report could include the following.

- An overview of the conservation actions and habitat enhancement actions that DMCA is aware of, and only those specifically implemented under this Antelope Valley RCIS.
- An assessment of progress in offsetting identified threats to focal species and other conservation elements, and in achieving this RCIS's conservation goals and objectives.
- An evaluation of the effectiveness of conservation actions and habitat enhancement actions in offsetting identified threats to focal species and in achieving the strategy's biological goals and objectives.

MCA sponsors must conduct monitoring of their conservation actions to determine whether they have met performance-based milestones that allow release of mitigation credits (see Section 4.2.2.2 *Mitigation Credit Agreement Sponsor Responsibilities*). MCA sponsors provide these MCA reports to CDFW, who must post them online. DMCA can use these public reports, and other data, to assess the progress and effectiveness of conservation actions in the RCIS area to contribute to the RCIS conservation goals and objectives.

The evaluation of the effectiveness of RCIS conservation actions, habitat enhancement actions, and progress toward achieving RCIS goals and objectives will occur at least once every 10 years in a report submitted to CDFW at the end of the RCIS 10-year approval term. Alternatively, the contents of this progress report will be included in the updated Antelope Valley RCIS submitted to CDFW for renewal after the 10-year approval period has ended.

To the extent feasible, the RCIS progress report or updated Antelope Valley RCIS submitted to CDFW for renewal will summarize the following.

- The net change in the amount of focal species' habitat and other conservation elements (i.e., working lands and natural communities) protected in the RCIS area through MCAs. The net change in area should be provided in acres, though for certain ecological features, net change may be provided in other relevant metrics (as specified in the MCA), such as length and width of a restored riparian woodland.

- The progress made toward achieving RCIS conservation goals and objectives through the implementations of the conservation actions and habitat enhancement actions through MCAs, as described in Chapter 3, *Conservation Strategy*.
- The net change in quality of focal species' habitat addressed in the MCAs, using the metrics described in the MCA.

To the extent feasible, the RCIS progress report may also include a brief summary of other readily available, RCIS-related conservation and habitat enhancement actions undertaken in the RCIS area during this RCIS 10-year approval period not conducted as part of an MCA. Regional partners are encouraged to share data and other information about actions implemented in the RCIS area with DMCA, but the RCIS proponent will not be responsible for tracking and reporting data and information from these entities. DMCA may use this information, in combination with information provided by MCA sponsors, to assess progress in achieving RCIS conservation goals and objectives.

Data and other information that will be used to track the effectiveness of conservation actions and habitat enhancement actions will come from MCA sponsors with mitigation sites in the RCIS area. Other sources of data and information may be used, such as the California Protected Areas Database (CPAD) and the California Conservation Easement Database (CCED)[3], as well as websites maintained by CDFW, U.S. Fish and Wildlife Service, and U.S. Army Corps of Engineers[4] that provide up-to-date information on approved conservation and mitigation banks, among other sources.

#### 4.2.2.2 Mitigation Credit Agreement Sponsor Responsibilities

At the request of the DMCA, MCA sponsors will contribute to the RCIS progress report by providing data to the DMCA. MCA sponsors shall use consistent metrics to assess habitat throughout the duration of the MCA. Metrics will be determined during the MCA development and approval process.

DMCA may request from each MCA sponsor with mitigation sites in the RCIS area an MCA summary report to assist the DMCA's assessment of the effectiveness of this RCIS' conservation actions and habitat enhancement actions in achieving Antelope Valley conservation goals and objectives. DMCA or CDFW may provide MCA sponsors with a progress report template to facilitate consistent and adequate reporting by MCA sponsors.

MCA sponsors, upon request of the DMCA, may be asked to provide DMCA the following:

- The amount of focal species' habitat and other conservation elements protected, enhanced, or restored/created through MCAs at the MCA sponsor's mitigation sites in the RCIS area, and the corresponding Antelope Valley RCIS goal(s) and objective(s) the actions contributed toward achieving. MCA sponsors shall report the amount of land, aquatic features, and habitat for focal species using the same natural community, land cover type, and focal species habitat categories

[3] CPAD and CCED maintained by GreenInfo Network (https://www.calands.org/).

[4] Up-to-date information on approved conservation and mitigation banks can be found at the following U.S. Fish and Wildlife Service, CDFW, and U.S. Army Corps of Engineers websites:
https://www.fws.gov/sacramento/es/Conservation-Banking/Banks/In-Area/es_conse-bank-in-area.htm
https://www.wildlife.ca.gov/Conservation/Planning/Banking/Approved-Banks
http://www.spn.usace.army.mil/Missions/Regulatory/Mitigation-Banks/Approved-Banks-for-the-San-Francisco-Regulatory-Di/

(e.g., breeding habitat, foraging habitat, upland habitat, etc.) as used by this RCIS to enable consistent tracking of progress toward achieving RCIS goals and objectives.

- A list of the conservation actions and habitat enhancement actions identified in the MCA and implemented at the MCA sponsor's mitigation sites in the RCIS area.
- A summary of the net change in quality of the target focal species' habitat addressed by conservation or habitat enhancement actions on the MCA sponsor's mitigation sites in the RCIS area, using the metrics identified in the MCA(s).
- A brief summary of the pressures and stressors identified in Section 2.3, *Pressures and Stressors on Focal Species and Other Conservation Elements*, that were offset (or partially offset) by implementing conservation and habitat enhancement actions through the MCA.

Measurable objectives in this RCIS include metrics for tracking progress toward achieving the RCIS goals and objectives. The metrics are intended to enable consistent measurement of the net change in habitat area and habitat quality from habitat restoration actions. When implementing conservation actions and habitat enhancement actions that include habitat restoration as part of an MCA, the MCA sponsor shall select, and submit for CDFW's approval, an appropriate metric(s) from the metrics listed below to measure the net change in habitat area and habitat quality.

If the MCA sponsor determines that a metric not listed below is more appropriate for measuring net change in habitat area and habitat quality, the MCA sponsor may make a written request to CDFW to consider approving that alternative metric instead of, or in addition to, one or more metric listed below. CDFW will consider the proposed alternative metric and the RCIS proponent's recommendation, if any, when determining whether to approve the alternative metric.

Once a metric(s) is designated and approved, it must be used for the baseline and subsequent measurements of habitat area and habitat quality. If an approved metric turns out to be faulty or problematic, the MCA sponsor may make a written request to CDFW to consider approving a different metric instead of, or in addition to, the approved metric(s), as set forth above. The determination to approve will be based, in part, on whether that new metric can be compared with the original baseline data in a reasonable way to compare the change in habitat area or habitat quality.

MCA sponsors will report on relevant RCIS metrics for corresponding habitat restoration conservation actions and habitat enhancement actions implemented through an MCA. MCA sponsors may include additional measures and performance standards for assessing habitat quality in an MCA, consistent with the MCA Guidelines and with approval by CDFW.

The following metrics are acceptable in this RCIS for measuring the net change in habitat area and habitat quality resulting from habitat restoration actions.

- Acres.
- Linear feet.
- Percent cover (native vs. non-native species).
- Native species diversity.
- Number of individuals.
- Number of populations.

- Gene pool/genetic diversity.
- Evidence of presence and abundance (e.g., presence/absence, number of nests, calls, scat).
- Vigor index (e.g., health of plant on scale of 1–4).
- Habitat structure (e.g., number of canopy layers, percent cover, snags).
- Distribution of key resources (e.g., number per unit area of nesting trees, ponds, host plants).
- Inundation duration (consecutive days).
- Water depth (feet).
- Stream flow (cubic feet per second).
- Water temperature and chemical composition (e.g., dissolved oxygen).
- Stream substrate composition (e.g., percent cover, gravel size).
- Stream characterization (e.g., pool, riffle, run, length, and width).

# 4.3 Optional Implementation Activities

The following subsections describe optional tasks that DMCA may consider during implementation to support and improve RCIS implementation. DMCA has the discretion and flexibility to implement the RCIS in a manner consistent with the vision of their organization and level of funding available at any given time.

## 4.3.1 Implementation Committee

DMCA may choose to partner with other public agencies, organizations, or collaborators to form an RCIS implementation committee to help guide implementation and updates of the Antelope Valley RCIS, particularly in instances where implementation of this RCIS would support the missions of these other organizations. Potential implementation committee members may include representatives from the following organizations:

- Antelope Valley Audubon Society
- Antelope Valley Conservancy
- Association of Rural Town Councils
- California State Parks
- California Native Plant Society
- Defenders of Wildlife
- Edwards Air Force Base
- Lake Los Angeles Rural Town Council
- Land Veritas
- The Nature Conservancy

- Transition Habitat Conservancy
- Fernandeño Tataviam Band of Mission Indians
- San Manuel Band of Mission Indians
- Other interested organizations, cities, or jurisdictions

The role of the implementation committee would be to periodically assist the DMCA on all aspects of implementation. The implementation committee may also help inform and educate potential RCIS users of how the RCIS can be used and the benefits it provides. The implementation committee will not arbitrate or negotiate mitigation on behalf of project proponents. Such responsibility will remain with the entity pursuing the mitigation and the regulatory agencies.

In summary, the following are potential roles for the implementation committee (this list is not exhaustive).

- Publicize this Antelope Valley RCIS and its successful implementation to participating agencies and other entities that may use this RCIS to inform conservation actions in the RCIS area.
- Provide a mechanism for coordination of RCIS implementation with Native American tribes.
- Answer questions about the Antelope Valley RCIS..
- Assist with preparation of the progress report, or other documents for CDFW, as needed, documenting the implementation of this RCIS and MCAs, as appropriate.
- Support DMCA in undertaking periodic updates of this RCIS (at least every 10 years) based on significant new information on the focal species and their conservation.

If established, the implementation committee would meet periodically (e.g., at least annually) to review how the Antelope Valley RCIS is being used, and to help DMCA assess whether information updates or an amendment is needed.

### 4.3.2 Maintenance and Organization of GIS Data

All GIS data used to prepare this RCIS has been provided to CDFW upon completion. As of the time of completion of this RCIS this data was also available on Data Basin (Conservation Biology Institute 2021). If feasible, the Implementation Committee should continue to maintain this data on Data Basin or a similar platform to support the tracking of RCIS implementation.

## 4.4 Mitigation Credit Agreements

An MCA is associated with an RCIS and identifies the type and number of credits a person or entity proposes to create by implementing one or more conservation actions or habitat enhancement actions, as well as the terms and conditions under which those credits may be used. As indicated in CFGC Section 1856(c), credits created through an MCA could be used to fulfill compensatory mitigation requirements pursuant to the California Endangered Species Act, to reduce adverse impacts on fish and wildlife resources from activities authorized pursuant to a Lake or Streambed Alteration Agreement under CFGC Section 1600, or to mitigate significant effects on the environment pursuant to CEQA, and possibly other state or federal regulations. MCAs must be prepared according to the requirements of CFGC Section 1856 and the Program Guidelines.

An MCA helps establish advance mitigation and can provide a number of significant benefits, particularly for agencies or entities with predictable long-term mitigation needs. An MCA can provide the following benefits.

- The MCA sponsor can set aside or purchase lands when doing so is most cost-effective, knowing those lands will provide useful mitigation values in the future.
- Mitigation credits can be pooled across large sites or multiple sites, providing economies of scale to deliver mitigation more efficiently across many projects.
- Although the use of MCA credits to satisfy mitigation obligations for a particular project must be assessed on a case-by-case basis during the permitting phase, an MCA provides certainty and predictability to the MCA sponsor for the future costs of project mitigation that conservation and habitat enhancement actions undertaken pursuant to that MCA will constitute mitigation under applicable state laws.
- An MCA gives CDFW and other resources agencies some assurance that proposed mitigation fits within a larger conservation framework (the RCIS) and that investments in resource protection, restoration, and habitat enhancement collectively contribute to meeting regional conservation goals and objectives.

Any public or private entity may propose for CDFW approval an MCA under the approved Antelope Valley RCIS for one or more conservation or habitat enhancement actions that measurably advances the conservation goals and objectives of this RCIS. A person or entity, including a state or local agency, with mitigation needs may choose to enter into an MCA with CDFW for a wide range of project sizes and complexities.

MCAs will facilitate permitting under the California Endangered Species Act for RCIS focal species that are state-listed whose conservation need is analyzed or otherwise provided for in this Antelope Valley RCIS. The MCA can be designed to satisfy a range of other state wildlife laws and regulations, including , and Lake or Streambed Alteration requirements of the CFGC. An MCA can also be used to meet the requirements of other state and federal environmental laws and regulations with the approval of applicable state or federal regulatory agencies. Appendix B, *Regulatory Processes*, outlines how other regulatory agencies and local CEQA lead agencies may use this RCIS to facilitate permitting under their respective authorities.

### 4.4.1 Developing Mitigation Credit Agreements

MCAs identify the types and amounts of mitigation credits that will be created through implementation of conservation actions, and they provide a schedule for the release of the credits based on relevant milestones in project implementation (e.g., land protection, restoration goal achievement). Mitigation credits can be proposed for any conservation or habitat enhancement action that contributes to the achievement of conservation goals and objectives outlined in this Antelope Valley RCIS and complies with CFGC 1851(d) or (g). CDFW will determine whether the sponsor demonstrates that the conservation action(s) or habitat enhancement action(s) meets performance-based milestones established by the MCA prior to approving the release of credits.

Typically, mitigation credits will be established for the following types of conservation actions.

- Permanent acquisition of land development rights (including placement of a conservation easement).

- Restoration of resources that creates new and/or increases existing habitat function for a focal species or species whose conservation need is analyzed or otherwise provided for in the Antelope Valley RCIS.
- Habitat enhancement for focal species whose conservation need is analyzed or otherwise provided for in this RCIS, habitat conditions, or habitat connectivity.

More information on the MCA development and approval process can be found on the CDFW website for the RCIS program.[5]

### 4.4.2 Conservation or Mitigation Banks

A conservation or mitigation bank is privately or publicly owned land that is managed for its natural resource values, with an emphasis on the targeted resource (species or aquatic resources, respectively). Mitigation banks typically include the restoration or creation of aquatic resources. Conservation banks may include restoration projects, but they are more heavily focused on the protection and management of existing occupied habitats of the target species. In exchange for permanently protecting and managing the land—and in the case of mitigation banks, restoring or creating aquatic resources—the bank operator is allowed to sell credits to project proponents who need to satisfy legal requirements for compensating environmental impacts of development projects (Appendix A, *Glossary*).

The goals of private mitigation banks are compatible with and support regional conservation strategies such as the Antelope Valley RCIS. See Section 2.2.4.3, *Mitigation Banks and Conservation Banks in the RCIS Area*, for information on the conservation and mitigation banks with available credits whose service area overlaps the RCIS area.

Private parties wishing to develop and establish a new mitigation or conservation bank in the RCIS area should consult guidance and instructions provided by CDFW and the U.S. Fish and Wildlife Service.[6] This Antelope Valley RCIS can provide voluntary guidance on where mitigation or conservation banks could be established to support focal species.

The only mitigation banks with service areas overlapping the RCIS area (and in Los Angeles County) are the Petersen Ranch Conservation Bank and the Santa Paula Creek Mitigation Bank, which provide mitigation credits for aquatic resources as well as mitigation credits for species.

## 4.5 Amending the RCIS

The Program Guidelines define two types of RCIS amendments: simple and complex. A simple amendment includes small or minor changes to the document that are more than a data update (i.e., the submission of geographic information system (GIS) data or minor changes to numbers or text in the document that require less than 4 hours of CDFW staff time; Section 4.2.1, *Updating and Extending the RCIS*), but that do not result in a substantial change as determined by CDFW. A

[5] https://www.wildlife.ca.gov/Conservation/Planning/Regional-Conservation

[6] For additional information on banking see the following websites:
https://wildlife.ca.gov/Conservation/Planning/Bankin
https://www.fws.gov/endangered/landowners/conservation-banking.html

complex amendment would result in a substantial change to the RCIS, such as changes to the geographic area, focal species, or other conservation elements as determined by CDFW.

The public notice requirements, review and approval process, and timelines for a complex amendment are the same as those for developing a new RCIS per the Program Guidelines. A simple amendment does not require public notice.

A simple or complex amended RCIS can be submitted by either the original RCIS proponent, CDFW, or by a third-party public agency with the express written authorization of the original RCIS proponent. If a third-party public agency wishes to amend an approved RCIS and the original RCIS proponent declines to amend the RCIS or declines to authorize a third-party public agency to do so, the third-party public agency may seek authorization from CDFW to amend the RCIS. CDFW may, in its sole discretion, authorize a third-party public agency to amend an RCIS if it determines that the proposed amendment will provide a substantial conservation benefit and will not unduly prejudice the rights or interests of the original RCIS proponent. CDFW may also, in its sole discretion, amend an RCIS if it determines that an amendment is necessary to conform to new or amended federal, state, or local laws or regulations, or if it determines that the proposed amendment will provide a substantial conservation benefit and will not unduly prejudice the rights or interests of the original RCIS proponent.

# Chapter 5
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Chapter 6
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# 6.3 Antelope Valley RCIS Steering Committee

Antelope Valley RCIS Steering Committee members provided important and valuable input to the development of the RCIS. They are listed below in order of last name.

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|---|---|
| Jill Bays | Transition Habitat Conservancy |
| Vern Biehl | Transition Habitat Conservancy |
| Graham Chisholm | Conservation Strategy Group |
| Brian Croft | U.S. Fish and Wildlife Service |
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| Robert Wang | California Department of Transportation |

# 6.4 Antelope Valley RCIS Advisory Committee

Antelope Valley RCIS Advisory Committee members provided important input and perspective during the development of the RCIS. They are listed below in order of last name.

| | |
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| Tracey Brownfield | Land Veritas |
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| Brian Croft | U.S. Fish and Wildlife Service |

| | |
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| Jim James | Regional Renewable Group |
| Scott Kiernan | Edwards Air Force Base |
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| Randy Rodriguez | California Department of Fish and Wildlife |
| Alex Size | Trust for Public Land |
| Greg Suba | California Native Plant Society |
| Emily Tibbott | California Strategic Growth Council |
| Robert Tse | U.S. Department of Agriculture |
| Erinn Wilson | California Department of Fish and Wildlife |
| Susan Zahnter | Association of Rural Town Councils |
| Jan Zimmerman | Regional Water Quality Control Board |

# 6.5 Antelope Valley RCIS Local and Technical Experts

Antelope Valley RCIS local and technical expert group members provided essential local knowledge and expertise regarding issues in the RCIS area, details about focal species and natural communities, and helpful information regarding the application of conservation actions in the local environment. The local and technical experts are listed below, in order of last name.

| | |
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| Jill Bays | Transition Habitat Conservancy |
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| Greg Suba | California Native Plant Society |

Appendix A

# Glossary

# Appendix A
# **Glossary**

This glossary defines terms used throughout this Antelope Valley Regional Conservation Investment Strategy (RCIS). Additional terms and extended definitions are provided in the *Regional Conservation Investment Strategies Program Guidelines* (Program Guidelines), Section 2, *Standard Terminology.*[1]

| Term | Definitions |
|---|---|
| adaptive management and monitoring strategy | A component of an RCIS that incorporates an adaptive management process that is informed by periodic monitoring of the implementation of both conservation actions and habitat enhancement actions. Adaptive management means using the results of new information gathered through a monitoring program to adjust management strategies and practices to help provide for the conservation of focal species and their habitats. A monitoring strategy is the periodic evaluation of monitoring results to assess the adequacy of implementing a conservation action or habitat enhancement action and to provide information to direct adaptive management activities to determine the status of the focal species, their habitats, or other natural resources.[2] |
| advance mitigation | Compensatory mitigation for impacts on ecological resources (species and their habitats) and other natural resources that is implemented prior to impacts occurring |
| Advisory Committee | Composed of local stakeholders, this group provided information on regional ecological resources important to the development of this Antelope Valley RCIS. |
| area-dependent species | Species that require large, contiguous blocks of habitat. |
| areas of high biological value | Areas determined to offer the highest biological value for focal species based on modeled species distribution, natural communities, wildlife movement, habitat resilience, and other factors. |
| areas of high conservation value | Areas determined to have both high biological value and high landscape intactness; prioritized for conservation actions. |
| Assembly Bill (AB) | A draft of a proposed law introduced by a Member of the California Assembly. |
| Assembly Bill 2087 | Amended California Fish and Game Code Chapter 9, 1850–1861 to create a pilot RCIS through January 1, 2020. |
| biodiversity | The full array of living things considered at all levels, from genetic variants of a single species to arrays of species and arrays of genera, families, and higher taxonomic levels; includes natural communities and ecosystems. |

[1] California Department of Fish and Wildlife California Department of Fish and Wildlife. 2017a. *Regional Conservation Investment Strategies. Program Guidelines.* April 3. Sacramento, CA. Available: https://www.wildlife.ca.gov/Conservation/Planning/Regional-Conservation.

[2] Adapted from California Fish and Game Code (CFGC 2805 (a)(g)).

| Term | Definitions |
|---|---|
| California Climate Adaptation Strategy | The document summarizing climate change impacts and recommending adaptation strategies for the State of California.[3] |
| California Department of Fish and Wildlife (CDFW) | CDFW manages and protects the state's wildlife, wildflowers, trees, mushrooms, algae, and native habitats. |
| California Desert Biological Conservation Framework | Developed from the *Draft Desert Renewable Energy Conservation Plan and Environmental Impact Report/Environmental Impact Statement*, the framework incorporates all conservation planning data and results, including biological goals and objectives at the landscape, natural community, and species levels. |
| California Endangered Species Act (CESA_ | California Fish and Game Code Section 2050-2115.5). |
| California Environmental Quality Act (CEQA) | California Public Resources Code, Sections 21000–21178, and Title 14 California Code of Regulations, Section 753, and Chapter 3, Sections 15000–15387. |
| California Essential Habitat Connectivity Project: A Strategy for Conserving a Connected California (CEHC) | A statewide assessment of essential habitat connectivity completed by consultants and commissioned by CDFW and the California Department of Transportation (Caltrans).[4] The assessment used the best available science, data sets, and spatial analysis and modeling techniques to identify large remaining blocks of intact habitat or natural landscape and model linkages between them that need to be maintained, particularly as corridors for wildlife. |
| California Fish and Game Code (CFGC) | State code amended by Assembly Bill 2087 to provide for an RCIS program (CFGC 1850–1861). |
| California Natural Diversity Database (CNDDB) | CNDDB is an inventory of the status and locations of rare plants and animals in California. |
| California Wildlife Habitat Relationships (CWHR) | System that contains the life history, geographic range, habitat relationships, and management information for over 700 regularly occurring species of amphibians, reptiles, birds, and mammals in the state; allows users to produce queries to generate lists of species by geographic location or habitat type; and provides information on expert opinion–based habitat suitability ranks for each species within each habitat type. |
| carr | Land cover with saturated soil or standing water and a more or less well-developed tree canopy or tall shrub layer. |
| climate change vulnerability | Refers to the degree to which an ecological system, natural community, habitat, or individual species is likely to be adversely affected as a result of changes in climate and is often dependent on factors such as exposure, sensitivity, and adaptive capacity. |
| compensatory mitigation | Actions taken to fulfill, in whole or in part, mitigation requirements under state or federal law or a court mandate. |
| conservation | The use of habitat and other natural resources in ways such that they may remain viable for future generations. This includes permanent protection of such resources. See *permanently protect*. |

[3] California Natural Resources Agency. 2009. *California Climate Adaptation Strategy.* Sacramento, CA. Available: http://climatechange.ca.gov/adaptation/.

[4] *California Essential Habitat Connectivity Project*. Available: https://www.wildlife.ca.gov/conservation/planning/connectivity/CEHC.

| Term | Definitions |
|---|---|
| conservation action | An action identified in an RCIS that, when implemented, would permanently protect or restore, and perpetually manage, conservation elements, including focal species and their habitats, natural communities, ecological processes, and wildlife corridors. In contrast, a habitat enhancement action would have long-term durability but would not involve acquiring land or permanently protecting habitat; see *habitat enhancement action*. A conservation action is developed to achieve one or more conservation objectives. A conservation action may be implemented through a variety of conservation investments or mitigation credit agreements (MCAs). A conservation action that is implemented through an MCA would create conservation credits to be used as compensatory mitigation. |
| conservation bank | Land managed for its natural resource values, with an emphasis on targeted resources. May include habitat restoration or creation in addition to protecting occupied habitats. See *mitigation bank.* |
| conservation easement | A perpetual conservation easement that complies with Chapter 4 (commencing with Section 815) of Title 2 of Part 2 of Division 2 of the Civil Code..[5] |
| conservation element | An element that is identified and analyzed in an RCIS that will benefit from conservation actions and habitat enhancement actions set forth in the RCIS. Conservation elements include focal species and their habitats, natural communities, biodiversity, habitat connectivity, ecosystem functions, water resources, and other natural resources. Conservation elements may benefit through both conservation investments and MCAs. |
| conservation goal | A broad, guiding principle that describes a desired future condition for a focal species, other species, or other important conservation element. Each conservation goal is supported by one or more conservation objectives. |
| conservation investment | Conservation actions or habitat enhancement actions that are implemented under an approved RCIS but the implementer does not create credits through an MCA with CDFW. Conservation investments are typically funded by public agencies and nonprofit or other philanthropic organizations. |
| conservation priority | A conservation action (land acquisition, restoration, or habitat enhancement) that is identified based on its importance for benefiting and contributing to the conservation of focal species and their habitats, or other conservation elements in an RCIS area. |
| conservation purpose | Statement or statements in an RCIS that identify focal species and other conservation elements within the RCIS area and which outline conservation actions or habitat enhancement actions that, if implemented, will sustain and restore these resources. |
| creation (of natural community or focal species' habitat) | The creation of a specified resource condition where none existed before. See *establishment.* |

[5] *Conservation easement* includes a conservation easement as defined in Civil Code Section 815.1, and an agricultural conservation easement as defined in Public Resources Code Section 10211.

| Term | Definitions |
|---|---|
| critical habitat | Habitat designated as critical[6] refers to specific areas occupied by a federally listed species at the time it is listed, and that are essential to the conservation of the species and that may require special management considerations or protection. Critical habitat also includes specific areas outside occupied habitat into which the species could spread and that are considered essential for recovery of the species.. |
| *Draft Desert Renewable Energy Conservation Plan and Environmental Impact Report/Environmental Impact Statement* (DRECP) | The DRECP examined the impacts of renewable energy and associated development on public and private lands, and is a foundation document for this Antelope Valley RCIS.[7] |
| ecological function | Ecological function refers to the roles and relationships (e.g., predator and prey relationships) of organisms within an ecological system, and the processes (e.g., pollination, decomposition) that sustain an ecological system. See also, *ecosystem function*. |
| ecological integrity | The degree to which the components (types of species, soil, etc.), structures (arrangement of components), and processes (flows of energy and nutrients) of an ecosystem or natural community are present and functioning intact. Lands with low ecological integrity generally have been subject to significant human influences or disruption of natural processes, such as fire, floods, or nutrients and hydrological cycling. |
| ecological resources | Species, habitats, biological resources, and natural resources identified in an RCIS. See *conservation element* and *natural resources*. |

[6] 16 United States Code 1532(5)(a).

[7] California Energy Commission, California Department of Fish and Wildlife, U.S. Bureau of Land management, and U.S. Fish and Wildlife Service. 2014. *Desert Renewable Energy Conservation Plan (DRECP) Environmental Impact Report/Environmental Impact Statement.* Available: http://www.drecp.org/draftdrecp/files/a_Front_Matter_and_Executive_Summary/Title_Main.pdf.

| Term | Definitions |
|---|---|
| ecoregion, subecoregion | As used in this document, ecoregion means a U.S. Department of Agriculture (USDA) Section[8] and sub-ecoregion means a portion of the Section or U.S. Geological Survey (USGS) hydrological units (assigned hydrological unit codes [HUCs]).[9] USDA describes four geographic levels of detail in a hierarch of regional ecosystems including domains, divisions, provinces, and sections. Sections are subdivisions of provinces based on major terrain features, such as a desert, plateau, valley, mountain range, or a combination thereof.[10] |
| ecosystem | A natural unit defined by both its living and nonliving components; a balanced system of the exchange of nutrients and energy. See *habitat*. |
| ecosystem function | The ecosystem processes involving interactions between physical, chemical, and biological components, such as dynamic river meander, floodplain dynamism, tidal flux, bank erosion, and other processes necessary to sustain the ecosystem and the species that depend on it. |
| ecosystem services | The beneficial outcomes to humans from ecosystem functions such as supplying of oxygen; sequestering of carbon; moderating climate change effects; supporting the food chain; harvesting of animals or plants; providing clean water; recharging groundwater; abating storm, fire, and flood damage; pollinating and fertilizing for agriculture; and providing scenic views. |
| endemic | A species, subspecies, or variety found only in a specified geographic region. |
| enhancement | A manipulation of an ecological resource or natural resource that improves a specific ecosystem function. An enhancement does not result in a gain in protected or conserved land, but it does result in an improvement in ecological or ecosystem function. |
| essential connectivity areas | Those areas essential for ecological connectivity between natural landscape blocks, as depicted in the Essential Connectivity Map prepared as part of the California Essential Habitat Connectivity Project,[11] or other connectivity report, plan, or map approved by CDFW or that represents best available science. |

[8] Goudey, C.B., and D.W. Smith, eds. 1994. Ecoregions California07_3. McClellan, CA. Remote Sensing Lab. Updated with ECOMAP 2007: Cleland, D.T.; Freeouf, J.A.; Keys, J.E., Jr.; Nowacki, G.J.; Carpenter, C; McNab, W.H. 2007. Ecological Subregions: Sections and Subsections of the Conterminous United States [1:3,500,000] [CD-ROM]. Sloan, A.M., cartog. Gen. Tech. Report WO-76. Washington, DC: U.S. Department of Agriculture, Forest Service. Miles and Goudey 1997. *Ecological Subregions of California*. Technical Report R5-EM-TP-005, USDA Forest Service, Pacific Southwest Region, San Francisco, CA.

[9] The U.S. Department of Agriculture-Natural Resources Conservation Service (USDA-NRCS), the U.S. Geological Survey (USGS), and the U.S. Environmental Protection Agency (EPA). The Watershed Boundary Dataset (WBD) was created from a variety of sources from each state and aggregated into a standard national layer for use in strategic planning and accountability. http://datagateway.nrcs.usda.gov.

[10] Goudey, C.B., and D.W. Smith, eds. 1994. Ecoregions California07_3. McClellan, CA. Remote Sensing Lab. Updated with ECOMAP 2007: Cleland, D.T.; Freeouf, J.A.; Keys, J.E., Jr.; Nowacki, G.J.; Carpenter, C; McNab, W.H. 2007. Ecological Subregions: Sections and Subsections of the Conterminous United States [1:3,500,000] [CD-ROM]. Sloan, A.M., cartog. Gen. Tech. Report WO-76. Washington, DC: U.S. Department of Agriculture, Forest Service. Miles and Goudey 1997. *Ecological Subregions of California.* Technical Report R5-EM-TP-005, USDA Forest Service, Pacific Southwest Region, San Francisco, CA.

[11] U.S. Fish and Wildlife Service. California Essential Habitat Connectivity Project. Available: https://www.wildlife.ca.gov/conservation/planning/connectivity/CEHC. Accessed: March 3, 2017.

| Term | Definitions |
|---|---|
| establishment | The manipulation of the physical, chemical, or biological characteristics present on a site to develop an aquatic or terrestrial habitat resource for focal species. Establishment will result in a gain in resource area and/or function. See *creation*. |
| focal species | Sensitive species that are identified and analyzed in an RCIS and will benefit from conservation actions and habitat enhancement actions set forth in the RCIS. Focal species may benefit through both conservation investments and MCAs. |
| foraging territory | The distance or area over which an individual of a species is known to travel to find food resources, as reported in agency reports, or peer reviewed literature for that species. |
| gap analysis | An analysis that identifies gaps between land areas that are rich in biodiversity and areas that are managed for conservation. |
| Guidelines | Regional Conservation Investment Strategies Program Guidelines. |
| habitat | An ecological or environmental area that is, or may be, inhabited by a species of animal, plant, or other type of organism. Habitat is also the physical and biological environment that surrounds, influences, and is utilized by a species' population and is required to support its occupancy. |
| habitat connectivity | The capacity of habitat to facilitate the movement of species and ecological functions. |
| habitat conservation plan (HCP) | A planning document that is required as part of an application for an incidental take permit under the federal Endangered Species Act. HCPs provide for partnerships with non-federal parties to conserve the ecosystems upon which listed species depend, ultimately contributing to their recovery. HCPs describe the anticipated effects of the proposed taking, how those impacts will be minimized or mitigated, and how the HCP is to be funded. |
| habitat enhancement action | An action identified in an RCIS that, when implemented, is intended to improve the quality of wildlife habitat, or to address risks or stressors to wildlife. A habitat enhancement action is developed to achieve one or more conservation objectives. A habitat enhancement action would have long-term durability but would not involve acquiring land or permanently protecting habitat. In contrast, a conservation action would permanently protect or restore, and perpetually manage, conservation elements; see *conservation action*. Examples of habitat enhancement actions include improving in-stream flows to benefit fish species, enhancing habitat connectivity, and controlling or eradicating invasive species. A habitat enhancement action may be implemented through a variety of conservation investments or MCAs. A habitat enhancement action that is implemented through an MCA would create habitat enhancement credits intended for use as compensatory mitigation for temporary impacts. |

| Term | Definitions |
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| habitat quality | The capacity of a habitat to support a species. The precise meaning of habitat quality varies by species and depends on the specific needs of a species in the context of a particular area. High-quality habitat for species may have only foraging and resting elements or it may include foraging, resting, and nesting elements. For other species, it may encompass all elements needed for the species to complete its lifecycle. Low-quality habitat has only the minimal elements to support occurrence of the species. High-quality habitat tends to support larger numbers of species than low-quality habitat. |
| home range | The area in which an individual of a species lives and moves to meet its needs such as feeding, foraging, breeding, and sheltering. |
| implementation committee | Potential partners to the Desert and Mountains Conservation Authority (DMCA) in guiding implementation of this Antelope Valley RCIS. |
| in-lieu fee program | Programs that allow payment to the government or nonprofit organization to meet the compensatory mitigation requirements for certain permits. |
| indicator species | A species, the presence or absence of which is indicative of a particular habitat, community, or set of environmental conditions.[12] |
| invasive species, nonnative species | A nonnative species that can spread into the ecosystems and displace native species, hybridize with native species, alter biological communities, and alter ecosystem processes and that has the potential to cause environmental or economic harm.[13] According to the California Invasive Plan Council, nonnative species refers to any species introduced to California after European contact and as a direct or indirect result of human activity.[14] |
| keystone species | A species whose impacts on its community or ecosystem are much larger than would be expected from its abundance[15] or a species whose loss from an ecosystem would cause a greater-than-average change in other species populations or ecosystem processes and whose continued well-being is vital for the functioning of a whole community. |
| land conversion | The conversion of natural and agricultural land to other land uses through the process of development. |
| land cover type | The dominant feature of the land surface defined by vegetation, water, or human uses. |
| land preservation | Generally, the preservation of natural resources by acquiring land in |
| Madrean | Floristic region encompassing arid or semiarid areas in the southwestern United States and northwestern Mexico. |

[12] Lincoln, R., G. Boxshall, and P. Clark. 1998. *A Dictionary of Ecology, Evolution and Systematics.* Second Edition. Cambridge University Press, Cambridge, UK.

[13] California Department of Fish and Wildlife. 2015. *California State Wildlife Action Plan, 2015 Update: A Conservation Legacy for Californians*. Edited by Gonzales, A. G. and Hoshi, J. Available: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=110399&inline. Accessed: March 16, 2017.

[14] California Invasive Plant Council. 2006 (Updates the 1999 CalEPPC List). Cal-IPC Invasive Plant Inventory. www.cal-ipc.org.

[15] Groom, M.J., G.K. Meffe, and R.C. Carroll, and contributing authors. 2006. *Principles of Conservation Biology, 3rd Edition*. Sinauer Associates: Sunderland, MA. 793 pages.

| Term | Definitions |
|---|---|
| mitigation bank | Land managed for its natural resource values, with an emphasis on targeted resources. Typically requires the restoration or creation of aquatic resources. See *conservation bank*. |
| mitigation credit agreement (MCA) | Identifies the type and number of credits a person or entity proposes to create by implementing one or more conservation actions or habitat enhancement actions. An MCA includes the terms and conditions under which those credits may be used. The person or entity may create and use, sell, or otherwise transfer the credits upon CDFW's approval that the credits have been created in accordance with the MCA. To enter into an MCA with CDFW, a person or entity shall submit a draft MCA to CDFW for its review, revision, and approval. |
| metric | The indicator (e.g., area, habitat quality, known or estimated population size, etc.) by which the net change can be measured, using existing technology, from implementation of the proposed conservation actions or habitat enhancement actions relative to performance standards, to determine achievement of the RCIS's objectives. |
| monitoring plan | The plan for monitoring a project. It includes information needs, indicators, and monitoring methods, spatial scale and locations, timeframe, and roles and responsibilities for collecting data. |
| National Marine Fisheries Service (NMFS) | National Marine Fisheries Service, or the National Oceanic and Atmospheric Administration (NOAA) Fisheries, is the federal agency responsible for the stewardship of the nation's living marine resources and their habitat. |
| natural community | A group of organisms living together and linked together by their effects on one another and their responses to the environment they share.[16] A general term often used synonymously with habitat or vegetation type. |
| natural resources | Biological and ecological resources including species and their habitats, including Waters of the State, Waters of the United States, wetlands, and natural communities. See *ecological resources* and *conservation element*. |
| Natural Community Conservation Plan (NCCP) | A plan developed pursuant to the Natural Community Conservation Planning Act (CFGC 2800–2835). which identifies and provides for the regional protection of plants, animals, and their habitats, while allowing compatible and appropriate economic activity.[17] An NCCP allows for take of species listed under CESA, as well as other, non-listed species |
| Natural Community Conservation Planning Act (NCCPA) | California Fish and Game Code Sections 2800–2835. |
| nonnative species | Any species introduced to California after European contact and as a direct or indirect result of human activity.[18] See *invasive species*. |

[16] Sawyer, J.O., T. Keeler-Wolf, and J.E. Evens. 2009. *A Manual of California Vegetation*. Second Edition. Sacramento, CA: California Native Plant Society.

[17] California Fish and Game Code, Sections 2800–2835.

[18] California Invasive Plant Council. 2006 (Updates the 1999 CalEPPC List). *Cal-IPC Invasive Plant* Inventory. Available: www.cal-ipc.org.

| Term | Definitions |
|---|---|
| objective, conservation objective | A concise, measurable statement of what is to be achieved and that supports a conservation goal. The objective should be based on the best available scientific information to conserve the focal species or other conservation elements for which the conservation goal and objective is developed. It should be measurable by using a standard metric or scale (i.e., number, percent), in a region (e.g., county, watershed, jurisdictional area) over a period of time (e.g., years). |
| performance standards | Observable or measurable physical or biological attributes that are used to determine if a conservation action or habitat enhancement action has met its objectives. |
| performance-based milestones | Identified steps in the implementation of a conservation action or habitat enhancement action, such as site protection, initiating implementation, completing implementation, or achieving performance standards. |
| permanently protect | Permanent protection means: (1) recording a conservation easement and (2) providing secure, perpetual funding for management of the land, monitoring, legal enforcement, and defense. |
| population | The number of individuals of a particular taxon inhabiting a defined geographic area. |
| pressure | An anthropogenic (human-induced) or natural driver that could result in changing the ecological conditions of the focal species or other conservation element. Pressures can be positive or negative depending on intensity, timing, and duration. Negative or positive, the influence of a pressure on the target focal species or other conservation elements is likely to be significant. See *stressor*. |
| protected area | Public or private lands managed for open space use. |
| protection | Protection is defined in this RCIS as acquisition of land in fee title ownership and/or a conservation easement to benefit the conservation of species, habitats, and agricultural lands. |
| RCIS area | The geographic area encompassed by an RCIS. |
| RCIS proponent | The public agency or group of public agencies developing an RCIS for review and approval by CDFW and that is responsible for the technical and administrative updates of an RCIS. For this Antelope Valley RCIS, the proponent is the Desert and Mountains Conservation Authority. |
| RCIS state agency sponsor | The public state agency that submits the approval request letter to CDFW stating that the RCIS fulfills planning need for conservation and infrastructure or forestry. |
| reclamation | The act or process of recovering, and/or the state of being recovered. Many reclamation techniques can be used on the path to recovering or restoring pre-disturbance profiles. |

| Term | Definitions |
| --- | --- |
| recovery | The process by which the decline of an endangered or threatened species is halted or reversed or threats to its survival are neutralized, so that its long-term survival in nature can be ensured.[19] Recovery entails actions to achieve the conservation and survival of a species, including actions to prevent any further erosion of a population's viability and genetic integrity. Recover also includes actions to restore or establish environmental conditions that enable a species to persist (i.e., the long-term occurrence of a species through the full range of environmental variation). |
| recovery plan | A document published by the U.S. Fish and Wildlife Service (USFWS), National Marine Fisheries Service (NMFS), or CDFW that lists the status of a listed species and the actions necessary to remove the species from the endangered species list. |
| reestablishment | Manipulation of a piece of land with the goal of returning natural or historical ecosystem functions to a former resource. Results in rebuilding a former resource and increasing its area and ecosystem functions. |
| regional conservation investment strategy (RCIS) | Information and analyses to inform nonbinding and voluntary conservation actions and habitat enhancement actions that would advance the conservation of focal species and their habitats, natural communities, and other conservation elements. The RCIS provides nonbinding, voluntary guidance for the identification of conservation priorities, investments in ecological resource conservation, or identification of priority locations for compensatory mitigation for impacts on species and natural resources. RCISs are intended to provide scientific information for the consideration of public agencies and are voluntary. RCISs do not create, modify, or impose regulatory requirements or standards; regulate the use of land; establish land use designations; or affect the land use authority of, or exercise of discretion by, any public agency. RCISs are required if MCAs are to be developed. |
| rehabilitation | Manipulation of a piece of land with the goal of repairing natural or historic ecosystem functions to degraded habitat or natural resources. This results in an improvement in ecological or ecosystem functions, but it does not result in a gain in area. |
| restore, restoration | Manipulation of a piece of land with the goal of repairing natural or historic ecosystem functions to degraded habitat or natural resources. This results in an improvement in ecological or ecosystem functions, but it does not result in a gain in area.. |

[19] U.S. Fish and Wildlife Service and National Marine Fisheries Service. 1998. *Recovery Plan for Upland Species of the San Joaquin Valley, California*. Portland, OR: Region 1.

| Term | Definitions |
|---|---|
| revegetation | The process of replanting and rebuilding the soil of disturbed land. This may be a natural process produced by plant colonization and succession, human-made rewilding projects, or accelerated processes designed to repair damage to a landscape due to wildfire, mining, flood, or other cause. |
| sensitive species | Any special-status species identified by a state or federal agency. |
| Significant Ecological Area (SEA) | Areas in Los Angeles County so designated for their biological value to rare species or habitats, as identified in the *Los Angeles County General Plan*.[20] |
| special-status species | A species identified as endangered, threatened, or candidate under state or federal law; as rare or fully protected under state law; or otherwise identified by CDFW through the approval of an RCIS. See also, *focal species* and *sensitive species*. |
| Species of Greatest Conservation Need (SGCN) | SGCNs are selected, for each state, to indicate the status of biological diversity in the state, specifying at-risk species that have the greatest need for conservation. The latest SGCN list for the state of California is found in the California State Wildlife Action Plan 2015 Update.[21] |
| Species of Special Concern (SSC) | Species of Special Concern[22] is an administrative designation and carries no formal legal status. The intent of designating SSCs is to: (1) focus attention on animals considered potentially at conservation risk by CDFW, other state, local and federal governmental entities, regulators, land managers, planners, consulting biologists, and others; (2) stimulate research on poorly known species; and (3) achieve conservation and recovery of these animals before they meet CESA criteria for listing as threatened or endangered.. |
| State Wildlife Action Plan (SWAP) | A comprehensive plan for conserving fish and wildlife across the state. [23] The California SWAP is a CDFW publication developed to address the highest conservation priorities of the state, providing a blueprint for actions necessary to sustain the integrity of California's diverse ecosystems. CDFW also created companion plans to support SWAP 2015 implementation through collaboration with partner agencies and organizations. The companion plans identify shared priorities among partner organizations to conserve natural resources in nine sectors that are experiencing significant pressures affecting natural resources. |
| Steering Committee | Is composed of representatives from agencies and organizations and provided guidance on the development of this Antelope Valley RCIS. |

[20] Los Angeles County. 2015. *Los Angeles County General Plan 2035.* Available: http://planning.lacounty.gov/generalplan.

[21] California Department of Fish and Wildlife. 2015. *California State Wildlife Action Plan, 2015 Update: A Conservation Legacy for Californians*. Edited by Armand G. Gonzales and Junko Hoshi, PhD (eds.). Prepared with assistance from Ascent Environmental, Inc., Sacramento, CA. Available: https://www.wildlife.ca.gov/SWAP.

[22] https://www.wildlife.ca.gov/Conservation/SSC.

[23] California Department of Fish and Wildlife. 2017. *SWAP Final 2015 Document.* Available: https://www.wildlife.ca.gov/SWAP/Final.

| Term | Definitions |
|---|---|
| stewardship | Land planning and ecological resources management with the goal of protecting and enhancing ecosystems and biodiversity. |
| strategy | A plan of action or policy designed to achieve a major or overall aim. |
| stressor | A degraded ecological condition of a focal species or other conservation element that resulted directly or indirectly from a negative impact of pressures such as habitat fragmentation. |
| Technical Subcommittee | Formed by the Steering and Advisory Committees to analyze key technical issues. |
| terrestrial landscape intactness | Describes the extent to which areas have been altered by anthropogenic actions. |
| threat | See *stressor*, *pressure*. |
| umbrella species | A species whose conservation would indirectly conserve other species dependent on the same ecological conditions. |
| U.S. Fish and Wildlife Service (USFWS) | The federal agency responsible for conserving, protecting, and enhancing fish, wildlife, and plants and their habitats. |
| U.S. Geological Survey (USGS) | The federal agency that provides science about natural hazards and natural resources. |
| Vegetation Classification and Mapping Program (VegCAMP) | Program that develops and maintains California's expression of the National Vegetation Classification System. |
| vernal pool | Seasonal depressional wetland covered by shallow water for variable periods from winter to spring, but may be completely dry for most of the summer and fall, ranging in size from a small puddle to a shallow lake. |
| watershed | An area or ridge of land that contains a common set of streams and rivers that all drain into one location such as a marsh, stream, river, lake, or ocean. Also, the USGS defined hydrologic unit code (HUC) 6 areas. |
| working land | An area where people live and work in a way that allows ecosystems or ecosystem functions to be sustained (e.g., farms, ranches). Human activities are done in a way that minimizes disturbance on native plants and animals while still retaining the working nature of the landscape. |

Appendix B

# Regulatory Processes

# Appendix B
# **Regulatory Processes**

It is anticipated that this Antelope Valley Regional Conservation Investment Strategy (RCIS) will inform implementation of conservation actions and conservation enhancements as well as the implementation of projects that will require mitigation (e.g., transportation projects). When undertaking any type of ground-disturbing or vegetation-manipulating activities, it is important to consider that the action taken may affect resources that are regulated by one or more agency and may require one or more regulatory permits. This appendix provides a brief overview of the key regulations and implementing agencies.

To approve this RCIS, CDFW must find that it meets all of the requirements in the CFGC for an RCIS. To assist CDFW with these findings, See Table 1-1 for a list of the requirements in the order they appear in the CFGC and their correlated sections in this RCIS.

As indicated in Fish and Game Code Section 1855(b), neither this RCIS nor any Mitigation Credit Agreement adopted pursuant to it modifies in any way: (a) the standards for issuance of incidental take permits (ITPs) or consistency determinations (CDs) under CESA; (b) the standards for issuance of lake and streambed alteration (LSA) agreements under Section 1600, et seq.; or (3) the standards under CEQA. In addition, nothing in this RCIS or in any MCA adopted pursuant to it relieves a project proponent of the obligation to obtain all necessary permits, including but not limited to ITPs, CDs, and LSA agreements, and to fulfill all avoidance, minimization, and mitigation measures required by those permits. For these reasons, CDFW and any other relevant regulatory agencies should be consulted prior to implementing any actions in this RCIS that have any potential for impacts to regulated resources (such as CESA-listed species or streambeds), to determine if any permits are needed.

When developing permit applications for these agencies, a key consideration is whether the proposed project falls under an existing permitting program or regional program for compensatory mitigation. In addition, it is important to consider how this RCIS and other existing permitting programs are applicable to the different regulatory agencies that may have purview over the project. To that end, this appendix provides guidance related to established programs as well as guidance on how the information in this Antelope Valley RCIS can be used to support the mitigation requirements of the different regulatory agencies.

## Regulatory Overview

The following sections provide a high-level overview of the regulatory agencies that are typically involved in project permitting when a proposed activity may disturb aquatic resources or species covered by the federal Endangered Species Act (ESA) or the California Endangered Species Act (CESA). This overview is not comprehensive, and other permits from other agencies or local jurisdictions may be required. The purpose of this overview is to provide basic guidance on regulations that may relate to proposed projects.

### U.S. Army Corps of Engineers

Under Section 404 of the federal Clean Water Act (CWA), a permit is required from the U.S. Army Corps of Engineers (Corps) for the placement of dredged or fill material in waters of the United States, including wetlands. Projects may be authorized under existing general permits (nationwide permits or regional general permits) or may require an individual permit. A nationwide permit is a more streamlined permit process compared with an individual permit, although supporting compliance efforts, such as for the ESA or National Historic Preservation Act, are similar, regardless of permit type. Project activities that could trigger CWA Section 404 permitting (individual or general) include temporarily or permanently filling any portion of a water of the United States.

# U.S. Fish and Wildlife Service

The U.S. Fish and Wildlife Service (USFWS) administers the federal ESA. The ESA requires agencies to maintain lists of threatened and endangered species. It affords substantial protection to listed species. The ESA includes mechanisms that provide exceptions to Section 9 take prohibitions. These are discussed in ESA Section 7 for federal actions and ESA Section 10 for nonfederal actions.

## Endangered Species Act Section 7

Section 7 of the ESA requires all federal agencies to ensure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of any listed species or result in destruction or adverse modification of habitat that is critical to such species' survival. To ensure that its actions would not jeopardize listed species or adversely modify critical habitat,[1] each federal agency must consult with the USFWS regarding federal agency actions that may affect listed species. Consultation begins when the federal agency (often the Corps) submits a written request for initiation to the USFWS, along with the agency's biological assessment of its proposed action, and the USFWS accepts the biological assessment as complete. If the USFWS concludes that the action is not likely to adversely affect a listed species, the action may be conducted without further review under the ESA. Otherwise, the USFWS must prepare a written biological opinion that describes how the agency's action will affect the listed species and its critical habitat.

If the biological opinion concludes that the proposed action would jeopardize the continued existence of a listed species or adversely modify its critical habitat, the opinion will suggest "reasonable and prudent alternatives" to avoid that result. If the biological opinion concludes that the proposed action would take a listed species but would not jeopardize its continued existence, the biological opinion will include an incidental take statement. *Incidental take* is "incidental to, and not intended as part of, an otherwise lawful activity."[2] The incidental take statement specifies the amount of take that will be allowed as a result of the action and states whether reasonable and prudent measures will be required to minimize the impact of the take.

## Endangered Species Act Section 10

In cases where federal land, funding, or authorization is not required for an action by a nonfederal entity, the take of listed fish and wildlife species can be permitted by the USFWS through the Section 10 process. Private landowners, corporations, state agencies, local agencies, and other nonfederal entities must obtain a Section 10(a)(1)(B) incidental take permit for take of federally listed fish and wildlife species "that is incidental to, but not the purpose of, otherwise lawful activities."

The take prohibition for listed plants is more limited than for listed fish and wildlife. Under Section 9(a)(2)(B) of the ESA, endangered plants are protected from "removal, reduction to possession, and malicious damage or destruction" in areas that are under federal jurisdiction. Section 9(a)(2)(B) of the ESA also provides plants protection from removing, cutting, digging up,

[1] *Critical habitat* is defined as specific geographic areas, whether occupied by listed species or not, that are determined to be essential for the conservation and management of listed species and formally described in the *Federal Register*.

[2] See 64 Code of Federal Regulations (CFR) 60728.

damaging, or destroying when the action takes place in violation of state law or regulation or in violation of a state criminal trespass law. Therefore, the ESA does not prohibit the incidental take of federally listed plants on private or other nonfederal lands, unless the action requires federal authorization or is in violation of state law. Although Section 10 incidental take permits are required only for wildlife and fish species, the Section 7(a)(2) prohibition against jeopardy applies to plants. Issuance of a Section 10(a)(1)(B) incidental take permit cannot result in jeopardy to a listed plant species.

# California Department of Fish and Wildlife

## California Endangered Species Act

The CESA prohibits take of wildlife and plants listed as threatened or endangered by the California Fish and Game Commission. *Take* is defined under the California Fish and Game Code (more narrowly than under the ESA) as any action or attempt to "hunt, pursue, catch, capture, or kill."

Like the ESA, the CESA allows exceptions to the prohibition for take that occurs during otherwise lawful activities. The requirements of an application for incidental take under CESA are described in CFGC Section 2081(b). Incidental take of state-listed species may be authorized if an applicant submits an approved plan that meets all of the requirements of CFGC 2081(b), including that it minimizes and "fully mitigates" the impacts of this take.

## Natural Community Conservation Planning Act

In 1991, California's Natural Community Conservation Planning Act (NCCP Act)[3] was enacted to implement broad-based planning that balances appropriate development and growth with conservation of wildlife and habitat. Pursuant to the NCCP Act, local, state, and federal agencies are encouraged to prepare natural community conservation plans (NCCPs) to provide comprehensive management and conservation of multiple species and their habitats under a single plan rather than through preparation of numerous individual plans on a project-by-project basis. The NCCP Act is broader in its orientation and objectives than the ESA and the CESA. Preparation of an NCCP is voluntary. The primary objective of the NCCP Act is to conserve natural communities at the ecosystem scale while accommodating compatible land use. To be approved by the California Department of Fish and Wildlife (CDFW), an NCCP must provide for the conservation of species and protection and management of natural communities in perpetuity within the area covered by permits. *Conservation* is defined by Section 2805(d) of the California Fish and Game Code. Therefore, NCCPs must contribute to the recovery of listed species or prevent the listing of nonlisted species rather than just mitigate the effects of covered activities.

The 1991 NCCP Act was replaced with a substantially revised and expanded NCCP Act in 2002. The revised NCCP Act established new standards and guidance for many facets of the program, including scientific information, public participation, biological goals, interim project review, and approval criteria. The new NCCP Act took effect on January 1, 2003.

## Lake and Streambed Alteration Agreement

A project proponent is required to enter into a lake and streambed alteration agreement with the CDFW when a proposed project would substantially divert, obstruct, or change the natural flow of a river, stream, or lake; or substantially change or use material from the bed, channel, or bank of a river, stream, or lake; or use material from a streambed.[4] Through this process, the CDFW can impose

[3] California Fish and Game Code (CFGC) Section 2800 *et seq.*

[4] CFGC Section 1602.

conditions on a project and ensure that no net loss of wetland values or acreage will be incurred. The CDFW cannot finalize a Lake Streambed Alteration Agreement until after the California Environmental Quality Act review is complete.

# Compensatory Mitigation Approach

This Antelope Valley RCIS was designed with the intent to not only meet the compensatory mitigation requirements of the CDFW under the CESA but also support compliance with state and federal water-related regulations and the ESA. Guidance on how this Antelope Valley RCIS can support implementation of compensatory mitigation for separate, but related, regulations is provided below.

## Compliance with the Clean Water Act and the Porter-Cologne Water Quality Control Act

An RCIS can provide information and analysis for identifying conservation actions and habitat enhancements that fulfill compensatory mitigation requirements under federal and state water quality protection laws. For example, both federal and state guidance regarding compensatory mitigation for impacts on aquatic resources stress the need for a *watershed approach* to compensatory mitigation. This approach considers the importance of both landscape and resource compensatory mitigation projects for the sustainability of aquatic resource functions within a watershed.

In 2008, the Corps and U.S. Environmental Protection Agency (USEPA) adopted regulations that govern compensatory mitigation for impacts on waters of the United States authorized in permits issued pursuant to CWA Section 404 (the Compensatory Mitigation Rule).[5] The Compensatory Mitigation Rule requires the Corps to ". . . use a watershed approach to establish compensatory mitigation requirements in [Corps] permits to the extent appropriate and practicable."[6] The rule defines a watershed approach as:

> . . . an analytical process for making compensatory mitigation decisions that support the sustainability or improvement of aquatic resources in a watershed. It involves consideration of watershed needs, and how locations and types of compensatory mitigation projects address those needs. A landscape perspective is used to identify the types and locations of compensatory mitigation projects that will benefit the watershed and offset losses of aquatic resource functions and services caused by activities authorized by [Corps] permits. The watershed approach may involve consideration of landscape scale, historic and potential aquatic resource conditions, past and projected aquatic resource impacts in the watershed, and terrestrial connections between aquatic resources when determining compensatory mitigation requirements for [Corps] permits.[7]

The ultimate goal of a watershed approach is to ". . . maintain and improve the quality and quantity of aquatic resources within watersheds through strategic selection of compensatory mitigation sites."[8] Similarly, the State Water Resources Control Board proposes an almost identical watershed approach to compensatory mitigation, as identified in its *Procedures for Discharges of Dredged or Fill Materials to Waters of the State* (Procedures) (State Water Resources Control Board 2019).

[5] See 33 CFR 332.

[6] See 33 CFR 332.3(c)(1).

[7] See 33 CFR 332.2.

[8] See 33 CFR 332.3(c)(1).

The information needs identified for a watershed approach under the Compensatory Mitigation Rule and State Water Resources Control Board's Procedures are almost identical. If a watershed plan is available, it can be the basis of the watershed approach. A *watershed plan* is defined as follows:

> . . . a plan developed by federal, tribal, state, and/or local government agencies or appropriate non-governmental organizations, in consultation with relevant stakeholders, for the specific goal of aquatic resource restoration, establishment, enhancement, and preservation. A watershed plan addresses aquatic resource conditions in the watershed, multiple stakeholder interests, and land uses. Watershed plans may also identify priority sites for aquatic resource restoration and protection. Examples of watershed plans include special area management plans, advance identification programs, and wetland management plans.[9]

If a watershed plan is not available, a watershed approach to compensatory mitigation may be based on the following elements:

> . . . analysis of information regarding watershed conditions and needs, including potential sites for aquatic resource restoration activities and priorities for aquatic resource restoration and preservation. Such information includes current trends in habitat loss or conversion; cumulative impacts of past development activities, current development trends, the presence and needs of sensitive species; site conditions that favor or hinder the success of compensatory mitigation projects; and chronic environmental problems such as flooding or poor water quality.[10]

An RCIS is intended to provide information, analysis, and a process that supports a watershed approach to compensatory mitigation. The Corps, USEPA, and applicable Regional Water Quality Control Boards (RWQCBs) are included in the process of developing the RCIS to ensure that it provides accurate and up-to-date information and analysis regarding the watersheds and aquatic resources within the RCIS strategy area.

This Antelope Valley RCIS includes information and analysis regarding aquatic resources that can be used for compensatory mitigation under the federal CWA and the Porter-Cologne Act (State Water Resources Control Board 2017) in several ways. Project proponents can use the information to develop and site permittee-responsible mitigation actions in connection with a specific permit or project. Mitigation bankers can use the information to develop and site mitigation banks that generate mitigation credits. In each of these cases, approval of the Corps and/or the applicable RWQCB would be required. However, this RCIS could be useful in developing mitigation proposals for approval.

Mitigation credit agreements (MCAs) that meet the requirements of relevant Corps, USEPA, and RWQCB mitigation regulations and policies could also be used to generate mitigation credits for compensatory mitigation under the CWA and Porter-Cologne Act. MCAs can create mitigation credits that can be used to fulfill "compensatory mitigation requirements established under any state or federal environmental law, as determined by the applicable local, state, or federal regulatory agency . . ."[11] CDFW approval of an MCA does not authorize the creation of mitigation credits under the CWA or Porter-Cologne Act. However, if the Corps or RWQCB determines that an MCA meets relevant federal requirements under the CWA and Porter-Cologne Act, it could allow the MCA to create mitigation credits, which could be used under those acts. By fulfilling relevant Corps and USEPA requirements and obtaining approval, the MCA could then be used to create mitigation credits, which could be used to comply with the CWA. Similarly, the RWQCB could determine that such mitigation credits are consistent with Porter-Cologne Act requirements for purposes of a CWA Section 401 certification.

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[9] See 33 CFR 332.2:25, lines 872–878.

[10] See 33 CFR 332.3(c)(3):29, lines 1030–1948.

[11] CFGC Section 1856(c).

# Compliance with the Federal Endangered Species Act

An RCIS can provide information and analysis for identifying conservation actions and habitat enhancements that fulfill compensatory mitigation requirements under federal wildlife protection laws. For example, in December 2016, the USFWS published its final compensatory mitigation policy under the ESA.[12] For compensatory mitigation under the federal ESA, the USFWS prefers the following mitigation conditions:

- Compensatory mitigation projects sited within priority conservation areas identified in landscape-scale conservation plans,
- Compensatory mitigation projects implemented in advance of impacts, and
- Mitigation mechanisms that consolidate compensatory mitigation on the landscape.
- The USFWS has also described the following standards for compensatory mitigation:
- Siting compensatory mitigation in locations identified in landscape-scale conservation plans or mitigation strategies that meet conservation objectives and provide the greatest long-term benefit to the species;
- Providing compensatory in-kind mitigation for the species affected by the proposed action;
- Providing metrics to measure ecological functions at compensatory mitigation sites that are science based, quantifiable, consistent, repeatable, and related to the conservation goals for the species;
- Providing benefits beyond those that would have otherwise occurred through routine or required practices or actions;
- Achieving conservation objectives within a reasonable timeframe or for at least the duration of the impacts;
- Securing the compensatory mitigation by durable means, including adequate legal, real estate, and financial protections that ensure its success;
- Providing accountability in case compensatory mitigation fails to meet its conservation objectives; and
- Providing for appropriate and effective engagement of local communities and stakeholders.

This Antelope Valley RCIS is intended specifically to provide information, analysis, and a process that supports compensatory mitigation and meets all of the criteria. (In some cases, a future MCA would meet the criteria.) The USFWS has been involved in the process of developing this Antelope Valley RCIS to ensure that it provides accurate and up-to-date information and analysis regarding species listed under the federal ESA.

This Antelope Valley RCIS includes information and analysis regarding federally listed species that can be used for compensatory mitigation under the federal ESA in a variety of ways. For example, the information and analysis can be used by project proponents to develop and site permittee-responsible mitigation actions in connection with a specific permit or project. Mitigation bankers can use the information and analysis to develop and site conservation banks that generate mitigation credits. In each of these cases, approval of the USFWS would be required. However, this Antelope Valley RCIS could be useful in developing mitigation proposals for approval.

[12] See 81 *Federal Register* 95316–95349.

The USFWS or National Marine Fisheries Service could also incorporate or refer to an RCIS in regulatory designations and analyses, such as recovery plans, critical habitat designations, habitat conservation plans, and biological opinions. For example, the USFWS could determine that the mitigation strategies or actions of an RCIS meet the requirements of Section 7 of the federal ESA and include them in a biological opinion.

MCAs that meet the requirements of relevant USFWS mitigation regulations and policies could also be used to generate mitigation credits for compensatory mitigation under the federal ESA. For example, the USFWS could determine that an MCA meets the regulations and policies for conservation banks and approve the MCA as a programmatic (umbrella) conservation bank-enabling instrument.

# References

State Water Resources Control Board. 2019. *Procedures for Discharges of Dredged or Fill Materials to Waters of the State*. May 2019.

State Water Resources Control Board. 2017. *Porter-Cologne Water Quality Control Act*. Water Code Division 7 and Related Sections (as amended, including statutes, 2016).

Appendix C

# Stakeholder Involvement and Public Outreach

Appendix C
# Public Outreach

## Antelope Valley RCIS Public Outreach

The Antelope Valley RCIS development process began in March 2016. The process was initiated by the Desert and Mountains Conservation Authority (DMCA), in collaboration with the California Energy Commission (CEC). ICF was the lead technical consultant on the RCIS document, working under the direction of Steering and Advisory committees (see Chapter 6, List of Preparers and Reviewers). The RCIS process benefited from multiple layers of outreach, briefings, and opportunities for input from the Antelope Valley community; non-profit organizations, including environmental, conservation, and community organizations; business interests; regulatory agencies; and federal, tribal, state, and local governments. Notices and letters to public officials are included in Attachment C-1.

The goals of the public outreach were:

1. Provide engaged stakeholders and the public with information on this RCIS planning effort.
2. Receive information regarding the region's ecological values, planning, and conservation priorities.

Table C-1 lists the entities contacted at the beginning and throughout the AVRCIS development process.

## 1. Table C-1. Public Outreach List of Federal, Tribal, State, Local, Environmental, and Private Entities Contacted throughout the Antelope Valley RCIS Development Process

| | |
|---|---|
| Federal Entities | Environmental Entities |
| Bureau of Land Management | Antelope Valley Audubon |
| Edwards Air Force Base | Antelope Valley Conservancy |
| United States Department of Agriculture | Audubon California |
| US Department of Defense | Antelope Valley Audubon Society |
| US Fish & Wildlife Services | California Native Plant Society |
| | Conservation Biology Institute |
| Tribal Entities | Center for Biological Diversity |
| Fernandeño Tataviam Band of Mission | Conservation Strategy Group |
| San Manuel Band of Mission Indians | Defenders of Wildlife |
| Tejon Indian Tribe | Desert Tortoise Preserve Committee |
| | Endangered Habitats League |
| State Entities | Environmental Defense Fund |
| Antelope Valley Air Quality Management District | Land Veritas |
| Antelope Valley Resource Conservation District | National Resources Defense Council |

CA Department of Fish & Wildlife
CA Energy Commission
CA Natural Resources Agency
CA State Parks
CA Strategic Growth Council
Caltrans
Caltrans HQ
Desert & Mountains Conservation Authority
High Speed Rail Authority
Mountains Recreation & Conservation Authority
State Water Resources Control Board

Local Entities
Association of Rural Town Councils
City of Lancaster
City of Lancaster City Council
City of Palmdale
City of Palmdale City Council
Kern County
Los Angeles County
Los Angeles County (AV Field Deputy)
Los Angeles County Board of Supervisors
Los Angeles County Farm Bureau
Los Angeles County Parks
Los Angeles County Planning
LA Metro
LA Metro High Dessert Corridor Project
Lakes Town Council
Palmdale Water District
San Bernardino County
Three Points-Liebre Mt. Town Council

Poppy Reserve/Mojave Desert Interpretive Association
Sierra Club
Tejon Conservancy
The Nature Conservancy
Transition Habitat Conservancy
Trust for Public Land

Private Entities
8 Minute Energy
CalCIMA
Cooper Ecological Monitoring, Inc.
Dudek
Large Scale Solar Association
Renewable Resources Group
Southern California Edison
SunPower
Tejon Ranch Company

# 2. Steering Committee

The coordination and development of the Antelope Valley RCIS was guided by a Steering Committee. The Steering Committee was composed of representatives listed in Table C-2. The Steering Committee met eight times throughout 2016 and 2017 to provide guidance on the development of the RCIS, including input on Advisory Committee meeting agendas and engagement; identification of the RCIS area; focal species; the development of conservation goals, objectives, and priorities; implementation structure; and stakeholder outreach coordination.

# 3. Table C-2. Steering Committee Participants

| Agency/Organization | Participant |
|---|---|
| California Energy Commission | Scott Flint |
| Conservation Strategy Group | Graham Chisholm |
| California Department of Transportation | Robert Wang |
| DCMA | Paul Edelman |
| Los Angeles Metropolitan Transportation Authority | Robert Machuca (invited) |
| Mountain Recreation & Conservation Authority | Spencer Eldred |
| Sierra Club | Sarah Friedman<br>Katherine Allen |
| The Nature Conservancy | Charlotte Pienkos<br>Stephanie Dashiell |
| Transition Habitat Conservancy | Jill Bays<br>Jeff Olesh<br>Vern Biehl |
| U.S. Fish and Wildlife Service | Brian Croft |

# 4. Advisory Committee

A broader group of stakeholders in the Antelope Valley comprised the Advisory Committee, which included representatives from other non-profit organizations including conservation, environmental and community; federal and state agencies, city and county governments, and businesses (Table C-3). The Advisory Committee met four times, including invitations to informational online presentations and meetings, throughout the development of the RCIS, and provided information concerning ecological resources in the region as well as reviewed and commented on interim RCIS work products including the RCIS area and focal species list. In addition to participating in Advisory Committee meetings, participants were invited to the public meeting on March 7th and Association of Rural Town Councils briefing on April 26th.

# 5. Table C-3. Advisory Committee Participants

| Agency/Organization | Participant |
|---|---|
| Antelope Valley Air Quality Management District | Vickie Rausch |
| Antelope Valley Audubon | Don Goeschl |
| Antelope Valley Conservancy | |
| Association of Rural Town Councils | Merrylou Nelson<br>Susan Zahnter |
| Audubon California | Garry George |
| California Department of Fish and Wildlife | Betty Courtney<br>Erinn Wilson<br>Randy Rodriguez |
| California Native Plant Society | Greg Suba |
| California Natural Resources Agency | Brady Moss |
| California State Parks | Connie Latham |

| Agency/Organization | Participant |
|---|---|
| California Strategic Growth Council/High-Speed Rail Authority | Emily Tibbott |
| Center for Biological Diversity | Ileene Anderson |
| City of Lancaster | (Invited) |
| City of Palmdale | (Invited) |
| Defenders of Wildlife | Jeff Aardahl<br>Tom Eagan<br>Kim Delfino |
| Edwards Air Force Base | Tom Rademacher<br>Scott Kiernan |
| Endangered Habitats League | Dan Silver |
| High-Speed Rail Authority | Barbara Marquez |
| Land Veritas | Tracy Brownfield |
| Natural Resources Defense Council | Helen O'Shea |
| Poppy Reserve and Mojave Desert Interruptive Association | Margaret Rhyne |
| Regional Water Quality Control Board | Jan Zimmerman |
| Trust for Public Land | Alex Size |
| Regional Renewable Group | Jim James |
| U.S. Fish and Wildlife Service | Brian Croft |
| U.S. Department of Agriculture | Robert TSE |
| 8 Minute Energy | Arthur Haubenstock<br>Alex Sundquist |

# 6. Technical Subcommittee

The Steering and Advisory Committees formed a Technical Subcommittee to analyze key technical and conservation planning issues and make recommendations. The Technical Subcommittee was composed of conservation specialists with local knowledge of the species, habitats, and natural communities throughout the RCIS area. The Technical Subcommittee met seven times (via conference calls and online meetings) during the preparation of the technical components. During these meetings, the subcommittee finalized the focal species list and identified conservation priorities in the RCIS area. Data Basin, a web-based mapping and analysis platform, was used to view species distribution maps and other data as a tool for the Technical Subcommittee to provide comments on components of the conservation priorities analysis, including the Habitat Cores and Landscape Linkages. Technical Subcommittee Participants, in addition to the Consultant Team, are listed In Table C-4, below.

# 7. Table C-4. Technical Subcommittee Participants

| Agency/Organization | Participant |
|---|---|
| Audubon California | Garry George |
| California Native Plant Society | Greg Suba |
| Defenders of Wildlife | Tom Eagan |

| Agency/Organization | Participant |
|---|---|
| The Nature Conservancy | Stephanie Dashiell |
| Transition Habitat Conservancy | Jill Bays |
| Western Resource Advocates | Ken Sanchez |

# Public Meetings

As part of the process, 12 committee meetings were held, including eight Steering Committee meetings and four separate Advisory Committee meetings. In addition, one public meeting and one briefing were held in Lancaster, California.

- June 13, 2016: Steering Committee kick-off meeting
- June 22, 2016: kick-off meeting for Steering and Advisory Committees
- July 12, 2016: Steering Committee meeting
- July 19, 2016: Advisory Committee meeting
- August 16, 2016: Steering Committee meeting
- August 23, 2016: Advisory Committee meeting
- November 18, 2016: All Committee Participants Informational WebEx: Legislative Updates
- December 14, 2016: Steering Committee meeting
- February 21, 2017: Steering Committee meeting
- March 1, 2017: Steering Committee meeting
- March 7, 2017: public meeting
- April 26, 2017: briefing hosted by Association of Rural Town Councils

A public meeting was held March 7, 2017 at the Antelope Valley Transit Authority offices, 42210 6th St. W., Lancaster. The meeting provided an opportunity for interested parties to receive information about the RCIS program and the preparation of the Antelope Valley RCIS and to provide comments. The public meeting was broadly noticed through posting the notice on the DCMA website and distribution through DCMA's listserv, the County of Los Angeles, and many of the Steering Committee participating organizations.

The public meeting notice, agenda and meeting summary notes, PowerPoint presentation, and meeting materials are included in Attachment C-2. Public meeting materials were made available to participants and the broader public by posting them on the DCMA website (http://dmca.ca.gov/). Two public comment cards were submitted at this meeting; they are included, along with their responses, in Attachment C-3.

# Public Meeting Summary and Comments

This appendix contains the written comments received at the March 7, 2017 Public Meeting, and on the October 2019 draft *Antelope Valley Regional Conservation Investment Strategy* (AVRCIS) received during the public comment period December 13, 2019, and February 10, 2020.

California Fish and Game Code (CFGC) and California Department of Fish and Wildlife's (CDFW) Regional Conservation Investment Strategy (RCIS) Program Guidelines (Program Guidelines) (CDFW 2018) require that the RCIS proponent respond to written comments as follows.

To written comments submitted during the public meeting(s) and during the public comment period (CFGC Section 1854(c)(3))

- To written comments provided by the cities and counties within the RCIS area (CFGC Section1854(c)(5))

Responses to these written comments are provided in the sections below. Many of the comments received were constructive and informative, leading to substantial improvements in the RCIS text.

A Public Meeting is required by AB 2087 during the preparation of an RCIS. The Public Meeting for the Antelope Valley RCIS was held at the Antelope Valley Transit Authority office on March 7, 2017. The meeting was announced a month in advance (February 3, 2017) via email distributed to: Desert and Mountain Conservation Authority (DMCA) listserv, LA County Significant Ecological Areas (SEA) listserv; *Antelope Valley Area Plan* (AVAP) listserv; and the full AVRCIS stakeholder list (i.e., individuals from the entities listed in Table C-1). Additionally, the notice was published in the March 2017 *Lakes & Valleys Gazette* and was posted on the DMCA's website.

The public notice and written comments are provided at the end of Appendix C.

## 8. Written Comments Received at the March 7, 2017, Public Meeting

Two public comment forms were filled out at the March 7, 2017, public meeting: one from Ileene Anderson representing the Center for Biological Diversity, and one from Tom Egan representing Defenders of Wildlife. A subsequent letter was received, providing comments on the information presented at the public meeting, from H. Tracey Brownfield, representing Land Veritas Corporation, dated March 24, 2017. Those comments and responses are included below.

## 9. Center for Biological Diversity, Ileene Anderson

## 10. Summary of Comment IA-1

This comment states that additional public meetings and an informative website would be helpful to inform the public about the AVRCIS development.

## 11. Response to Comment IA-1

Announcements and additional information regarding the AVRCIS development have been provided on the DMCA website throughout the development process. Public outreach was conducted according to the RCIS Program Guidelines. The public and stakeholder involvement process is described in Section 1.5.

# 12. Summary of Comment IA-2

This comment states that the RCIS is expected to enhance conservation in northern Los Angeles County.

# 13. Response to Comment IA-2

The purpose of the RCIS is to help guide overall conservation investments and mitigation through mitigation credit agreements (MCAs) into high-priority conservation areas in the RCIS area, and is expected to enhance conservation in northern Los Angeles County.

# 14. Summary of Comment IA-3

This comment states that inclusion of additional focal species would benefit the RCIS. The recommended additional four focal species are: short-joint beavertail cactus, *Chorizanthe artemisiifolia*, mountain lion, and pronghorn.

# 15. Response to Comment IA-3

These species were considered by the steering committee, technical advisory committee, and preparers of the RCIS. Mountain lion and short-joint beavertail were added to the list, whereas *Chorizanthe artemisiifolia* and pronghorn were not.

# 16. Summary of Comment IA-4

This comment states that Andy Zdon's spring/seep survey data is important for this critical resource in the area.

# 17. Response to Comment IA-4

We have coordinated with Transition Habitats League and have obtained this data for inclusion in the RCIS.

# 18. Defenders of Wildlife, Tom Egan

# 19. Summary of Comment TE-1

This comment states that the focal species selected for the RCIS are fairly representative; however, two additional species are recommended, short-joint beavertail cactus and mountain lion.

# 20. Response to Comment TE-1

These species were considered by the steering committee, technical advisory committee, and preparers of the RCIS. Mountain lion and short-joint beavertail were added to the focal species list.

# 21. Summary of Comment TE-2

This comment states that it is unclear if sand transport corridors will be addressed with the currently selected focal species.

# 22. Response to Comment TE-2

Sand transport processes are addressed through Conservation Objective 1.5 for alkali mariposa lily.

# 23. Land Veritas Corporation, H. Tracey Brownfield

# 24. Summary of Comment LVC-1

This comment states that as the process moves forward the commentor is confident that Petersen Ranch can be identified as a “Conservation Priority” in the AVRCIS and based on significant biological attributes present on the property today and agency approval of the mitigation site.

# 25. Response to Comment LVC-1

Petersen Ranch, as a protected area of high habitat value with low pressure from development, meets the criteria set forth in the Antelope Valley RCIS of a conservation priority. However, the Antelope Valley RCIS serves as a guidance document for users to determine conservation priority areas rather than specifically identifying them at this planning level.

# 26. Summary of Comment LVC-2

This comment states in the absence of clear regulatory guidance, we suggest that planning for the AVRCIS and the MCAs include a strong preference, if not a requirement, for durable “in-perpetuity” protection in response to what are likely to be long-term impacts.

# 27. Response to Comment LVC-2

CDFW has finalized the RCIS Guidelines (2018), which include clear guidance and requirements for permanently protecting habitat, specifically (1) recording a conservation easement and (2) providing secure, perpetual funding for management of the land, monitoring, legal enforcement, and defense. Establishment of an MCA is a separate process which requires separate review and approval from CDFW under CDFGC Section 1856, and MCA guidelines once they are finalized.

# 28. Summary of Comment LVC-3

This comment recommends that a Regional Conservation Assessment be prepared that can guide local (county/sub-county) scale decisions.

# 29. Response to Comment LVC-3

The AVRCIS contains the information and analysis that would have been provided in a Regional Conservation Assessment, as well as additional guidance and recommended measures to aid local decisions in the future.

## 30. Summary of Comment LVC-4

This comment states that the commentor recommends a minimum 60-day comment period for this [public comment period] important phase of the process.

## 31. Response to Comment LVC-4

This comment appears to be directed at the RCIS program itself instead of the Antelope Valley RCIS. The length of the public comment period is outside of the scope of this document to address. The AVRCIS is consistent with the current, 2018 Program Guidelines and meets all substantive standards, including the adherence to a 30-day public review period on the draft AVRCIS. The AVRCIS proponent and CDFW jointly decided to extend the public review period to 60 days.

# Public Comments on Draft Antelope Valley Regional Conservation Investment Strategy

Twenty-five written public comment letters were submitted to the DMCA and CDFW (comments were submitted to CDFW during the public review period only). Comments regarding the draft Antelope Valley RCIS were submitted between December 13, 2019, and February 10, 2020, following a Notice of Availability published on the DMCA website on December 13, 2019. An email with the notice availability of the draft RCIS was sent to stakeholders on December 13, 2019. Letters indicating that the draft RCIS was available for review were mailed to local jurisdictions (i.e., LA County Board of Supervisors, City Council Members of Lancaster and Palmdale) on December 23, 2019. The review period for local jurisdictions was concurrent with the public review period, and was extended beyond the minimum 30-day requirement set forth in the RCIS Program Guidelines.

This section presents comments from comment letters received during the comment period. Each comment within the comment letter also has been assigned a unique number, noted in the right margin. For example, the code “1-3” indicates the third distinct comment (indicated by the “3”) in letter number 1. Immediately following the comment letter is a summary of each distinct comment and the Antelope Valley RCIS Steering Committee’s response.

The RCIS proponent received written public comments from the following persons and entities before submitting this RCIS to CDFW for final approval. Table C-1 summarizes the commenting party, comment letter signatory, and date of the comment letter. The public comment letters received are included in Attachment C-3.

## 32. Table 0-1. List of Comment Letters Received Regarding the Draft Antelope Valley RCIS

| Letter | Agency/Organization/Individual | Comment Letter Signatory | Date |
|---|---|---|---|
| 1 | The Nature Conservancy | Stephanie Dashiell | February 10, 2020 |
| 2 | Christy Smith, Assemblymember California 38th Assembly District | Christy Smith, Assemblymember | February 7, 2020 |
| 3 | Senator Scott Wilk, California’s 21st Senate District | Senator Scott Wilk | February 3, 2020 |

| Letter | Agency/Organization/Individual | Comment Letter Signatory | Date |
|---|---|---|---|
| 4 | Tom Lackey, Assemblyman, California's 36th Assembly District | Tom Lackey, Assemblyman | February 4, 2020 |
| 5 | Lancaster Chamber of Commerce | Mark Hemstreet | January 29, 2020 |
| 6 | Antelope Valley Board of Trade | Bret Banks | January 28, 2020 |
| 7 | Lancaster Chamber of Commerce | Katie Nelson | January 30, 2020 |
| 8. | H.W. Hunter Inc. | Thomas Fuller | February 4, 2020 |
| 9 | Kern County | Lorelei Oviatt | February 3, 2020 |
| 10 | Tejon Ranch Company | Michael R.W. Houston | February 4, 2020 |
| 11 | Antelope Valley-East Kern Water Agency | Dwyane Chisam | February 7, 2020 |
| 12 | Los Angeles County Department of Regional Planning | Amy J. Bodek | February 10, 2020 |
| 13 | Center for Biological Diversity | Ileene Anderson | February 10, 2020 |
| 14 | Defenders of Wildlife | Kim Delfino, Jeff Aardahl, and Tom Egan | February 10, 2020 |
| 15 | Land Veritas | H. Tracey Brownfield | February 10, 2020 |
| 16 | Southern California Edison | Michelle Nuttall | February 10, 2020 |
| 17 | California Construction and Industrial Materials Association | Suzanne Seivright | February 10, 2020 |
| 18 | Association of Rural Town Councils | Susan Zahnter | February 4, 2020 |
| 19 | Building Industry Association – Los Angeles/Ventura Chapter | Tim Piasky | February 5, 2020 |
| 20 | City of Lancaster | Jason Caudle | February 3, 2020 |
| 21 | Californians for Homeownership | Matthew Gelfand | February 8, 2020 |
| 22 | Greater Antelope Valley Association of REALTORS | Pablo Meza | February 5, 2020 |
| 23 | Granite Construction Company | Scott McArthur | February 7, 2020 |
| 24 | City of Palmdale | Steven D. Hofbauer | February 4, 2020 |
| 25 | Fernandeño Tataviam Band of Mission Indians | Jairo Avila | June 22, 2020 |

# 33. Comments on Draft Antelope Valley RCIS and Responses

# 34. The Nature Conservancy, February 10, 2020

# 35. Summary of Comment 1-1

This comment states that The Nature Conservancy (TNC) has concerns regarding sections of the AVRCIS prepared in 2017 without stakeholder involvement, specifically, Chapters 3 and 4, including the methodology for gap analysis resulting in goals and objectives for each species, identifying conservation actions, and discussion of how to structure the implementation section of the RCIS.

# 36. Response to Comment 1-1

The commentor is correct that there were portions of the RCIS development that had early input from the stakeholders and portions that were developed and then provided to the stakeholders for review. While the methodology for gap analysis and the approach to structure the implementation section of the RCIS were not a part of the materials that solicited early input, the document preparers did solicit and receive substantial meaningful input from the Technical Subcommittee on all methods, results, and approach in the RCIS. This input from the Technical Subcommittee included input from TNC that was very helpful and used to make critical improvements to the RCIS.

# 37. Summary of Comment 1-2

This comment states that TNC recommends including sections describing why and how to use the RCIS, which may include a clear explanation of the benefits of the RCIS approach and examples of how it may be used.

# 38. Response to Comment 1-2

How to use RCIS documents is addressed by CDFW in the 2018 Guidelines. The AVRCIS is not unique in how it can be used compared to other RCISs prepared for other portions of the state. Section 1.3, titled "Potential RCIS Users" addresses who can use the RCIS and how. Although this section does not provide great detail, it does provide the user with the goals and uses of the document. In addition, Section 3.5, *Applying Actions and Conservation Priorities,* provides a four-step process for how to use the RCIS to develop mitigation credits or conservation investments, including a focal species example (i.e., Joshua tree).

# 39. Summary of Comment 1-3

This comment states that the narrative of how the scientific models and conservation attributes were developed to inform the overall conservation strategy needs to be improved, and suggests a diagram explaining the conservation strategy at the beginning of Chapter 3.

## Response to Comment 1-3

Many revisions to the text have been made to improve the clarity of the methods descriptions through sections 2.1.4 and Appendix G of the document. The suggestion of a diagram was not implemented, however, the text revisions to model descriptions have been revised and improved for clarity.

# 40. Summary of Comment 1-4

This comment states that information included in the Appendices was difficult to find, and recommends reconsidering what needs to be in the main body of the text or providing hyperlinks in the document to go from the main text to the appendices.

### Response to Comment 1-4

The information included in the main document and appendices was carefully considered with many revisions to the text made to improve the clarity and the location of information in the document including for example in sections 1.5, 1.6, 2.1, 2.2, and Chapter 3. Hyperlinks will be included as allowed during final document editing.

## 41. Summary of Comment 1-5

This comment states that the AVRCIS should include more information about species habitat groupings methods and how focal species were assigned to a habitat group. The comment further states that the methods should be described such that they can be repeated for other RCISs.

### Response to Comment 1-5

Updated methods for creating the groups are included in Section 3.2.1.1 of the RCIS. The description of the methods is intended to be appropriate for a general audience.

## 42. Summary of Comment 1-6

This comment states that further explanation is needed to differentiate between the desert species group and the agriculture/grasslands species group. The comment also states that grasslands are found within many "Natural Community Land Cover" types.

### Response to Comment 1-6

Each of the three focal species habitat groups contains species that have similar habitat affinities and distributions in the RCIS area. The habitat groups were determined based on the evaluation of the species life history, general habitat preferences, and spatial distribution in the RCIS area. The agriculture/grasslands group and desert group have a higher level of overlap of species because the areas are more similar than the other habitat groups (in comparison to the foothills/riparian group), which resulted in several species being included in both groups. Additional information on focal species habitat groups has been added to section 3.2.1.1.

## 43. Summary of Comment 1-7

This comment states that the intention behind the species selection process should be clarified because it is not clear why some species are included in the same group when they have differing habitat needs.

### Response to Comment 1-7

See response to Comment 1-6. If all species were analyzed together in the EEMS model, rather than in habitat groups, one large set of similar species (e.g., agriculture/grassland species) could disproportionately swamp the effects of smaller sets of similar species (e.g., foothill/riparian species), thereby biasing the biological value mapping. However, grouping focal species by habitat still allowed the EEMS model to identify areas of overlapping high-quality habitat for multiple focal species as one measure of high biological value. The purpose of the groupings is to separate sets of similar species to minimize the potential for their combined effect overwhelming the effect of a smaller group of similar species. Allowing a species to occur in more than one group (if appropriate) is not a concern as long as the species within the group share a similar general habitat type. Section3.2.1.1 has been edited to include additional information on focal species habitat groups.

# 44. Summary of Comment 1-8

This comment states that the AVRCIS should use the "Natural Community Land Cover" categories from Chapter 2 as a guide for aggregating focal species into habitat groups, and, if this is not possible, to explain why these categories were not used.

## Response to Comment 1-8

Additional information on the focal species habitat group creation has been added to Section 3.2.1.1. Focal species habitat groups were created as a way to segregate species within the EEMS biological value modeling framework to minimize the overlap of species and the potential biasing of results that would occur with grouping species by other more fine-scale grouping options (e.g., Natural Community Land Cover). Most focal species occur in several Natural Community Land Cover types, therefore using this as a grouping classification would result in over-representation of several focal species in many categories, thus biasing the results. Section 3.2.1.2 of the RCIS explains that the RCIS uses the fine-scale alliance-level classification of NVCS to identify the Natural Communities of Conservation Importance. Some natural communities as a whole may not be at risk, but a subcommunity type may be rarer or imperiled. Therefore, natural community conservation importance is based on these subcommunity types in descending order, the NVCS *Macrogroup* level (land cover type), the NVCS *Group* level, and, at the finest scale, the NVCS *Alliance* level. Chapter 2 only described the vegetation at the group and macrogroup level.

# 45. Summary of Comment 1-9

This comment states that the AVRCIS should clarify the implications of having some focal species belong to two habitat groups while other species belong only to one.

## Response to Comment 1-9

See responses to Comments 1-6, 1-7, and 1-8. While use of the focal species group scale was intended to minimize occurrence of species in more than one habitat group within the EEMS model, it did not eliminate all occurrences. Each of the three focal species habitat groups contains species that have similar habitat affinities (based on the species life histories and habitat preferences) and spatial distributions (based on species models) in the RCIS area. Because the agriculture/grasslands species group is more similar to the desert species group there was more overlap of species between these groups (in comparison to the foothills/riparian species group), which resulted in three species being included in both groups (LeConte's thrasher, American badger, and desert kit fox). Additional information addressing this has been added to Section 3.2.1.1.

# 46. Summary of Comment 1-10

This comment states that the gap analysis overlooks significant amounts of unprotected high conservation habitat that occurs outside of core and linkage areas used in the AVRCIS priority areas.

### Response to Comment 1-10

The purpose of the RCIS is to help guide overall conservation investments and mitigation through MCAs into high priority conservation areas. These were defined as areas of high conservation value for each species that occur in the core and linkage areas. The RCIS doesn't preclude conservation investments and MCAs outside of cores and linkages, but identifies that conservation actions should be directed into cores and linkages when possible, to better contribute to the protection of a more intact overall preserve system. Section 3.3 has been edited to provide additional clarification on the AVRCIS GAP analysis.

## 47. Summary of Comment 1-11

This comment states that TNC recommends assigning higher conservation target values, especially for some focal species that have narrow ranges or life histories. Additionally, the AVRCIS should provide justification for allowing habitat loss in core areas and linkages for species with narrow or limited ranges.

### Response to Comment 1-11

The RCIS assigned a conservation goal of 90 percent to the species in the highest risk category. Increasing that to 100 percent would not provide any flexibility for future land use planning occurring on these habitats in the cores and linkages and could be seen as overly restrictive for a non-regulatory document. The RCIS is a non-binding document that provides guidance for conservation actions within the Plan Area. Habitat losses for protected species and habitat will continue to be permitted under environmental regulations such as the Federal Endangered Species Act, California Endangered Species Act, California Fish and Game Code, and California Environmental Quality Act.

## 48. Summary of Comment 1-12

This comment states that TNC recommends clarifying levels of protection in the "protected areas" database described in the AVRCIS because not all the protected areas offer the same level of protection for focal species and habitats. Additionally, the TNC would like the RCIS to account for the differences and identify opportunities to increase conservation in areas of low protection.

### Response to Comment 1-12

The GAP analysis section (Section 3.3) of the RCIS has been substantially rewritten to provide better clarification of the protected status descriptions and how they relate to the RCIS conservation goals, including identifying where protection status is low and could be increased.

## 49. Summary of Comment 1-13

This comment states that the species-specific conservation actions should be more site-specific because some conservation actions are appropriate for certain species in certain places but not in others.

### Response to Comment 1-13

The actions are intentionally broad to allow flexibility for specific MCAs and mitigation or conservation investment efforts to make site-specific determinations of actions while still meeting the overall conservation action description. Each location where conservation investments or MCA are implemented should be evaluated based on site-specific data regarding biological future conservation potential. The RCIS provides landscape-scale guidance to make these future site-specific decisions for future actions, it is not intended to provide all the information required to implement site specific conservation measures.

## 50. Summary of Comment 1-14

This comment states that conservation actions for focal species should be prioritized to clarify which actions are most important to complete first to meet the needs of the species.

### Response to Comment 1-14

See response to comment 1-13. All actions are considered priorities to be implemented and the rationale for selecting individual actions will depend on the conservation opportunity of any given site. Therefore, the actions are not further prioritized to preserve the flexibility for these future decisions.

## 51. Summary of Comment 1-15

This comment states that more justification is needed for Conservation Action 10.3, which claims that livestock grazing can be beneficial to burrowing owl. TNC asserts that this could be misinterpreted and should be caveated.

### Response to Comment 1-15

Grazing as a habitat management tool is generally addressed in 2.3.10.1, but the RCIS doesn't specifically mention grazing as a burrowing owl management tool. The discussion regarding the use of grazing as a management tool includes caveats that the grazing must be done to support the habitat type and that overgrazing is detrimental to desert habitat.

## 52. Summary of Comment 1-16

This comment states that the most recent information related to occurrences of Mohave ground squirrel and desert tortoise should be incorporated into the document, including results of line-distances sampling, recovery plan information, and additional surveys.

### Response to Comment 1-16

The Mohave ground squirrel conservation strategy (CDFW 2019) and the desert tortoise recovery plan (USFWS 2011) have been reviewed and relevant actions have been included in the RCIS. The occurrence data has been updated to include all occurrences in the California Natural Diversity Database (CNDDB) and Biodiversity Information Serving Our Nation (BISON) database through 2020.

# 53. Summary of Comment 1-17

This comment states that the document should include more guidance for how to use the AVRCIS, including specific guidance to each entity that may use the document, including: county and local governments, CDFW, USFWS, project proponents, non-governmental organizations (NGOs), land trusts, and mitigation banks.

## Response to Comment 1-17

Section 1.3, titled "Potential RCIS Users" addressed who can use the RCIS and how. Although this section does not provide great detail, it does provide the user with the goals and uses of the document. In addition, Section 3.5, *Applying Actions and Conservation Priorities,* provides a four-step process for how to use the RCIS to develop mitigation credits or conservation investments, including a focal species example (i.e., Joshua tree).

# 54. Summary of Comment 1-18

This comment states that information in Appendix B should be in the main body of the implementation chapter.

## Response to Comment 1-18

Moving the information in Appendix B *Regulatory Process* was considered, but it was determined that the location of this information in the appendix was appropriate as it allows the general user to access the RCIS without getting sidetracked by information relating to other laws and regulations, but allows readers who are more interested in that topic to access that information quickly. Hyperlinks will be included to better facilitate this in the final version as possible.

# 55. Summary of Comment 1-19

This comment states that TNC recommends including step-by-step instruction for project proponents who are interested in using the AVRCIS into their decision-making. TNC presumes that the omission of step-by-step instructions is meant to allow for the implementation committee to draft guidance; however, because the implementation committee is not a requirement, , guidance may not be drafted, or may not be drafted in appropriate timeframes for implementation.

## Response to Comment 1-19

Section 3.5, *Applying Actions and Conservation Priorities* provides, a four-step process for how to use the RCIS to develop mitigation credits or conservation investments, including a focal species example (i.e., Joshua tree). The use of this step-by-step guidance in conjunction with the RCIS guidance (CDFW 2018) and the future MCA guidance that CDFW is in the process of producing should be sufficient for implementation of the RCIS and associated MCAs and conservation investments.

# 56. Summary of Comment 1-20

This comment states that Section 4.5 on conservation partnerships should be moved to the beginning of the chapter to highlight the importance of the NGO community’s action to ensure the conservation of focal species, habitat, and working landscapes, and to recognize the value of engaging with these NGOs during project development.

### Response to Comment 1-20

This comment appears to be a remnant of a previous set of comments as the conservation partnership discussion was moved to the beginning of the chapter for the public review draft.

## 57. Summary of Comment 1-21

This comment states that there should be more discussion on how the conservation strategy will implemented, specifically, explanation on how focal species that do not require California Endangered Species Act (CESA) or California Environmental Quality Act (CEQA) mitigation. The AVRCIS should include more justification for proponents or developers to invest in conservation of species that do not have a regulatory authority. This comment includes Joshua Tree as an example species where conservation actions are included that would be costly, without a direct regulatory requirement for implementing them.

### Response to Comment 1-21

CESA and CEQA are the two regulatory mechanisms most directly linked to RCIS implementation as mitigation. Others with mitigation needs to comply with federal regulatory requirements (e.g., federal Endangered Species Act (FESA), Clean Water Act Section 404) have the potential to identify mitigation opportunities in using the RCIS.  Conservation investments unrelated to mitigation may be implemented using the RCIS independent of the need for mitigation at the discretion of the entity choosing to implement those actions, in accordance with current environmental laws and regulations. While Joshua Tree is now a candidate species under CESA and projects are required to provide mitigation, there are other focal species without similar protections. While there are no mandates for conserving these species, federal agencies may take conservation actions intended to prevent a species from becoming listed, or other entities may take conservation actions above what is required by regulation. In these cases, these entities would be able to look to the RCIS as a guide for the conservation actions needed to support those species.

## 58. Summary of Comment 1-22

This comment states that the AVRCIS should mention best practices for publicly sharing data and other conservation-related information. Additionally, the AVRCIS should seek funding to maintain and organize conservation data related to the AVRCIS in the Data Basin platform.

### Response to Comment 1-22

A new section, *Maintenance and Organization of GIS Data*, has been added to Chapter 4, recommending continued use of Data Basin as an implementation tool if feasible.

# 59. Assemblywoman Christy Smith, California's 38th Assembly District, February 7, 2020

# 60. Summary of Comment 2-1

This comment states that there was a lack of stakeholder participation and public outreach in the development of the document, including a lack of outreach during the public review process. The comment also expresses concern that the RCIS was originally spearheaded by a private organization instead of governmental body, and that local Native American tribes were not asked to participate.

## Response to Comment 2-1

The AVRCIS is one of five "pilot" RCISs funded by the Stephen Bechtel Fund of the S. D. Bechtel, Jr. Foundation. Other than providing funding to these pilot RCISs the Bechtel Fund was not involved in any aspect of AVRCIS development. Public outreach was conducted according to the RCIS Program Guidelines. The public and stakeholder involvement process is described in Sections 1.4, 1.5, and is summarized here:

The Antelope Valley RCIS development process began in March 2016. The process was initiated by the Desert and Mountains Conservation Authority (DMCA), in collaboration with the California Energy Commission (CEC). ICF was the lead technical consultant on the RCIS document, working under the direction of Steering and Advisory committees (see Chapter 6, List of Preparers and Reviewers). As described below, the RCIS process benefited from stakeholder input received through multiple layers of outreach, briefings, and opportunities for input from the Antelope Valley community; non-profit organizations, including environmental, conservation, and community organizations; business interests; regulatory agencies; and federal, state, local (including 10 local governmental entities), and tribal governments.

A public meeting was held on March 7, 2017, to provide information to the public on the AVRCIS effort, and to solicit comments from interested parties. Public notice was provided more than 30 days prior to the public meeting, as described in Section 1.5. The County of Los Angeles Board of Supervisors and city councils of Lancaster and Palmdale were directly notified of the public meeting and the availability of the public review draft of the Antelope Valley RCIS. The meeting was announced a month in advance (February 3, 2017) via email distributed to: Desert and Mountain Conservation Authority (DMCA) listserv, LA County Significant Ecological Areas (SEA) listserv; *Antelope Valley Area Plan* (AVAP) listserv; and the full AVRCIS stakeholder list (i.e., compilation of individuals representing conservation, transportation, and regulatory agencies). Additionally, the notice was published in the March 2017 *Lakes & Valleys Gazette* and was posted on the DMCA's website.

As further described in Section 1.5, DMCA followed all Stakeholder and Public Outreach requirements of the RCIS program, including notice to the Los Angeles County Board of Supervisors and city councils of Palmdale and Lancaster at least 60 days prior to the Public Review Draft becoming available.

In addition to the required public outreach, the Antelope Valley RCIS benefited from detailed input from interested partied though the Steering Committee, Advisory Committee, and Technical subcommittees, which were comprised of nonprofit organizations including conservation, environmental, and community; federal and state agencies; local jurisdictions; and businesses. The group members and participation in the RCIS development are described in Section 1.4.2.

Though there is no requirement to include local Native American tribes in either the 2017 Guidelines or 2018 Guidelines (2018 Guidelines suggest consulting with Native American tribes), we recognize that Native American tribes are important stakeholders in the RCIS development and implementation process who are unique in that their interests and history on the landscape stretches back for many centuries. The involvement of the Fernandeño Tataviam Band of Mission Indians and San Manuel Band of Mission Indians is detailed in Section 1.6.

# 61. Summary of Comment 2-2

This comment states that the AVCRIS is not consistent with local land use plans, including the *Los Angeles County 2035 General Plan* (Los Angeles County General Plan) and the AVAP.

# 62. Response to Comment 2-2

The RCIS is a voluntary, nonbinding, and non-regulatory regional planning process intended to result in higher-quality conservation outcomes. An RCIS establishes conservation goals and objectives and describes conservation actions that may be used as a basis to provide advance mitigation or to inform other conservation planning processes and investments. The high-value conservation areas and conservation priorities were based on the best available science and data. It is expected that, on occasion, local land use plans may indicate planned future urbanization and infrastructure development in areas that also have high conservation value as identified in the RCIS. Because the RCIS is voluntary, nonbinding, and nonregulatory, there is, no inherent inconsistency or conflict with local land use plans, even though the AVAP and the RCIS may contemplate different uses for some of the lands within the Plan Area.

Economic Opportunity Areas (EOAs) are included under “Foreseeable Potential Future Urbanizing Areas,” and are shown on 60 of the AVRCIS maps (Figures 2-14, 2-22, 3-20 through 3-22, 3-24, and Appendices F [27 figures] and H [27 figures]) and are identified in Section 1.4.1.1 as potentially not suitable for achieving long-term conservation goals given the future planned urbanization of these areas.

# 63. Summary of Comment 2-3

This comment states that the AVCRIS placed high-value habitat designations on economic opportunity areas (EOAs), which would hinder job creation and affordable housing development.

# 64. Response to Comment 2-3

The RCIS is voluntary, nonbinding, and non-regulatory, and therefore should not hinder job creation and affordable housing development.  See comment response 2-2.

# 65. Summary of Comment 2-4

The AVCRIS is exempt from the latest legislative updates and regulations that other RCIS are subject to, including the requirement for Native American Tribal consultations; therefore, a lesser standard is being applied to the AVCRIS process than required by current state statute.

## 66. Response to Comment 2-4

The AVRCIS is consistent with the most current Program Guidelines, published in 2018, and meets all substantive standards. The requirements for this RCIS are detailed in Section 1.4.7. Native American Tribal consultations are suggested in the 2018 Guidelines, not required. Native American Tribal outreach and communication was conducted for this RCIS as is detailed in Section 1.6.

## 67. Summary of Comment 2-5

This comment states that the CDFW should work with local jurisdictions, including the County of Los Angeles, to ensure that existing local land planning and designations, including (Sensitive Ecological Areas) SEAs and EOAs, are integrated in the final document

## 68. Response to Comment 2-5

The high-value conservation areas and conservation priorities identified in this RCIS were based on the best available science and data. The SEAs and EOAs are shown in the RCIS for context, but were not expected to be in complete alignment with the high-value conservation areas of this RCIS because they were developed with different methods and/or objectives. See the response to comment 2-2 for additional information.

## 69. Senator Scott Wilk, California's 21st Senate District, May 23, 2019

## 70. Summary of Comment 3-1

This comment states that local stakeholders, were not invited to participate in development of the AVRCIS.

## 71. Response to Comment 3-1

Public outreach was conducted according to the RCIS Program Guidelines. Please see the response to comment 2-1 for a summary of all outreach conducted, and Chapter 1 for detailed information on the outreach and stakeholder involvement in development of the RCIS. See response to comment 2-1.

## 72. Summary of Comment 3-2

This comment states that the AVCRIS was exempt from CDFW's Guidelines for the RCIS program.

## 73. Response to Comment 3-2

The RCIS complies with all requirements of the RCIS program established by CDFW. Please see the response to comment 2-4 for additional information.

## 74. Summary of Comment 3-3

This comment states that the AVRCIS is not consistent with the Los Angeles County General Plan or the AVAP and states that Economic Opportunity Areas (EOAs) designated in the Los Angeles County General Plan and the AVAP must be removed from the AVRCIS.

## 75. Response to Comment 3-3

The high-value conservation areas and conservation priorities were based on the best available science and data. It is expected that, on occasion, local land use plans may indicate planned future urbanization and infrastructure development in areas that also have high conservation value as identified in the RCIS. Because the RCIS is voluntary, nonbinding, and non-regulatory there is, by definition, no inconsistency or conflict with local land use plans. The EOAs are shown in the RCIS for context, but were not expected to be in complete alignment with the high-value conservation areas of this RCIS because they were developed with different methods and objectives. Use of the RCIS is voluntary, nonbinding, and non-regulatory. See the response to comment 2-2 for additional information.

## 76. Summary of Comment 3-4

This comment restates Comment 3-1 and adds that the RCIS was held to a lower standard than the current regulations and guidance, including a lack of a requirement to outreach to Native American Tribes.

## 77. Response to Comment 3-4

The AVRCIS is consistent with the current, 2018 Program Guidelines and meets all substantive standards. Because the AVRCIS was originally submitted prior to September 2017, this AVRCIS complies with the 2018 Program Guidelines, which allows for some reliance on the 2017 Guidelines for documents submitted prior to September 2017. T Native American Tribal consultations are suggested in the 2018 Guidelines, not required.  Native American Tribal outreach and communication was conducted for this RCIS as is detailed in Section 1.6. See response to comment 2-1.

## 78. Assemblymember Tom Lackey, California's 36th Assembly District February 10, 2020

## 79. Summary of Comment 4-1

This comment requests that CDFW reject the RCIS, stating that there was a lack of stakeholder participation and public outreach in the development of the document.

## 80. Response to Comment 4-1

Public outreach was conducted according to the RCIS Program Guidelines. Please see the response to comment 2-1 for a summary of all outreach conducted, and Chapter 1 for detailed information on the outreach and stakeholder involvement in development of the RCIS. Over 200 people were included in the direct outreach effort, including 10 local jurisdictions.

# 81. Summary of Comment 4-2

This comment states that the economic growth of the valley is a high priority for the Assemblymember, and that the multiple conservation efforts in the valley will inhibit growth, and should be coordinated.

# 82. Response to Comment 4-2

The RCIS is a voluntary, nonbinding, and non-regulatory document, intended to provide guidance for conservation actions within the plan area. The RCIS is not intended to direct or restrict development or economic growth. The RCIS also considers other planning efforts in the region, as discussed in Section 1.7.

# 83. Summary of Comment 4-3

This comment states that the Los Angeles County Plan and the AVAP must be considered in development of the RCIS.

# 84. Response to Comment 4-3

The RCIS is a voluntary, nonbinding, and non-regulatory regional planning process intended to result in higher-quality conservation outcomes. The high-value conservation areas and conservation priorities were based on the best available science and data. It is expected that, on occasion, local land use plans may indicate planned future urbanization and infrastructure development in areas that also have high conservation value as identified in the RCIS. Because the RCIS is voluntary, nonbinding, and non-regulatory there is, by definition, no inconsistency or conflict with local land use plans. See response to comment 2-2.

# 85. Summary of Comment 4-4

This comment states that the AVCRIS is exempt from current CDFW guidance for State RCIS programs.

### Response to Comment 4-4

The AVRCIS is consistent with the current 2018 Program Guidelines and meets all substantive standards. Because the AVRCIS was originally submitted prior to September 2017, this AVRCIS complies with the 2018 Program Guidelines, which allows for some reliance on the 2017 Guidelines for documents submitted prior to September 2017. The requirements for this RCIS are detailed in Section 1.4.7. Native American Tribal consultations are not required for this RCIS (they current, 2018 Guidelines suggests consulting with Native American Tribes), but were initiated and are detailed in Section 1.6.

# 86. Summary of Comment 4-5

This comment states that the Assemblymember supports the City of Lancaster's request to remove AVRCIS designations from within the city boundaries and any immediate peripheral spheres of influence. He also insists that the process be restarted from the beginning to prevent misuse of the study results.

# 87. Response to Comment 4-5

The high-value conservation areas and conservation priorities identified in this RCIS were based on the best available science and data. The SEAs, EOAs, and SR-138 future expansion are shown in the RCIS for context, but were not expected to be in complete alignment with the high-value conservation areas of this RCIS because they were developed with different methods and/or objectives (See the response to comment 2-2 for additional information). We understand the concern over misuse of the analysis provided in the RCIS, however, the RCIS is voluntary, nonbinding, and non-regulatory. The AVRCIS and the RCIS program guidelines both clearly identify that the document is only appropriately used to guide, not direct, any conservation actions taken. The AVRCIS does not restrict development in areas identified as beneficial to conservation.

# 88. Summary of Comment 4-6

This comment requests that the CDFW reject the AVRCIS and ask that the preparers consult with stakeholders and adopt current legislative rules for RCIS.

# 89. Response to Comment 4-6

See response to comment 2-1 for a summary of public outreach and stakeholder involvement. As the outreach requirements have been met, and stakeholders were involved in the development of the AVRCIS, we do not agree that rejecting the AVRCIS is appropriate.

# 90. Lancaster Chamber of Commerce, January 29, 2020

# 91. Summary of Comment 5-1

This comment states that there was no transparency in drafting the document.

### Response to Comment 5-1

Public outreach was conducted according to the RCIS Program Guidelines. Please see the response to comment 2-1 for a summary of public outreach and stakeholder involvement.

# 92. Summary of Comment 5-2

This comment states that the document is a way for environmental organizations to supersede local land use authority.

# 93. Response to Comment 5-2

We understand the concern over misuse of the analysis provided in the RCIS, however, the AVRCIS and the RCIS program guidelines both clearly identify that the document is only appropriately used to guide, not direct, any conservation actions taken. The AVRCIS does not restrict development in areas identified as beneficial to conservation. The RCIS is a voluntary, nonbinding, and non-regulatory regional planning document.

# 94. Summary of Comment 5-3

This comment states that the AVRCIS is inconsistent with the Los Angeles County General Plan. Specifically, the AVRCIS designates areas as high-conservation priorities that are identified in the Los Angeles County General Plan as EOAs. The comment also states that the Los Angeles County General Plan includes SEAs that are sufficient to provide suitable "mitigation conservation" area.

# 95. Response to Comment 5-3

An RCIS establishes conservation goals and objectives and describes conservation actions that may be used as a basis to provide advance mitigation or to inform other conservation planning processes and investments. The high-value conservation areas and conservation priorities were based on the best available science and data. It is expected that, on occasion, local land use plans may indicate planned future urbanization and infrastructure development in areas that also have high conservation value as identified in the RCIS. Because the RCIS is voluntary, nonbinding, and non-regulatory there is, by definition, no inconsistency or conflict with local land use plans. See response to comment 2-2.

# 96. Summary of Comment 5-4

This comment states that the AVRCIS was exempt from the latest guidelines established to implement RCIS and that it should be held to the latest guidelines.

# 97. Response to Comment 5-4

The AVRCIS is consistent with the current, 2018 Program Guidelines and meets all substantive standards. Because the AVRCIS was originally submitted prior to September 2017, this AVRCIS complies with the 2018 Program Guidelines, which allows for some reliance on the 2017 Guidelines for documents submitted prior to September 2017. The requirements for this RCIS are detailed in Section 1.4.7. Summary of Comment 5-5

# 98. Summary of Comment 5-5

This comment states that this conservation plan impedes economic growth.

# 99. Response to Comment 5-5

The RCIS is voluntary, nonbinding, and non-regulatory, and therefore should not impede economic growth. The AVRCIS and the RCIS program guidelines both clearly identify that the document is only appropriately used to guide, not direct, any conservation actions taken. The AVRCIS does not restrict development in areas identified as beneficial to conservation.

# 100. Summary of Comment 5-6

This comment states that the CDFW should reject the AVRCIS in its current state and ask that the preparers consult with stakeholders who were not involved in the document.

# 101. Response to Comment 5-6

See response to comment 2-1 for a summary of public outreach and stakeholder involvement. As the outreach requirements have been met, and stakeholders were involved in the development of the AVRCIS, therefore, rejecting the AVRCIS is not appropriate.

# 102. Summary to Comment 5-7

The commenter notes that DMCA has not publicly met since September 2018, and has difficulty understanding how the RCIS could have been produced, reviewed, and submitted without DMCA having publicly met.

# 103. Response to Comment 5-7

The RCIS was prepared under the direction of and submitted on behalf of the DMCA, a public agency and the RCIS proponent. DMCA hosted a public meeting to garner public input on the RCIS on March 7, 2017, however, regular public meetings of the RCIS proponent are not a requirement for RCIS development under the RCIS guidelines.

# 104. Antelope Valley Board of Trade, January 28, 2020

# 105. Summary of Comment 6-1

The AVRCIS is inconsistent with the Los Angeles Valley General Plan; specifically, the EOAs identified in the General Plan were not considered. EOAs identified in the Los Angeles Valley General Plan were ignored.

# 106. Response to Comment 6-1

The EOAs are shown in the RCIS for context, but are not expected to be in complete alignment with the high-value conservation areas of this RCIS because they were developed with different methods and objectives. EOAs are included under "Foreseeable Potential Future Urbanizing Areas," and are shown on 60 of the AVRCIS maps (Figures 2-14, 2-22, 3-20 through 3-22, 3-24, and Appendices F [27 figures] and H [27 figures]), and are identified in Section 1.4.1.1 as potentially not suitable for achieving long-term conservation goals given the future planned urbanization of these areas.

# 107. Summary of Comment 6-2

This comment states that the AVRCIS is exempt from the latest guidelines for developing RCIS.

# 108. Response to Comment 6-2

The AVRCIS is consistent with the current, 2018 Program Guidelines and meets all substantive standards. Because the AVRCIS was originally submitted prior to September 2017, this AVRCIS complies with the 2018 Program Guidelines, which allows for some reliance on the 2017 Guidelines for documents submitted prior to September 2017. The requirements for this RCIS are detailed in Section 1.4.7.

# 109. Summary of Comment 6-3

This comment requests that the AVRCIS process be restarted to include stakeholders that were not involved in the development of the AVRCIS. The comment also states that they "discovered that some organizations listed on the Advisory Committee were not even aware of the AVRCIS or their involvement."

# 110. Response to Comment 6-3

See response to comment 2-1 for a summary of public outreach and stakeholder involvement. Stakeholder participation was not limited to any specific groups at any stage in the RCIS development. As the outreach requirements have been met, and stakeholders were involved in the development of the AVRCIS, therefore, restarting the AVRCIS is not appropriate.

The list of members of the Advisory Committee includes only those organizations that participated on the Advisory Committee during the RCIS development process. As the commenter did not specify which organizations they are referring to, we are unable to respond to this specific allegation.

# 111. Summary of Comment 6-4

This comment states that the AVRCIS should be removed from the EOAs.

# 112. Response to Comment 6-4

See response to comments 2-2 and 6-1.

# 113. Katie Nelson, January 30, 2020

# 114. Summary of Comment 7-1

This comment states that the AVRCIS document is flawed and will negatively harm the Antelope Valley and economic growth.

# 115. Response to Comment 7-1

The RCIS is voluntary, nonbinding, and non-regulatory, and is intended solely to inform how funding identified for conservation actions may be best spent. The RCIS is non-prescriptive and would not appropriately be used to hinder growth, only provide additional data and analysis to inform decision making around conservation planning.

# 116. Summary of Comment 7-2

This comment states that the County already has adopted the AVAP that identified areas for conservation and areas for growth.

# 117. Response to Comment 7-2

The AVAP was developed with different methods and objectives and is not expected to be in complete alignment with the high-value conservation areas of this RCIS. Use of the RCIS is voluntary, nonbinding, and non-regulatory. The land use designations, including EOAs and SEAs were taken into consideration in the development of the RCIS and EOAs are included under “Foreseeable Potential Future Urbanizing Areas,” which are identified in Section 1.4.1.1 as potentially not suitable for achieving long-term conservation goals given the future planned urbanization of these areas (See the response to comment 2-2 for additional information). As explained in Chapter 1, the RCIS does not “regulate the use of land, establish land use designations, or to affect, limit, or restrict the land use authority of any public agency. Nothing in this RCIS is intended to, nor shall it be interpreted to, conflict with controlling federal, state, or local law, including CFGC Sections 1850–-1861, or any Guidelines adopted by CDFW pursuant to Section 1858. Therefore, actions carried out because of this RCIS will be in compliance with all applicable state and local requirements.”

# 118. Summary of Comment 7-3

This comment states that if the draft document is adopted, it will regulate land use and affect land use authority from public agencies.

# 119. Response to Comment 7-3

Use of the RCIS is voluntary, nonbinding, and non-regulatory. As such, it cannot regulate land use or affect the authority of public agencies. See the response to comment 7-2 for additional information.

# 120. Summary of Comment 7

This comment states that the public participation process for the AVRCIS was inadequate.

# 121. Response to Comment 7-4

Public outreach was conducted according to the RCIS Program Guidelines. The public and stakeholder involvement process is described in Sections 1.4, 1.5, and is summarized in the response to comment 2-1.

# 122. Summary of Comment 7-5

This comment states that the document should be held to the same standards as other RCISs and not be exempt from the State Legislation guidelines.

# 123. Response to Comment 7-5

The AVRCIS is consistent with the current, 2018 Program Guidelines and meets all substantive standards. Because the AVRCIS was originally submitted prior to September 2017, this AVRCIS complies with the 2018 Program Guidelines, which allows for some reliance on the 2017 Guidelines for documents submitted prior to September 2017. The requirements for this RCIS are detailed in Section 1.4.7.

## 124. Summary of Comment 7-6

This comment states that the AVRCIS should be rejected and redone and adhere to guidelines, involve all stakeholders and agencies in the area, and consistent with the Los Angeles County Plan.

## 125. Response to Comment 7-6

See responses to comment 7-5. The high-value conservation areas and conservation priorities were based on the best available science and data. It is expected that, on occasion, local land use plans may indicate planned future urbanization and infrastructure development in areas that also have high conservation value as identified in the RCIS. Land use designations, including EAOs, are considered in the RCIS and included as "Foreseeable Potential Future Urbanizing Areas,", which are identified in Section 1.4.1.1 as potentially not being suitable for achieving long-term conservation goals. Because the RCIS is voluntary, nonbinding, and non-regulatory, there is, no inconsistency or conflict with local land use plans. As the requirements of the RCIS program have been met, and stakeholders were involved in the development of the AVRCIS, and the RCIS does not conflict with local or regional land use plans, therefore, rejecting the AVRCIS is not appropriate.

## 126. Thomas Fuller, HW Hunter, Inc., February 4, 2020

## 127. Summary of Comment 8-1

This comment states that the AVAP should be followed.

## 128. Response to Comment 8-1

The RCIS does is not a land use plan and does not affect the use or implementation of the AVAP. Land use planning determinations from the AVAP were considered in the development of the RCIS, with areas identified for development, including EOAs, included under "Foreseeable Potential Future Urbanizing Areas,", which are identified in Section 1.4.1.1 as potentially not being suitable for achieving long-term conservation goals (See the response to comment 2-2 for additional information). The AVAP was developed with different methods and objectives and is not expected to be in complete alignment with the high-value conservation areas of this RCIS. The high-value conservation areas and conservation priorities were based on the best available science and data. It is expected that, on occasion, local land use plans may indicate planned future urbanization and infrastructure development in areas that also have high conservation value as identified in the RCIS. Because the RCIS is voluntary, nonbinding, and non-regulatory, there is, by definition, no inconsistency or conflict with local land use plans.

## 129. Kern County Planning and Natural Resources Department, February 3, 2020

## 130. Summary of Comment 9-1

This comment states that the final draft AVRCIS does not include local agencies that have land use jurisdiction and is not reflective of an objective analysis of actual threats and stressors in the Antelope Valley.

### Response to Comment 9-1

Outreach and stakeholder involvement with the public, local jurisdictions, and other organizations was conducted according to the RCIS Program Guidelines. The public, local jurisdiction, and stakeholder involvement process is described in Section 1.5. This included direct outreach to the County of Los Angeles Board of Supervisors and city councils of Lancaster and Palmdale. Threats and stressors are addressed throughout Chapter 2 (*Environmental Setting*) and Chapter 3 (*Conservation Strategy*) where appropriate.

## 131. Summary of Comment 9-2

This comment states that Kern County appreciated that the RCIS development team complied with their request for the removal of Kern County lands from the AVRCIS.

### Response to Comment 9-2

The RCIS development team was happy to comply with the request from Kern County.

## 132. Summary of Comment 9-3

This comment states that Kern County supports the clear and specific language expressing that the intent of the RCIS product and that the maps and conclusions therein are not binding on local government.

### Response to Comment 9-3

Correct, the RCIS is voluntary, nonbinding, and non-regulatory.

## 133. Summary of Comment 9-4

This comment states that data included in the AVRCIS is being misused by other organizations to oppose projects under CEQA.

### Response to Comment 9-4

The DMCA, the steering committee, CDFW, and the preparers of this RCIS do not condone the misuse of data in this RCIS under any circumstances. We understand the concern over misuse of the analysis provided in the RCIS, however, the AVRCIS and the RCIS program guidelines both clearly identify that the document is only appropriately used to guide, not direct, any conservation actions taken. The AVRCIS does not restrict development in areas identified as beneficial to conservation. The RCIS is a voluntary, nonbinding, and non-regulatory regional planning document.

## 134. Summary of Comment 9-5

This comment states that the water adjudication explanation does not acknowledge the severe limitations on water allocations that will affect growth in the Antelope Valley, but rather identifies possible mitigation actions for identified potential planned projects..

### Response to Comment 9-5

The RCIS discussed the continued demand for water as it has further altered natural land cover and hydrologic regimes in the RCIS area, with wide-ranging and, in many cases, uncertain effects on focal species. The RCIS does not discuss this with respect to economic grown because that is not the focus of the RCIS. Following the RCIS program requirements, the RCIS does consider existing and reasonably foreseeable major water, transportation and transmission infrastructure facilities, urban development areas, and city, county, and city and county general plan designations (CDFG Code Section 1852(c)(6)) and has obtained the areas shown from the local area plans discussed in Section 2.2.2

## 135. Summary of Comment 9-6

This comment states that areas indicated as Foreseeable Potential Future Urbanizing Areas are adjacent to areas where there are large-scale commercial solar projects proposed in Kern County, and that these areas are not likely to become urbanized based on communications with Los Angeles County. The comment also states that they are unaware of the solar sites identified in Figure 3-24.

### Response to Comment 9-6

The Foreseeable Potential Future Urbanizing Areas shown in Figure 2-22 are based on the location of future transportation infrastructure projects, potential solar energy activity areas, potential subdivision activity areas, and EOAs as made publicly available by local jurisdictions and infrastructure agencies. The specific area mentioned as a concern is included within the Foreseeable Potential Urbanizing Area designation as it is a mapped EOA in the Los Angeles County AVAP. The solar projects close to the border with Kern County are also identified as approved projects in the AVAP.

## 136. Summary of Comment 9-7

This comment states that the AVRCIS is inconsistent with Local Plans, and that the RCIS should identify potential future growth patterns and urbanization areas consistent with those identified by local governments. The comment continues, expressing concern that the mis-use of the RCIS tool can be used it stop development and pre-determine impacts of projects that have not undergone a CEQA review, and that the RCIS does not fulfill the legislative requirements to identify growth patterns or stressors that justify the conservation strategy.

### Response to Comment 9-7

The AVRCIS is consistent with the current 2018 Program Guidelines and meets all substantive standards. The high-value conservation areas and conservation priorities were based on the best available science and data. It is expected that, on occasion, local land use plans may indicate planned future urbanization and infrastructure development in areas that also have high conservation value as identified in the RCIS. Local land use plans were not expected to be in complete alignment with the high-value conservation areas of this RCIS because they were developed with different methods and objectives. Because the RCIS is voluntary, nonbinding, and non-regulatory there is, by definition, no inconsistency or conflict with local land use plans. The RCIS does not in any way specify, suggest, or require any mitigation for any project. The RCIS does use the best available science and data to assess the current status of Focal Species and Other Conservation elements to identify conservation targets for those resources.

# 137. Tejon Ranch Company, February 6, 2020

# 138. Summary of Comment 10-1

This comment states that the letter and comments therein should be considered and responded to by DCMA and by the CDFW because the comments relate to the DMCA's lack of compliance with statutory requirements to Sections 1850–1861 (RCIS Statute) and the 2018 RCIS Program Guidelines.

## Response to Comment 10-1

The AVRCIS is consistent with the current 2018 Program Guidelines and meets all substantive standards. Because the AVRCIS was originally submitted prior to September 2017, this AVRCIS complies with the 2018 Program Guidelines, which allows for some reliance on the 2017 Guidelines for documents submitted prior to September 2017. The requirements for this RCIS are detailed in Section 1.4.7.

# 139. Summary of Comment 10-2

This comment states that Tejon Ranch has repeatedly requested that its lands not be included in the study area or in the scientific modeling on which the AVRCIS is based.

## Response to Comment 10-2

The RCIS area excludes Tejon Ranch lands and the scientific modelling supporting the RCIS was revised and rerun without Tejon Ranch lands included in the spring and summer of 2020. Removal of the Tejon Ranch Lands did not change the results of the final output of the scientific modelling, including the results of the modelling represented in the figures and tables of the AVRCIS.

# 140. Summary of Comment 10-3

This comment states that the AVRCIS is not based on the best available science to create scientific models because it does not include the project-level or planning-level ecological analysis conducted for Tejon Ranch.

## Response to Comment 10-3

The high-value conservation areas and conservation priorities identified in this RCIS were based on the best available science and data. Typically, regional planning efforts such as Habitat Conservation Plans, Natural Community Conservation Plans, and RCISs rely on regional and statewide biological databases as the clearinghouses for storing and accessing the best available biological data. The California Natural Diversity Database (CNDDB) is the primary biological database for the state, which relies on project-level biological data to be submitted by entities conducting project-level biological studies. The biological data for all records in CNDDB from 2000 to 2016 in the RCIS plan area was downloaded in 2017, when the RCIS plan area still included the Tejon Ranch property. Therefore, all project-level biological data that would have been customarily submitted to CNDDB for the Tejon Ranch area would have been included in the RCIS data, analysis, and modeling. As noted in the response to comment 10-2, the RCIS area was revised to exclude Tejon Ranch and the analysis and modeling were rerun without the Tejon Ranch data.

When important project-level data sources are identified and are found not to be included in CNDDB or other regional data sources, the data is acquired and incorporated into the RCIS database, analysis, and modeling. In response to this comment, we have searched for additional biological data that is publicly available to determine if there are other data sources that would have been acquired and included in the RCIS analysis if Tejon Ranch had remained in the RCIS area. The only publicly available report that could be found was the Centennial Specific Plan Project Site 2003/2004 Botanical Survey Report. We compared the biological data in this report to the biological data in CNDDB and found that only a limited amount of the data in the report appeared to coincide with data appearing in CDNNB, and that there were relatively few records overall for the Tejon Ranch area within CNDDB. Therefore, it appears that much of the important project-specific biological data collected on Tejon Ranch has not been incorporated into CNDDB and is not otherwise publicly available. Had Tejon Ranch chosen to stay in the RCIS area the important project-specific data would have been requested and presumably acquired directly from Tejon Ranch to ensure that the RCIS was using the best available science and data for this portion of the former RCIS area.

If important project-level data are not made available, regional conservation planning efforts typically do not have the resources to conduct exhaustive research and evaluation to determine if other project-level data may be missing from regional databases such as CNDDB. Furthermore, because the RCIS provides planning-level data and guidance, this information should always be verified by future project-level assessments before being applied to conservation investments and mitigation credit agreements.

# 141. Summary of Comment 10-4

This comment states that Tejon Ranch lands should be removed entirely from the scientific modeling, in accordance with prior assurances made by the preparers to Tejon.

# 142. Response to Comment 10-4

The RCIS area excludes Tejon Ranch lands and the scientific modelling supporting the RCIS was revised and rerun without Tejon Ranch lands included in the spring and summer of 2020. Removal of the Tejon Ranch Lands did not change the results of the final output of the scientific modelling, including the modelling results represented in the figures and tables of the AVRCIS.

# 143. Summary of Comment 10-5

This comment states that the AVRCIS does not conform to recommendations in the 2018 Guidelines, and that the AVRCIS was not initiated by the DCMA prior to January 1, 2017. The comment further states that CDFW cannot approve the RCIS without completely restarting the process.

# 144. Response to Comment 10-5

The DMCA participated in AVRCIS steering committee meetings and RCIS development starting with the AVRCIS Kick-Off Meeting on June 13, 2016, which initiated the AVRCIS. The DMCA discussion and decision for formal commitment occurred at the DMCA governing board meeting on September

13, 2017. CDFW is aware of the timelines for DMCA participation, public meetings, and decision to formalize its role as the RCIS proponent and CDFW has no concerns. See response to comment 10-1 and 10-19. The RCIS meets all requirements of the 2018 Guidelines, therefore, the RCIS process does not need to be restarted for CDFW to approve this RCIS.

# 145. Summary of Comment 10-6

This comment states that the AVRCIS study area appropriately does not include Tejon Ranch lands and that Tejon Ranch should be excluded from the RCIS and scientific modeling because it is already subject to a Comprehensive Conservation Plan. The comment also discusses the overall purpose of the RCIS program as "providing a basis for voluntary investments in conservation and to encourage mitigation agreements in furtherance of development projects". As the Ranchwide Agreement over Tejon Ranch prohibits the development and sale of mitigation credits, they feel that their lands do not meet the primary purpose of the legislation.

# 146. Response to Comment 10-6

The RCIS does not include Tejon Ranch lands. All scientific models were rerun in the spring and summer of 2020 to remove Tejon Ranch from the scope of analysis. Removal of the Tejon Ranch Lands did not change the results of the final output of the scientific modelling, including the modeling results represented in the figures and tables of the AVRCIS.

Regardless, including lands adjacent to the RCIS area in RCIS modeling is consistent with Assembly Bill 2087 and the CFGC. Specifically, 1852(c)(14) states that a RCIS shall include all the following, including: Incorporation and reliance on, and citation of, the best available scientific information regarding the strategy area and the surrounding ecoregion, including a brief description of gaps in relevant scientific information, and use of standard or prevalent vegetation classifications and standard ecoregional classifications for terrestrial and aquatic data to enable and promote consistency among RCISs throughout California.

# 147. Summary of Comment 10-7

The comment states that the RCIS Statute requires that the AVRCIS incorporate the best available scientific information for the strategy area and surrounding ecoregion, and that the RCIS must either exclude Tejon Ranch lands from the analysis or re-run the model to include the best available scientific information.

# 148. Response to Comment 10-7

The RCIS models were re-run in the spring and summer of 2020 to remove Tejon Ranch lands from their scope of analysis. Removal of the Tejon Ranch Lands did not change the results of the final output of the scientific modelling, including the modeling results represented in the figures and tables of the AVRCIS. See the response to Comment 10-3 for additional information.

# 149. Summary of Comment 10-8

The comment rejects that the RCIS was developed using the best available biological land use planning information and that it builds on existing information from the SWAP, DRECP, California Desert Biological Conservation Framework, and SEAs from the LA County General Plan.

# 150. Response to Comment 10-8

The RCIS utilized information from the SWAP, DRECP, California Biological Conservation Framework, and LA County General Plan, however it was developed with different methods and objectives and is not expected to be in complete alignment with the high value conservation areas identified within them. Each of these documents was developed with a different purpose, and, as such, the results from all the documents vary to meet their intended purpose.

# 151. Summary of Comment 10-9

This comment states that the RCIS does not utilize the best available data in the scientific modeling because it includes Tejon Ranch lands but does not include project level habitat data from the Centennial Specific Plan, the Caltrans State Route 138 widening project, or the planning level data from the AVAP.

# 152. Response to Comment 10-9

See response to Comment 10-7. Inclusion of the project level data from the Centennial Specific Plan and Caltrans State Route 138 widening projects would bias the overall planning effort toward the additional survey efforts completed for those projects. The data from the AVAP is considered in the RCIS analysis, but as it is a regional land use plan with different methods and objectives than the RCIS, and the results are not expected to be in complete alignment.

# 153. Summary of Comment 10-10

This comment contends that the RCIS's statements on Page 1-5 in Items 3, 5, and 7 are inaccurate because the analysis and mapping for the Centennial, AVAP, and State Route 138 widening project are more specific and accurate.

# 154. Response to Comment 10-10

See responses to Comments 10-7 and 10-9. While the project level data is more accurate for those areas, including that level of data for only some portions of the RCIS area into the scientific modeling would make the overall model results less accurate.

# 155. Summary of Comment 10-11

This comment states that the modeling used to develop high value conservation areas indicates that it extrapolated in areas that are lacking adequate data from field surveys, but some publicly available project level data have not been included.

# 156. Response to Comment 10-11

See responses to comments 10-7, 10-9, and 10-10.

# 157. Summary of Comment 10-12

This comment states that there is no explanation in the AVRCIS of how species occurrence data was filtered based on if those occurrences were in suitable or unsuitable habitat (i.e., migration versus breeding), such as for the willow flycatcher and Swainson's hawk.

# 158. Response to Comment 10-12

Appendix G describes how occurrence data was used in the species distribution models. Occurrence data shown on the species figures in Appendix F are from CNDDB and BISON databases. These databases are curated for scientific accuracy. No additional filtering was applied to the occurrence data. Data from CNDDB was classified into two categories (i.e., general or specific location) based on the CNDDB occurrence precision attributes.

# 159. Summary of Comment 10-13

This comment states that the RCIS Section 3, describing the methodology for determining areas of high conservation value is not based on the best available science because it does not include project level data from the Centennial and State Route 138 widening projects, or the AVAP.

# 160. Response to Comment 10-13

See responses to comments 10-7, 10-9, and 10-10.

# 161. Summary of Comment 10-14

This comment states that the modeling included in Appendices F and G also suffer from the lack of inclusion of data from the Centennial and State Route 138 projects and AVAP.

# 162. Response to Comment 10-14

See responses to comments 10-7, 10-9, and 10-10.

# 163. Summary of Comment 10-15

This comment reiterates concerns regarding the exclusion of project level data in the RCIS scientific modeling, especially considering the specific knowledge of the Centennial Project, State Route 138 widening, and AVAP by the people and entities preparing the RCIS from when it was initiated.

# 164. Response to Comment 10-15

See response to comments 10-7, 10-9, and 10-10.

# 165. Summary of Comment 10-16

This comment states that the project level data such as that from the Centennial Project and State Route 138 constitutes the best available scientific information that the RCIS is required by statute to used. The comment further states that CDFW cannot approve the RCIS without the inclusion of this data in the scientific modeling.

# 166. Response to Comment 10-16

See the response to comments 10-7, 10-9, and 10-10 regarding the inclusion of project level data into the RCIS's regionwide analysis. This project-specific data is not appropriate for the analytical methods used to prepare this RCIS, therefore, CDFW is not required to reject the RCIS for this reason.

# 167. Summary of Comment 10-17

This comment recommends removing the Tejon Ranch Lands from the RCIS's study area and scientific modeling.

# 168. Response to Comment 10-17

Tejon Ranch lands were removed from the RCIS study area in 2019 and from the RCIS scientific modeling in 2020.

# 169. Summary of Comment 10-18

This comment states that the AVRCIS process has been run by private entities and individuals with conflicts of interest and not by a public agency, as required by the statute.

# 170. Response to Comment 10-18

The RCIS was prepared under the direction of and submitted on behalf of the DMCA, a public agency and the RCIS proponent. The RCIS team has worked to be inclusive in the development of the RCIS from the beginning. See Sections 1.4, 1.5, and the summary provided in the response to Comment 2-1 for details regarding the public and stakeholder involvement process.

# 171. Summary of Comment 10-19

This comment states that DCMA did not become the public agency sponsor of the RCIS until September 13, 2017, and that the RCIS effort has been largely led by private entities and individuals. The comment asserts that the DMCA became the "public agency" proponent of the AVRCIS after the majority of the work regarding scientific modeling had been completed. The comment continues to state that the process used by the RCIS, and "forum shop" to include DMCA as the sponsoring public agency is contradictory to the RCIS statute and is not in line with the basic principles of governmental transparency that apply to public agency operations.

# 172. Response to Comment 10-19

There are no requirements in the legislation or current RCIS Guidelines (2018) that specifies the proponent be identified at the initiation of an RCIS. The AVRCIS was one of four pilot RCISs initiated prior to the enactment of the legislation and completion of the final RCIS guidelines (2018 Guidelines, p. 4-1, footnote 111). The DMCA participated n AVRCIS steering committee meetings and RCIS development starting with the AVRCIS Kick-Off Meeting on June 13, 2016 (the email notice was distributed to over 50 entities on June 3, 2016 and included Tejon Ranch representatives. DMCA also sent out an email "eblast" on January 26, 2017 (sent to over 80 entities with expressed interest in the AVRCIS, including Tejon Ranch representatives) (see email copy in Appendix C-2) providing an update on the RCIS to interested parties, further supporting their continued involvement in the RCIS process. DMCA subsequently posted this announcement and the Public Meeting Notice on February 3, 2017, on the DMCA web page. The public meeting was hosted by DMCA on March 7, 2017. The legislation does not specify when the public agency must confirm its commitment as the RCIS proponent. The DMCA discussion and decision for formal commitment occurred at the DMCA governing board meeting on September 13, 2017. CDFW is aware of the timelines for DMCA participation, public meetings, and decision to formalize its role as the RCIS proponent and CDFW has no concerns.

# 173. Summary of Comment 10-20

This comment states that in addition to not being led by DMCA, that participants in the AVRCIS process have conflicts of interest. Tejon Ranch asserts that the steering committee was composed of entities and individuals that used the process for their own individual interests, and not that of the public. The comment further requests that those individuals that have conflicts of interest be excluded from the RCIS process from here forward.

# 174. Response to Comment 10-20

Participation in the AVRCIS development has been an open process with specific opportunities for all interested parties to provide input and feedback on the RCIS planning process and final document. Public outreach was conducted according to the RCIS Program Guidelines. The public and stakeholder involvement process is described in Section 1.5. The steering committee and advisory committee memberships were comprised of a spectrum of interests, providing balanced contributions and guidance from a science and land use planning perspective. No stakeholder has decision making authority over the RCIS, and all decisions made in the development of the RCIS were made to support the development of a strategy to inform conservation investments within the Antelope Valley Region.

# 175. Summary of Comment 10-21

This comment states that the AVRCIS process is run by private consultants and entities with funding from private entities that do not have a contractual obligation to DMCA, the public agency proponent of the AVRCIS; therefore, the DMCA cannot be deemed the entity preparing the AVRCIS.

# 176. Response to Comment 10-21

There is no requirement that an RCIS is funded by the public agency applicant. See response to comment 2-1.

# 177. Summary of Comment 10-22

This comment states that because the RCIS was led by private entities and individuals instead of a public agency, the AVRCIS lacked transparency, accountability, and the opportunity for stakeholders to have input in the development of the AVRCIS, which is contrary to the intent of the RCIS statute.

# 178. Response to Comment 10-22

Public outreach was conducted according to the RCIS Program Guidelines. The public and stakeholder involvement process is described in Sections 1.4, 1.5. A summary of this process is included as a response to Comment 2-1.

# 179. Summary of Comment 10-23

This comment references the audio tape of the DMCA governing board meeting on September 13, 2017. The comment transcribed four quotes from the meeting as evidence that there was "intentional desire to sugarcoat the public process and maintain secrecy."

# 180. Response to Comment 10-23

The four quotes provided in this comment were not provided with the full transcript for context, therefore, it is difficult to ascertain specifically what some of the statements made in the meeting were responding to. It is also not clear if certain statements that were unclear or incorrect were later clarified or corrected.

In the first quote it is not clear exactly who the "Planning Team" is that Mr. Edelman is referring to. The RCIS preparation process was led by the consultant team and established a steering committee and an advisory committee. Later a Technical Subcommittee was formed to provide technical input into the RCIS methods, results, and documentation. The process was always implemented in a fully transparent and inclusive manner with no "intentional desire to sugarcoat the public process and maintain secrecy". The consultants were hired by Bechtel and Windward Fund as is stated. The document had not been distributed for formal public review at the time of these statements, so that may be what Mr. Edelman meant by saying it was "a private document". However, this was following the standard process for RCISs and environmental documents where documents are not circulated for public review until they are ready for the public comment period.

The second quote is from an Unknown Speaker, is not clearly articulated, and is not correct. Because the statement is out of context it is unclear if anyone in the meeting corrected these statements. The process was not being implemented by "a team of advisors from different nonprofits and conservation entities". All interested stakeholders were welcome to participate in the Advisory Committee and the Steering Committee was established to include a range of interests including public utilities, infrastructure agencies, local jurisdictions, regulatory agencies, and environmental nonprofit groups. Representatives from some of these groups did not always attend the steering committee meetings (one never did), and one group specifically asked to be removed from the Steering Committee. However, the intended purpose of the Steering Committee was to provide guidance from a well-balanced range of interests.

The third quote states that the RCIS had been going on for a year and a half before the September 13, 2017 board meeting. The quote also states that the RCIS was initiated prior to the RCIS legislation being enacted. These statements are correct. The AVRCIS is one of four pilot project RCISs intended to provide proof of concept.

The fourth quote appears to be in reference to the steps required in the RCIS legislation and DMCAs role as the RCIS proponent. The statement is acknowledging that DMCA decided to become the RCIS proponent prior to reviewing the final draft RCIS. This is correct in that the RCIS proponent is identified early in the RCIS preparation process. The statement also notes that DMCA would get the opportunity to review the RCIS prior its submittal to CDFW. This statement is also correct in that the DMCA is represented on the Steering Committee, which is involved in determining when the RCIS may be submitted to CDFW. The statement that “the people preparing it don’t want that final draft to go public until it has gone to the Department of Fish and Wildlife” does not however, accurately represent the process of RCIS development. The Public Review Draft of the RCIS is a specific draft in the sequence of preparing the RCIS. According to the legislation, a Completeness Review Draft is submitted to CDFW, and if the RCIS is deemed completed, then a Public Review Draft is circulated to the public for review and comments. The Final RCIS is prepared to address and include the public comments. Therefore, the RCIS would not “go public” until the Public Review Draft. However, as various elements of the RCIS were being developed they were presented to the Steering Committee and Advisory Committee, and at key points at public meetings to solicit early input from jurisdictions, agencies, stakeholders, and members of the public.

The RCIS was prepared in compliance with the legislation and with the spirit and intent of full inclusion of all interested stakeholders and other interested members of the public.

# 181. Summary of Comment 10-24

This comment states that the preparers of the AVRCIS intentionally did not comply with requirements in the RCIS process to conduct a transparent process. The draft AVRCIS was not available for public review until after CDFW review. The comment also states that the DMCA governing board meeting on September 13, 2017 was the first time that DMCA “considered and discussed its formal involvement in the AVRCIS process.”

# 182. Response to Comment 10-24

See response to comment 10-1 regarding consistency with the RCIS program requirements and response to comment 2-1 for additional information on the transparency and public engagement in the process. Consistent with the 2018 RCIS Guidelines, CDFW conducts a completeness review prior to the initiation of the public review of the RCIS document.

While it may be correct that the DMCA governing board meeting on September 13, 2017 was the first time that DMCA “considered and discussed its formal involvement in the AVRCIS process” there is no requirement in the legislation that the RCIS proponent be the entity that initiates an RCIS. As stated in the response to Comment 10-23, above, the AVRCIS is one of four pilot project RCISs intended to provide proof of concept. Early in the process DMCA stated its intent to become the RCIS proponent. The DMCA discussion and decision for formal commitment occurred at the DMCA governing board meeting on September 13, 2017.

As also noted in the response to Comment 10-23, above, the consultant team, Steering Committee, Advisory Committee, and Technical Subcommittee (representatives from public utilities, infrastructure agencies, local jurisdictions, regulatory agencies, and environmental nonprofit groups were members of one or more of these committees) were “conducting all work and making all decisions relative to the AVRCIS” not “private entities and conflicted individuals.” The RCIS was prepared under the direction of and submitted on behalf of the DMCA, a public agency and the RCIS proponent.

# 183. Summary of Comment 10-25

This comment states that the AVRCIS incorrectly asserts that the AVRCIS was initiated by the DCMA in March 2016, and that the AVRCF document, the precursor to the AVRCIS, was already being prepared by a private entity prior to DMCA's involvement. The comment further states that the RCIS' representation of DMCA's involvement is misleading, and that CDFW should not approve the RCIS.

# 184. Response to Comment 10-25

See response to Comment 10-1, Comment 10-18, and Comment 10-22

# 185. Summary of Comment 10-26

This comment states that the RCIS did not conduct outreach to interested parties, including not filing a notice of intent was not published by the DMCA or AVRCIS preparers, which is required by RCIS Statute. The comment further states that the RCIS cannot move forward without meeting this requirement.

# 186. Response to Comment 10-26

See response to Comments 2-1, 10-1, and 10-18. The AVRCIS is consistent with the current 2018 Program Guidelines and meets all substantive standards. Because the AVRCIS was originally submitted prior to September 2017, this AVRCIS complies with the 2018 Program Guidelines, which allows for some reliance on the 2017 Guidelines for documents submitted prior to September 2017. The requirements for this RCIS are detailed in Section 1.4.7.

# 187. Summary of Comment 10-27

This comment states that the AVRCIS process did not adhere to the 2018 Guidelines for RCISs. The DMCA cannot provide written documentation to adequately prove that it is exempt from the 2018 Guidelines (either initiated on or after January 1, 2017, or if a notice of intent was published after September 13, 2018).

# 188. Response to Comment 10-27

See response to comment 10-18. The AVRCIS is consistent with the current 2018 Program Guidelines and meets all substantive standards. Because the AVRCIS was originally submitted prior to September 2017, this AVRCIS complies with the 2018 Program Guidelines, which allows for some reliance on the 2017 Guidelines for documents submitted prior to September 2017. The requirements for this RCIS are detailed in Section 1.4.7.

# 189. Summary of Comment 10-28

This comment states that the AVRCIS does not comply with provisions in Section 4.2.4 in the 2018 Guidelines, which recommends outreach to tribes with cultural interests in the RCIS area.

# 190. Response to Comment 10-28

The tribal outreach became a suggested action in the 2018 RCIS Guidelines and was not a requirement at the time of preparation of the public review draft AVRCIS. However, subsequent to the end of the public review period and at the request of the Fernandeño Tataviam Band of Mission Indians, we have conducted outreach to obtain input from tribes with potential interest in the RCIS. The two main tribes of the Antelope Valley RCIS are the Fernandeño Tataviam Band of Mission Indians and the San Manuel Band of Mission Indians. A series of correspondences and meetings with tribal representatives from both tribes occurred throughout the summer and fall of 2020 to ensure that concerns of the tribal members were addressed and that the RCIS accurately reflected the tribes' interest and support for the Antelope Valley RCIS. This information is described in both Chapter 1 and Chapter 4.

# 191. Antelope Valley – East Kern Water Agency, February 7, 2020

# 192. Summary of Comment 11-1

This comment states that the Antelope Valley – East Kern Water Agency was unaware of the preparation of the AVRCIS and was not involved in the process to develop the RCIS. AVEK should have been involved with the process considering the emphasis placed on understanding future water infrastructure planning.

# 193. Response to Comment 11-1

Public outreach was conducted according to the RCIS Program Guidelines. The public and stakeholder involvement process is described in Sections 1.4, 1.5, and at the beginning of Appendix C of the RCIS and is summarized in the response to comment 2-1. All known areas of foreseeable future development are identified under "Foreseeable Potential Future Urbanizing Areas", which are included in mapping shown in Figures 2-14, 2-22, 3-20 through 3-22, 3-24, and Appendices F and H and identified in Section 1.4.1.1 as potentially not being suitable for achieving long-term conservation goals.

# 194. Summary of Comment 11-2

This comment states that the AVRCIS is grandfathered from the latest guidelines for RCIS and that the document should be held to the latest guidance from CDFW.

# 195. Response to Comment 11-2

The AVRCIS is consistent with the current 2018 Program Guidelines and meets all substantive standards. Because the AVRCIS was originally submitted prior to September 2017, this AVRCIS complies with the 2018 Program Guidelines, which allows for some reliance on the 2017 Guidelines for documents submitted prior to September 2017. The requirements for this RCIS are detailed in Section 1.4.7.

# 196. Summary of Comment 11-3

This comment states that AVEK was not party to the draft AVRCIS and as a major water provider and infrastructure builder, AVEK should have been involved in the preparation of the AVRCIS.

# 197. Response to Comment 11-3

See response to comment 11-1

# 198. Summary of Comment 11-4

This comment states that the AVRCIS should be rejected

# 199. Response to Comment 11-4

See response to comment 11-1 for a summary of public outreach and stakeholder involvement. As the outreach requirements have been met, and stakeholders were involved in the development of the AVRCIS, we do not agree that rejecting the AVRCIS is appropriate.

# 200. Summary of Comment 11-5

This comment states that the AVRCIS should no longer be exempted from the latest CDFW guidelines

# 201. Response to Comment 11-5

See response to comment 11-2

# 202. Summary of Comment 11-6

This comment states that a new AVRCIS should be prepared that reflects larger input from stakeholders and Antelope Valley residents.

# 203. Response to Comment 11-6

See response to comment 11-1 and 11-4

# 204. Summary of Comment 11-7

This comment states that a new RCIS should be prepared that is consistent with the AVAP.

# 205. Response to Comment 11-7

The high-value conservation areas and conservation priorities were based on the best available science and data. It is expected that, on occasion, local land use plans such as the AVAP may indicate planned future urbanization and infrastructure development in areas that also have high conservation value as identified in the RCIS. As discussed further in the response to comment 2-2, the RCIS and AVAP were developed for different purposes, leading to differing results. Because the

RCIS is voluntary, nonbinding, and non-regulatory, there is no inherent inconsistency or conflict with local land use plans.

# 206. 12. Los Angeles County Department of Regional Planning, February 10, 2020

# 207. Summary of Comment 12-1

This comment states that the AVRCIS was not developed in coordination with the Department of Regional Planning and must not be listed as a party that participated in the creation of the AVRCIS. The comment also references attached letters, which are letters from the Los Angeles County Department of Regional Planning to the AVRCIS requesting that the AVAP EOA areas be excluded from conservation areas, and then subsequently requesting to withdraw from the steering committee.

# 208. Response to Comment 12-1

The AVRCIS does not list Los Angeles Department of Regional Planning as a participating party. See response to comment 12-9, below. The AVRCIS Planning Team removed the Los Angeles County Department of Regional Planning as requested.

The RCIS is a voluntary, nonbinding, and non-regulatory regional planning process intended to result in higher-quality conservation outcomes. An RCIS establishes conservation goals and objectives and describes conservation actions that may be used as a basis to provide advance mitigation or to inform other conservation planning processes and investments. The high-value conservation areas and conservation priorities were based on the best available science and data. It is expected that, on occasion, local land use plans may indicate planned future urbanization and infrastructure development in areas that also have high conservation value as identified in the RCIS. Because the RCIS is voluntary, nonbinding, and nonregulatory, there is, no inherent inconsistency or conflict with local land use plans, even though the AVAP and the RCIS may contemplate different uses for some of the lands within the Plan Area.

Economic Opportunity Areas (EOAs) are included under "Foreseeable Potential Future Urbanizing Areas," and are shown on 60 of the AVRCIS maps (Figures 2-14, 2-22, 3-20 through 3-22, 3-24, and Appendices F [27 figures] and H [27 figures]), and are identified in Section 1.4.1.1 as potentially not suitable for achieving long-term conservation goals given the future planned urbanization of these areas.

# 209. Summary of Comment 12-2

This comment states that additional language should be added to the AVRCIS to clarify that the document does not precisely map environmental resources of hazardous or critical concern, and that the document does not conflict with the Significant Ecological Areas in the Countywide General Plan.

# 210. Response to Comment 12-2

The high-value conservation areas and conservation priorities identified in this RCIS were based on the best available science and data. The SEAs are shown in the RCIS for context, but were not expected to be in complete alignment with the high-value conservation areas of this RCIS because they were developed with different methods and/or objectives. Additional language has been included in the RCIS regarding the precision of mapping and the lack of conflict with the SEAs.

# 211. Summary of Comment 12-3

This comment states that the High Desert Corridor should be reevaluated as an area of potential future urbanization.

# 212. Response to Comment 12-3

On December 31, 2020, the California Department of Transportation (Caltrans) notified the U.S. Federal Highways Administration (FHWA) that the rail component of the High Desert Corridor was moving forward with a Record of Decision expected in 2021. However, Caltrans is opting not to build the freeway portion of the project at this time, but reserves the right to resume work on the freeway component at some point in the future (High Desert Corridor JPA meeting minute, January 14, 2021). The text in the RCIS has been updated to reflect the new status of the High Desert Corridor projects.

# 213. Summary of Comment 12-4

This comment states to add page numbers on documents that have figures or maps.

## Response to Comment 12-4

The final RCIS has gone through formal technical editing. Final document formatting has been determined according to the applied technical editing standards.

# 214. Summary of Comment 12-5

This comment states to add language to clarify that the AVRCIS "does not designate, precisely map or officially adopt environmental resources or hazardous or critical concern" for the purposes of CEQA.

## Response to Comment 12-5

See response to comment 12-2.

# 215. Summary of Comment 12-6

This comment states to add that Conservation Priority Areas are also derived from public input on page 1-6.

### Response to Comment 12-6

The revision was considered and it was determined that this addition was not appropriate in the text describing Identification of Conservation Priority Areas.

## 216. Summary of Comment 12-7

This comment states to clarify if Conservation Priority Areas are the same as High Conservation Value Areas.

### Response to Comment 12-7

Conservation Priority Areas are not the same as High Conservation Value Areas. Definitions and language have been updated throughout the document to be consistent with the 2018 RCIS Guidelines.

## 217. Summary of Comment 12-8

This comment states to remove "County" references under the Advisory Committee because no county governments participated in the creation of the AVRCIS.

### Response to Comment 12-8

"County" reference has been removed from the Advisory Committee.

## 218. Summary of Comment 12-9

This comment requests to clarify what is meant by "the public meeting was broadly noticed through the 'County of Los Angeles'" on page 1-15. The comment further states that the DRP did not notify the public for this document and that references to the County's participation must be removed.

### Response to Comment 12-9

Los Angeles County Department of Regional Planning provided a list of over 200 addresses to be used for the public announcements and notices for the AVRCIS. This email listserv included all individuals and entities that had expressed previous interest in the Antelope Valley Area Plan (AVAP) and the revision process for the Los Angeles County Significant Ecological Areas (SEAs) in the Antelope Valley portion of Los Angeles County. This listserver was supplemented with the email listserver maintained by DMCA and an email blast was sent to nearly 350 individuals and organizations in late 2016.

The public meetings were announced through DMCA and the AVRCIS consultants, not through the County of Los Angeles. Therefore, this statement has been modified to remove "County of Los Angeles." Additionally, the March 2017 issue of the Lakes and Valleys Gazette, a local news publication, published an article about the beginning of the Antelope Valley RCIS process and included information for attendance at the public meeting on March 7, 2017, as well as contact information for the plan preparers and the website address for DMCA where announcements, meeting minutes, memos, reports and documents were made available throughout the RCIS development process.

# 219. Summary of Comment 12-10

This comment states that "Board of Supervisors" must be capitalized on page 1-15.

## Response to Comment 12-10

It has been capitalized.

# 220. Summary of Comment 12-11

This comment states that on page 2-4, to revise the paragraph discussing climate to "…with temperatures averaging from 50 to 75 …."

## Response to Comment 12-11

The suggested revision has been made.

# 221. Summary of Comment 12-12

This comment states that the description of the Northern Mojave River and Ventura-San Gabriel Coastal watersheds in Section 2.1.2 is incorrect, and that all of the drainage in the non-coastal slope portion of the plan area terminates at Rosamond or Rodgers Lake and does not reach the Mojave River.

## Response to Comment 12-12

This description is based on the USGS defined watersheds. The Northern Mojave watershed (HUC 180902) references shown in the map are correct, and it does include the areas that drain to Rosamond and Rogers Lake, even though those flows do not reach the Mojave River. The definition in the glossary has been updated to clarify what is meant here.

# 222. Summary of Comment 12-13

This comment states that the areas mapped as "North American Warm Semi-Desert Cliff, Scree, and Other Rock Vegetation" in Figure 2-4 is incorrect and should be a form of playa/wetland.

## Response to Comment 12-13

The RCIS is follows the National Vegetation Classification Standards (NVCS) and incorporates CDFW's Natural Communities List. See Table 2-1 of the RCIS (CDFW 2020).

# 223. Summary of Comment 12-14

This comment states that the determination for species is arbitrary, and that more information regarding the analyses that was used to produce the determinations should be presented in Table 2-9.

### Response to Comment 12-14

The list and description of these primary pressures are largely based on the pressures described in the State Wildlife Action Plan (SWAP) for the Desert Province as is stated at the beginning of Section 2.3. The SWAP identifies pressures for the Mojave Desert conservation unit as a whole. The assignment of these stressors to individual species was based on the best available scientific information, including expert input and/or locally relevant scientific literature, and professional judgement. This clarification has been added to the text.

## 224. Summary of Comment 12-15

This comment states that Policy Land Use (LU) 2.1 is an existing policy from the AVAP and should be moved to the policies listed under that plan on page 111.

### Response to Comment 12-15

The policy has been moved as requested.

## 225. Summary of Comment 12-16

This comment states that Policy Land Use (LU) 2.1 is an existing policy from the AVAP and should be moved to the policies listed under that plan on page 2-73

## 226. Response to Comment 12-16

The policy has been moved as requested.

## 227. Summary of Comment 12-17

This comment states that the following Goal LU 3 and Policies 3.1 and 3.2 should be added to the AVRCIS:

**Goal LU 3**: A development pattern that discourages sprawl, and protects and conserves areas with natural resources and SEAs

**Policy LU 3.1**: Encourage the protect and conservation of areas with natural resources, and SEAs.

**Policy LU 3.2**: Discourage development in areas with high environmental resources and/or severe safety hazards.

### Response to Comment 12-17

The goal and policies have been added as requested.

## 228. Summary of Comment 12-18

This comment states that there is a typo on Figure 2-14: Lancaster is spelled incorrectly.

### Response to Comment 12-18

The figure has been corrected.

## 229. Summary of Comment 12-19

This comment states to add the following Policy LU 2.1 from Page 2-7 along with Goal Conservation and Open Space (COS) 18, Policy COS 18.1, and Policy COS 19.3:

> **Policy LU 2.1**: Limit the amount of potential development in SEAs, including Joshua Tree Woodlands, wildlife corridors, and other sensitive habitat areas, through appropriate land use designations with very low residential densities, as indicated in the Land Use Policy Map (Map 2.1) of this Area Plan

**Goal COS 18**: Permanently preserved open space areas throughout the Antelope Valley

> **Policy COS 18.1**: Encourage government agencies and conservancies to acquire mitigation lands in the following areas and preserve them as permanent open space: - SEA, including Joshua Tree Woodlands, wildlife corridors, and other sensitive habitat areas; Hillside Management Areas; - Scenic Resource Areas, including water features such as the privately owned portion of Elizabeth Lake, significant ridgelines, buttes, and other natural landforms; - land adjoining preserves, sanctuaries, State Parks, and National Forests; and – privately owned lands within the National Forest

> **Policy COS 19.3** Pursue innovated strategies for open space acquisition and preservation through the land development process, such as Transfers of Development Rights, Land Banking, and Mitigation Banking, provided that such strategies preserve rural character.

### Response to Comment 12-19

The goal and policies have been added as requested.

## 230. Summary of Comment 12-20

This comment states to add the following language in Section 2.2.2.2: "The AVRCIS shows some habitat areas within the County's EOAs, the county, however, has prioritized the EOAs for economic development projects and not conservation, and objects to land within an EOA as being an appropriate area for mitigation lands."

### Response to Comment 12-20

The following statement addressed the concern in the comment and is included in Section 3.4.2 "Areas within the Los Angeles County EOAs and the vicinity of other major foreseeable infrastructure and development projects are more likely to have higher future urbanization pressure; therefore, conservation priorities should not be identified in these areas when possible." See the response to comment 2-2 for additional information.

## 231. Summary of Comment 12-21

This comment states to clarify in Section 2.3.1.2 the scale that is being addressed regarding air pollutant impacts, specifically nitrogen deposition.

### Response to Comment 12-21

The scale has been clarified and supported with citation of scientific literature.

## 232. Summary of Comment 12-22

This comment states that in Table 2-10 the analysis is unclear and that Joshua trees need freezing temperatures, and that the Navarretia, turtle, and riparian bird species will be adversely affected if climate change results in loss of aquatic and riparian habitats.

### Response to Comment 12-22

The table lists those species identified as climate vulnerable in the SWAP Species of Greatest Conservation Need, or are otherwise limited by range and dispersal capacity or dependence on riparian and aquatic habitats. Three of the species are SWAP Species of Greatest Conservation Need (SGCN) and the other five species were added based on the best available data and scientific literature, as well as input from species experts.

## 233. Summary of Comment 12-23

This comment states that information in Section 2.3.5.1 is incorrect, and that Tehachapi pocket mice get most or all of their water from food and typically aren't limited by free water availability.

### Response to Comment 12-23

The comment is correct, and the Tehachapi pocket mouse has been removed from this statement.

## 234. Summary of Comment 12-24

This comment states that lands within a mile of the Tehachapi Renewable Transmission Project and outside of SEAs should be considered potential solar expansion areas in Figure 2-22.

### Response to Comment 12-24

Existing and approved renewable energy development in the RCIS area is shown on Figure 2-18. The figure does not include potential solar expansion areas because this would be speculative.

## 235. Summary of Comment 12-25

This comment states that DETO-4, which recommends fencing for Agassiz's desert tortoise, should be used with caution because fencing can provide perching opportunities for ravens. This comment suggests adding language to clarify this point.

### Response to Comment 12-25

This action was modified to include consideration for measures to reduce the potential for ravens to use the fencing for perching.

# 236. Summary of Comment 12-26

This comment inquires whether credits can be developed for newly recognized sensitive resources that weren't considered during the initial development of the AVRCIS as the plan evolves and progress is assessed.

### Response to Comment 12-26

Mitigation credits can be proposed for any focal species, non-focal species, or other conservation element by implementing conservation or habitat enhancement actions that contribute to the achievement of conservation goals and objectives outlined in this Antelope Valley RCIS and complies with CFGC 1851(d) or (g). Therefore, if the conservation goal and objective isn't outlined in the RCIS, it would not apply to a future newly recognized sensitive resources. The RCIS may be amended in the future to include new focal species, non-focal species, or other conservation elements as described in the RCIS Program Guidelines.

# 237. 13. Center for Biological Diversity, February 10, 2020

# 238. Summary of Comment 13-1

This comment states that document would be improved by including pronghorn as a focal species because it would be an umbrella species for grassland and desert plant communities.

# 239. Response to Comment 13-1

Pronghorn was seriously considered as a focal species by the technical advisory committee and RCIS preparers. Due to the current status of this species and the limited occurrence in the RCIS area, it was decided not to include it as a focal species.

# 240. Summary of Comment 13-2

This comment states that the RCIS identifies nearly 48,000 acres of Department of Defense managed lands and approximately 43,000 acres of public lands that are considered "Protected Lands," but it is unclear how much are managed or proposed to be managed for conservation purposes, especially with the Department of Defense's commitment to military readiness.

# 241. Response to Comment 13-2

Although data are not readily available for the current level of management on these lands across the RCIS area, the RCIS has been substantially updated to clarify the terminology and data sources in the methods for land protection status on currently protected and lands to be protected in the future.

# 242. Summary of Comment 13-3

This comment states that Table 2-2 needs to be updated to include the following conservation statuses:

Western Joshua Tree (*Yucca brevifolia*) is petitioned under the California Endangered Species Act as a threatened species.

Spreading navarretia (*Navarretia fossalis*) has a California Rare Plant Rank of 1B.1

Short-joint beaver tail (*Opuntia basilaris* var. *brachyclada*) has a California Rare Plant Rank of 1B.2

Mountain lion (*Felis concolor*) is petitioned under the CESA as a threatened species as part of the Southern California/Central Coast ESU

# 243. Response to Comment 13-3

Table 2-2 has been updated with the most recent conservation status for all focal species.

# 244. Summary of Comment 13-4

This comment states that the desert kit fox (*Vulpes macrotis arsipus*) is a special status species under State law because it is protected as a furbearing mammal under California Code of Regulations (CCR) Title 14, Section 460, and the statement on page 2-54 needs to reflect this status.

# 245. Response to Comment 13-4

The conservation status for desert kit fox has been updated in Table 2-3 and within the species profile to indicate that it is protected as a furbearing mammal.

# 246. Summary of Comment 13-5

This comment states that the Natural Community Alliances are confusing in Table 3-3 and that it is unclear if the alliances are represented by a single species.

# 247. Response to Comment 13-5

The table has been reorganized and formatted so that it is clear that these are the names of macrogroups, groups, and alliances.

# 248. Summary of Comment 13-6

This comment states that basing conservation goals on habitat is useful for some species, but does not address the conservation needs of others that may be substrate or hydrologically constrained, such as the alkali mariposa lily, which has specific hydrology/groundwater habitat requirements.

# 249. Response to Comment 13-6

It is true that some species have additional habitat requirements that are not easily captured with the species distribution modelling methods. In all cases prior to implementing a conservation investment or MCA, it is important to assess the on-the-ground condition of the habitat including these important microhabitat features.

# 250. Summary of Comment 13-7

This comment states that the document fails to analyze whether conserving cores and linkages is adequate to meet the goals and objectives of the RCIS, specifically as it relates to protection of focal species and conservation values as a whole in the Antelope Valley

# 251. Response to Comment 13-7

The establishment of quantitative conservation goals for the RCIS uses the high conservation value area acreages in the cores and linkages. Fulfilling the quantitative conservation goals of the RCIS in the cores and linkages would, by definition, meet the goals and objectives of the RCIS. The RCIS does allow considerable flexibility and therefore it is possible that conservation outside of the cores and linkages could contribute to fulfilling the goals and objectives of the RCIS. All else being equal, however, the better conservation outcome would be to fulfill the goals and objectives of the RCIS within the cores and linkages as much as possible.

# 252. Summary of Comment 13-8

This comment states that the original boundaries of the RCIS changed and the latest boundary does not include the best contiguous native grasslands.

# 253. Response to Comment 13-8

The RCIS boundary was changed to remove Tejon Ranch at their request, please see Comment Letter 10 for additional information. These changes eliminated some habitat areas, including native grasslands from the RCIS plan area.

# 254. Summary of Comment 13-9

This comment states that the authors do not support using mitigation funding to conduct species surveys because surveys do little to conserve or recover an imperiled species. The authors recognize that surveys are important for monitoring and evaluating effects of habitat improvement projects or identifying new populations. The document should include specific language that identifies the funding source for the different types of surveys or monitoring.

# 255. Response to Comment 13-9

The following statement and modifications have been made to clarify this point. "While species monitoring and additional research are important components of meeting the overall conservation goals and objectives of the RCIS, they, like many of the other actions, should not be expected to provide conservation credits to be used as compensatory mitigation if implemented in isolation. Therefore, species monitoring and additional research are listed as additional information needs in the conservation strategy for each species and not as separate actions."

# 256. Summary of Comment 13-10

This comment states that the document needs to analyze the adequacy of protection based on land management/ownership by species and state that protected areas need to be fully protected in perpetuity or that additional acreage in specific locations will be needed to meet conservation goals or objectives.

# 257. Response to Comment 13-10

The definitions in the RCIS have been revised to match the definitions of the 2018 RCIS Guidelines. These definitions have been applied throughout the document to provide clarity regarding the level of protection needed to permanently protect species and habitats. Although data are not readily available for the current level of management on these lands across the RCIS area, the RCIS has been substantially updated to clarify the terminology and data sources in the methods for land protection status on currently protected and lands to be protected in the future.

# 258. Summary of Comment 13-11

This comment states that for species that have habitat requirements including water or hydrological processes, the goals/objectives need to include acquiring adequate water rights to maintain the water and hydrological processes upon which these species depend.

# 259. Response to Comment 13-11

If this were a requirement to provide conservation credits to be used as compensatory mitigation under an MCA, then these requirements would be specified as the time the MCA was established.

# 260. Summary of Comment 13-12

This comment states that efforts to protect multiple age-class-stands of tree species or woodlands need to be included, rather than focusing on old-growth stands because all successional phases are important over the long-term.

# 261. Response to Comment 13-12

The text has been revised to include multiple-age class stands.

# 262. Summary of Comment 13-13

This comment states that restoration in burned areas should include planting focal species and not only native shrubs, forbs, and grasses.

# 263. Response to Comment 13-13

The text has been revised to include planting young Joshua trees (caged to prevent herbivory), in addition to native shrubs, forbs, and grasses.

# 264. Summary of Comment 13-14

This comment states that conservation of desert vernal pools and alkaline playas would conserve more species that co-occur with the spreading navarretia, rather than focusing on occupied habitat alone.

# 265. Response to Comment 13-14

The text has been revised to include conservation of these ecosystems as a whole.

# 266. Summary of Comment 13-15

This comment states that for focal species that have recovery plans, recovery actions for those species should be included in the conservation strategy for those species, for example, Agassiz's desert tortoise and Mohave ground squirrel.

# 267. Response to Comment 13-15

Recovery plans were created by USFWS for vernal pool species, arroyo toad, mountain yellow-legged frog, Agassiz's desert tortoise, least Bell's vireo, California condor, and conservation strategies were created for the Mohave ground squirrel by CDFW. Goals and objectives for these species that are similar to recovery plan goals and objectives were identified.

# 268. Summary of Comment 13-16

This comment states that objectives for burrowing owl fail to include the most successful conservation strategies for this species: working cooperatively with local agricultural producers to coordinate crop plantings that benefit this species and installing burrows.

# 269. Response to Comment 13-16

Added "working with agricultural producers on the types of crops planted to benefit burrowing owl" to Conservation Action ID BUOW-9.

# 270. Summary of Comment 13-17

This comment states that golden eagle nest sites need to be protected in addition to foraging habitat.

# 271. Response to Comment 13-17

The action does now include nest sites.

# 272. Summary of Comment 13-18

This comment states that more information on how the MCA process and advance mitigation will operate is necessary in the document. Specifically, clarifications regarding any public processes relating to mitigation, how advance mitigation is tracked and disclosed, and if progress reports on MCA holders would be publicly available.

# 273. Response to Comment 13-18

The MCA guidelines have not been finalized. The details about the MCA process will be detailed in the final guidelines when they are released by CDFW.

# 274. Summary of Comment 13-19

This comment states that not all previous comments were addressed in the draft RCIS. They stated that the previous comments were included as an attachment and requested that they be addressed.

# 275. Response to Comment 13-19

The previous comment letters were not attached so we were unable to address them.

# 276. 14. Defenders of Wildlife, February 10, 2020

# 277. Summary of Comment 14-1

This comment states that Defenders of Wildlife has participated in the AVRCIS since the beginning of the process.

# 278. Response to Comment 14-1

We thank you and appreciate your continued participation.

# 279. Summary of Comment 14-2

This comment states that the assumption that federal lands are U.S. Department of Defense (DoD) lands are truly protected relative to long-term conservation needs further evaluation. The comment further states that federal lands are usually managed for multiple use that may result in habitat loss or fragmentation or increased human use. DoD lands are subject to uses in support of DoD Missions, which may conflict with protection of natural resources.

# 280. Response to Comment 14-2

Figure 2-19 shows the protected areas based on the GAP classification. The majority of federal lands are DoD lands and identified as unassigned public lands, which are considered protected; however, it is recognized that conservation actions could provide substantially more protection in many of these areas. Site-specific evaluation will be needed before any conservation investment or MCA development to determine the on-site habitat condition and current level of protection and management.

# 281. Summary of Comment 14-3

This comment states that local, regional, and state parks, wildlife sanctuaries, SEAs, and formal habitat management plan areas in the planning area need further evaluation to determine their effectiveness for sustaining natural communities.

# 282. Response to Comment 14-3

Agreed. Site-specific evaluation will be needed before any conservation investment or MCA development to determine the on-site habitat condition and current level of protection and management.

## 283. Summary of Comment 14-4

This comment states that the document should describe how the AVRCIS planning effort differs from existing local, state, and federal conservation programs in the immediate region; how the AVRCIS augments current regional conservation planning; and how it links to subsequent conservation land management implementation.

## 284. Response to Comment 14-4

The RCIS Guidelines (2018) require that an RCIS be consistent with any approved state or federal recovery plan, or other state or federal approved conservation strategy that overlaps with the RCIS area. In addition, an RCIS must be consistent with and complement any administrative draft natural community conservation plan (NCCP), approved NCCP, or federal Habitat Conservation Plan (HCP). The RCIS must take into account and be consistent with the SWAP (CDFW 2015). The AVRCIS addresses this in Section 1.7 1.7, *Relevant Conservation Plans and Policies*.

## 285. Summary of Comment 14-5

This comment states that pressures on ecological conditions, prescribed actions, and recommended measures described in the California SWAP are inadequately described in the document

## 286. Response to Comment 14-5

The RCIS has been updated to include sufficient detail from the SWAP at a level consistent with the RCIS guidelines and to the satisfaction of CDFW. Although the RCIS is intended to be consistent with the SWAP, it is not intended to comprehensively include all relevant information in the SWAP. Instead, the SWAP and other conservation plans and strategies should be used in concert with the RCIS when implementing conservation investments and MCAs.

## 287. Summary of Comment 14-6

This comment states that livestock grazing and ranching and invasive grasses should be added as a threat to the Alkali mariposa lily.

## 288. Response to Comment 14-6

Both livestock and invasive plants are now indicated as Primary Pressures and Stressors in Table 2-10.

## 289. Summary of Comment 14-7

This comment states that the AVRCIS should include additional discussion about wildfire as a natural component to ecosystems, specifically in reference to ecosystems that have undergone changes from land-use conversion and areas that are at risk from nonnative plant invasions following wildfire. Additionally, several plant species in some shrub or woodland land cover types are not fire-adapted. The AVRCIS should also include discussion on anthropogenic causes of fire in addition to natural ones.

# 290. Response to Comment 14-7

Additional information and specificity about wildfire risk has been added to the RCIS.

# 291. Summary of Comment 14-8

This comment states that strategies involving grazing as a tool to manage vegetation conditions in grassland communities should include more information on managing the place and time that grazing would occur to benefit the ecosystem. The comment further states that using livestock grazing as a valuable tool to manage vegetation is a fallacious argument with no basis in real world applications for conservation and that statements in the RCIS should be verified through peer-reviewed literature. Further, for species such as Agassiz's desert tortoise, there is no evidence that livestock grazing will remove fine fuels and contribute to their protection.

# 292. Response to Comment 14-8

Grazing as a habitat management tool is generally addressed in Section 2.3.10.1.Text discussing the benefits of grazing for native species has been substantial revised to say that implementation of grazing as a habitat management measure should only occur where research has shown it will have benefits to native species and habitats.

# 293. Summary of Comment 14-9

This comment states that the reintroduction of pronghorn would be a far more valuable tool in managing vegetation within the plan area.

# 294. Response to Comment 14-9

Pronghorn was seriously considered as a focal species by the technical advisory committee and RCIS preparers. Due to the current status of this species and the limited occurrence in the RCIS area, it was decided not to include it as a focal species.

# 295. Summary of Comment 14-10

This comment states that off-highway vehicle (OHV) management and education outreach should extend to all conservation land management, rather than just those lands managed by the Bureau of Land Management (BLM).

# 296. Response to Comment 14-1

The BLM text that was provided as an example of OHV management issues has been reduced to minimize emphasis on BLM lands. Additional guidance for successful OHV management has been added to the RCIS.

# 297. Summary of Comment 14-11

This comment states that more narrative is needed to focus on current and past levels of ORV and OHV use on private, county, conservation, state, and federal lands; current levels of natural resource damage caused by off-road vehicle (ORV)/OHV use, and measures that could address ORV/OHV use in the planning area. This comment states that an examination of aerial imagery can be used to determine levels of past and present ORV/OHV use and should be described in the document.

# 298. Response to Comment 14-11

Section 2.3.13 has been substantially revised to include additional narrative regarding OHV use and management. Examination of aerial imagery to evaluate past and present use in the RCIS area is beyond the scope of this document; however that information would be an important part of OHV management as a part of RCIS implementation.

# 299. Summary of Comment 14-12

This comment states that development of site management plans may not meet the definition of a conservation plan.

# 300. Response to Comment 14-12

The definitions have been updated throughout the RCIS to match those in the 2018 Guidelines, which provide clarity regarding requirements for conservation actions, enhancement actions, and conditions to meet to permanently protect habitat.

# 301. Summary of Comment 14-13

This comment states that conservation objectives must be achievable within in a 10-year period from approval of RCIS; however, the conservation objectives in this RCIS do not have a deadline, and this should be discussed in the final RCIS.

# 302. Response to Comment 14-13

Because implementation of this RCIS is voluntary, and resources available to the conservation community and others to invest in conservation and enhancement actions are limited and variable, there is no deadline to achieve these objectives, and all of the conservation goals and objectives will not likely be fully achieved within the next 10 years. Text has been added to clarify that the conservation priorities are what should be completed within 10 years. The location of conservation priorities will vary, depending on the conservation and mitigation needs and interests of the entities using the RCIS (e.g., which focal species and which actions). Note that the Program Guidelines *recommend* not require that conservation objectives be achievable within the 10-year lifespan of initial approval of the RCIS. Therefore, achievement of the conservation objectives within 10 years is a *goal* of the RCIS, not a requirement.

# 303. Summary of Comment 14-14

This comment states that funding surveys, monitoring, or studies for focal species and their habitat will not directly conserve those species or their habitat; nor will it meet the definition of conservation action from the RCIS guidelines.

# 304. Response to Comment 14-14

All surveys identified as conservation actions have been removed from the actions lists and identified as "Additional Information Needs" for that species.

# 305. Summary of Comment 14-15

This comment asserts that considerable survey information exists in the planning area for focal species, specifically surveys related to projects authorized by city, state, or federal entities; ongoing monitoring, research, and modeling being conducted by agencies; established conservation monitoring programs, and ongoing research and monitoring projects.

# 306. Response to Comment 14-15

While there is existing survey information and ongoing monitoring and research by federal, state, and local entities, there are still remaining data gaps that we have identified as useful to further the understanding of specific species and further refine the overall understanding of the conservation needs of those species. These data gaps have been identified as "Additional Information Needs" under applicable species.

# 307. Summary of Comment 14-16

Funding surveys for alkali mariposa lily should be placed in a lower priority that would not reduce funding for direct conservation efforts. Inventories and surveys should be postponed until habitat acquisitions are completed.

# 308. Response to Comment 14-16

See response to comment 14-14. The timing of surveys should correspond to the purpose of the survey. Surveys to determine presence and suitability for mitigation prior to site acquisition have a different purpose than surveys conducted for monitoring and management purposes within an MCA or other protected area.

# 309. Summary of Comment 14-17

This comment states that conducting studies of California juniper would not contribute to conservation of the species and should not be considered a conservation objective.

# 310. Response to Comment 14-17

See response to comment 14-14.

# 311. Summary of Comment 14-18

This comment states that conducting studies of Joshua tree would not contribute to conservation of the species and should not be considered a conservation action.

# 312. Response to Comment 14-18

See response to comment 14-14.

# 313. Summary of Comment 14-19

This comment states that conducting studies of spreading navarretia would not contribute to conservation of the species and should not be considered a conservation action.

# 314. Response to Comment 14-19

See response to comment 14-14

# 315. Summary of Comment 14-20

This comment states that there is considerable survey information for spreading navarretia and additional surveys may not be warranted.

# 316. Response to Comment 14-20

See response to comment 14-15.

# 317. Summary of Comment 14-21

This comment states that funding surveys for focal species and their habitats does not meet the definition of a conservation action and would not result in the conservation of the species or habitat.

# 318. Response to Comment 14-21

See response to comment 14-14

# 319. Summary of Comment 14-22

This comment states that funding surveys for focal species and habitats should be postponed until all known populations or habitat is acquired or protected.

# 320. Response to Comment 14-22

See response to comment 14-14

# 321. Summary of Comment 14-23

The comment states that there is no practical method to control nonnative invasive plants in focal species habitat and that nonnative invasive species are widespread and established within the planning area. The authors state that a more effective way of controlling nonnative invasive annual grasses would be removing livestock grazing and effective control of unauthorized recreational vehicle use. Specifically, this comment is related to desert tortoise (invasive grasses) and LeConte's thrasher (ephemeral washes/lower slopes of the Transverse Mountain Ranges bordering the planning area).

# 322. Response to Comment 14-23

Removing livestock grazing and controlling unauthorized OHV use have been added to actions for controlling spread of nonnative plants.

# 323. Summary of Comment 14-24

This comment states that installing simple road signs are ineffective in reducing desert tortoise mortality. Instead, the comment states that high-visibility kiosks with relevant interpretive panels and maps installed next to trailheads and points of entry for recreational vehicle use are more effective. Additionally, a 25-mph speed limit on all unpaved roads in desert tortoise habitat may also be effective in reducing mortality.

# 324. Response to Comment 14-24

High-visibility kiosks and a 25-mph speed limit have been added to the tortoise actions.

# 325. Summary of Comment 14-25

This comment states that funding surveys for focal species and their habitats does not meet the definition of a conservation action and would not result in the conservation of the species or habitat.

# 326. Response to Comment 14-25

See response to comment 14-14

# 327. Summary of Comment 14-26

This comment states that agencies have considerable survey information for focal species and there is no need for entities involved with the RCIS to conduct surveys or inventory

# 328. Response to Comment 14-26

See response to comment 14-15

# 329. Summary of Comment 14-27

This comment states that funding surveys for focal species and their habitats does not meet the definition of a conservation action and would not result in the conservation of the species or habitat.

# 330. Response to Comment 14-27

See response to comment 14-14

# 331. Summary of Comment 14-28

This comment states that agencies have considerable survey information for focal species and there is no need for entities involved with the RCIS to conduct surveys or inventory

# 332. Response to Comment 14-28

See response to comment 14-15

# 333. Summary of Comment 14-29

This comment states that funding surveys and conducting monitoring for focal species and their habitats does not meet the definition of a conservation action and would not result in the conservation of the species or habitat.

# 334. Response to Comment 14-29

See response to comment 14-14

# 335. Summary of Comment 14-30

This comment states that livestock grazing practices are probably not necessary or effective in the Mojave desert environment and that there is no supporting available science relative to this claim. Re-introducing pronghorn would be a more effective tool to maintaining grass height than traditional livestock grazing.

# 336. Response to Comment 14-30

See responses to comment 14-8 and comment 14-9.

# 337. Summary of Comment 14-31

This comment states that it is unclear what species-specific measures would be included in management plans for burrowing owl. Specifically, it is unclear what level of rodenticide use would ever occur or be desired on conservation lands or ecological reserves.

# 338. Response to Comment 14-31

The action is to include species-specific measures in management plans that prohibit rodenticides and emphasize the conservation and expansion of ground squirrel colonies. In agricultural areas the action is to work with agricultural land operators on agricultural easements to minimize potential impacts on burrowing owls that may occupy these areas, including use of poisons, herbicides, and rodenticides with anticoagulant.

# 339. Summary of Comment 14-32

This comment states that the AVRCIS should adopt and incorporate all applicable conservation management practices from CDFW's 2012 Burrowing Owl report.

# 340. Response to Comment 14-32

Additional conservation management actions have been added for burrowing owl from the 2012 Burrowing Owl Report.

# 341. Summary of Comment 14-33

This comment states that the entity that would be responsible for development land management strategies conducive to burrowing owl should be named in the AVRCIS. The BUOW-7 10.3 conservation action should be reworded such that it provides information about existing land management strategies and how they can contribute to the long-term conservation of burrowing owl regionally.

# 342. Response to Comment 14-33

This recommendation has been added to BUOW-7 (renumbered as BUOW-6). The entity that would be responsible for development land management strategies conducive to burrowing owl is not known because this will occur when conservation investments and MCAs are established under the RCIS.

# 343. Summary of Comment 14-34

This comment states that livestock grazing practices or the removal thereof are probably not effective to conserve or enhance condor habitat in the Mojave desert environment and that there is no supporting available science relative to this claim. The USFWS has developed land management strategies to enhance and increase foraging habitat for this species. Re-introducing pronghorn would be a more effective tool to maintaining grass height than traditional livestock grazing.

# 344. Response to Comment 14-34

See responses to comment 14-8 and comment 14-9.

# 345. Summary of Comment 14-35

This comment states that a legitimate conservation action that would benefit the California condor would include installing permanent livestock exclosures in active livestock use areas.

# 346. Response to Comment 14-35

It is not clear what this comment means. Installing an exclosure in an active livestock use areas would seemingly exclude livestock such that it would no longer be an active livestock use area.

# 347. Summary of Comment 14-36

This comment states that conservation measures for the California condor do not adhere to the principal of “SMART” objectives (Specific, Measurable, Attainable, Relevant, Time-bound).

# 348. Response to Comment 14-36

Not all objectives were adherent to the SMART objectives expectations. The Guidelines (2018) state that objectives should be SMART; however, this is not a requirement.

# 349. Summary of Comment 14-37

This comment states that funding surveys and conducting monitoring for focal species and their habitats does not meet the definition of a conservation action and would not result in the conservation of the species or habitat.

# 350. Response to Comment 14-37

See response to comment 14-14

# 351. Summary of Comment 14-38

This comment states that it is unclear who would implement the lead reduction program and enforce a permanent ban on the use of lead ammunition per the Ridley-Tree Condor Preservation Act. Additionally, it is unclear if the action would apply to dedicated conservation lands or the entire plan area.

# 352. Response to Comment 14-38

Activities such as this would be informed or implemented by the AVRCIS Implementation Committee, should one be formed, or any other appropriate entity that chooses to implement such actions.

# 353. Summary of Comment 14-39

This comment states that a preferable conservation method for California condor would be to design and implement an education program describing mortality risk associated with lead ammunition to inform the public in the RCIS planning area.

# 354. Response to Comment 14-39

This has been added to the actions for California condor.

# 355. Summary of Comment 14-40

This comment states that funding surveys for golden eagles and their habitats does not meet the definition of a conservation action and would not result in the conservation of the species or habitat.

# 356. Response to Comment 14-40

See response to comment 14-14

# 357. Summary of Comment 14-41

This comment states that agencies have considerable survey information for golden eagles and there is no need for entities involved with the RCIS to conduct surveys or inventory

# 358. Response to Comment 14-41

See response to comment 14-15

# 359. Summary of Comment 14-42

This comment states that it is unclear who would implement the lead reduction program and enforce a permanent ban on the use of lead ammunition per the Ridley-Tree Condor Preservation Act. Additionally, it is unclear if the action would apply to dedicated conservation lands or the entire plan area.

# 360. Response to Comment 14-42

Activities such as this would be informed or implemented by the AVRCIS Implementation Committee, should one be formed, or any other appropriate entity that chooses to implement such actions.

# 361. Summary of Comment 14-43

This comment states that a preferable conservation method for golden eagle would be to design and implement an education program describing mortality risk associated with lead ammunition to inform the public in the RCIS planning area.

# 362. Response to Comment 14-43

This has been added to the actions for golden eagle.

# 363. Summary of Comment 14-44

The comment states that there is no practical method to control nonnative invasive plants in focal species habitat and that nonnative invasive species are widespread and established within the planning area. The authors state that a more effective way of controlling nonnative invasive annual grasses would be removing livestock grazing and effective control of unauthorized recreational vehicle use. Specifically, this comment is related to LeConte's thrasher (ephemeral washes/lower slopes of the Transverse Mountain Ranges bordering the planning area).

# 364. Response to Comment 14-44

See response to 14-23

# 365. Summary of Comment 14-45

This comment states that LBVI-3, 14.2 and 14.3, should be clarified to include removal of nonnative giant reed (Arundo donax), saltcedar (*Tamarix ramosissima*), and pepperweed (*Lepidium latifoium*) from suitable Least bells' vireo habitat, and that trapping of brown-headed cowbird (*Molothrus ater*) would be conducted where necessary to secure breeding outcomes for least Bell's vireo.

# 366. Response to Comment 14-45

These actions have been included.

# 367. Summary of Comment 14-46

This comment states that there may be suitable migratory least Bell's vireo habitat in the planning area that this species may use in the spring and fall in addition to suitable breeding habitat.

# 368. Response to Comment 14-46

These actions have been included.

# 369. Summary of Comment 14-47

This comment states that conservation actions for least Bell's vireo should include removing livestock grazing, recreational vehicle use, homeless encampments, litter, high camping/swimming use, and water diversions in riparian habitat occupied by this species.

# 370. Response to Comment 14-47

These actions have been included.

# 371. Summary of Comment 14-48

This comment states that conservation actions for least Bell's vireo should include designing site-specific invasive plant control, restoration and revegetation, riparian habitat fencing, and wildfire suppression/post-fire reclamation plans and associated implementation.

# 372. Response to Comment 14-48

These objectives and actions have been included.

# 373. Summary of Comment 14-49

This comment states that LBVI-4 14.3 is redundant with LVBI-1, and more detail should be included to clarify the intent of the action.

# 374. Response to Comment 14-49

Actions have been revised and clarified.

# 375. Summary of Comment 14-50

This comment states that there is no supporting documentation that prescribed burning, mowing, and livestock grazing would maintain grassland habitat for the long-term conservation of the loggerhead shrike. This comment further states that this species is wide-ranging, and there is no supporting documentation that vegetation manipulation is effective for conservation in the long-term. Prescribed fire and livestock grazing may be temporally beneficial, but may present a separate set of constraints and risks to this species and others.

# 376. Response to Comment 14-50

The action has been deleted.

# 377. Summary of Comment 14-51

This comment states that prescribed fire may be beneficial to the loggerhead shrike, but has risks and constraints associated with its use, and livestock grazing is seldom ecologically appropriate in the desert. It continues to state that limited and controlled short-term livestock grazing may be an appropriate method of invasive plant control where it is determined to be beneficial to a focal species.

# 378. Response to Comment 14-51

See responses to comment 14-8, 14-9, and 14-50.

# 379. Summary of Comment 14-52

This comment states that funding surveys for loggerhead shrikes and their habitats does not meet the definition of a conservation action and would not result in the conservation of the species or habitat.

# 380. Response to Comment 14-52

See response to comment 14-14

# 381. Summary of Comment 14-53

This comment states that funding surveys for long-billed curlews and their habitats does not meet the definition of a conservation action and would not result in the conservation of the species or habitat.

# 382. Response to Comment 14-53

See response to comment 14-14

# 383. Summary of Comment 14-54

This comment states that agencies and other entities have considerable survey information for long-billed curlews and there is no need for entities involved with the RCIS to conduct surveys or inventory

# 384. Response to Comment 14-54

See response to comment 14-15

# 385. Summary of Comment 14-55

This comment is regarding LBCU-3 16.4, and states that the authors are unaware of any irrigated rice crops in the planning area. Additionally, determining if long-billed curlews are using agricultural fields would be achieved under the monitoring action, LBCU-2.

# 386. Response to Comment 14-55

The action has been revised.

# 387. Summary of Comment 14-56

This comment states that funding surveys for mountain plover and their habitats does not meet the definition of a conservation action and would not result in the conservation of the species or habitat.

# 388. Response to Comment 14-56

See response to comment 14-14

# 389. Summary of Comment 14-57

This comment regarding MOPL-3 17.3, and states that suitable wintering habitat for this species should be identified within the planning area, along with habitat management practices that would enhance and increase suitable wintering habitat. Monitoring mountain plover use of wintering habitat would be included in monitoring described in MOPL-2.

# 390. Response to Comment 14-57

The actions have been revised. Identification of wintering habitat and beneficial management practices would be accomplished through implementation of the actions.

# 391. Summary of Comment 14-58

This comment states that agricultural practices detrimental to mountain plover habitat suitability should be identified in the RCIS.

# 392. Response to Comm57ent 14-58

See response to comment 14-36.

# 393. Summary of Comment 14-59

This comment is regarding MOPL-5, and states that it is unclear how protecting and conserving fossorial mammal populations on suitable mountain plover habitat is beneficial to the species. Additionally, it is unclear how protection and conservation of fossorial mammals would be implemented.

# 394. Response to Comment 14-59

The action has been deleted.

# 395. Summary of Comment 14-60

This comment states that funding surveys for northern harrier and their habitats does not meet the definition of a conservation action and would not result in the conservation of the species or habitat.

# 396. Response to Comment 14-60

See response to comment 14-14

# 397. Summary of Comment 14-61

This comment states it is unclear what entity will monitor human disturbance to focal raptor species nests and how focal raptor species nest sites would be protected.

# 398. Response to Comment 14-61

These actions have been substantially revised. In general, all conservation actions and monitoring would be conducted by the entity implementing an MCA or other conservation effort supporting the goals and objectives of the RCIS.  The RCIS does not specify or require any entity to be responsible for any particular action identified in the RCIS.

# 399. Summary of Comment 14-62

This comment states that land use practices that maintain nesting and foraging habitat for focal raptor species, as well as adverse land use practices, should be described in the RCIS.

# 400. Response to Comment 14-62

These actions have been substantially revised.

# 401. Summary of Comment 14-63

This comment states that funding surveys for prairie falcon and their habitats does not meet the definition of a conservation action and would not result in the conservation of the species or habitat.

# 402. Response to Comment 14-63

See response to comment 14-14

# 403. Summary of Comment 14-64

This comment states that agencies and other entities have considerable survey information for prairie falcons and there is no need for entities involved with the RCIS to conduct surveys or inventory

## 404. Response to Comment 14-64

See response to comment 14-15

## 405. Summary of Comment 14-65

This comment states that more appropriate conservation actions for prairie falcon may include installation of protective vehicle parking barriers at the base of documented nesting sites and signs and outreach materials to inform the public about the risk of close human presence to this species.

## 406. Response to Comment 14-65

These actions have been substantially revised.

## 407. Summary of Comment 14-66

Monitoring nest sites is not a conservation action and would not result in conservation of the species. Further, the entity that would be responsible for monitoring nest sites should be identified in the RCIS.

## 408. Response to Comment 14-66

See response to 14-14 and 14-42

## 409. Summary of Comment 14-67

This comment states that land use practices that maintain nesting and foraging habitat for focal raptor species, as well as adverse land use practices, should be described in the RCIS.

## 410. Response to Comment 14-67

These actions have been substantially revised.

## 411. Summary of Comment 14-68

This comment is regarding PRFA-3 and states that application of this conservation action could be implemented through the MCA portion of the RCIS program and/or through other conservation agreements with willing landowners.

## 412. Response to Comment 14-68

Agreed. These actions have been substantially revised.

## 413. Summary of Comment 14-69

This comment states that funding surveys for Swainson's hawks and their habitats does not meet the definition of a conservation action and would not result in the conservation of the species or habitat.

# 414. Response to Comment 14-69

See response to comment 14-14

# 415. Summary of Comment 14-70

This comment states that agencies and other entities have considerable survey information for Swainson's hawks and there is no need for entities involved with the RCIS to conduct surveys or inventory

# 416. Response to Comment 14-70

See response to comment 14-15

# 417. Summary of Comment 14-71

This comment states that the RCIS should include best management practices (BMPs) for Swainson's hawk nesting sites and to support water and crop rotation needs to sustain Swainson's hawk as a distinct population segment in the planning area.

# 418. Response to Comment 14-71

These actions have been substantially revised.

# 419. Summary of Comment 14-72

This comment states that the RCIS should include Swainson's hawk habitat acquisition and management measures through conservation or mitigation agreements, easements, or direct sale to willing landowners.

# 420. Response to Comment 14-72

Agreed. These actions have been substantially revised.

# 421. Summary of Comment 14-73

This comment states that funding surveys for tri-colored blackbird and their habitats does not meet the definition of a conservation action and would not result in the conservation of the species or habitat.

# 422. Response to Comment 14-73

See response to comment 14-14

# 423. Summary of Comment 14-74

This comment states that known tricolored blackbird sites at Myrick Canyon and potential nesting areas at Fairmont Reservoir should be characterized and monitored, and associated habitat should be protected through acquisition of conservation easement.

# 424. Response to Comment 14-74

These locations have been added to the actions.

# 425. Summary of Comment 14-75

This comment states that landowners near Fairmont Reservoir should be informed of properties that support tricolored blackbirds so that impacts from maintenance activities do not affect tricolored blackbird habitat.

# 426. Response to Comment 14-75

The actions have been updated to include this recommendation.

# 427. Summary of Comment 14-76

This comment states that the RCIS should include relevant information provided by the CDFW's Tricolored Blackbird Working Group.

# 428. Response to Comment 14-76

These actions have been substantially revised and relevant information provided by the CDFW's Tricolored Blackbird Working Group.

# 429. Summary of Comment 14-77

This comment states that conservation actions for willow flycatcher should include removing livestock grazing, recreational vehicle use, homeless encampments, litter, high camping/swimming use, and water diversions in riparian habitat occupied by this species.

# 430. Response to Comment 14-77

These actions have been included.

# 431. Summary of Comment 14-78

This comment states that conservation actions for willow flycatcher should include designing site-specific invasive plant control, restoration and revegetation, riparian habitat fencing, and wildfire suppression/post-fire reclamation plans and associated implementation.

# 432. Response to Comment 14-78

These objectives and actions have been included.

# 433. Summary of Comment 14-79

This comment states that funding surveys for willow flycatcher and their habitats does not meet the definition of a conservation action and would not result in the conservation of the species or habitat.

# 434. Response to Comment 14-79

See response to comment 14-14

# 435. Summary of Comment 14-80

This comment states that agencies and other entities have considerable survey information for willow flycatchers and there is no need for entities involved with the RCIS to conduct surveys or inventory

# 436. Response to Comment 14-80

See response to comment 14-15

# 437. Summary of Comment 14-81

This comment states that desert kit fox conservation actions are included under the American badger section of the draft and need to be moved to the appropriate species section.

# 438. Response to Comment 14-81

The correction has been made.

# 439. Summary of Comment 14-82

This comment states that movement corridor studies for mammals is a monitoring and adaptive management action and not a conservation action. Further, it is unclear how and who would be conducting the studies. Caltrans is completing a wildlife movement corridor study in portions of the planning area and there have been considerable movement corridors studies completed, so that additional studies may be redundant and unnecessary.

# 440. Response to Comment 14-82

See response to comment 14-14.

# 441. Summary of Comment 14-83

This comment states that livestock grazing practices are probably not necessary or effective in the Mojave desert environment and that there is no supporting available science relative to this claim.

# 442. Response to Comment 14-83

See responses to comment 14-8.

# 443. Summary of Comment 14-84

This comment states that monitoring mammal roadway mortality is a monitoring and adaptive management action that needs to move to the monitoring and adaptive management section of the RCIS. Additionally, mortality monitoring on roadways is conducted by Caltrans.

# 444. Response to Comment 14-84

See response to comment 14-14.

# 445. Summary of Comment 14-85

This comment states that habitat modeling conducted during preparation of the RCIS identified high-value wildlife crossing locations where wildlife crossing structures may be effective; therefore, an additional study is not necessary

# 446. Response to Comment 14-85

Field studies will be needed to verify model results.

# 447. Summary of Comment 14-86

This comment states that BMPs that promote habitat use by badgers should be included in the final RCIS.

# 448. Response to Comment 14-86

Appropriate BMPs would be identified for individual conservation investment and MCA areas based on the best available science and information.

# 449. Summary of Comment 14-87

This comment recommends that Conservation Action DEKF-2 be moved to the adaptive management and monitoring portion of the plan. It further states that Caltrans and other entities track this data so it may not be necessary to include as a monitoring task under the RCIS.

# 450. Response to Comment 14-87

This Conservation Action has been removed. See response to comment 14-14.

# 451. Summary of Comment 14-88

This comment states that habitat modeling conducted during preparation of the RCIS identified high-value wildlife crossing locations where wildlife crossing structures may be effective; therefore, an additional study is not necessary

# 452. Response to Comment 14-88

Field studies will be needed to verify model results.

# 453. Summary of Comment 14-89

This comment states that an appropriate conservation action based on SMART objectives planning would be to identify a number of culverts or wildlife crossing structures and monitor the success in a specific timeframe

# 454. Response to Comment 14-89

This recommendation is reasonable. The connectivity modeling in coordination with field surveys can be used to identify appropriate locations for crossing structures. The number and location will depend on the opportunities and needs identified by field survey work.

# 455. Summary of Comment 14-90

This comment states that the final RCIS should include BMPs for enhancing linkages for desert kit fox and other mammals, including documentation supporting the effectiveness of practices to enhancing habitat for these species.

# 456. Response to Comment 14-54

See response to comment 14-52.

# 457. Summary of Comment 14-91

This comment is regarding DEKF-4, and states that the RCIS should determine if new road crossings are needed in an area for wildlife or have been previously planned through a wildlife travel study or infrastructure improvement.

# 458. Response to Comment 14-91

Actions have been revised for kit fox and badger to include this recommendation.

# 459. Summary of Comment 14-92

This comment states that is unclear if new wildlife crossings are needed over the California Aqueduct.

# 460. Response to Comment 14-92

The action now states that connectivity studies and roadway mortality data from the RCIS area should be used to identify locations for wildlife crossing structures at places identified as high-value wildlife crossing areas across major roadways and the California Aqueduct.

# 461. Summary of Comment 14-93

This comment states that livestock grazing practices are probably not necessary or effective in the Mojave desert environment and that there is no supporting available science relative to this claim. Re-introducing pronghorn would be a more effective tool to maintaining grass height than traditional livestock grazing.

# 462. Response to Comment 14-93

See responses to comment 14-8 and comment 14-9.

# 463. Summary of Comment 14-94

This comment states that land use practices that maintain and enhance habitat for desert kit fox should be included in the final RCIS and implemented through conservation agreements or easements.

# 464. Response to Comment 14-94

Appropriate land use practices would be identified for individual conservation investment and MCA areas based on the best available science and information.

# 465. Summary of Comment 14-95

This comment states that funding surveys for Mohave ground squirrel and their habitats does not meet the definition of a conservation action and would not result in the conservation of the species or habitat.

# 466. Response to Comment 14-95

See response to comment 14-14

# 467. Summary of Comment 14-96

This comment states that surveys may be necessary to review current Mohave ground squirrel occurrence data.

# 468. Response to Comment 14-96

Surveys and monitoring recommendations are now included in the Additional Information Needs section.

# 469. Summary of Comment 14-97

This comment states that funding surveys for Mohave ground squirrel and their habitats does not meet the definition of a conservation action and would not result in the conservation of the species or habitat.

# 470. Response to Comment 14-97

See response to comment 14-14

# 471. Summary of Comment 14-98

This comment states that agencies and other entities have considerable survey information for Mohave ground squirrel, including the CEC study of this species' distribution for DRECP and there is no need for entities involved with the RCIS to conduct surveys or inventory

# 472. Response to Comment 14-98

The “Additional Data Needs” portion of Section 3.4.5.25 of the RCIS has been updated to reflect that there is considerable information available for this species. See response to comment 14-15.

# 473. Summary of Comment 14-99

This comment states that the USGS has recently completed climate change and plant community modelling efforts within the western Mojave Desert, focused on identifying how to best ensure the recovery of the Mohave ground squirrel during climate change.

# 474. Response to Comment 14-99

The “Additional Data Needs” portion of Section 3.4.5.25 of the RCIS has been updated to reflect that there is considerable information available for this species

# 475. Summary of Comment 14-100

This comment states that the CDFW has prepared a Mohave Ground Squirrel Conservation Strategy in 2019 and this should be incorporated into the final RCIS.

# 476. Response to Comment 14-100

The Mohave Ground Squirrel Conservation Strategy has been incorporated.

# 477. Summary of Comment 14-101

This comment states that areas adjacent to Edwards Air Force Base identified for long-term Mohave ground squirrel conservation and appropriate land buffers should be included in the final RCIS document. Other key areas for Mohave ground squirrel conservation may include the vicinity of the Rio Tinto Borax mine and Kramer Junction, where mine expansion, highway expansion, and solar development may threaten habitat for this species.

# 478. Response to Comment 14-101

This recommendation has been added to the actions.

# 479. Summary of Comment 14-102

This comment states that agencies and other entities have considerable survey information for willow flycatchers and there is no need for entities involved with the RCIS to conduct surveys or inventory

# 480. Response to Comment 14-102

See response to comment 14-15

# 481. Summary of Comment 14-103

This comment states that land use and management practices that promote the conservation of Mohave ground squirrel and those that are detrimental to the species should be discussed in the RCIS. For example, livestock grazing and subsequent forage competition and establishment of nonnative invasive plants.

This comment further states that the authors recommend that livestock grazing in Mohave ground squirrel habitat should be curtailed until research demonstrates that grazing is consistent with the long-term conservation of the species.

# 482. Response to Comment 14-103

These actions have been substantially revised. See response to comment 14-8 for additional information.

# 483. Summary of Comment 14-104

This comment states that agencies and other entities have considerable survey information for mountain lion and there is no need for entities involved with the RCIS to conduct surveys or inventory

# 484. Response to Comment 14-104

See response to comment 14-15

# 485. Summary of Comment 14-105

This comment states that funding surveys for Mohave ground squirrel and their habitats does not meet the definition of a conservation action and would not result in the conservation of the species or habitat.

# 486. Response to Comment 14-105

See response to comment 14-14

# 487. Summary of Comment 14-106

This comment states that agencies and other entities have considerable survey information for willow flycatchers and there is no need for entities involved with the RCIS to conduct surveys or inventory

# 488. Response to Comment 14-106

See response to comment 14-15

# 489. Summary of Comment 14-107

This comment states that an appropriate conservation action for mountain lion would be to develop region-specific interpretative information to inform the public about the presence of mountain lions in the planning area; appropriate protection measures for humans, pets, and livestock; and how the RCIS planning effort is helping to conserve the species.

# 490. Response to Comment 14-107

These actions have been substantially revised and include measures recommended here.

# 491. Summary of Comment 14-108

This comment states that an appropriate conservation action for mountain lion would be to enhance mule deer populations within the study area, since they are the primary prey species of mountain lions. Further, legal and unlawful hunting of mule deer within designation conservation areas should be addressed in the final document.

# 492. Response to Comment 14-108

These actions have been substantially revised and include measures recommended here.

# 493. Summary of Comment 14-109

This comment states that TEMO-2 is a conservation action pertaining to burrowing owl and should be changed to Tehachapi pocket mouse.

# 494. Response to Comment 14-109

The correction has been made.

# 495. Summary of Comment 14-110

This comment states that there is little information regarding the current distribution of the Tehachapi pocket mouse in the planning area; therefore, there is a need to conduct inventories before any conservation actions can be specified. Additional inventories for this species should be included in a Data Needs section of the final RCIS.

# 496. Response to Comment 14-110

This has been moved to the Additional Information Needs section.

# 497. Summary of Comment 14-111

This comment states that the importance of bridge infrastructure to nesting birds should be highlighted in the final RCIS (e.g., SR-138 stream crossings).

# 498. Response to Comment 14-111

This addition has been included in the discussion of bridge structure design for habitat connectivity.

# 499. 15. Land Veritas Corp, February 10, 2020

# 500. Summary of Comment 15-1

This comment suggests a requirement to the MCA process to first use mitigation from approved mitigation banks prior to other mitigation options.

# 501. Response to Comment 15-1

This suggestion will need to be addressed by the MCA Guidelines, which have not been finalized. The details about the MCA process will be detailed in the final guidelines when they are released.

# 502. Summary of Comment 15-2

This comment states that the description of the Bank in Section 2.2.4.2 includes the following species as known to occur: coast horned lizard (*Phrynosoma blainvillii*), burrowing owl (*Athene cunicularia*), mountain lion (*Puma concolor*), and northern harrier (*Circus hudsonius*)

# 503. Response to Comment 15-2

These species have been added to the description.

# 504. Summary of Comment 15-3

This comment states that language should be added to clarify that the mitigation Bank provides CEQA mitigation for any type of project, including, but not limited to, renewable energy projects, and that it also provides mitigation opportunities for impacts on stream, lake, and riparian habitat.

# 505. Response to Comment 15-3

The clarification has been made in the mitigation bank description.

# 506. Summary of Comment 15-4

This comment states that Land Veritas coordinated over 5 years to entitle the Bank, and planned and funded restoration design, performance monitoring, interim/long-term management and reporting procedures. Land Veritas requests that any new MCA covering resources for which the Bank has credits require the depletion of the Bank's credits prior to releasing new ones

# 507. Response to Comment 15-4

This suggestion will need to be addressed by the MCA Guidelines, which have not been finalized. The details about the MCA process will be detailed in the final guidelines when they are released.

# 508. 16. Southern California Edison, February 10, 2020

## 509. Summary of Comment 16-1

This comment clarifies ownership of gas and electric transmission lines in the AVRCIS. Specifically, Southern California Edison (SCE) does not own and operate all gas and electric transmission lines within the AVRCIS boundary. Since SCE is an electric-only utility, the gas transmission lines are owned/operated by SoCalGas or a third-party pipeline operator. Additionally, electric transmission lines within the AVRCIS may have other owner/operators. All SCE transmission lines are operated by the California Independent System Operator (CAISO)

## 510. Response to Comment 16-1

The corrections have been made.

## 511. Summary of Comment 16-2

This statement suggests that the AVRCIS should be more specific when discussing the types of transmission lines within the AVRCIS area.

## 512. Response to Comment 16-2

A description of the range of kilovolt (kV) transmission lines was added to the RCIS.

# 17. California Construction and Industrial Materials Association, February 10, 2020

## 513. Summary of Comment 17-1

This comment states that the AVRCIS is not consistent with the Los Angeles County Plan or the Southern California Association of Governments (SCAG) Regional Transportation Plan (RTP), or the Sustainable Communities Strategy (SCS) as they related to regional mineral resources.

## 514. Response to Comment 17-1

The RCIS is a voluntary, nonbinding, and non-regulatory regional planning process intended to result in higher-quality conservation outcomes. An RCIS establishes conservation goals and objectives and describes conservation actions that may be used as a basis to provide advance mitigation or to inform other conservation planning processes and investments. The high-value conservation areas and conservation priorities were based on the best available science and data. It is expected that, on occasion, local land use plans may indicate planned future urbanization and infrastructure development in areas that also have high conservation value as identified in the RCIS. Because the RCIS is voluntary, nonbinding, and non-regulatory there is, by definition, no inconsistency or conflict with local land use plans.

# 515. Summary of Comment 17-2

This comment states that the AVRCIS lacks discussion and consideration for existing mineral resource facilities.

# 516. Response to Comment 17-2

The AVRCIS is consistent with the current 2018 Program Guidelines and meets all substantive standards. Because the AVRCIS was originally submitted prior to September 2017, this AVRCIS complies with the 2018 Program Guidelines, which allows for some reliance on the 2017 Guidelines for documents submitted prior to September 2017. The requirements for this RCIS are detailed in Section 1.4.7.

# 517. Summary of Comment 17-3

This comment states that the participants listed in the AVRCIS do not reflect the regional stakeholders.

# 518. Response to Comment 17-3

Public outreach was conducted according to the RCIS Program Guidelines. The public and stakeholder involvement process is described in Sections 1.4, 1.5, and is summarized here:

The Antelope Valley RCIS development process began in March 2016. The process was initiated by the Desert and Mountains Conservation Authority (DMCA), in collaboration with the California Energy Commission (CEC). ICF was the lead technical consultant on the RCIS document, working under the direction of Steering and Advisory committees (see Chapter 6, List of Preparers and Reviewers). The RCIS process benefited from multiple layers of outreach, briefings, and opportunities for input from the Antelope Valley community; non-profit organizations, including environmental, conservation, and community organizations; business interests; regulatory agencies; and federal, state, local, and tribal governments.

A public meeting was held on March 7, 2017, to provide information to the public on the AVRCIS effort, and to solicit comments from interested parties. Public notice was provided more than 30 days prior to the public meeting, as described in Section 1.5. The County of Los Angeles Board of Supervisors and city councils of Lancaster and Palmdale were directly notified of the public meeting and the availability of the public review draft of the Antelope Valley RCIS. The meeting was announced a month in advance (February 3, 2017) via email distributed to: Desert and Mountain Conservation Authority (DMCA) listserv, LA County Significant Ecological Areas (SEA) listserv; Antelope Valley Area Plan (AVAP) listserv; and the full AVRCIS stakeholder list (i.e., compilation of individuals representing conservation, transportation, and regulatory agencies). Additionally, the notice was published in the March 2017 Lakes & Valleys Gazette and was posted on the DMCA's website.

As further described in Section 1.5, DMCA followed all Stakeholder and Public Outreach requirements of the RCIS program, including notice to the Los Angeles County Board of Supervisors and city councils of Palmdale and Lancaster at least 60 days prior to the Public Review Draft becoming available.

In addition to the required public outreach, the Antelope Valley RCIS benefited from detailed input from interested parties though the Steering Committee, Advisory Committee, and Technical subcommittees, which were comprised of nonprofit organizations including conservation, environmental, and community; federal and state agencies; local jurisdictions; and businesses. The group members and participation in the RCIS development are described in Section 1.4.2.

# 519. Summary of Comment 17-4

This comment states that the draft AVRCIS should include impartial and unbiased information to accurately describe the regional mineral resources present in the County of Los Angeles.

### Response to Comment 17-4

See response to comment 17-2.

# 520. Summary of Comment 17-5

This comment states that the AVRCIS should recognize that aggregate must be obtained from nearby sources to minimize economic and environmental costs.

# 521. Response to Comment 17-5

See response to comment 17-2.

# 18. Association of Rural Town Councils, February 4, 2020

# 522. Summary of Comment 18-1

This comment acknowledges that the Association of Rural Town Councils (ARTC) was represented at AVRCIS Steering Committee meetings.

### Response to Comment 18-1

Your attendance and participation are appreciated.

# 523. Summary of Comment 18-2

This comment states that the High Desert Corridor, which would be located in the AVRCIS boundary, would create a barrier to wildlife, including endangered species, affect unaltered habitat, and create conditions that would affect rural lifestyles based on low-density development.

### Response to Comment 18-2

The High Desert Corridor project has been updated to reflect that Caltrans no longer plans to build the highway, but that the rail portion of the project is still a planned project. The RCIS addresses wildlife connectivity in many areas of the document. Actions to improve wildlife connectivity are included for many species.

# 524. Summary of Comment 18-3

This comment states that the AVRCIS fails to identify wildlife crossing areas between Antelope Acres and Interstate 5, which is a crucial connection from the Transverse, San Gabriel, Tehachapi, and Sierra mountain ranges.

## Response to Comment 18-3

Interstate 5 is located several miles west of the RCIS area, and does not include any modeling outside of the RCIS boundary. Figure 2-9 shows the major linkage areas identified in other wildlife connectivity modeling efforts to provide the larger regional connectivity context for connectivity to these important areas. The data and methods for modelling wildlife connectivity are included in Appendix G. The modelling provided a regional-scale analysis of wildlife connectivity. Additional local-scale wildlife crossing areas will need to be identified using other data and field verification. Actions regarding wildlife connectivity may be implemented where appropriate throughout the RCIS area.

# 525. Summary of Comment 18-4

This comment states that the Los Angeles County planning policies for protection of important wildlife areas discussed in the AVRCIS are inadequate to protect Antelope Valley because residential development in the Antelope Valley is exempt from the SEA Ordinance and Implementation Guide, which limits potential development in SEAs.

## Response to Comment 18-4

The high-value conservation areas and conservation priorities identified in this RCIS were based on the best available science and data. The SEAs are shown in the RCIS for context, but were not expected to be in complete alignment with the high-value conservation areas of this RCIS because they were developed with different methods and/or objectives.

# 526. Summary of Comment 18-5

This comment states that the Antelope Valley has been identified in the *Desert Renewable Energy Conservation Plan* (DRECP) as a Development Focus Area, which failed to identify recovering agricultural areas and grasslands as conservation targets.

## Response to Comment 18-5

The AVRCIS did use land cover data and species models developed for the DRECP; however, the modelling to identify high conservation value areas was conducted specifically for the AVRCIS and at a scale appropriate for this RCIS.

# 527. Summary of Comment 18-6

This comment states that the AVRCIS should include a discussion of the "Solar Heat Island Effect" and how it pertains to development in the Antelope Valley.

### Response to Comment 18-6

The AVRCIS is consistent with the current 2018 Program Guidelines and meets all substantive standards. A discussion of the potential "Solar Heat Island Effect" is included in Section 2.3.14 of the RCIS.

## 528. Summary of Comment 18-7

This comment states that the ARTC is supportive of the AVRCIS because it can inform ARTC of the Antelope Valley's natural heritage, provide possibilities for conservation efforts, and indicate the importance of wildlife and connectivity in Antelope Valley to other natural areas.

### Response to Comment 18-7

Your support and contributions are helpful and appreciated.

# 19. Building Industry Association, February 5, 2020

## 529. Summary of Comment 19-1

This comment states that the AVRCIS would be used to regulate land use, challenge and/or stop housing projects, and become an economic downfall for the Antelope Valley, as indicated by an environmental group submitting a draft version of the AVRCIS to a LA County land use hearing to impede a project.

### Response to Comment 19-1

The RCIS is a voluntary, nonbinding, and non-regulatory regional planning process intended to result in higher-quality conservation outcomes. It is intended to support future infrastructure and urban development by expanding the mitigation options for projects requiring habitat mitigation. CDFW, the RCIS Proponent, and the RCIS development team do not support the misuse of this, or any, RCIS.

## 530. Summary of Comment 19-2

This comment states that the AVRCIS is not consistent with the LA County General Plan and the AVAP.

### Response to Comment 19-2

The high-value conservation areas and conservation priorities were based on the best available science and data. It is expected that, on occasion, local land use plans may indicate planned future urbanization and infrastructure development in areas that also have high conservation value as identified in the RCIS. Because the RCIS is voluntary, nonbinding, and non-regulatory there is, by definition, no inconsistency or conflict with local land use plans.

## 531. Summary of Comment 19-3

This comment states that the AVRCIS identifies EOAs as high conservation priorities, and they should be removed from AVRCIS boundaries.

### Response to Comment 19-3

See response to comments 2-2 and 19-2.

## 532. Summary of Comment 19-4

This comment states that CDFW should reject the AVRCIS and work with local jurisdictions to ensure that local land planning and designations, including EOAs, are included in the final document.

### Response to Comment 19-4

See response to comment 2-1 for a summary of public outreach and stakeholder involvement. The outreach requirements have been met and implemented in good faith for inclusion of all interested entities. Many stakeholders were involved in the development of the AVRCIS, therefore, rejecting the AVRCIS is not appropriate. See the response to comment 2-2 for additional information on how EOAs are addressed in the AVRCIS.

# 20. City of Lancaster, February 3, 2020

## 533. Summary of Comment 20-1

This comment states that the City of Lancaster was not included in the creation of the document.

### Response to Comment 20-1

Brian Ludicke from City of Lancaster attended the July 19, 2016, Advisory Committee meeting, and he and his colleague were on an email update that we sent out to all Steering and Advisory on July 28, 2016, with information on future meetings, etc. Additionally, 10 members of the Lancaster City Council were directly contacted early in the RCIS development process. Public outreach was conducted according to the RCIS Program Guidelines. The public and stakeholder involvement process is described in Section 1.5.

## 534. Summary of Comment 20-2

This comment states that the City of Lancaster is supportive of conservation and good environmental practices, but balanced with housing and economic growth, and the draft AVRCIS is not well balanced and does not consider critical needs for the city's future.

### Response to Comment 20-2

The high-value conservation areas and conservation priorities were based on the best available science and data. It is expected that, on occasion, local land use plans may indicate planned future urbanization and infrastructure development in areas that also have high conservation value as identified in the RCIS. Because the RCIS is voluntary, nonbinding, and non-regulatory there is, by definition, no inconsistency or conflict with local land use plans. The RCIS is intended to support future infrastructure and urban development by expanding the mitigation options for projects requiring habitat mitigation.

# 535. Summary of Comment 20-3

This comment states that the AVRCIS was grandfathered in to the previous RCIS process, prior to the changes in AB 2087 that went into effect on January 1, 2017. The City of Lancaster expressed alarm that all stakeholders were not involved in creation of the AVRCIS.

## Response to Comment 20-3

The AVRCIS is consistent with the current 2018 Program Guidelines and meets all substantive standards. Because the AVRCIS was originally submitted prior to September 2017, this AVRCIS complies with the 2018 Program Guidelines, which allows for some reliance on the 2017 Guidelines for documents submitted prior to September 2017. The requirements for this RCIS are detailed in Section 1.4.7. See response to comment 2-1 for a summary of public outreach and stakeholder involvement.

# 536. Summary of Comment 20-4

This comment states that CDFW should reject the draft AVRCIS to restart the steering committee process with more stakeholders.

## Response to Comment 20-4

See response to comment 2-1 for a summary of public outreach and stakeholder involvement. The outreach requirements have been met and implemented in good faith for inclusion of all interested entities. Many stakeholders were involved in the development of the AVRCIS, therefore, rejecting the AVRCIS is not appropriate.

# 537. Summary of Comment 20-5

This comment states that AVRCIS designations should be removed from the boundaries of the City of Lancaster's sphere of influence.

## Response to Comment 20-5

See response to comment 20-2.

# 538. Summary of Comment 20-6

This comment states that the AVRCIS is not allowed to stop or challenge any current or future infrastructure, housing, or economic growth projects that could be crucial to the Antelope Valley.

## Response to Comment 20-6

The RCIS is voluntary, nonbinding, and non-regulatory, and therefore does not stop or challenge any current or future infrastructure, housing, or economic growth projects.

# 539. Summary of Comment 20-7

This comment states that the AVRCIS should not be exempt from current guidelines for RCISs.

### Response to Comment 20-7

See response to comment 20-3.

# 21. Californians for Homeownership, February 8, 2020

# 540. Summary of Comment 21-1

This comment states that the AVRCIS did not include an adequate discussion of future housing developing nor does it address the housing access and affordability crisis in California.

### Response to Comment 21-1

The AVRCIS is consistent with the current 2018 Program Guidelines and meets all substantive standards. Figure 2-22 displays all approved, recorded, pending, and inactive potential subdivision activity areas and economic opportunity areas based on data available at the time of RCIS preparation.

# 541. Summary of Comment 21-2

This comment states that the AVRCIS did not adequately consider equity implications of placing limits on housing development in areas where new housing can be more affordably developed. Further, this comment states that the state must ensure that its environmental regulations and strategies benefit all Californians, regardless of income, race, or physical or developmental disability.

### Response to Comment 21-2

See response to comment 21-1.

# 542. Summary of Comment 21-3

This comment notes that the AVRCIS has no impact on land use rules that enable development, and therefore does not contain consideration of reforms intended to address the housing crisis.

### Response to Comment 21-3

The RCIS is voluntary, nonbinding, and non-regulatory, and therefore has no impact on land use rules that enable development.

# 543. Summary of Comment 21-4

This comment states that the Californians for Homeownership will seek to intervene on behalf of public interest in the development of housing in the region should any party attempt to use the AVRCIS to interfere with the rights of any landowner or developer.

### Response to Comment 21-4

See response to comment 21-3. CDFW, the RCIS Proponent, and the RCIS development team do not support the misuse of this, or any, RCIS.

# 22. Greater Antelope Valley Association of Realtors, February 5, 2020

# 544. Summary of Comment 22-1

This comment states that the Greater Antelope Valley Association of Realtors (GAVAR) was not aware of the document nor were they involved in its creation, and that GAVAR is heavily involved with all plans, legislation, ordinances, and governmental activities that occur within the Antelope Valley.

### Response to Comment 22-1

Public outreach was conducted according to the RCIS Program Guidelines. The public and stakeholder involvement process is described in Sections 1.4, 1.5. See response to comment 2-1 for a summary of public outreach and stakeholder involvement. The outreach requirements have been met and implemented in good faith for inclusion of all interested entities.

# 545. Summary of Comment 22-2

This comment states the draft AVRCIS is at complete odds with the AVAP. The draft AVRCIS designates growth areas (EOAs) as potential high resources that are available for mitigation.

### Response to Comment 22-2

An RCIS establishes conservation goals and objectives and describes conservation actions that may be used as a basis to provide advance mitigation or to inform other conservation planning processes and investments. The high-value conservation areas and conservation priorities were based on the best available science and data. It is expected that, on occasion, local land use plans may indicate planned future urbanization and infrastructure development in areas that also have high conservation value as identified in the RCIS. Because the RCIS is voluntary, nonbinding, and non-regulatory there is, by definition, no inconsistency or conflict with local land use plans. See the response to comment 2-2 for additional information on how EOAs are addressed in the AVRCIS.

# 546. Summary of Comment 22-3

This comment states that the AVRCIS should be consistent with the SEAs in the AVAP and should focus mitigation opportunities in those areas.

### Response to Comment 22-3

See response to comment 22-2.

# 547. Summary of Comment 22-4

This comment states that the AVRCIS was exempt from CDFW regulations and that it cannot be allowed to happen.

### Response to Comment 22-4

The AVRCIS is consistent with the current 2018 Program Guidelines and meets all substantive standards. Because the AVRCIS was originally submitted prior to September 2017, this AVRCIS complies with the 2018 Program Guidelines, which allows for some reliance on the 2017 Guidelines for documents submitted prior to September 2017. The requirements for this RCIS are detailed in Section 1.4.7.

## 548. Summary of Comment 22-5

This comment states that the RCIS should be held to the same standards and the AVRCIS should not be approved under exemption—that the AVRCIS should be restarted to include all stakeholders in the Antelope Valley and not just environmental organizations.

### Response to Comment 22-5

See response to comment 22-4.

## 549. Summary of Comment 22-6

This comment states that the EOAs should be removed from the AVRCIS boundary to be consistent with the Los Angeles County General Plan and AVAP.

### Response to Comment 22-6

See response to comments 2-2 and 22-2.

# 23. Granite Construction Company, February 10, 2020

## 550. Summary of Comment 23-1

This comment states that Granite Construction Company opposes the AVRCIS because it did not consult with large regional landowners and regional employers to build consensus.

### Response to Comment 23-1

Public outreach was conducted according to the RCIS Program Guidelines. The public and stakeholder involvement process is described in Sections 1.4, 1.5. See response to comment 2-1 for a summary of public outreach and stakeholder involvement. The outreach requirements have been met and implemented in good faith for inclusion of all interested entities.

## 551. Summary of Comment 23-2

This comment states that Granite Construction Company opposes the AVRCIS because it was prepared without consultation with local governments, which is mandated under the authorizing statute.

### Response to Comment 23-2

The AVRCIS is consistent with the current 2018 Program Guidelines and meets all substantive standards. Ten local governmental agencies were consulted, consistent with the guidelines and local government representatives participated in the process.

## 552. Summary of Comment 23-3

This comment states that Granite Construction Company opposes the AVRCIS because it fails to protect and provide access to designated Mineral Resources Zones, which are afforded statutory protection. The AVRCIS ignores Mineral Resource Zones as existing designated areas of statewide importance.

### Response to Comment 23-3

The AVRCIS is consistent with the current 2018 Program Guidelines and meets all substantive standards**.** Although Mineral Resource Zones are not a specific land use that was contemplated for discussion in an RCIS, an RCIS is not able to either offer protection of any land use or reassign any land use.

## 553. Summary of Comment 23-4

This comment states that the process to draft the AVRCIS was not inclusive, and the Steering Committee lacked participation from regional stakeholders and local governments, and thus lacked transparency, accountability, and the opportunity for the public to contribute.

### Response to Comment 23-4

See response to comment 23-1.

# 24. City of Palmdale, February 4, 2020

## 554. Summary of Comment 24-1

This comment indicates that the City of Palmdale was not included in drafting the AVRCIS and should be a key stakeholder in the process.

## 555. Response to Comment 24-1

Public outreach was conducted according to the RCIS Program Guidelines. The public and stakeholder involvement process is described in Sections 1.4, 1.5. An invitation was extended to the City of Palmdale to participate in the RCIS process. Two staff from Palmdale Water District attended a public meeting. All City Council Members were included in the Public Review Comment Period notifications (email and individual letters). See response to comment 2-1 for a summary of public outreach and stakeholder involvement. The outreach requirements have been met and implemented in good faith for inclusion of all interested entities.

# 556. Summary of Comment 24-2

This comment states that the drafting of the AVRCIS lacked transparency and some environmental organizations are looking to use the document to limit the City of Palmdale's land use authority.

# 557. Response to Comment 24-2

See response to comment 24-1. CDFW, the RCIS Proponent, and the RCIS development team do not support the misuse of this, or any, RCIS.

# 558. Summary of Comment 24-3

This comment states that the AVRCIS is inconsistent with the County of Los Angeles's General Plan, which has designated EOAs, and that the AVRCIS designates them as high conservation priorities, which negatively impacts the City of Palmdale's effort to promote housing and economic growth.

# 559. Response to Comment 24-3

The RCIS is a voluntary, nonbinding, and non-regulatory regional planning process intended to result in higher-quality conservation outcomes. An RCIS establishes conservation goals and objectives and describes conservation actions that may be used as a basis to provide advance mitigation or to inform other conservation planning processes and investments. The high-value conservation areas and conservation priorities were based on the best available science and data. It is expected that, on occasion, local land use plans may indicate planned future urbanization and infrastructure development in areas that also have high conservation value as identified in the RCIS. Because the RCIS is voluntary, nonbinding, and non-regulatory there is, by definition, no inconsistency or conflict with local land use plans. See the response to comment 2-2 for additional information.

# 560. Summary of Comment 24-4

This comment states that the City of Palmdale found inconsistencies and negative impacts from the AVRCIS in the City's boundaries and sphere of influence. The City of Palmdale is in the process of updating their General Plan and has concerns that the inconsistencies in the AVRCIS, and the city's General Plan could be misused by potential project proponents.

# 561. Response to Comment 24-4

See response to comment 24-3. The DMCA, the steering committee, CDFW, and the preparers of this RCIS do not condone the misuse of data in this RCIS under any circumstances.

# 562. Summary of Comment 24-5

This comment states that the AVRCIS is exempt from guidelines established in AB 2087 and that the AVRCIS should be held to the same standards as other RCIS documents.

## 563. Response to Comment 24-5

The AVRCIS is consistent with the current 2018 Program Guidelines and meets all substantive standards. Because the AVRCIS was originally submitted prior to September 2017, this AVRCIS complies with the 2018 Program Guidelines, which allows for some reliance on the 2017 Guidelines for documents submitted prior to September 2017. The requirements for this RCIS are detailed in Section 1.4.7.

## 564. Summary of Comment 24-6

This comment states that the Antelope Valley is already subject to conservation priorities and additional conservation plans will harm what the City is trying to accomplish.

## 565. Response to Comment 24-6

See response to comment 24-4.

## 566. Summary of Comment 24-7

This comment states that the CDFW should reject the AVRCIS and require the preparers to consult with the City of Palmdale and other stakeholders that were not included in the initial draft.

## 567. Response to Comment 24-7

See response to comments 2-1 and 24-1 for a summary of public outreach and stakeholder involvement. The outreach requirements have been met and implemented in good faith for inclusion of all interested entities.

## 568. 25. Fernandeño Tataviam Band of Mission Indians, June 20, 2020

## 569. Summary of Comment 25-1

This comment states that the AVRCIS boundary encompasses a cultural landscape with Tribal Cultural Resources (TCRs) that are significant to the Fernandeño Tataviam Band of Mission Indians (FTBMI). The comment defines those TCRs as sites, features, places, cultural landscapes, sacred places, and objects, including historical resources, unique archaeological resources, or non-unique archaeological resources with cultural value to a Native American Tribe. Further, it is important that Native American tribes have the opportunity to consult on land conservation projects to provide guidance on the treatment of TCRs.

## 570. Response to Comment 25-1

Native American Tribal consultations are suggested in the 2018 Guidelines, not required. The preparers of the RCIS recognize the importance of the Antelope Valley to FTBMI. Several meetings were held with FTBMI, San Miguel Band of Mission Indians, and the Tejon Indian Tribe subsequent to receiving the FTBMI comment letter. These meetings were very productive and resulted in the development of a new section of the AVRCIS (Section 1.6, *Tribal Coordination and Involvement*) addressing the history, TCRs, and interest of Native American tribes to be consult on land conservation projects including those that would be implemented through the RCIS. The Tejon Indian Tribe opted out of specific mention in the RCIS.

# 571. Summary of Comment 25-2

This comment states that Chapter 1 of the RCIS should acknowledge the tribal cultural landscape and include basic information on natural and cultural resources important to Native American Tribes within the project area, for example, discussion of cultural use of plants and animals, geographic areas, such as water sources, and geological formations with significance to Tribes, and archaeological or TCR sites.

# 572. Response to Comment 25-2

This comment was addressed through the preparation of a new section of the AVRCIS (Section 1.6, *Tribal Coordination and Involvement*).

# 573. Summary of Comment 25-3

This comment states that there is no mention of collaborating with Tribes in the protection and conservation of habitats which exhibit biological, geological, or cultural resources that hold value for Native Americans. The authors recommend incorporating language that outlines efforts by the AVRCIS to work with Tribes, including FTBMI to assess and mitigate potential impacts on culturally important resources. This can be included in Section 1.4.1, *Building Blocks for Conservation Planning*. TCRs should also be acknowledged as a conservation priority during planning stages and considered in Section 1.4.1.1, *Primary Steps to Determine Conservation Priorities*.

# 574. Response to Comment 25-3

The new section of the AVRCIS addresses this comment (Section 1.6, *Tribal Coordination and Involvement*). In addition, both FTBMI and San Manuel Band of Mission Indians are explicitly included as interested participants and members of the Implementation Committee.

# 575. Summary of Comment 25-4

This comment states that for all projects requiring ground disturbance, including conservation projects, impacts on TCRs should be addressed. Tribes should be notified about projects encompassing TCRs, including FTBMI, to ensure that TCRs are identified and impacts mitigated.

# 576. Response to Comment 25-4

This is addressed in Section 1.6 and could be coordinated through tribal participation in the Implementation Committee.

# 577. Summary of Comment 25-5

This comment states that the FTBMI request to be included as one of the organizations on the Implementation Committee.

# 578. Response to Comment 25-5

FTBMI has been included as one of the organizations on the Implementation Committee.

# 579. Summary of Comment 25-6

This comment recommends that the DMCA collaborates and consults with Tribes in good faith to mitigate impacts on TCR throughout the RCIS process and implementation.

# 580. Response to Comment 25-6

See responses to Comment 25-4 and Comment 25-5.

Attachment C-1

# Public Notices, Letters to Public Officials and Email to Interested Parties

**From:** RCIS Development Team
**To:** "eblast" email list

**Subject:** Upcoming Antelope Valley RCIS Meetings
**Date:** Thursday, January 26, 2017 12:09:00 PM

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Greetings,

We wanted to provide a brief update on our progress on the Antelope Valley RCIS and upcoming meetings. Since the last Steering Committee meeting on December 14th we have continued to make progress in developing the conservation prioritization framework, including completing focal species distribution, habitat connectivity, and GAP analysis models. We have also been drafting the RCIS document, including the Purpose and Need for the Strategy, the Strategy Area Setting, and Focal Species Assessments and Conservation Goals and Objectives.

As the sponsoring public agency, the Desert & Mountain Conservation Authority (DMCA) will be submitting the Antelope Valley RCIS to the California Department of Fish and Wildlife. In accordance with Section 1852(a) of the California Fish and Game Code, the DMCA will be holding a public meeting on March 7, 2017 at the Antelope Valley Transit Authority from 1:00 to 4:00 PST to provide an overview of the RCIS and accept comments from the public. An official notice of this meeting will be distributed in the coming days.

Approximately two weeks prior to the public meeting, we plan to hold a Steering Committee webex meeting in order to review the topics to be covered at the public meeting and solicit feedback. I will send a doodle poll to Steering Committee members to schedule this meeting.

Thank you for your involvement in the Antelope Valley RCIS, and don't hesitate to contact me, Terry Watt, or Scott Fleury with any questions.

Regards,

AV RCIS Planning

**From:** Diane Sacks <diane.sacks@mrca.ca.gov>
**Sent on:** Friday, December 13, 2019 11:51:25 PM
**To:** Diane Sacks <diane.sacks@mrca.ca.gov>
**Subject:** NOTICE OF AVAILABILITY OF THE DRAFT ANTELOPE VALLEY REGIONAL CONSERVATION INVESTMENT STRATEGY FOR REVIEW AND COMMENT

**NOTICE OF AVAILABILITY OF THE**
**DRAFT ANTELOPE VALLEY**
**REGIONAL CONSERVATION INVESTMENT STRATEGY**
**FOR REVIEW AND COMMENT**

**December 13, 2019**

This notice is to inform you that a draft Regional Conservation Investment Strategy (RCIS) has been developed for the Antelope Valley region and will be available on the California Department of Fish and Wildlife (CDFW) website for a 60-day public review and comment period beginning on December 13, 2019 and ending at 5:00 p.m. on February 10, 2020.

The draft Antelope Valley RCIS document can be accessed on CDFW's Draft and Approved RCIS Program Documents web page:
https://www.wildlife.ca.gov/Conservation/Planning/Regional-Conservation/Documents

**Submittal of Public Comments**

Comments pertaining to the draft Antelope Valley RCIS must be submitted in writing to one of the following addresses by 5:00 p.m. on February 10, 2020:
EMAIL (comments should be emailed to both CDFW and to the Desert and Mountain Conservation Authority):

CDFW: rcis@wildlife.ca.gov
Desert and Mountain Conservation Authority: diane.sacks@mrca.ca.gov

MAILED COPY (comments may be mailed to CDFW alone):

California Department of Fish and Wildlife
Habitat Conservation Planning Branch
P.O. Box 944209
Sacramento, CA 94244-2090
ATTENTION: Antelope Valley RCIS Comments

DROPPED-OFF COPY (comments may be dropped off to CDFW alone):

California Department of Fish and Wildlife
Habitat Conservation Planning Branch
1700 9th Street, 2nd Floor
Sacramento, CA 95811-6423
ATTENTION: Antelope Valley RCIS Comments

A link to the RCIS Program Documents web page and general information about the RCIS Program may be found at:
https://www.wildlife.ca.gov/Conservation/Planning/Regional-Conservation

Diane Sacks
Administrative Services Manager
Mountains Recreation and Conservation Authority
5810 Ramirez Canyon Road
Malibu, CA 90265
310-589-3230, ext. 122

## Desert & Mountain Conservation Authority

The Desert and Mountain Conservation Authority (DMCA) is a public entity created in July 2006 through a Joint Powers Authority Agreement between the Antelope Valley Resource Conservation District (AVRCD) and the Santa Monica Mountains Conservancy.

Map of DMCA Jurisdiction

The rapid growth of residential and commercial growth in the northern portion of Los Angeles County (and in surrounding areas within the AVRCD) has driven increasing loss and fragmentation of habitat, resulting in degradation of the area's natural biodiversity. This creates an urgent need for proactive efforts to identify, acquire, and manage areas that will preserve open space and the natural resources of the region.

The DMCA has been established to identify, acquire and manage open space lands within the boundaries of the two founding agencies for long term conservation benefits. It provides a capability to cooperate with local government and developers in creating an offsite mitigation program to offset open space loss and improve habitat for species such as burrowing owls, desert tortoise, alkali mariposa lilies, Joshua-juniper woodlands, and so forth.

IF YOU WISH TO RECEIVE MEETING AGENDA NOTICES, PLEASE SEND YOUR E-MAIL ADDRESS TO Diane Sacks

A HARD COPY OF THE AGENDA MAY BE OBTAINED BY CONTACTING DIANE SACKS AT (310) 589-3230, EXTENSION 122

**Accessibility Information**

30th & Ave. I

40th & Ave. L

Construction at 70th and Ave. I

### NOTICE OF AVAILABILITY OF THE DRAFT ANTELOPE VALLEY REGIONAL CONSERVATION INVESTMENT STRATEGY FOR REVIEW AND COMMENT

**December 13, 2019**

This notice is to inform you that a draft Regional Conservation Investment Strategy (RCIS) has been developed for the Antelope Valley region and will be available on the California Department of Fish and Wildlife (CDFW) website for a 60-day public review and comment period beginning on December 13, 2019 and ending at 5:00 p.m. on February 10, 2020.

The draft Antelope Valley RCIS document can be accessed on CDFW's Draft and Approved RCIS Program Documents web page:
https://www.wildlife.ca.gov/Conservation/Planning/Regional-Conservation/Documents

**Submittal of Public Comments**

Comments pertaining to the draft Antelope Valley RCIS must be submitted in writing to one of the following addresses by 5:00 p.m. on February 10, 2020:

EMAIL (comments should be emailed to both CDFW and to the Desert and Mountain Conservation Authority):

CDFW: rcis@wildlife.ca.gov
Desert and Mountain Conservation Authority:
diane.sacks@mrca.ca.gov

MAILED COPY (comments may be mailed to CDFW alone):

California Department of Fish and Wildlife
Habitat Conservation Planning Branch
P.O. Box 944209
Sacramento, CA 94244-2090
ATTENTION: Antelope Valley RCIS Comments

DROPPED-OFF (CDFW is moving offices within the comment period, see below for appropriate location based on drop-off date):

(Comments may be dropped off to CDFW along from December 13, 2019 through January 9, 2020)

California Department of Fish and Wildlife
Habitat Conservation Planning Branch
1700 9th Street, 2nd Floor
Sacramento, CA 95811-6423
ATTENTION: Antelope Valley RCIS Comments

(Comments may be dropped off to CDFW alone starting January 10, 2020 through February 10, 2020 by 5:00 p.m.):

California Department of Fish and Wildlife
Habitat Conservation Planning Branch
1010 Riverside Parkway
West Sacramento, CA 95605
ATTENTION: Antelope Valley RCIS Comments

A link to the RCIS Program Documents web page and general information about the RCIS Program may be found at:

https://www.wildlife.ca.gov/Conservation/Planning/Regional-Conservation

Generic version of letter sent to all
County Board of Supervisors and
City Councilmembers

December 23, 2019

Dear Supervisor/Councilmember,

This notice is to inform you that a draft Regional Conservation Investment Strategy (RCIS) has been developed for the Antelope Valley region and will be available on the California Department of Fish and Wildlife (CDFW) website for a 60-day public review and comment period beginning on December 13, 2019 and ending at 5:00 p.m. on February 10, 2020.

The RCIS guidelines state that "(60) days prior to submitting the final RCIS to CDFW for review and approval, the RCIS proponent shall notify, in writing, the boards of supervisors and the city councils in each county within which the RCIS is located in whole or in part, of the draft RCIS."

Through this process local jurisdictions must be provided at least thirty (30) days in which to submit written comments but since the public review and comment period runs through February 10th we are extending the review time for local jurisdictions out past the 30 days to run concurrently with the public review period.

The draft Antelope Valley RCIS document can be accessed on CDFW's Draft and Approved RCIS Program Documents web page:
https://www.wildlife.ca.gov/Conservation/Planning/Regional-Conservation/Documents

**Submittal of Comments**

Comments pertaining to the draft Antelope Valley RCIS must be submitted in writing to one of the following addresses by 5:00 p.m. on February 10, 2020:

EMAIL (comments should be emailed to both CDFW and to the Desert and Mountain Conservation Authority):

CDFW: rcis@wildlife.ca.gov
Desert and Mountain Conservation Authority: diane.sacks@mrca.ca.gov

MAILED COPY (comments may be mailed to CDFW alone):

California Department of Fish and Wildlife
Habitat Conservation Planning Branch
P.O. Box 944209
Sacramento, CA 94244-2090
ATTENTION: Antelope Valley RCIS Comments

DROPPED-OFF (CDFW is moving offices within the comment period, see below for appropriate location based on drop-off date):

(comments may be dropped off to CDFW alone from December 13, 2019 through January 9, 2020)

> California Department of Fish and Wildlife
> Habitat Conservation Planning Branch
> 1700 $9^{th}$ Street, $2^{nd}$ Floor
> Sacramento, CA 95811-6423
> ATTENTION: Antelope Valley RCIS Comments

(comments may be dropped off to CDFW alone starting January 10, 2020 through February 10, 2020 by 5:00 p.m.):

> California Department of Fish and Wildlife
> Habitat Conservation Planning Branch
> 1010 Riverside Parkway
> West Sacramento, CA 95605
> ATTENTION: Antelope Valley RCIS Comments

A link to the RCIS Program Documents web page and general information about the RCIS Program may be found at:
https://www.wildlife.ca.gov/Conservation/Planning/Regional-Conservation

Sincerely,

Scott Fleury
Project Manager for the Antelope Valley Regional Conservation Investment Strategy

Attachment C-2

# Public Meeting Materials

Notice of Public Meeting on the Proposed

Antelope Valley Regional Conservation Investment Strategy

March 7, 2017

1:00pm to 4:00pm

Antelope Valley Transit Authority Offices

Interested parties are invited to attend a Public Meeting to learn about the Proposed Antelope Valley Regional Conservation Investment Strategy to be held on March 7, 2017 at the Antelope Valley Transit Authority offices, 42210 6th St. W., Lancaster. The meeting will allow interested parties to receive preliminary information about a non-regulatory planning effort underway to prepare an Antelope Valley Regional Conservation Investment Strategy (RCIS) and to provide comments.

Regional Conservation Investment Strategies are new, voluntary, landscape-scale conservation planning tools that will identify conservation priorities to guide public and private conservation actions and investment, such as habitat restoration and protection. Guided by state legislation signed by the Governor in 2016 (AB 2087), the effort is being led by a Steering Committee, convened by the Desert and Mountains Conservation Authority, and comprised of local, state and federal agency representatives and stakeholders. This public meeting is being hosted by the Desert and Mountain Conservation Authority. If the Antelope Valley RCIS is approved by the California Department of Fish and Wildlife (Department) in Summer 2017, conservation actions identified in the RCIS could be used to develop mitigation credit agreements with the Department for transportation and other projects. The Antelope Valley RCIS is part of a broader effort to implement regional advanced mitigation planning in the state to facilitate landscape-scale conservation and improve the delivery of transportation and other projects.

Public Comments: Interested parties may provide written comments at the Public Meeting, by mail to: DMCA c/o Michelle Osborn, 630 K St. Suite 400, Sacramento, CA 95814, or by email to: michelle.osborn@icf.com. Comment forms will be provided at the meeting and all written comments must be submitted by March 24, 2017. Written comments will be considered in the development of the

Antelope Valley RCIS, but there will not be any written response to comments provided.

Additional background information will be available and posted at http://dmca.ca.gov by Feb 17th.

If you have questions concerning this Public Meeting Notice please contact: michelle.osborn@icf.com, 916-231-9585.

**Antelope Valley Regional Conservation Investment Strategy**
Public Meeting, March 7, 2017
Antelope Valley Transit Authority Community Room

**Public Comments**

| |
|---|
| **Name/Organization (Optional):** |

| |
|---|
| **Questions/Comments on the Content of the Presentation and Stations:** Were there items that were unclear? Did any topics need more explanation? We would like feedback to inform future outreach. |

| |
|---|
| **Suggestions for Public Outreach/Engagement:** How should the public best be informed about the development of the Antelope Valley RCIS? |

| |
|---|
| **Additional feedback about the Antelope Valley RCIS:** How do you foresee the RCIS being applicable to your interest/organization? What would you expect to see in a regional conservation document, such as an RCIS? |

| |
|---|
| **How did you hear about the public meeting?** |

We welcome written comments on the material presented in this meeting by March 24, 2017 to:

DMCA
c/o Michelle Osborn
630 K St. Suite 400
Sacramento, CA 95814
michelle.osborn@icf.com

Summary Notes:

Antelope Valley Regional Conservation Investment Strategy Public Meeting and Open House

March 7, 2017

1:00 – 4:00 PM

Antelope Valley Transit Authority Community Room, Lancaster CA

**AGENDA**

1:00 – Welcome from Paul Edelman, DMCA

1:05 – Introduction (Jeff Olesh)

1:30 – Presentation (Scott Fleury/Graham Chisholm)

2:00 – 4:00 – Open House Stations and Materials

1. Regional Conservation Investment Strategy (RCIS)
    a. What is an RCIS, Attachment 1
    b. Legislation, Attachment 2
    c. RCA/RCIS/MCA Process, Attachment 3
    d. Antelope Valley RCIS and Key Stakeholders within the region, Attachment 4

2. Biological Information for the AV RCIS
    a. Regional Mapping Process & Building Blocks, Attachment 5
    b. Focal Species, Natural Communities, and Existing Protected Lands within the AV RCIS, Attachment 6

3. Comment:
    a. How to Comment and Stay Engaged in the Process, Attachment 7
    b. Comment Card, Attachment 8

The Public Meeting was opened by Paul Edelman, Desert and Mountains Conservation Authority. Paul welcomed the nearly 60 participants and the described the purpose of the meeting to inform the public about the status and purpose of the Antelope Valley Regional Conservation Investment Strategy and how they can stay engaged. He emphasized that the meeting is intended for interested parties to receive preliminary information about a non-regulatory planning effort underway to prepare an Antelope Valley Resource Conservation Investment Strategy (RCIS) and to provide comments at this early stage of the process. Paul underscored that Regional Conservation Investment Strategies are new, voluntary, landscape-scale conservation planning tools that will identify conservation priorities to guide public and private conservation actions and investment, such as habitat restoration and protection. He noted that the RCIS Process is guided by state legislation signed by the Governor in 2016 (AB 2087), and the effort is being led by a Steering Committee, convened by the Desert and Mountains Conservation Authority (DMCA), and comprised of local, state and federal agency representatives and stakeholders. He concluded by saying that this public meeting is being hosted by the Desert and Mountain Conservation Authority and introduced Jeff Olesh, Chair of the DMCA and on the Board of the Transition Habitat Conservancy.

Jeff Olesh, also welcomed everyone and thanked them for attending the Public meeting. He opened by reading the DMCA Mission Statement (below) noting that the Antelope Valley RCIS is consistent with and will help advance that Mission:

DMCA Mission: The DMCA has been established to identify, acquire and manage open space lands within the boundaries of the two founding agencies for long term conservation benefits. It provides a capability to cooperate with local government and developers in creating an offsite mitigation program to offset open space loss and improve habitat for species such as burrowing owls, desert tortoise, alkali mariposa lilies, Joshua-juniper woodlands, and so forth.

Jeff offered that the objective today is to familiarize you with the RCIS and what it does and does not do and noted the Process:

- allows you to provide input into the plan and bring your expert knowledge; your local boots on the ground input to the process; and
- To be sure you are plugged into the planning process to the extent you wish to be engaged.

He gave a local example of conservation by the THC and DMCA that underscores the opportunity to bring additional resources to the area to protect areas of conservation, connectivity and aesthetic value to the community.

He invited the Planning Team members, Steering and Advisory Committee members to stand up and introduce themselves.

Jeff underscored that the RCIS is your planning effort, driven by science and local knowledge. He said the DMCA and THC are actively participating because this effort will inform priority conservation targets and help drive funding for these project. Jeff then introduced Susan Zahnter, Director of Association of Rural Town Councils.

Susan also welcomed the participants, noting the residents in the 16 Town Councils feel the impacts of large infrastructure projects and some of the Town Council Areas have felt impacts of large scale solar that have deeply impacted community and wildlands. She repeated this process allows us to identify areas worthy of conservation and expand areas we already enjoy. The RCIS provides a plan that as we move forward the great opportunity is we can plan now for mitigation so we do not end up with fragmentation, noting that just as important is this process is stakeholder driven.  The fact that people can provide input and that is exemplary part of the program.

Susan added that the Association of Town Councils will be hosting an evening meeting at ARTC likely April 26th.

Susan, introduces Scott Fleury

Scott presents PPT slides (Link).

Scott reinforces that the RCIS process will result in a voluntary, non-regulatory plan noting and reviews the planning context for the RCIS. Scott adds the RCIS is a pilot program within a hierarchy of planning tools including a regional conservation assessment (optional and broader), RCIS (the planning effort underway) and Mitigation Credit Strategies (follow approval of the RCIS by CDFW). In late Spring/early summer there will be a draft for public review and then submittal to CDFW.

Benefits of the RCIS:

- Flexible tool to bring focus and resources for conservation in the area
- Provides regional context for conservation and mitigation funds
- Voluntary
- Supports public infrastructure with efficient mitigation options
- Creates mitigation credits for habitat protection and restoration and enhancement
- Provides assurances that transportation agencies can get credit for regional advanced mitigation as an incentive to provide early funding for conservation

Elements, including study area and focal species, of the RCIS were informed by the Steering and Advisory committees.

Information for the Plan includes:

- Species distribution models based on occurrence data
- Land cover and natural communities
- Protected Areas (CPAD)
- Land use and Roads
- Species occurrences (CNDDB, Ebird points, Herpmapper points as examples)

Scott notes that the Planning Team wants to understand the biodiversity of the area, recognizing what is already protected so these areas can be expanded as warranted.

RCIS elements boil down to key blocks of information including:

- Current threats
- Future threats

- Biological information
- Priority Conservation areas, high biological value areas to identify Conservation Area Prioritization

The next step will be to identify Priority Conservation Areas with input. He emphasizes that stakeholder/local expertise will be brought in to supplement data and other information (e.g., from models and data bases).

Next immediate steps include:

1. Drafting conservation goals and objectives
2. Selecting priority conservation areas

With the Draft RCIS emerging in late spring/early summer after which there will be a 30-60-day public review period.

Scott then opened it up for questions.

Questions and Answers:

Q: Is there a minimum acreage for a priority conservation area for mitigation?

A: No established minimum acreage requirement.

Q: Can you elaborate on the sponsors for Mit Credit Agreements?

A: Open to anyone who has interest in an agreement. Does not have to be a public agency. Most likely candidates would be Caltrans, LA Metro, DMCA to generate credits and sell them as they are needed, but likely in any case, an agency of some type that needs mitigation.

Q: City of Lancaster has biological mitigation fund and how will you interact with them? Partner with them?

A: The RCIS will discuss and describe those separate mitigation programs. RCIS does not replace but simply intended to be a broader umbrella.

Q: When will the group have opportunity to review RCIS Guidelines?

A: April 3 is when the Guidelines are supposed to be released to the public by DFW and right now intention is no public review, they will just be released. Rationale is guidelines are preliminary and if the legislation is extended then will go through more formal process.

Q: How does the new program relate to NCCPs and HCPs? How can community oriented efforts be competitive with large private banks and sell credits?

A: RCIS not intended to compete with NCCPs or HCPs, but instead would be coordinated.

Q: Is the RCIS effectively the same as an NCCP?

A: RCIS's are very different and intended to fill a gap in the middle between permits and the other end NCCP that are very large and comprehensive. The RCIS effectively guides where mitigation and conservation could be directed.

Q: Land stewardship?

A: The legislation speaks directly to the importance of landscape scale conservation plan for enhancement action as well as acquisition. Maybe not an opportunity to protect, but to enhance through enhancement credits where a property owner is interested.

Q: Is there a preference for working lands versus new land acquisition?

A: No preference is stated in the legislation. Preservation, restoration and enhancement all identified as possible.

Q: Where is the oversight to be sure done with integrity.

A: That would be under DFW, with RCIS ultimately approved by DFW and monitored by DFW.

The Q and A period adjourned and the Open House stations portion of the public meeting began. See Attachments 1 through 8 for Station handouts.

Attachment C-3

# Public Meeting Written Comments

The CDFW guidelines to be released in April need to have a public comment opportunity

Comment Letter IA

**Antelope Valley Regional Conservation Investment Strategy**
Public Meeting, March 7, 2017
Antelope Valley Transit Authority Community Room

**Public Comments**

**Name/Organization (Optional):** Ileene Anderson / CBD

**Questions/Comments on the Content of the Presentation and Stations:** Were there items that were unclear? Did any topics need more explanation? We would like feedback to inform future outreach.

IA-1 **Suggestions for Public Outreach/Engagement:** How should the public best be informed about the development of the Antelope Valley RCIS? public meetings; updated/informative website

IA-2 **Additional feedback about the Antelope Valley RCIS:** How do you foresee the RCIS being applicable to your interest/organization? What would you expect to see in a regional conservation document, such as an RCIS? enhance conservation in North L.A. County

**How did you hear about the public meeting?** email notice - thanks

IA-3 We welcome written comments on the material presented in this meeting by March 24, 2017 to:

DMCA
c/o Michelle Osborn
630 K St. Suite 400
Sacramento, CA 95814
michelle.osborn@icf.com

I believe that the RCIS would benefit from including a few other focal species as follows

- short-joint beavertail (Opuntia basilaris brachyclada) - good species to "fill in" Burn trees; PJ woodland
- Chorizanthe artemisifolia - desert "vernal pool" plant species
- mtn. lion (versus mule deer) - apex predator. Santa Monica Mtns have lots of deer but their mtn lions are effectively isolated.
- pronghorn - re-introduction opportunity for namesake species for antelope valley

IA-4 Also please incorporate Andy Zdon's spring/seep survey data. Important data for a crucial resource in the area.

## Antelope Valley Regional Conservation Investment Strategy

Public Meeting, March 7, 2017
Antelope Valley Transit Authority Community Room

### Public Comments

**Name/Organization (Optional):** Tom Egan Defenders of Wildlife

TE-1

**Questions/Comments on the Content of the Presentation and Stations:** Were there items that were unclear? Did any topics need more explanation? We would like feedback to inform future outreach.

Focal species selection for the planning area is fairly representative, however there are 3 exceptions as outlined below.

**Suggestions for Public Outreach/Engagement:** How should the public best be informed about the development of the Antelope Valley RCIS?

TE-2

**Additional feedback about the Antelope Valley RCIS:** How do you foresee the RCIS being applicable to your interest/organization? What would you expect to see in a regional conservation document, such as an RCIS? Short-joint Beavertail

Including specific focal species, whose careful management could benefit local communities, appear to have been omitted. As my previously provided comments indicate, the short joint beavertail cactus (Opuntia basilaris var. brachyclada)

**How did you hear about the public meeting?** SSB falls Setwell

We welcome written comments on the material presented in this meeting by March 24, 2017 to:

has not been incorporated as a focal species. This species reaches its western extent in the AV RCIS Pilot Area and the primary impact to this species, which occurs primarily on private land, is private land development. It should be included as a focal species to facilitate local planning & conservation.

DMCA
c/o Michelle Osborn
630 K St. Suite 400
Sacramento, CA 95814
michelle.osborn@icf.com

CNPS 1B plant species, BLM designated sensitive, western extent in pilot.

TE-2 cont.

Mtn Lion, a SWAP species should also be included as a focal species. The local community & general conservation in the region could greatly benefit from appropriate apex carnivore linkage identification and suggested management actions.

It is unclear if Sand transport corridors will be addressed with the currently selected focal species.

LAND VERITAS

March 24, 2017

Desert and Mountains Conservation Authority
c/o Ms. Michelle Osborn
ICF International
Michelle.Osborn@icf.com

Dear Ms. Osborn,

Thank you very much for this opportunity to provide comments on the Antelope Valley Regional Conservation Investment Strategy (AV-RCIS) pilot process. I represent Petersen Ranch Mitigation Bank (Petersen Ranch) in Los Angeles County and have been identified as a Stakeholder in this new state of California promulgated process. At the most recent public meeting on March 7, 2017, you requested comments, "…to inform the planning team of information or key items that should be considered or incorporated into the Draft AV-RCIS." Based on your solicitation we provide the following comments.

First and foremost, we appreciate your inclusion of Petersen Ranch in the AV-RCIS Study Area. Keeping in mind that the property has been recognized and approved by the Department of Army Corps of Engineers (ACOE), the California Department of Fish and Wildlife (CDFW), the Environmental Protection Agency (EPA) and the Regional Water Quality Control Board (RWQCB) as a mitigation and conservation bank with the authorization to serve species, habitats and wetland mitigation needs in the AV-RCIS Planning Area and in portions of Los Angeles, Kern, San Bernardino and Ventura counties, this property is well placed to contribute to the success of the final AV-RCIS.

After experiencing a costly, 5+ year process to create the Petersen Ranch, we support the state's efforts to streamline the delivery of advanced mitigation. However, we originally opposed AB 2087 because we were concerned that it would create a parallel process for delivering a less durable, lower quality of advanced mitigation vis-à-vis existing mitigation banks. Many of our concerns were addressed with changes to the legislation that were discussed during collaborative meetings with the bill's sponsors, including Graham Chisolm. However, we feel that ambiguities still exist in the legislation and, additionally, have questions about the process. Accordingly, we want to continue to work on a collaborative basis to help ensure these concerns are addressed so the legislation's goals can be achieved.

Our comments fall into three categories:

- Conservation Priorities
- Mitigation Credit Agreements
- Process

***<u>Conservation Priorities</u>***

We are hopeful that the Petersen Ranch Mitigation Bank can be identified as a "Conservation Priority" in the AV-RCIS. We believe that Petersen Ranch provides high quality durable conservation for many of the plant and animal species and plant communities identified on the species list for the Planning Area including Swainson's hawk, California juniper, coast horned lizard, Pacific pond turtle, loggerhead shrike, prairie falcon, tricolored blackbirds, willow flycatcher, etc., as well as providing important east-west and north-south connectivity. **As the process moves forward we are confident that Petersen Ranch can be identified as a "Conservation Priority" in the AV-RCIS and based on the significant biological attributes present on the property today and agency approval of the property as an advanced mitigation site**.

LVC-1

***Mitigation Credit Agreement (MCA***)

First a word on the guidance; as with any process established in new legislation there will be uncertainty on the part of the regulated (albeit voluntary) community and the varied understandings of the regulators as to how to implement the new law. As this process moves forward I suggest we be cautious with the criteria for the AV-RCIS and the MCA.

Specifically, we are concerned that mitigation created pursuant to the MCAs may not be as durable as mitigation created pursuant to existing CDFW banking statutes. For example, in the legislation we do not understand how the perpetual protection of the land (Par 1856(f)12) and permanent endowment funding (Par 1856(f)13) requirements apply to habitat enhancement actions that do not involve …"land acquisition or the permanent protection of habitat, such as improving in-stream flows to benefit fish species, enhancing habitat connectivity, or invasive species control or eradication."

Petersen Ranch is set up and approved by the agencies as a durable or permanent advanced mitigation credit type. The cost for establishing a durable credit is significant and certainly costlier than entitling a temporary protective instrument. However, the more important point is that durable mitigation provides biological benefits far beyond that of temporary mitigation. While it may seem reasonable that, for example, a 40-year impact (e.g. Solar Farm) be required to purchase a 40-year easement, it does not, in our opinion, adequately address the long-term biological impacts of the project. For example, the loss of 40 years of breeding opportunities of affected species goes far beyond a potential prescribed conservation requirement time of 40 years. Some species may take decades to recover the consequences of lost breeding opportunities over a 40-year period. Also, after 40 years, the impacts to the plant community are not ameliorated in a single year if restored. In essence, the 40-year impact to plants and animal community structure that results from lost opportunity has genetic, community, and population effects that are not mitigated by "short-term" protections.

Petersen Ranch is in the final phases of restoration and is already under intensive management to meet very stringent criteria for successful biological, hydrological and physical goals. It is already providing advanced mitigation and will do so in perpetuity, thus fully mitigating the adverse effects of long-term impacts.

In the absence of clear regulatory guidance, **we suggest planning for the AV-RCIS and the MCAs include a strong preference, if not a requirement, for durable "in-perpetuity" protection in response to what are likely to be long-term impacts.**

LVC-2

***Process***

Per my comments at the March 7, 2017 public meeting, we are disappointed that the Stakeholders will not have an opportunity to comment on the Implementing Guidelines prior to their publication. As pointed out, we feel there are ambiguities in the legislation that could be worked out during a public review period for the Guidelines.

Additional concerns we have include the pace of this process in the absence of Agency guidance of the new Legislation, due consideration of the optional development of the Regional Conservation Assessment (RCA), and length of time for public comment on the Draft AV-RCIS.

LVC-3

We are concerned that the AV-RCIS has not selected to develop a Regional Conservation Assessment (RCA). While the legislation indicates that the development of an RCA is an optional process, it makes sense and is certainly accepted practice in conservation biological principles to first look at a scale with relevance to the species and processes being managed and conserved. We understand time is of the essence based on the legislative sunset of 2020, however, the ecological systems and processes at risk in the AV-RCIS Study Area should be viewed in a larger scale. **Therefore, we recommend the team prepare an RCA that can guide local (county/sub-county) scale decisions.**

LVC-4

And lastly, we strongly believe the public have adequate opportunity to provide meaningful input into this draft AV-RCIS. Rushing through a public comment period, after spending a significant period developing what is likely to be a comprehensive document, presents a poor perception of the process and work product. **Therefore, we recommend a minimum 60-day comment period for this important phase of the process**.

Thank you very much for your consideration of our comments and we look forward to contributing to the development of the AV-RCIS. If you have any questions please contact our biological representative for the AV-RCIS, Kenneth Sanchez of WRA Inc., at (916) 798-2770 or myself at the letterhead contact.

LAND VERITAS CORP

H. Tracey Brownfield, President

Cc: AV-RCIS Stakeholders

Attachment C-4

# Public Comment Letters

The Nature Conservancy
Protecting nature. Preserving life.™

201 Mission Street, 4th Floor
San Francisco, California 94105

Tel (415) 777-0487
Fax (415) 777-0244

nature.org

Date: February 10, 2020

To: Desert and Mountains Conservation Authority (via email to diane.sacks@dmca.ca.gov)
California Department of Fish and Wildlife (via email to rcis@wildlife.ca.gov)

Subject: The Nature Conservancy's Comments on the Antelope Valley Draft Regional Conservation Investment Strategy

Thank you for the opportunity to engage on the Antelope Valley Regional Conservation Investment Strategy (RCIS) and to provide the enclosed comments on the Draft RCIS. The comments are provided with the aim of approving an exemplary RCIS to the California Department of Fish and Wildlife (DFW), as the Antelope Valley is one of the first geographies to implement the AB 2087 legislation. The Nature Conservancy (TNC) has invested heavily in the establishment of AB 2087 legislation and the pilot RCISs, and, as a member of the steering committee, our aim is for the Antelope Valley RCIS to demonstrate how the legislation can provide real benefits to conservation and critical infrastructure development, and to serve as a model for agencies that pursue developing RCISs in the future.

To that extent, we have reviewed the Antelope Valley RCIS Draft with four main considerations in mind: 1) the location of the priority areas for conservation and mitigation actions (the where); 2) the science supporting the identification of these priority areas (the why there); 3) the conservation actions that are prescribed for these priority areas (the what); 4) a clear explanation for how the document will be implemented and operationalized (the how).

1-1

The parts of the document that benefitted most from the stakeholder process and collaboration are the strongest parts of this document: the identification of focal species and justification for those focal species, the conservation value attribute model, the landscape intactness model, the connectivity modeling, and the species distribution models. The sections of the document that were written and developed during the spring and early summer of 2017 without the benefit of stakeholder collaboration are where we have the most questions and concerns with the document – mainly Chapters 3 and 4. For example, stakeholders and steering committee members such as The Nature Conservancy did not have an opportunity to provide input related to the methodology for the gap analysis that results in the quantitative goals and objectives for each species, and there was no robust stakeholder process related to identifying conservation actions. Likewise, the stakeholder process did not include a discussion of how to structure the implementation section of the RCIS. These sections require improvement and could greatly benefit from stakeholder input and collaborative work. Between July 2017 and October 2019, there has not been an effort to involve stakeholders further in development of these sections of the RCIS document.

We look forward to discussing our recommendations below with CDFW, DMCA and the consultant team, and working collaboratively on a path forward. We are able to work with you on incorporating these recommendations into the Draft RCIS and encourage the project team to take the necessary time to address comments and recommendations from TNC and other NGOs that have invested in the success of the Antelope Valley RCIS and the AB 2087 legislation more broadly.

Our recommendations are organized as follows:

1. Overall document organization
2. Species habitat groupings
3. Gap analysis
4. Conservation actions
5. Implementation

---

1. Overall document organization
    1-2 a. At the beginning of the document, we recommend including two additional sections related to: 1) *why to use the RCIS*; and 2) *how to use the RCIS*. To ensure the RCIS is utilized, we think it is critical to provide a clear explanation of the benefits of the RCIS approach compared to business-as-usual approach to mitigation. Section 1.3 addresses in what instances the RCIS could be used but is short on details on how it can be used. Providing examples of how different entities could use the RCIS would be helpful. It is common practice for authors of a conservation plan to identify potential users and provide guidance for use of the plan by those users.
    1-3 b. Improve the narrative related to how the various models and conservation attributes were developed to inform the overarching conservation strategy. For readers who have not been engaged with this process from the beginning, Chapter 3 is difficult to follow and understand. An overarching, simple diagram explaining the conservation strategy would be helpful at the beginning of this chapter.
    1-4 c. Consider what information needs to be included in an Appendix and what needs to be in the main body of the text. There were many instances where the substantive information was referenced in an Appendix and was difficult to find. Consider including hyperlinks to be able to go from main body of the document and Appendices (e.g. species distribution model maps).
2. Species habitat groupings
    1-5 a. Provide more information about the species habitat groupings methodology including additional information related to selection of the three habitat groups and how the focal species were assigned to the habitat groups. The rationale for creating the groups in Section 3.2.1.1 is insufficient for the reader to understand why the three habitat types were selected, and how species were assigned to each group. The method for group selection and assignment of species to the groups should be described at a level of detail such that it would be repeatable for other RCISs outside of Antelope Valley.

1-6
b. Provide further explanation on the difference between the "desert" species group and the "agriculture/grasslands" species group. While agriculture is a distinctly mappable "Natural Community Land Cover" type as defined in Table 2-1, grasslands are found in many different land cover types, including desert plant communities.

1-7
c. Clarify the intention in the species selection process for each habitat group. Some of the species lumped together in these groups represent very distinct portions of the study area (e.g. Alkali Mariposa Lily and Desert Tortoise are both in the Desert group, but don't seem to share any habitat in common) which would suggest the intention of the grouping process was to provide comprehensive coverage of a particular habitat type but this is not made clear in the narrative.

1-8
d. Consider using the "Natural Community Land Cover" type categories described in Chapter 2 as a guide for aggregating the focal species into habitat groups or provide further justification for how the groupings were made. If this change is not possible, provide explanation for why Natural Community Land Cover type categories were not used.

1-9
e. For any focal species that belong to more than one habitat group (e.g. Joshua Tree and Golden Eagle) the document needs to provide explanation for the implications of being part of two habitat groups while other species belong to only one.

3. Gap analysis (Section 3.3)

1-10
a. Typically, a gap analysis is conducted to inform the identification of priority areas[1]. In the Antelope Valley RCIS, priority areas – referred to as cores and linkages – were identified first for each species habitat group, then conservation targets were set that relate to a subset of the total modeled habitat within the cores and linkages. The subsequent gap analysis therefore overlooks significant amounts of unprotected high conservation habitat that exist outside of the cores and linkages.

1-11
b. We recommend assigning higher conservation targets (percentages included in Table 3-9) for some of the focal species, especially those that are highly localized with a very narrow habitat range. For example, we recommend that the species with the highest conservation priority have a target of 100% instead of 90%. This is especially important considering that the conservation targets (percentage of habitat protected) relate only to high value habitat within the identified cores and linkages. The resulting acreage that is used as the conservation objective is much smaller than if it were a percentage of all modeled high value habitat. Please also include a justification for allowing for 10% loss of habitat within the cores and linkages for species with very narrow and limited range.

1-12
c. We recommend clarifying the levels of protection included in the "protected areas" database, and stratifying Table 3.9 by the GAP status of the protected areas. Not all protected areas offer the same level of protection for species and their habitats and thus cannot necessarily be considered "conserved" until further actions or layers of

[1] Please see the initial journal article on gap analysis where it describes the intent of the process to identify priority areas to target for conservation investments:
http://www.jstor.org/stable/3830788?seq=1#page_scan_tab_contents

1-12 cont. protection are included. The RCIS needs to account for these differences and provide opportunities to increase conservation in areas where there is low level of protection.

4. Conservation Actions
    a. 1-13 Revise the species-specific conservation actions such that they are more site-specific. Some of the conservation actions are appropriate for certain places and not others and this information needs to be included in the RCIS to provide guidance to the entities that will use the document.
    b. 1-14 Prioritize the conservation actions for each focal species such to clarify which conservation actions are most important to complete first to meet the needs of the species.
    c. 1-15 Provide greater justification and documentation related to the claim that livestock grazing can be beneficial to burrowing owl (Conservation Action 10.3). This could be easily misinterpreted and needs to be heavily caveated.
    d. 1-16 Incorporate the most recent information related to occurrences of Mohave ground squirrel and desert tortoise, including the results from line-distance sampling, recovery plan information, surveys. Defenders of Wildlife has a comprehensive list of information that needs to be consulted in relation to these two species.
5. Implementation
    a. 1-17 Provide more overarching guidance for how to use the RCIS document. For each entity that we would like to utilize this RCIS document, provide guidance specific to that audience. These entities include but are not limited to: County and local governments, DFW, USFWS and other permitting agencies, project proponents, NGOs, land trusts, mitigation banks. Provide a clear explanation of the benefits of utilizing the RCIS and an explanation of how they would use it. Section 1.3 addresses in what instances the RCIS could be used but is short on details on how it can be used. Providing examples of how different entities could use the RCIS would be helpful and is common practice for authors of a conservation plan to identify potential users and provide guidance for use of the plan by those users.
    b. 1-18 We recommend including information from Appendix B into the main body of the implementation chapter – together Chapter 4 and Appendix B set the stage for RCIS implementation for state and federal agencies and local governments.
    c. 1-19 We recommend including step-by-step instructions for project proponents who are interested in incorporating the RCIS into project their decision-making. Presumably, the omission of step-by-step instruction is meant to allow the implementation committee to draft guidance, a role it may perform per Section 4.2.2. ("Develop guidance, as needed, to clarify and refine components of this RCIS"). The difficulty of leaving step-by-step guidance to the implementation committee, however, is that the formation of the committee itself is optional; the implementation sponsor is not required to form an implementation committee (or a public advisory committee). Furthermore, an implementation committee is only required to meet annually. To the extent that this RCIS will serve as guidance for development and

1-19 cont. conservation in the Antelope Valley and as a demonstration for future RCISs, the lack of step-by-step instructions in the name of flexibility and deference to a local implementation committee that may never be formed, or meet regularly if it is formed, is a risky tactical decision and one that leaves project applicants with a high degree of uncertainty.

1-20

d. Chapter 4 and Appendix B could also be improved by making one important editorial change. Section 4.5 on Conservation Partnerships should be relocated to the beginning of the chapter given the importance of the NGO community's ongoing actions to ensure the conservation of focal species, habitat connectivity, and working landscapes. Section 4.5 currently reads as an afterthought, which perhaps is the opposite of what was intended. We recommend highlighting the importance of NGO activities (such as Transition Habitat Conservancy) so other stakeholders and audiences for the RCIS beyond Antelope Valley understand how those efforts facilitate the RCIS and recognize the value of engaging with NGOs from the earliest stages of project development.

1-21

e. We recommend providing more explanation for how the conservation strategy will be implemented. Only a few of the focal species require CESA or CEQA mitigation, so how will the conservation actions for the other focal species be funded and implemented? At the end of Chapter 3, the document walks through an example of how the RCIS can be used for the Joshua Tree as a focal species. However, despite its inclusion in the RCIS as a focal species, CEQA does not currently require mitigation for Joshua Tree, so what is the incentive for a developer to invest so heavily in Joshua Tree conservation if they are not required to by law? The steps outlined in this example are expensive (developing an MCA, finding willing land sellers, monitoring, adaptive management) and unrealistic to expect them to occur unless there is a dedicated funding source.

1-22

f. Seek funding to maintain and organize the conservation data related to the RCIS on the Databasin platform. The Databasin platform will provide accessibility to the conservation-related data that will greatly assist in implementation and tracking of the RCIS. We recommend mentioning in the implementation section that the best practices for publicly sharing data and other information online often employ the use of a site such as Databasin.

Thank you for your consideration of these comments and we look forward to working together to create an exemplary RCIS for Antelope Valley.

Sincerely,

Stephanie Dashiell

Stephanie Dashiell
Project Director, Energy & Land Use
Stephanie.dashiell@tnc.org

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Assembly
California Legislature

CHRISTY SMITH
ASSEMBLYMEMBER, THIRTY-EIGHTH DISTRICT

COMMITTEES
CHAIR: JOINT LEGISLATIVE COMMITTEE ON EMERGENCY MANAGMENT
ACCOUNTABILITY AND ADMINISTRATION REVIEW
EDUCATION
PRIVACY AND CONSUMER PROTECTION
JOBS, ECONOMIC DEVELOPMENT, AND THE ECONOMY

February 7, 2020

California Department of Fish and Wildlife
Habitat Conservation Planning Branch
ATTENTION: Antelope Valley RCIS Comments
P.O. Box 944209
Sacramento, California 94244-2090

Dear Mr. Unger,

I am writing to express my thoughts about the proposed AVRCIS. The concept behind the RCIS program was created with good intentions from state legislation to help identify potential mitigation lands for major state infrastructure projects. However, it would appear that the actual implementation of this state legislation is lacking in key areas including proper public input and coordination with local stakeholders.

2-1

First, I am concerned over the lack of public participation. The AVRCIS was originally spearheaded by a private organization, not a government entity. As part of the public participation process, key local stakeholder groups in northern Los Angeles County, including local Native American tribes, were not asked to participate in the creation of the document or consulted. In addition, local municipalities were also not included in the process. Further, no public outreach was done to these organizations and local government agencies during the 60-day public review process.

2-2

Second, the proposed AVRCIS is not consistent with the recently adopted LA County General Plan and the Antelope Valley Area Plan (AVAP) which were approved by the LA County Board of Supervisors. The County's general plan already includes identified Sensitive Ecological Areas (SEA) and Economic Opportunity Areas (EOA). The proposed AVRCIS overlays suggested placing high-value habitat designations on top of the EOA's which is totally inconsistent with approved local planning by the County of Los Angeles.

2-3

This type of a designation will make it significantly more challenging to create badly needed jobs and housing in this region. The EOA's were created by local jurisdictions, with extensive community input, as a way to reduce vehicle miles traveled and to reduce greenhouse gas emissions by creating more jobs closer to price-affordable housing.

2-4

Furthermore, the AVRCIS is exempt from the latest legislative updates and regulations that other RCIS processes in the state of California are subject to, which include the requirement for Native American Tribal consultations. I am concerned that a lessor standard is being applied to the AVRCIS process than is required by current state statute.

2-5 Finally, I would ask that CDFW work with local jurisdictions, including the County of Los Angeles and surrounding communities to ensure that existing local land planning and designations, including the SEA's and EOA's become an integral part of the final document.

Thank you for your consideration.

Sincerely,

Christy Smith
Assemblywoman, California's 38th Assembly District

/RV
CC: Hon. Kathryn Barger, Chair, Board of Supervisors, County of Los Angeles
Los Angeles County Department of Regional Planning

Comment Letter 3

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# California State Senate

SENATOR
SCOTT WILK
TWENTY-FIRST SENATE DISTRICT

COMMITTEES
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BUSINESS, PROFESSIONS & ECONOMIC DEVELOPMENT
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BUDGET SUBCOMMITTEE #4

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HABITAT CONSERVATION PLANNING BRANCH

February 3, 2020

California Department of Fish and Wildlife
Habitat Conservation Planning Branch
ATTENTION: Ron Unger RE: Antelope Valley RCIS Comments
P.O. Box 944209
Sacramento, California 94244-2090

Dear Mr. Unger:

As the representative for California's 21st Senate District, I am writing to express my concerns with the newly released draft AVRCIS. The proposed report was initiated by a non-governmental agency. Local constituency groups, including my office, were not invited or informed about the process.

3-1 The concept behind the RCIS program was created with good intentions, but unfortunately, key stakeholder groups, including my office, were not asked to participate in the creation of the document. 3-2 My office has been contacted by numerous constituents who are raising concerns with the current draft and have informed my office that the draft AVRCIS was somehow exempt from California Department of Fish and Wildlife's own guidelines for all State RCIS programs.

3-3 One of my top priorities is to assist in facilitating and protecting the future growth of the Antelope Valley. We work closely with all stakeholders and they have serious concerns with the draft. We work hard to bring jobs, housing, and growth to the Antelope Valley and our goals closely align with the Los Angeles County General Plan and the Antelope Valley Area Plan (AVAP). The AVAP and LA County Plan must be considered, and the identified Economic Opportunity Areas (EOAs) be removed from the AVRCIS boundaries as well as the SR-138 EIR boundary that has been released and approved by Metro/CalTrans. These areas are not appropriate for conservation land, which the AVRCIS is supposed to identify.

(Continued)

Furthermore, as previously mentioned, the AVRCIS is exempt from the latest and updated legislative regulations and I feel that it should be held to the same standards as all other RCIS documents. This includes notifying and working with local Native American Tribes which the AVRCIS project proponents did not do. This will create a situation of unfair treatment of tribes and inconsistency of
3-4 the AVRCIS from other Regional Conservation Investment Strategy documents in California.

We ask that CDFW reject this AVRCIS in its current state and further ask that the preparers consult with us and any other stakeholders that were not conferred with prior to this draft document's release. This document should not be adopted until key stakeholder groups are included and the version is not exempt from current legislative rules.

Thank you for your consideration.

Sincerely,

Scott Wilk

Scott Wilk
Senator, California's 21st Senate District

CC: Hon. Tom Lackey, California Assembly Member
Hon. Kathryn Barger, Chair, Board of Supervisors, County of Los Angeles
Los Angeles County Department of Regional Planning

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Assembly
California Legislature

TOM LACKEY
ASSEMBLYMAN, THIRTY-SIXTH DISTRICT

COMMITTEES
VICE CHAIR: LOCAL GOVERNMENT
VICE CHAIR: PUBLIC SAFETY
ACCOUNTABILITY AND ADMINISTRATIVE REVIEW
AGING AND LONG-TERM CARE
BUDGET
GOVERNMENTAL ORGANIZATION
JOINT LEGISLATIVE COMMITTEE ON EMERGENCY MANAGEMENT

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HABITAT CONSERVATION PLANNING BRANCH

February 4, 2020

California Department of Fish and Wildlife
Habitat Conservation Planning Branch
ATTENTION: Antelope Valley RCIS Comments
P.O. Box 944209
Sacramento, California 94244-2090

Dear Mr. Unger:

4-1 I am writing to urge California Department of Fish Wildlife (CDFW) to wholly reject the released draft Antelope Valley Regional Conservation Investment Strategy (AVRCIS). Although having expressed interest in the planning and results; key local stakeholders were never invited to participate in the process nor even informed about the study.

4-2 Antelope Valley's economic growth is a high priority for me. The valley and surrounding areas are being placed economically subsequent to several conservation endeavors. These will inhibit future growth projects. Promoting policy to encourage the economic growth within the Antelope Valley is a paramount issue. Working together on the conservation plans is essential for groups to refrain from hindering each other's progress.

4-3 This specific plan is not consistent with the Los Angeles County General Plan nor with the Antelope Valley Area Plan. Both economic plans distinguish specified Economic Opportunity Areas within our district. These areas in particular must be removed from the AVRCIS.

4-4 Furthermore, the AVRCIS is exempt from the latest, updated legislative regulations. It should adhere to the same rules as all of the other Regional Conservation Investment Strategy documents.

4-5 My office has been in contact with the City of Lancaster and I support their request to remove any AVRCIS designations from within the city's boundaries in addition to any of the immediate peripheral spheres of influence. I insist that it is essential to restart this entire process from the beginning and to not allow for this study's results to be misused.

4-6 I ask that CDFW reject the AVRCIS in its entirety and further, I ask that the preparers consult with me and several of the other stakeholders that were not consulted prior to this draft release. If

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**EMAIL**
Assemblymember.Lackey@assembly.ca.gov

Assembly
California Legislature

**TOM LACKEY**
ASSEMBLYMAN, THIRTY-SIXTH DISTRICT

**COMMITTEES**
VICE CHAIR: LOCAL GOVERNMENT
VICE CHAIR: PUBLIC SAFETY
ACCOUNTABILITY AND ADMINISTRATIVE REVIEW
AGING AND LONG-TERM CARE
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JOINT LEGISLATIVE COMMITTEE ON EMERGENCY MANAGEMENT

4-6 cont. real progress is to be made in the future, this document should not be considered nor adopted until key stakeholder groups are included and the suggested version adheres to the current legislative rules.

Thank you for your consideration.

Sincerely,

Thomas Lackey

Tom Lackey
Assemblymember, California's 36th Assembly District

CC: Hon. Scott Wilk, California State Senator
Hon. Kathryn Barger, Chair, Board of Supervisors, County of Los Angeles
Los Angeles County Department of Regional Planning

LANCASTER
CHAMBER OF COMMERCE

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HABITAT CONSERVATION
PLANNING BRANCH

January 29, 2020

California Department of Fish and Wildlife
Habitat Conservation Planning Branch
ATTENTION: Antelope Valley RCIS Comments
P.O. Box 944209
Sacramento, California 94244-2090

Dear Mr. Unger:

On behalf of the 117 year old Lancaster Chamber of Commerce, I am writing to express our concerns with the draft AVRCIS. As a key stakeholder in the area, we were never made aware of this document and our input was not taken. The Lancaster Chamber represents over 500 highly engaged businesses and organizations members who believe we should have been collaborated with in this study.

5-1 The concept behind the RCIS program was created with good intentions, but unfortunately, there was no transparency in the drafting of the document. 5-2 The purpose of the program is described as a voluntary, non-regulatory regional planning process; however, environmental organizations have hijacked these documents and are using it as a backdoor way to take over local land use authority.

5-3 The entire boundary of the AVRCIS is within the County of Los Angeles, and yet the document shows major inconsistencies with the County's General Plan. The General Plan identifies Economic Opportunity Areas (EOAs), designated for growth, yet the AVRCIS designates them out as high conservation priorities. The Los Angeles Department of Regional Planning requested for these areas to be removed within the boundary and the request was denied. Currently the AV is a housing rich area and the County General Plan and more particularly, the EOA's were proposed to stimulate economic growth and attract jobs. This in turn will have a beneficial impact on the quality of life of AV residents by reducing long commutes, reducing greenhouse gas emissions and creating a more sustainable commuter. The County's General Plan also set aside hundreds of thousands of acres of Significant Ecological Areas, more than enough suitable mitigation conservation area without the heavy-handed approach used in the proposed RCIS.

5-4 Furthermore, the California Legislature AB 2087, established guidelines to help implement each plan, but we have learned that the AVRCIS was exempt from these guidelines. That is unacceptable! The draft AVRCIS should be held to the same guidelines as other RCIS documents and important stakeholders that were not involved should have been participants.

As a Chamber of Commerce, we assist in facilitating and protecting the future growth of the Antelope Valley. Surrounding areas in the Antelope Valley are being subject to conservation priorities and this will

5-5 be used against future growth projects. We work hard to bring jobs and growth to the Antelope Valley and this conservation plan impedes that opportunity.

5-6 We ask that CDFW reject this AVRCIS in its current state and further ask that the preparers consult with us and any other stakeholders that were not conferred with prior to this draft document's release. This document should not be adopted until key stakeholder groups are included.

I might also add that the Desert and Mountain Conservation Authority, whose office is a mere two blocks from the Lancaster Chamber has never reached out to us.

5-7 You should also be aware this authority has not publicly met since September 2018. I have difficulty understanding how the AVRICS could have been produced, reviewed and forwarded on to your office without the board of directors having met.

Thank you for your consideration.

Sincerely,

Mark Hem

Mark Hemstreet
Chief Executive Officer
Lancaster Chamber of Commerce

CC: Hon. Scott Wilk, California State Senator
Hon. Tom Lackey, California Assembly Member
Hon. Kathryn Barger, Chair, Board of Supervisors, County of Los Angeles
Los Angeles County Department of Regional Planning

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HABITAT CONSERVATION
PLANNING BRANCH
Comment Letter 6

ANTELOPE VALLEY BOARD OF TRADE

January 28, 2020

California Department of Fish and Wildlife
Habitat Conservation Planning Branch
ATTENTION: Antelope Valley RCIS Comments
P.O. Box 944209
Sacramento, California 94244-2090

Dear Mr. Unger:

On behalf of the Antelope Valley Board of Trade, I am writing to express our concerns with the draft AVRCIS. As a central organization in the Antelope Valley, we were never made aware of this document and our input was not taken. Releasing a draft of the AVRCIS without reaching out to the business community is a gross oversight by the Desert and Mountain Conservation Authority (DMCA).

6-1 While the purpose of the AVRCIS is to identify high value conservation and mitigation land, by including organizations like ours, DMCA would have been made aware that their draft AVRCIS is completely inconsistent with the adopted Los Angeles Valley General Plan and its conservation goals and policies. This draft released for public comment ignores the identified Economic Opportunity Areas that were designated for growth for our valley, while directing conservation to other areas. The County has already expanded the Significant Ecological Areas by hundreds of thousands of acres with the approved General Plan and this AVRCIS should be consistent with that.

6-2 Furthermore, we have learned that CDFW passed guidelines to help regulate Statewide RCIS's and that somehow the Antelope Valley version was exempt from these. This cannot be allowed to happen. Our business and residents deserve the same rights as others within the State.

With the concerns outlined in this letter, please reject this draft AVRCIS and consider the following:

6-3

1. Hold all state RCIS's to the same standards and do not allow the AVRCIS to be approved under an exemption. Restart the AVRCIS process to include ALL major stakeholders of the valley and not just the environmental organizations. We discovered that some organizations listed on the Advisory Committee were not even aware of the AVRCIS or their involvement

6-4

2. Ensure the AVRCIS is consistent with the adopted Los Angeles County General Plan, which already identifies Significant Ecological Areas and Economic Opportunity Areas (EOAs). Please remove the AVRCIS boundary from the EOAs entirely. This is not consistent with the vision for the Antelope Valley as already decided by the Board of Supervisors and local residents.

Thank you for your consideration.

Sincerely,

Bret Banks, President
Antelope Valley Board of Trade

CC: Hon. Scott Wilk, California State Senator
Hon. Tom Lackey, California Assembly Member
Hon. Kathryn Barger, Chair, Board of Supervisors, County of Los Angeles
Los Angeles County Department of Regional Planning

| | |
|---|---|
| **From:** | Diane Sacks |
| **To:** | Osborn, Michelle |
| **Subject:** | FW: Antelope Valley conservation region draft should not be approved! |
| **Date:** | Wednesday, February 19, 2020 4:15:01 PM |

Diane Sacks
Administrative Services Manager
Mountains Recreation and Conservation Authority
5810 Ramirez Canyon Road
Malibu, CA 90265
310-589-3230, ext. 122

**From:** Katie Nelson
**Sent:** Thursday, January 30, 2020 3:19 PM
**To:** rcis@wildlife.ca.gov; Diane Sacks <diane.sacks@mrca.ca.gov>
**Subject:** Antelope Valley conservation region draft should not be approved!

California Department of Fish and Wildlife
Habitat Conservation Planning Branch
ATTENTION: Antelope Valley RCIS Comments
P.O. Box 944209
Sacramento, California 94244-2090

Dear Mr. Unger:

7-1 As a local business representative and longtime resident, I am in full opposition of the proposed draft AVRCIS. This document is flawed and will negatively harm the Antelope Valley and the economic growth that we've been working throughout the years.

7-2 The County has already adopted the Antelope Valley Area Plan that identifies areas for conservation and areas for growth. This plan, adopted by the Board of Supervisors of Los Angeles County, had input from all stakeholders over a period of four years and better represents the land use and resources in the Antelope Valley, NOT this new AVRCIS.

7-3 If the draft document is accepted, it will regulate land use and affect land use authority from 7-4 any public agency. Guidelines were established that require local agencies and stakeholders to be involved in the process and the Desert and Mountain Conservation Authority has failed to take our input. 7-5 This document must be held to the same standards as any other RCIS and should not be exempt from the State Legislation guidelines.

7-6 Please reject this draft and make the DMCA do the right thing by adhering the guidelines, reaching out to all stakeholders and agencies in the area, make it consistent with the County General Plan and to submit a draft that best represents the Antelope Valley.

Thank you for your consideration.

Sincerely,

Katie Nelson

Katie Nelson
Local resident, Business representative
& Lancaster Chamber of Commerce representative
(661) 816-9829

CC: Hon. Scott Wilk, California State Senator
Hon. Tom Lackey, California Assembly Member
Hon. Kathryn Barger, Chair, Board of Supervisors, County of Los Angeles
Los Angeles County Department of Regional Planning

H.W. Hunter, Inc.

DODGE CHRYSLER Jeep RAM

February 4, 2020

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HABITAT CONSERVATION
PLANNING BRANCH

California Department of Fish and Wildlife

Habitat Conservation Planning Branch

Attention: Antelope Valley RCIS Comments

P.O. Box 944209 Sacramento, California 94244-2090

Dear Mr. Unger:

8-1 I was recently made aware of the proposed draft AVRCIS and I am completely opposed to it. After a lengthy and thorough review, the Los Angeles County Board of Supervisors adopted the Antelope Valley Area Plan, and it should be followed.

As a business owner that has recently completed a major building project, I know how difficult, costly ad time consuming the process can be in California. When the rules are changed in the middle of the game, it becomes impossible. Please honor the plan approved by the Los Angeles County Board of Supervisors.

Sincerely,

Thomas Fuller

Dealer Principal

HW Hunter, Inc.

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**PLANNING AND NATURAL RESOURCES DEPARTMENT**

Planning
Community Development
Administrative Operations

February 3, 2020

California Department of Fish and Wildlife
Habitat Conservation Planning Branch
Emailed – rcis@wildlife.ca.gov and diane.sacks@mrca.ca.gov

**RE: Kern County comments on Draft Antelope Valley Regional Conservation Investment Strategy (RCIS). (2019)**

Dear CDFW Staff:

9-1 Thank you for the opportunity to comment on the Draft AV Regional Investment Strategy (RCIS). This effort began in advance of the 2016 legislation and the RCIS program is a valuable new tool for conservation planning and assisting in providing options for development to mitigate and design projects in support of conservation goals. Kern County was a participate in the early stages of the project which was originally designed by CDFW to promote collaboration and inclusion of local land use public agencies such as the LA County, Kern County, and the cities of Lancaster and Palmdale. Unfortunately, this final product includes no local agencies that have jurisdiction over land use and is not reflective of an objective analysis of the actual threats and stressors in the Antelope Valley. 9-2 Kern County requested that our lands be taken out of the RCIS and we appreciate that they have not been included at this time.

9-3 Kern County appreciates the specific and clear directive of 2.2.1 Local Government Planning Boundaries (Page 2-67 and 2-68) that restates the intent of the RCIS product and details that these maps and conclusions are not binding on local government, does not establish a presumption under CEQA that any projects impacts are or are not significant and does not prohibit or authorize any project or project impacts. 9-4 Unfortunately, outside organizations appear not to be fully briefed on these restrictions and are using the findings of this effort to attack a project (Centennial) under CEQA. The fact that conservation planning was done beyond the boundaries of the actual plan is not the issue as this is a standard practice for landscape based conservation planning but rather the mis-use of the data generated. This sets a dangerous precedent for mis - use of the RCIS process and we support CDFW and the Desert and Mountain Conservancy correcting this mis-use of the RCIS process at every opportunity.

9-5 Kern County shares a northern boundary with this RCIS and we note that the Antelope Valley basin for water adjudication spans both LA and Kern County. The water adjudication explanation does not acknowledge the severe limitations on water allocations which will impact growth in the Antelope Valley. Instead the document in the example for the need for the RCIS , specifically on page 3-96, states that "several future roadway projects, large-scale solar facility projects, and commercial/industrial development projects have the potential to affect Joshua Trees; therefore there is a mitigation and conservation need for Joshua Trees(see Foreseeable Potential Future Urbanizing Area) 9-6 "That map Figure 3-24 shows generalized cross hatching on areas that they submit are Foreseeable Potential Future Urbanizing Areas". These areas include a large areas adjacent to the

boundary of Kern County along Highway 14 and extending to the west along the border. Kern County is updating our General Plan and further processing a number of large scale commercial scale solar projects on the Kern County side of those cross hatch areas. Nothing in our records or communications in LA County supports the statements of this area becoming urbanized or even the
9-6, Cont. apparently extensive areas for large scale solar projects noted. Transmission is a limitation and our conclusions are based on the long years of experience of Kern County as an expert on renewable energy in the Antelope Valley. The further statements of urbanizing areas depend on water availability that is simply not there. It appears the current entities proposing this RCIS, which includes no agencies with land use authority, are not really conversant with the growth predicted for the valley, which will be concentrated in the incorporated cities of Lancaster and Palmdale which are urbanized areas. Generalized concerns should not be the standard. Kern County believes that conservation planning is important and should be done based on realistic projections of future conditions with local government participation. To do otherwise is to mis-use the RCIS process as a tool for stopping development or pre-determining impacts from development that has not even undergone CEQA review or is going through a public process. The guidance and legislation that
9-7 CDFW designed absolutely does not support such mis-use of the RCIS process. This draft RCIS does not fulfill the requirements of the legislation to identify the growth patterns or stressors of development that justify the design of the conservation strategy.

Kern County Planning and Natural Resources recommends the staff of CDFW not approve this RCIS until an accurate description of future growth patterns by LA County and the City of Lancaster and Palmdale be provided. If these public entities decline to participate in providing data or validating it than this RCIS should not be approved as the standard for threats and stressors has not been met.

The RCIS program is an important new tool and as the legislation only allows for 8 total approvals, the highest standard should be applied to ensure compliance with the adopted guidance and legislation.

Thank you for the opportunity to participate in the public review of the Draft document.

Sincerely,

LORELEI H OVIATT, AICP, Director
Kern County Planning and Natural Resources Department

Enclosure

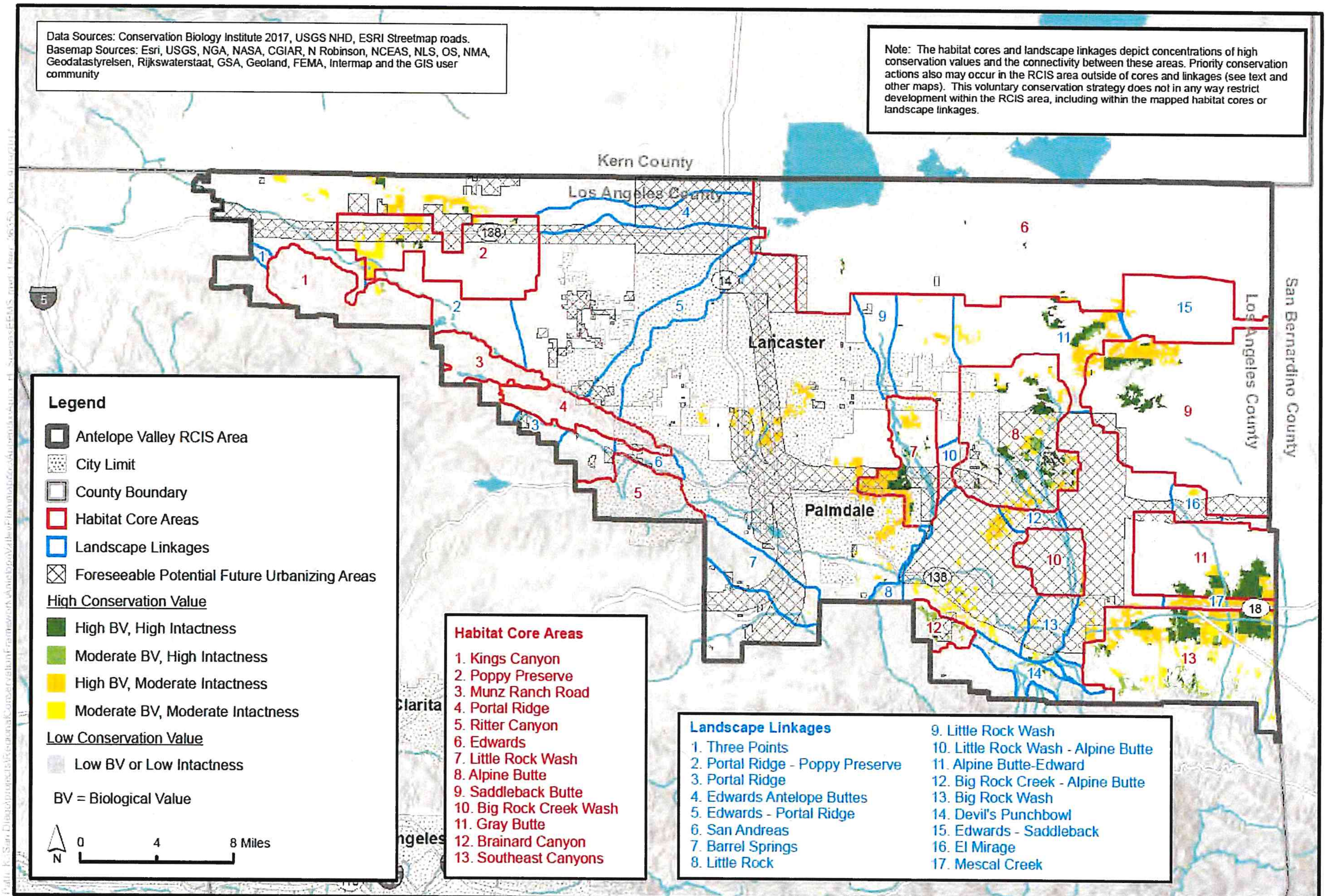


Figure 3-24

Joshua Tree High Conservation Value Habitat (Desert Species Group)

TEJON RANCH
COMPANY

February 6, 2020

*Via Overnight Courier & Electronic Mail (diane.sacks@mrca.ca.gov)*
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California Department of Fish and Wildlife
Habitat Conservation Planning Branch
Attn.: Antelope Valley RCIS Comments
1010 Riverside Parkway
West Sacramento, CA 95605

**Re: Antelope Valley Regional Conservation Investment Strategy ("AVRCIS") October 2019 Public Draft**

To Whom It May Concern:

10-1 Tejon Ranch Co., on behalf of itself and its subsidiary/affiliated entities Tejon Ranchcorp and Centennial Founders, LLC (collectively, the "Tejon Ranch"), submits the comments contained in this letter pursuant to California Fish & Game Code section 1854(c)(2).[1] The comments contained in this letter pertain to the October 2019 Public Draft AVRCIS. We understand that the Desert & Mountain Conservation Authority ("DMCA") is statutorily obligated to respond to the comments contained in this letter. However, this letter should be independently considered and responded to by the California Department of Fish & Wildlife ("DFW") as part of any determination to issue a final approval of the AVRCIS because the concerns expressed herein relate to the DMCA's compliance with several statutory requirements contained in Sections 1850–1861 (hereafter, the "RCIS Statute") and DMCA's compliance with the *Regional Conservation Investment Strategies Program Guidelines (September 2018)* (hereafter, the "2018 Guidelines"), all of which are applicable to the AVRCIS.

## I. Background and Summary of Comments

Tejon Ranch is proud of the continuing role it plays in conserving land with ecological value. In 2008, Tejon Ranch voluntarily entered the Tejon Ranch Conservation and Land Use Agreement (the "Ranchwide Agreement"), which to date is the largest private land conservation commitment in California history.[2] At the time, DFW expressed strong policy level support for

[1] All references to code sections in this letter are to the California Fish & Game Code unless otherwise noted.
[2] The Ranchwide Agreement is available at: https://www.sec.gov/Archives/edgar/data/96869/000119312508138009/dex1028.htm. Signatories to the Ranchwide Agreement include the Tejon Ranch Conservancy, along with the Natural Resources Defense Council, the National Audubon Society, the Sierra Club, the Endangered Habitats League and the Planning and Conservation League (collectively, "resource groups"). Most of the resource groups participated in preparing the AVRCIS, with representatives serving on the Steering Committee and/or Advisory Committee. Also, several of AVRCIS's leaders (such as Terry Watt, Graham Chisholm, Dan Silver and Gary George) are either current or past board members of the Tejon Ranch Conservancy. These facts, which raise serious conflict of interest concerns, are addressed below.

Tejon Ranch's commitment, as evidenced in a May 1, 2008 letter signed by the California Department of Fish and Wildlife. (*See* Attachment 1.) Pursuant to the Ranchwide Agreement, Tejon Ranch agreed to conserve 240,000 of its 270,000 acres (almost 90% of its landholdings) in perpetuity. To date, over 110,000 acres have been conserved through the recordation of conservation easements (including approximately 61,000 acres that were conserved with funding from the Wildlife Conservation Board). While Tejon Ranch is highly concerned with how the AVRCIS has been developed, and with the scientific modeling used to create it (especially in light, as discussed below, of the extensive ecological studies that underly the Ranchwide Agreement), Tejon Ranch's commitment to voluntarily conserve its land in perpetuity is consistent with some of the aspirational goals DFW seeks to achieve with the RCIS program.

Throughout the entirety of the AVRCIS process, Tejon Ranch has repeatedly requested that its lands not be included in the study area or in the scientific modeling on which the AVRCIS
10-2 is based. Our request is based on well-reasoned (and previously articulated) justifications. Foremost among these reasons is that the inclusion of Tejon Ranch lands does not promote the primary stated purpose of the AVRCIS. This rationale is further discussed in Heading II.A below. Second, as explained in Heading II.B below, the scientific modeling underlying the AVRCIS is not even the best available science (insofar as AVRCIS modeling overlaps Tejon Ranch lands and other areas where project-level or planning-level ecological analysis have been conducted). On
10-3 this point, as detailed further below, the RCIS Statute requires that the DMCA and DFW recognize recent project-level environmental analysis conducted for Tejon Ranch lands, and project-level and planning level analysis for other areas, is far more reliable than the scientific modeling used for the AVRCIS.

Separate from the rationale summarized in the previous paragraph, it is also appropriate to remove Tejon Ranch lands entirely from the scientific modeling because those preparing the AVRCIS previously committed on numerous occasions that this would occur, and doing so is consistent with the fact that Tejon Ranch lands are not located in the AVRCIS study area. Notwithstanding Tejon Ranch's numerous requests (which began in 2016 and have been re-made as recently as October 10, 2019), and notwithstanding promises by those preparing the AVRCIS,[3] Tejon Ranch lands were included in an early June 2017 "Administrative Draft" version of the AVRCIS. It was only after additional communication with the AVRCIS's preparers that Tejon
10-4 Ranch lands were removed from the study area, consistent with the reasons expressed below in Section II. (*See* Attachment 2, email exchanges with AVRCIS preparers.) However, on October 11, 2019 Tejon Ranch representatives learned that those preparing the AVRCIS decided not to remove Tejon Ranch lands from the scientific modeling used for the AVRCIS because re-running the modeling would be "costly." The failure of those preparing the AVRCIS to re-run the scientific modeling contradicts express assurances made to Tejon Ranch that the AVRCIS would be revised so that "modeling results are not extended beyond the RCIS boundary." (*See* Attachment 2, quoting June 30, 2019 email response from Mr. Chisholm.) Therefore, Tejon Ranch lands should be removed entirely from the scientific modeling because assurances were made by those preparing the AVRCIS, and Tejon has relied on those assurances to its detriment. (*See HPT IHG-2 Properties Trust v. City of Anaheim* (2015) 243 Cal.App.4th 188.)

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[3] In a July 17, 2016 email, Ms. Terry Watt stated that "Tejon Ranch ownership has been taken out of the RCF [Regional Conservation Framework, the precursor to the AVRCIS] plan area . . . ."

10-5 Finally, as explained in Heading III below, the AVRCIS's preparers have ignored several statutory requirements. These deficiencies were previously brought to the attention of both the AVRCIS preparers and DFW. Furthermore, because AVRCIS preparers are operating under the incorrect assumption that the AVRCIS process was initiated by DMCA prior to January 1, 2017 (a point that is analyzed in more detail below and clearly refuted by documentary evidence), the AVRCIS does not conform to recommendations contained in the 2018 Guidelines. With respect to the comments made in Heading III, it seems clear that the AVRCIS process must start over and that DFW is not even able to approve the AVRCIS without the process beginning anew.

## II. Tejon Ranch Lands Were Properly Excluded from the Study Area and Should Be Removed from the Scientific Modeling

10-6 The AVRCIS study area appropriately does not include Tejon Ranch lands. To be consistent with that determination, to comply with requirements in the RCIS Statute and to honor the promises made by preparers of the AVRCIS that the AVRCIS would be revised so that "modeling results are not extended beyond the RCIS boundary," the AVRCIS's scientific modeling should not include Tejon Ranch lands.

### A. Including Tejon Ranch Lands in the AVRCIS's Modeling is Contrary to Both the RCIS Statute and AVRCIS's Stated Purpose Because Tejon Ranch Lands are Already Subject to a Comprehensive Conservation Plan.

The RCIS Statute identifies the legislative intent of the RCIS program: To "identify species and habitat conservation initiatives at a regional scale . . . in order to guide voluntary investments in conservation, and compensatory mitigation for impacts to ecological resources . . . ." (§ 1850(a) (emph. supp.), *see also* subdiv. (b).) The AVRCIS is supposedly drafted to implement this statutory purpose and is intended to "guide voluntary conservation actions and mitigation actions . . . in conjunction with public infrastructure and forest management." (AVRCIS at p. 1-1.) In this regard, the AVRCIS's stated primary purpose is to aid in identifying "areas for compensatory mitigation for impacts to species and natural resources" and to "support mitigation needs" for various large-scale infrastructure, energy and development projects. (AVRCIS at p. 1-3; *see also* p. 4-1.) Said another way, the purpose of the AVRCIS is to provide a basis for voluntary investments in conservation and to encourage mitigation agreements in furtherance of development projects.

Notwithstanding the primary purpose for which the AVRCIS is being developed (and the legislative purpose identified in Section 1850), Tejon Ranch already has availed itself of, and is presently implementing, a comprehensive and binding mitigation and conservation strategy for its land. To this point and as mentioned above, the Ranchwide Agreement obligates Tejon Ranch to preserve approximately 240,000 acres of specifically identified land through the phased dedication of conservation easements. Identifying the location of the easements was subject to significant and detailed biological analysis and negotiation between Tejon Ranch and the resource groups during preparation of the Ranchwide Agreement.[4] Further, as noted in Section I above, of the total 240,000 acres that will be conserved, approximately 110,000 acres is already subject to recorded

[4] Several of the AVRCIS's primary preparers and leaders (most notably Terry Watt and Graham Chisholm) were directly involved in the process of reviewing biological analysis and identifying the exact locations of land to be conserved at Tejon Ranch as part of developing the Ranchwide Agreement.

conservation easements (including approximately 61,000 acres preserved with funding from the Wildlife Conservation Board). Specific to the reasoned explanation for why Tejon Ranch lands should be entirely excluded from both the study area and the scientific modeling, the Ranchwide Agreement expressly states that the "commercial operation of a mitigation bank, or the sale or other transfer of mitigation 'credits'" within conservation easements is prohibited. (*See* Ranchwide Agreement, Exh. M, § 2(a)(11).) As a result of this prohibition in the Ranchwide Agreement, there is no land on Tejon Ranch within which the primary purpose of the RCIS Statute or the AVRCIS can be achieved. Importantly, as reflected elsewhere in this letter, the unavailability of Tejon Ranch for commercial operation of mitigation banking is known to a primary preparer of the AVRCIS – Graham Chisholm was a signatory to the Ranchwide Agreement and a former director of the Tejon Ranch Conservancy.

10-6, cont.

Simply put, the Ranchwide Agreement (i) already establishes a binding and comprehensive framework on Tejon Ranch for mitigating impacts of development,[5] (ii) creates the funding mechanism by which such preservation will be maintained in perpetuity and (iii) prohibits operation of commercial mitigation banks or sale of mitigation credits. For these reasons, Tejon Ranch's land was properly excluded from the AVRCIS study area and must be removed from the scientific modeling.

B. The AVRCIS's Scientific Modeling Fails to Include Best Available Science for Land Within the Modeling Area.

10-7 The RCIS Statute requires that the AVRCIS incorporate and rely on "the best available scientific information regarding the strategy area **and** the surrounding ecoregion . . . ." § 1852(b)(14) (emph. supp.). The AVRCIS does not reflect best available science for Tejon Ranch lands. On this basis, the AVRCIS's modeling must either entirely exclude Tejon Ranch lands or be re-run to include best available scientific information.

10-8 The AVRCIS states that it is "based on the best available biological land use planning information." (*See* AVRCIS at p. 1-4.) This is not accurate. In fact, there is no demonstrable proof provided in the AVRCIS that this claim is correct. The AVRCIS also asserts it was "developed in concert with other key planning efforts that overlap in the RCIS area. Primarily it builds on existing information provided in the State Wildlife Action Plan (SWAP), DRECP, California Desert Biological Conservation Framework, and the Significant Ecological Areas identified in the *Los Angeles County 2035 General Plan*." (*Ibid.*) This is also inaccurate. Several facts contradict these statements and demonstrate the scientific modeling's deficiency:

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- The AVRCIS's scientific modeling includes Tejon Ranch lands, but the modeling fails to utilize project-level habitat data from documents that were prepared pursuant to the California Environmental Quality Act ("CEQA") for the Centennial Specific Plan. The Centennial Specific Plan was approved by the Los Angeles County Board of Supervisors in April of 2019, following certification of a Final

[5] The DFW's 2008 letter supporting the Ranchwide Agreement (*see* Attachment 1) acknowledges that Tejon Ranch's commitment to conserve the vast majority of Tejon Ranch's property was done for the purpose and with the intent to "meet the land conservation and corresponding natural resource mitigation requirements for the planned development and other activities within the Developed Areas," including development in the Los Angeles portion of Tejon Ranch known as the Centennial Specific Plan that is adjacent to the AVRCIS study area.

Environmental Impact Report (SCH No. 2004031072), which documentation had been released for public comment in 2017.

10-9, cont.

- The AVRCIS modeling and study area includes lands within the State Route 138 right of way, but neglects to utilize project-level habitat data from publicly-available documents that were prepared pursuant to CEQA for the California Department of Transportation ("CalTrans") project to widen State Route 138 (SCH No. 2013111016).
- The AVRCIS modeling and study area includes lands that were subject to the Antelope Valley Area Plan ("AVAP"), but does not utilize planning-level habitat data from CEQA documents that were prepared for the AVAP, including a certified Final Environmental Impact Report (SCH No. 2014061043).

These three environmental documents – two of which are project-level and all of which are publicly available– provide the best available science for those projects. They are more refined, have higher accuracy and (as to the project level documents) offer localized ecological mapping and analysis. These documents, therefore, collectively provide better available scientific information than the information relied on for the AVRCIS's modeling. As a result, not only are statements contained in the AVRCIS that its modeling represents "best available science" inaccurate, but such statements impact other characterizations and conclusions made in the AVRCIS. For instance:

10-10

- Statements made on AVRCIS page 1-5 in Items 3, 5 and 7 relating to the comprehensiveness and quality of AVRCIS analysis inaccurately suggest the AVRCIS's modeling is the most reliable. In fact, the analysis and mapping contained in the environmental documents for Centennial, AVAP and the State Route 138 widening are more specific and more accurate.

10-11

- AVRCIS Section 2.1.4.3 (at p. 2-32) states that notwithstanding limitations inherent in species modeling, "[s]pecies habitat distribution modeling improves the RCIS planning process in the following ways [¶] • Extrapolates habitat distribution across areas lacking adequate data from field surveys." However, in the project-level cases noted above <u>there are field surveys that provide data and these studies are publicly available</u>. The AVRCIS proponent, DMCA, must justify why such data is not being used given the statutory requirement that an RCIS rely on best available science.

10-12

- AVRCIS Section 2.1.4.3 (at p. 2-34) states that "We created an additional dataset called *species focal areas* to emphasize modeled species habitat that overlaps with known occupied habitat. . . . Species focal areas were created by buffering <u>known point occurrences (since 2000)</u> by distances that estimated the species' primary activity areas (Table 2-5)." (Emph. supp.) However, there is no explanation in the AVRCIS of how occurrence data was vetted for species that can be observed in habitat that is not considered suitable (i.e., migration versus breeding habitat). Examples of species requiring explanation include the willow flycatcher and Swainsons hawk.

10-13

- AVRCIS Section 3, which describes the methodology and depicts areas of high conservation value, is not based on best available scientific information because the analysis does not include project-level data that is publicly available, including the

10-13, cont. data identified above for Centennial and the State Route 138 expansion, nor does it include data derived from the planning-level analysis of the AVAP.

10-14

- AVRCIS Appendices F (Focal Species Habitat Models) and G (Modeling Methodology) suffer from similar infirmity as a result of the AVRCIS failing to use data from project-level environmental documents for Centennial and the State Route 138 widening and the planning-level analysis from the AVAP.

To its credit, the AVRCIS recognizes there are deficiencies and gaps in the modeling. (*See* AVRCIS at p. 2-36.) However, in the case of the data for the Centennial Specific Plan, the State Route 138 project and the AVAP, noted above, the omission of this information appears to be intentional. For example, at the June 15, 2016 meeting of the DMCA governing board (which is the public agency sponsor of the AVRCIS), a staff report notes that a privately funded "regional conservation framework" known as the Antelope Valley Conservation Framework (or "AVRCF", which appears to be an early version of the AVRCIS) was in the process of being planned and prepared by Conservation Strategy Group, ICF, Conservation Biology Institute and Terry Watt Consulting. (Attachment 3, June 15, 2016 DMCA Staff Reports.) With respect to this early version of the AVRCIS, the DMCA staff report notes "very little new data will need to be collected or generated, with perhaps the exception of a number of additional species models." (*Id.* at p 3.) This statement made by DMCA staff is alarming. At the time, several of the entities preparing this early version of the AVRCIS had specific knowledge of the project-level approvals identified
10-15 above, either because some of the preparers were litigants against the projects described above[6] or because some of the preparers owed fiduciary duties to parties that would benefit from the projects.[7] Thus, it would be expected that information related to the Centennial Specific Plan, the State Route 138 widening and the AVAP would be used instead of the less-specific modeling data described in the June 15, 2016 staff report. Yet, project-level data was not considered in the draft modeling.

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[6] The Center for Biological Diversity participated in preparing the AVRCIS (*see* AVRCIS at pp. 6-2 – 6-3) and unsuccessfully sued Los Angeles County to challenge its approval of the AVAP. Presently CBD and the California Native Plant Society (also a participant in preparing the AVRCIS, *see* AVRCIS at p. 6-3 and *see also* June 2017 Administrative Draft AVRCIS at p. 6-4) are challenging Los Angeles County's approval of the Centennial Specific Plan. CBD and CNPS also misused the June 2017 Administrative Draft AVRCIS to negatively comment on the Centennial Specific Plan's EIR. The Endangered Habitats League participated in preparing the AVRCIS (*see* June 2017 Administrative Draft AVRCIS at p. 6-3) and challenged the State Route 183 widening. The involvement of litigants of projects within the AVRCIS study in the AVRCIS process is just one example of a process tinged with conflicts of interest. As reflected above, that is especially the case where these litigant/AVRCIS participants then use the AVRCIS in the litigation they file.

[7] The Sierra Club, Audubon California, the Natural Resources Defense Council and the Endangered Habitats League are parties to the Ranchwide Agreement, and each had representatives that participated in preparing the AVRCIS. *See* June 2017 Administrative Draft AVRCIS at pp. 6-2 – 6-4. Several of the individuals representing these organizations were, or are currently, Board members of the Tejon Ranch Conservancy and owe fiduciary duties to that organization. Several of the primary leaders of the AVRCIS process are either current or past board members of the Tejon Ranch Conservancy. For instance, Terry Watt, who was a primary author and consultant of the AVRCIS until she "resigned" from the process (due to the objection by Tejon Ranch that she had conflicts of interest and her involvement was contrary to her fiduciary duties as a Conservancy director), is identified in the June 2017 Administrative Draft AVRCIS as a lead consultant and member of the Steering Committee. *See* June 2017 Administrative Draft AVRCIS at pp. 6-1 and 6-2. Likewise, Graham Chisholm, who is a signatory to the Ranchwide Agreement and a former Tejon Ranch Conservancy director, is leading preparation of the AVRCIS and its processing through DFW. *See* AVRCIS at p. 6-2.

10-16 Failure to use more recent, more refined and publicly available project-level data (and planning-level data as to the AVAP) is not excusable given the statutory mandate contained in Section 1852(b)(14) that an RCIS "shall include . . . best available scientific information regarding the strategy area **and** the surrounding ecoregion." Inclusion of such data is not discretionary, it is mandatory. Here, not only is use of the project level data for the Centennial Specific Plan and the CalTrans State Route 138 expansion required (as is the planning level data for the AVAP), but failure to do so renders DFW unable to approve the AVRCIS. Doing so would be contrary to law and an abuse of discretion by DFW.

10-17 The simplest solution, therefore, is for Tejon Ranch lands to be removed from the AVRCIS's scientific modeling. Removal from both the study area and the scientific modeling is what Tejon Ranch representatives were led to believe would occur and would be consistent with express promises made by those preparing the AVRCIS. *See* Attachment 2. Removal would also be consistent with the reasoning for omitting Tejon Ranch lands from the AVRCIS study area (which reasoning is explained above). Statements by those preparing the AVRCIS that doing so is too "costly" is, frankly, irrelevant given the statutory mandate requiring inclusion of project-level data as "best available scientific information." Removal from the modeling to match the study area is likely less costly than revising the AVRCIS to account for this project-level and/or planning-level data.

## III. Those Preparing the AVRCIS Failed to Comply with Applicable Law and the 2018 Guidelines

10-18 To date, the AVRCIS process has been run almost entirely by private entities and conflicted individuals, not by a public agency that maintains responsibility for and control of the study. (*See* AVRCIS, Appendix C, at pp. C-2 – C-4.) Yet, Section 1852(a) only identifies two types of entities that are authorized to prepare and propose an RCIS – DFW or a public agency.

### A. The RCIS Statute Only Authorizes Public Agencies to Prepare an RCIS.

Only the DFW or a public agency has statutory authority to "propose", "develop", "create" or "submit" an RCIS for DFW's consideration. (§§ 1852(a), 1854(c).) The statute does not authorize a private party to prepare an RCIS (at least not without a public agency being "in control" of or "responsible" for the process).[8] Nor does the RCIS Statute contemplate, let alone authorize, the preparation of an RCIS by private parties who, at some later date and time, then "forum shop" an RCIS to a public agency that then enters the process to merely serve as the titular public agency

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[8] The 2018 Guidelines provide some elaboration on who may be an "RCA or RCIS proponent", which these guidelines define to include a "public agency or group of public agencies developing an RCA or RICS for review and approval by CDFW and who is responsible for the technical and administrative updates of an RCA or RCIS." 2018 Guidelines at p. 2-11, emph. supp. Additionally, the 2018 Guidelines acknowledge that and RCIS proponent (i.e., a public agency) can "prepare an RCIS collaboratively with other public agencies or other stakeholders, including non-profit organizations or other interested parties." *See* 2018 Guidelines at 4-43. While this language does permit third parties to participate in the development of an RCIS, to comply with and not violate the RCIS Statute, such participation must be (as the 2018 Guidelines state) "collaborative" and maintain the public agencies ultimate responsibility for the process and documentation prepared. As reflected in this comment letter (which provides DMCA documents as support), the AVRCIS process not only started prior to DMCA's involvement, but was well underway as to planning and preparation of a draft document prior to that time. The record fails to show that DMCA "initiated" the process, "led" the process or "prepared" the AVRCIS.

sponsor. Such a charade not only contradicts the RCIS Statute, but such dishonest maneuvering runs afoul of, if not is a blatant affront to, basic principles of governmental transparency, open record keeping, conflicts of interest and due process that apply to public agency operations.

10-19 As discussed below, the AVRCIS process did not involve the required public agency sponsorship until September 13, 2017 – at which time DMCA's governing body acted, <u>for the first time</u>, to officially become the "public agency" proponent of the AVRCIS. (*See* <u>Attachment 4</u>, September 13, 2017 Staff Report.) Prior to this September 13, 2017 meeting, the DMCA governing board only received two briefings on the AVRCF, the early version of the AVRCIS. At no time did the DMCA governing board, prior to September 13, 2017, take any action that could remotely be viewed as authorizing the initiation, sponsorship, creation or preparation of the AVRCIS. As reflected below, prior to September 13, 2017, the DMCA was "invited" to participate in an already formed "Steering Committee" that, with authorship of private individuals and entities, and with funding from private sources, was already well underway in planning and preparing an early version of the AVRCIS. As quoted below, one of the two DMCA staff reports from June 15, 2016 makes it clear that DMCA's role would have little influence, given major work and conclusions regarding the study's modeling were already complete. (*See* <u>Attachment 3</u>.) The September 13, 2017 DMCA staff report is even more clear as to the timing and nature of DMCA's involvement: (i) private consultants without any governmental oversight "produced <u>all</u> of the draft documentation and mapping to date and has run Steering Committee and Advisory Committee meetings" and (ii) prior DMCA discussion in June of 2016 was not to take action to be the proponent of the AVRCIS, rather it was "a discussion item about the evolving Antelope Valley Regional Conservation Investment Framework." (*See* <u>Attachment 4</u>, emph. supp.)

1. <u>The AVRCIS Process Has Been Led Almost Entirely by Private Entities and Conflicted Individuals, Not a Public Agency</u>.

10-20 Prior to a September 13, 2017 meeting of DMCA's governing board, there was no official action by DMCA to authorize preparation or initiation of the AVRCIS process. This is evident from the staff report for the September 13, 2017 DMCA meeting. Additionally, records from DMCA meetings prior to that date demonstrate that the AVRCIS process began well before DMCA's involvement. One of the staff reports prepared in conjunction with the June 15, 2016 DMCA governing board meeting indicates that DMCA did not "initiate" the process but, rather, was "invited to be on the AVRCF steering committee" preparing the AVRCF, a precursor and early version of the AVRCIS. (*See* <u>Attachment 3</u>.)

The "Steering Committee" mentioned in the two June 15, 2016 staff reports was comprised of numerous entities and individuals that used the AVRCIS process for their own individual interests, not the public's interest (which is the statutory rational for having a public agency initiate and prepare an RCIS). The conflicts of interest of the AVRCIS Steering Committee, Advisory Committee and Technical Subcommittee membership was previously communicated to DMCA and DFW. These concerns are now reiterated by attachment of Tejon Ranch's May 21, 2019 letter (which letter is incorporated by this reference for DMCA's response and DFW's consideration). (*See* <u>Attachment 5</u>, May 21, 2019 Tejon Ranch letter to DFW re conflicts.) At the very least, and to prevent further violation of public ethics and conflict of interest laws, those individuals with conflicts of interest in the outcome of the AVRCIS (including, without limitation, those individuals identified in footnotes 6 and 7) must not participate further in the AVRCIS process in any manner, including as members of the Steering Committee, Advisory Committee or Technical Subcommittee.[9]

10-21 Since September 13, 2017, when the DMCA officially determined it would prepare and sponsor the AVRCIS, there has been virtually no official action or public process undertaken by DMCA in furtherance of the AVRCIS process. Records demonstrate the AVRCIS process was – and continues to be – run almost entirely by private consultants and entities (with funding from private entities) that have no contractual obligation to DMCA. This means that DMCA cannot really be deemed to be the entity preparing or initiating the AVRCIS. These facts are evidenced by the public agenda and agenda material from the DMCA meetings between 2016 and 2019[10] and the audio recording of the September 13, 2017 DMCA governing board meeting.

10-22 Preparation of the AVRCIS by private entities and individuals without the meaningful oversight or control of a public agency is not what the RCIS Statute contemplates (or allows). Yet, as reflected in statements by Mr. Edelman, an executive officer of DMCA (who himself was involved in the AVRCIS process), that is exactly what the private entities and conflicted individuals who prepared the AVRCIS desired. The result was a process that lacked transparency, accountability and the real opportunity for the public, property owners and other stakeholders to have input, contrary to the intent of the RCIS Statute.

10-23 During the September 13, 2017 governing board meeting, staff for DMCA stated that (a) the AVRCIS process to that date had been purely private in nature and (b) it was the intention of those actually preparing the AVRCIS to avoid public scrutiny of their work product until it was submitted to DFW. A copy of the audio recording of the September 13, 2017 DMCA governing board meeting, which was provided by DMCA to Tejon Ranch in response to a Public Records Act request, is included as Attachment 6 to this letter. Statements made at the September 13, 2017 meeting demonstrate an intentional desire to sugarcoat a public process and maintain secrecy:

> Mr. Edelman: "It's really a decision of . . . Well, I guess it's ultimately . . . ***If*** the DMCA sponsors the regional conservation investment strategy, the DMCA will have some say in that. ***But right now, it's a private document*** that's moving forward through this planning team hired by Bechtel and the Windward Foundation." (Minute 21:58, emph. supp.)

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[9] Tejon Ranch presumes that several of the individuals or entities listed in Chapter 6 of the AVRCIS will comment on the AVRCIS. This will only serve to highlight Tejon Ranch's concern that conflicts of interest have and continue to permeate the AVRCIS process. Insofar as Steering Committee, Advisory Committee or Technical Advisory Committee members or their organizations comment on the AVRCIS, it is wholly inappropriate for these individuals and entities to provide input into any "response" to their own comments. It is also inappropriate for such individuals or entities to assist in responding to the comments contained in this letter.

[10] The DMCA governing board did not meet at all in 2015 and only met twice in 2016 – on June 15, 2016 and on September 9, 2016. (*See* http://dmca.ca.gov/agenda_archive.asp [agenda and agenda material hyperlinks].) Furthermore, neither of the meetings held in 2016 by the DMCA governing board created a "DMCA Steering Committee" or took any action to authorize or "initiate" preparation of the AVRCIS. In fact, the two staff reports for the June 15, 2016 meeting are both admissions that an early version of the AVRCIS was already in the process of being planned and prepared by private individuals and entities. *See* Attachment 3. DMCA's governing board met only once in 2017, did not meet at all in 2018 and met only once in 2019 (http://dmca.ca.gov/agenda_archive.asp). At some point one must question whether the private individuals and entities preparing the AVRCIS (including those with conflicts of interest) intentionally chose to use a nominal government agency that hardly ever meets. Doing so certainly makes public input with decisionmakers virtually impossible.

Unknown Speaker: "And part of the process around the work that we're doing is having a team of advisors from different nonprofits and conservation entities, and to take it entirely out of their hands by letting every landowner opt in or opt out I think would be difficult to do without including these nonprofits and organizations to weigh in on how we exclude or include land, when the main goal is to the conservation priorities not landowner priorities. (Minute 22:22, emph. supp.)

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10-23 cont'd

Mr. Edelman: "And this process has been going on for a year and a half, and the staff has been involved in it, and Chair Olesh is involved in it through the Transition Habitat Conservancy. . . . It [the AVRCIS] even got going ***before*** the legislation occurred." (Minute 32:08, emph. supp.)[11]

***

Mr. Edelman: "So, our recommendation is after this discussion is to take that role [to become the proponent], and go with the momentum of the program, and show the flag, and become authorized, becoming a sponsor, and potentially one thing we talked about internally was that if . . . Since you haven't seen the final draft of it, and that the people who are preparing it don't want that final draft to go public until it goes to the Department of Fish and Wildlife, that you could make it so that the chair could get final approval of it, potentially to... Before it gets submitted to Fish and Wildlife. . . . . But that the planning team really thought it would be better, and move the process along farther, if it could go to that stage without being widely distributed public wide." (Minute 34:40, emph. supp.)

What is evident from the AVRCIS process, as reflected above in statements of DMCA's own executive staff, is the intentional failure of those preparing the AVRCIS to comply with several requirements in the RCIS Statute that are intended to provide a transparent process. What is also obvious is (i) that September 13, 2017 was the first time that the DMCA's governing body actually considered and discussed its formal involvement in the AVRCIS process and (ii) prior to that time, private entities and conflicted individuals, and not DMCA as the "public agency" proponent, had been conducting all work and making all decisions relative to the AVRCIS.

10-24

Further, it is evident (as demonstrated by the quotations above) that DMCA staff urged the DMCA governing board to continue shielding the AVRCIS from public light by (i) not reviewing a final draft before submittal to DFW and (ii) authorizing the DMCA Chair, who himself had personal conflicts as a director of one of the private entities preparing the AVRCIS, to give final approval of any submittal to DFW. This suggestion was ultimately what the DMCA governing board approved, thus carrying on its legacy of inaction and inattention to the AVRCIS, which continues to this day to be controlled by private individuals and entities.

[11] This is yet another example of conflicts of interest that are inherent in the AVRCIS process. Mr. Olesh is a public official (and is the Chair of DMCA's governing board). Yet in this case, DMCA's staff admits that Mr. Olesh has participated in the AVRCIS process in his private capacity as a director of the Transition Habitats Conservancy. "Wearing two hats" is a classic conflict of interest. While Mr. Olesh is unable to correct any past actions, going forward it is inappropriate for him to continue participating in the AVRCIS process.

2. The AVRCIS Was Not "Initiated" by DMCA and DMCA Was Not Involved Until Long After the AVRCIS Was Drafted.

The AVRCIS makes several factual statements that would lead DFW to believe that the document has been initiated, prepared and proposed by a public agency in compliance with Sections 1852(a) and 1854(c). For example, the AVRCIS states:

- "The Antelope Valley RCIS development process began in March 2016. The process was initiated by the Desert and Mountain Conservation Authority (DMCA) in collaboration with the California Energy Commission." (*See* AVRCIS at p. 1-6, emph. supp.)
- "As the RCIS applicant, DMCA led preparation of this RCIS with generous funding from the Stephen D. Bechtel, Jr. Foundation." (*Id.* at 1-7, emph. supp.)
- "The coordination and development of this Antelope Valley RCIS was guided by a Steering Committee. The Steering Committee, led by DMCA, was composed of representatives from DMCA, the Nature Conservancy, California Department of Transportation, California Energy Commission, U.S. Fish and Wildlife Service (USFWS), and Transition Habitat Conservancy." (*Ibid.*, emph. supp.)
- "[T]he effort is being led by a Steering Committee, convened by the Desert and Mountains Conservation Authority, and comprised of . . . ." (*Id.* at Appendix C-1 [Notice of Public Meeting on the Proposed Antelope Valley Regional Conservation
10-25 Investment Strategy], emph. supp.)

None of these statements are accurate. Audio recordings of the September 13, 2017 DMCA governing board meeting (which are quoted above) make that abundantly clear. (*See*, Attachment 6 *and* quotations above.) Additionally, both DMCA staff reports, dated June 15, 2016, relating to DMCA involvement in the AVRCF (the early version of the AVRCIS) note that private entities and individuals, with private funding support, had organized a group to prepare the AVRCF document and that DMCA was being "invited" to participate in a process that was already underway. (*See* Attachment 3.) One of these staff reports goes on to indicate that "Staff will know a lot more about the potential DMCA roles and timing after the June 13th meeting." (*Ibid.*) The remainder of this staff report consists of a consultant-prepared summary of the AVRCF. The two staff reports for June 15, 2016 and the consultant-prepared summary indicate that planning and preliminary preparation of the AVRCF was already underway – obviously long before DMCA's governing board considered on June 15, 2016 whether to even participate in the precursor to the RCIS pilot program. This was also nearly 18 months before the September 13, 2017 DMCA meeting where, for the first time, DMCA's governing board determined it would become the public agency that is supposed to prepare an RCIS as provided in Section 1852(a) and 1854(c).

These facts demonstrate that DMCA was "invited" into a process that was not only well underway, but had already (i) resulted in the planning and decision to prepare an early version of the AVRCIS and (ii) made conclusions on the nature of the scientific modeling that would be used. In sum, DMCA's role has been minimal, lacking in oversight of those preparing the AVRCIS, and devoid of independent review of the work product prepared by the private individuals and entities submitting the AVRCIS. In fact, in taking the only and last recorded action on the AVRCIS, the DMCA Board moved to become the public agency applicant and authorized the body's chair (who also happened to be participating in the AVRCIS process in his personal capacity as a member of

10-25, cont. the Transition Habitat Conservancy, *see* footnotes 10 and 11 above) to conduct any necessary final review and sign off for submittal to DFW because "the people who are preparing it don't want that final draft to go public." (*See* Attachment 6, at min. 34:40.) It is evident that DMCA's Board was not interested in engaging in any meaningful control or oversight of the AVRCIS process, mainly because (to date) it has been driven by private entities and individuals.

For the reasons in Section III.A, it is improper for DFW to take any action to approve the AVRCIS. Action by DFW to approve the AVRCIS would do nothing more than condone a secretive process.

B. Those Preparing the AVRCIS Have Not Complied with Provisions of the RCIS Statute Meant to Ensure Public Participation.

In order for there to be sufficient public input, at a minimum, there must be compliance with provisions of the RCIS Statute that are designed to afford the public and interested parties the opportunity to participate.

The RCIS Statue requires that, unless a public agency initiated an RCIS before January 1, 2017, the public agency must publish a notice of intent to create an RCIS and file such notice with the Office of Planning and Research and the county clerk of counties where the RCIS is found. (§ 1854(c)(1); *see also* Gov. Code § 6040 [specifying method of publication applicable to all public agency publication obligations].) The AVRCIS concedes that the DMCA did not publish a notice of intent "[b]ecause development of this Antelope Valley RCIS began in June 2016." (*See*
10-26 AVRCIS at p. 1-15.) While it is true that there were entities preparing what later became the AVRCIS prior to January 1, 2017, those entities were private organizations and conflicted individuals who were not authorized, directed or approved by DMCA's governing board to do so. Even the June 15, 2016 action by DMCA does not render the AVRCIS's statement accurate because, as noted in the June 15, 2016 staff reports, at that time a private group was already in the process of planning and preparing the AVRCF (an early version of the AVRCIS). Indeed, it was this private group that was "inviting" DMCA in June of 2016 to sit on a steering committee as one member among many other participants. It was only on September 13, 2017, at the end of this closed group process that DMCA's governing board took official action to become the public agency sponsor of the AVRCIS.

This notice of intent is required by the RCIS Statute. It was not published by DMCA or those actually preparing the AVRCIS. As a result, the AVRCIS may not move forward absent compliance with this requirement.

C. Those Preparing the AVRCIS Have Not Complied with the 2018 Guidelines.

DFW promulgated the 2018 Guidelines to provide guidance to public agencies preparing RCIS. There have been several prior iterations of DFW guidance, including guidelines published in June of 2017. The 2018 Guidelines govern an RCIS if it was initiated on or after January 1,
10-27 2017 or if a public agency published a notice of intent for an RCIS after September 13, 2018. (*See* Guidelines at p. 4-1, fn. 117.) An RCIS initiated prior to January 1, 2017 is exempt from the Guidelines (as would be an RCIS for which a public agency published a notice of intent prior to September 14, 2018), in which case the RCIS may use DFW guidelines adopted in June of 2017.

10-27 cont.

In order to avail itself of the June 2017 guidelines, a public agency "must provide CDFW with adequate written documentation that they have met either one of the criteria." In this case, DMCA is unable to provide the written documentation that is required by the 2018 Guidelines. As discussed above, all action taken by DMCA relative to the AVRCIS occurred exclusively at the June 15, 2016 and September 13, 2017 governing board meetings. As part of the June 15, 2016 meeting documentation, the staff reports demonstrate that DMCA did not initiate the AVRCIS process (or AVRCF process, for that matter) – private entities and conflicted individuals initiated the process and were already underway planning and preparing the draft study. It was only at the September 13, 2017 DMCA governing board meeting that DMCA, for the first time, took official action to become the "public agency" proponent of the AVRCIS. Accordingly, the 2018 Guidelines – not earlier DFW guidance – are applicable to the AVRCIS.

10-28

The AVRCIS proponents fail to comply with provisions in Section 4.2.4 of the 2018 Guidelines. The record does not indicate any outreach by AVRCIS proponents to "tribes with cultural interests in the RCIS area," as is recommended in the 2018 Guidelines. (*See* Guidelines at p. 4-6.) This omission also contradicts the DFW's adopted Tribal Communication and Consultation Policy. (*See* Department Bulletin 2014-07.) Oddly, the various committees that comprised the AVRCIS's "decisionmakers," which were mainly environmental organizations, individuals from government agencies and public utilities, could have easily communicated with and included the cultural perspective of other communities and valued stakeholders, such Native American tribes. Unfortunately, AVRCIS preparers appear not to have conducted this important consultation and good faith outreach.

## IV. Conclusion

Tejon Ranch lands should be removed from the AVRCIS's scientific modeling, as those preparing the AVRCIS indicated would occur and as Tejon Ranch representatives were led to believe would happen. Removal from the modeling is consistent with the reasoning for removing Tejon Ranch lands from the AVRCIS study area. The cost of doing so is irrelevant given the statutory mandates that require inclusion of project-level data as "best available scientific information". If the AVRCIS's preparers will not remove Tejon Ranch lands from the modeling (as previously promised), then the scientific modeling must be re-run because it does not include the best available scientific information, which as demonstrated by this letter is contained in publicly-available project level environmental documentation.

Regardless of the points above, the AVRCIS's preparers failed to comply with various aspects of the RCIS Statute, including most notably, the failure of a public agency to initiate the AVRCIS and to publish a notice of intent. These infirmities are highly problematic because DMCA is unable to demonstrate its compliance with the RCIS Statute and the 2018 Guidelines. As a result, it is difficult for DFW to approve the AVRCIS.

Sincerely,

Michael R.W. Houston,
Senior Vice President, General Counsel & Secretary

Attachments: 1. May 1, 2008 Letter supporting the Ranchwide Agreement
2. Email excerpts regarding removal of Tejon Ranch lands
3. June 15, 2016 DMCA Staff Reports regarding AVRCF (two staff reports)
4. September 13, 2017 DMCA Staff Report regarding AVRCIS
5. May 21, 2019 Letter from Tejon Ranch to DFW re conflicts (with attachments)
6. Audio recording of September 13, 2017 DMCA meeting (Thumb-drive)

cc: Nathan Voegeli, Esq., DFW Tribal Liaison (*via email, nathan.voegeli@wildlife.ca.gov*)
Tejon Ranch Conservancy Board of Directors (*via email by way of Conservancy counsel*)
Graham Chisholm (*via email*)
*Note: Audio file appended as Attachment 6 only sent to primary recipients*

# **Attachment 1**

May 1, 2008 Letter supporting the Ranchwide Agreement

## EXHIBIT R

**Resource Agency Letter re Mitigation**

*California Environmental Protection Agency*

STATE OF CALIFORNIA resources AGENCY

May 1, 2008

Mr. Robert A. Stine
President & CEO
Tejon Ranch Company
4436 Lebec Road
Lebec, CA 93243

Dear Mr. Stine:

As you know, representatives of the Tejon Ranch Company (TRC) have had a number of meetings with California Resources Agency staff to discuss TRC's long-term plans for conservation and development of the 270,000-acre Tejon Ranch (Ranch). TRC has also met with the California Environmental Protection Agency to discuss the outline of TRC's project plans. Because of the exceptional natural resource values of the Ranch, both of our agencies have been delighted to learn that you have worked with various environmental groups (Resource Groups) to develop a conservation and land use agreement (Ranchwide Agreement) that identifies and designates planned conservation areas (Conserved Areas), planned development areas (Developed Areas) and the permitted activities within those areas. As it has been described to us, the Ranchwide Agreement would foster the orderly conservation and development of the Ranch and provide for the permanent conservation of almost 90 percent of the Ranch. We understand that the Ranchwide Agreement is at a conceptual level at this time, but that you expect to have final agreement with environmental groups sometime in early May.

In connection with the proposed Ranchwide Agreement, we understand that TRC is seeking policy level recognition of this historic accord from State and Federal agencies and departments. The purpose of this letter is to provide that policy recognition exclusively in relation to this planned transaction for the Ranch.

Because of the unique factors involved in this project, this policy recognition is not intended to, and does not, serve as precedent for lands other than those within the Ranch.

To that end, we offer the following policy statements in support of the Ranchwide Agreement:

- Based on your description of the Ranchwide Agreement, we understand that of the approximately 270,000 acres comprising the Ranch, the Ranchwide Agreement would provide for the permanent preservation of at least 178,000 acres and for the option to preserve an additional 62,000 acres through the purchase of conservation easements, or potentially fee title, for an anticipated total of approximately 240,000 acres, or almost 90 percent of the total Ranch acreage. Because of the many unique factors noted above, including the sheer magnitude of this conservation effort and the significant resource values attributed to this property, and in viewing the 240,000 acres in the Conserved Areas in a holistic manner, we expect that TRC will be allowed to use those Conserved Areas and corresponding natural resource values associated with these Conserved Areas to meet the land conservation and corresponding natural resource mitigation requirements for and the planned development and other activities within the Developed Areas, including the designated planned development projects of Tejon Mountain Village, Centennial and Grapevine, subject to potential limitations for Conserved Areas acquired using public funds as described below.

- Though actual mitigation requirements for the planned development and other activities within the Developed Areas cannot be known prior to regulatory review, given the large amount and high natural resource values in these Conserved Areas, we do not anticipate that TRC would be required to acquire or use lands outside of Ranch property to satisfy natural resource mitigation requirements. Only after a full evaluation of these lands, and a determination is made that the required mitigation can not be found on the Ranch, would we look outside the Ranch for mitigation.

- For portions of the Conserved Areas that are permanently preserved by conservation easements, or potentially fee title, acquired using public funds, the use of these lands for mitigation purposes would not be allowed unless the potential mitigation use of these lands is taken into account in the price paid and unless mitigation uses are allowed by applicable laws including those governing the public funding source(s) used to fund the acquisition.

- In order to provide an integrated and comprehensive approach to the management of lands and resources within the Conserved Areas, we understand that the parties have agreed to create an independent conservancy (Tejon Conservancy) as part of the Ranchwide Agreement. Provided that the Tejon Conservancy meets applicable legal requirements for holding mitigation land and conservation easements and assuming corresponding long-term mitigation monitoring and other mitigation obligations, the Tejon Conservancy could serve as the appropriate and preferred entity to hold conservation easements and/or title to mitigation lands granted by TRC, and to manage those lands, subject to regulatory requirements imposed pursuant to project permitting for the Developed Areas.

- We appreciate the commitment of TRC and the Resource Groups to work with California State Parks and other stakeholders toward creation of a State Park within the Ranch. A large park, extending from the Mojave Desert, across the Tehachapi Mountains, and into the grasslands of Tejon Valley, would be an extraordinary addition to California's state park system, providing meaningful public access to the Tehachapi Mountains. The Tejon Conservancy would be a valued partner in planning and supporting this State Park.

This letter is intended to set forth policy statements in support of the Ranchwide Agreement. As specific projects are proposed, TRC and other parties engaged in the planned development or other activities on the Ranch will be required to apply for and obtain all permits, licenses and approvals required under applicable law, including compliance with the California Environmental Quality Act and all other state laws. Final determinations regarding permit and mitigation requirements for those activities will be decided by the appropriate agencies and departments as part of, and in accordance with, those processes.

The policy statements in this letter presume that the terms of the final Ranchwide Agreement are substantially consistent with the above description and will in fact be reached. If, for some reason, TRC and the environmental groups are unable to reach a final agreement, we expect that TRC will notify us. Again, we applaud the Tejon Ranch Company for working to reach such a significant and historic agreement to address the long-term future of Tejon Ranch.

Sincerely,

Mike Chrisman

Mike Chrisman, Secretary for Resources

Ruth Coleman

Ruth Coleman, Director
California State Park

John P. Donnelly

John Donnelly, Director
Wildlife Conservation Board

Don Koch

Don Koch, Director
Department of Fish and Game

Linda Adams

Linda Adams, Secretary for
Environmental Protection

Tam Doduc

Tam Doduc, Chair, State Water
Resources Control Board

**Attachment 2**

Email excerpts regarding removal of Tejon Ranch lands

**From:** Graham Chisholm <graham.chisholm@gmail.com>
**Sent:** Tuesday, August 20, 2019 3:28 PM
**To:** Greg Medeiros <gmedeiros@tejonranch.com>
**Cc:** Hunt Gary <ghunt@calstrat.com>; Michael Houston <mhouston@tejonranch.com>
**Subject:** [External] Re: Fwd: AVRCIS

Greg, I double checked dates, and wanted to clarify that I mean Thursday, Oct. 10th (not the 11th).

Thanks. Graham

On Wed, Aug 14, 2019 at 8:55 AM Graham Chisholm <graham.chisholm@gmail.com> wrote:

Greg, thanks for the follow up. We would propose October 11th (Thursday). Scott Fluery (ICF) is the only one of us based in southern California and at this point we'd propose that we either meet in person in Sacramento/San Francisco or convene a call with web access to carefully go over maps that will indicate how we will have addressed the concerns that have been raised about the display of model results. Obviously in person is preferable.

Due to the prior experience, we will not be circulating a copy of the revised draft to any stakeholders prior to resubmission, but are happy to walk through in specific detail the issues the Tejon Ranch Company has raised.

Thanks. Graham

On Tue, Aug 6, 2019 at 5:38 PM Greg Medeiros <gmedeiros@tejonranch.com> wrote:

Hello Graham,

Thank you for the follow up email. The dates you propose are fine with my schedule. However, I would prefer to move the meeting to the Los Angeles area. Also, to make the meeting as productive and efficient as possible. I would like a copy of the draft AVRCIS Report for my review prior to the meeting. Do you have a preferred date during the week of October 7?

Greg

Greg Medeiros

*Vice President of Community Development - Centennial*

TEJON RANCH
C O M P A N Y

27220 Turnberry Lane, Suite 190

Valencia, CA 91355

(661) 705-4460 Direct

www.TejonRanch.com

**From:** Graham Chisholm <graham.chisholm@gmail.com>
**Sent:** Tuesday, August 6, 2019 5:27 PM
**To:** Hunt Gary <ghunt@calstrat.com>; Michael Houston <mhouston@tejonranch.com>; Greg Medeiros <gmedeiros@tejonranch.com>
**Subject:** [External] Fwd: AVRCIS

Greg, Gary and Michael, confirming that you received my email regarding getting together to review how the draft was reviewed prior to our next submission. Thanks. Graham

---------- Forwarded message ---------
From: **Graham Chisholm** <graham.chisholm@gmail.com>
Date: Tue, Jul 30, 2019 at 11:57 AM
Subject: Re: AVRCIS
To: Greg Medeiros <gmedeiros@tejonranch.com>
Cc: Paul Edelman <edelman@smmc.ca.gov>, ronald.unger@wildlife.ca.gov <ronald.unger@wildlife.ca.gov>, Beale Chris <cbeale@resourceslawgroup.com>, Gary Hunt <ghunt@calstrat.com>, Michael Houston <mhouston@tejonranch.com>

Dear Greg,

Following up on my earlier email, I wanted to see if we can organize a meeting to discuss the Antelope Valley draft RCIS that is being revised. Given the challenge of schedules, I wanted to see if one of the follow dates would work for a meeting in Sacramento: Oct. 7, 10, or 11 (Mon, Thurs, Friday). The ICF team would describe the draft and share maps that will indicate how the modeling results are not extended beyond the RCIS boundary (which exclude TRC lands). Unfortunately, Chris Beale will not be able to join on those dates.

Let me know if those dates would work for you and anyone else you'd like to have join the meeting.

Thanks. Graham

On Tue, Jun 18, 2019 at 1:51 PM Graham Chisholm <graham.chisholm@gmail.com> wrote:

Dear Greg, thanks for your email, once the technical consultant completes the work and before we are prepared to resubmit, we will set up a time to do a webinar to review. Chris Beale also confirmed this with Jennifer Hernandez. I don't expect that that will occur until at least mid-August due to work flow.

Thanks. Graham

On Tue, Jun 18, 2019 at 1:48 PM Greg Medeiros <gmedeiros@tejonranch.com> wrote:

Hello Graham,

In response to your offer to meet to confirm removal of Tejon Ranch from maps and the scientific re-modeling in the draft AVRCIS, as noted in the attached email exchange between our general counsel and you, I am writing to touch base on the status of your update and revision of the AVRCIS.

When do you think you will be in a position to share the changes to the maps and scientific re-modeling that you have offered to implement to fully remove Tejon Ranch from the AVRICS (consistent with the removal of the Ranch from the study area)? As we understand it from your attached email, and as is our expectation, the study will be revised to update the mapping and scientific re-modeling to not have Tejon Ranch land included. I am available at a time that is convenient for both of us to discuss this and to review the updated draft.

Thank you,

Greg Medeiros

Greg Medeiros

*Vice President of Community Development - Centennial*

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Graham Chisholm

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e. graham.chisholm@gmail.com

--

Graham Chisholm

c. 510-409-6603

e. graham.chisholm@gmail.com

## Michael Houston

**From:** Michael Houston
**Sent:** Friday, May 24, 2019 10:33 AM
**To:** Graham Chisholm
**Cc:** Paul Edelman; ronald.unger@wildlife.ca.gov; Beale Chris; Gary Hunt
**Subject:** RE: Letter pertaining to Antelope Valley Regional Conservation Investment Strategy
**Attachments:** FW: Call Status; Fwd: Letter pertaining to Antelope Valley Regional Conservation Investment Strategy

Mr. Chisolm,

I think our most significant concern regarding the lack of communication to date relates to the fact that Tejon Ranch had no prior understanding of what had been done in the most recent AVRCIS submittal, given that we'd previously been told that the study area and modeling would exclude Tejon Ranch (and really should exclude all area outside the study area) and for all the reasons raised in my prior letters. As reflected in Gary Hunt and Jennifer's responses (both attached), our awareness occurred only after the May 7th DMCA meeting and both have no record of being contacted.

Having said that, I appreciate your willingness to implement changes that are consistent with the fact that Tejon Ranch is outside the study area, as noted in your email below. Since you've offered, it probably would be appropriate at some point for us to evaluate the changes to modeling in depictions or narrative to ensure that your commitments are being lived up to.

Of course, we reserve all our rights and remain concerned about the AVRCIS process in general.

Thank you,
Mike

Michael R.W. Houston
*Senior Vice President and General Counsel*
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www.TejonOutlets.com
Bio: http://tejonranch.com/company-executives/senior-vice-president-general-counsel/

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**From:** Graham Chisholm <graham.chisholm@gmail.com>
**Sent:** Wednesday, May 22, 2019 10:50 AM
**To:** Michael Houston <mhouston@tejonranch.com>
**Cc:** Paul Edelman <edelman@smmc.ca.gov>; ronald.unger@wildlife.ca.gov; Beale Chris <cbeale@resourceslawgroup.com>; Gary Hunt <ghunt@calstrat.com>
**Subject:** Re: Letter pertaining to Antelope Valley Regional Conservation Investment Strategy

Mr. Houston,

Thanks for your response, I will discuss with those involved in preparing the next revised draft.

To correct and update your message indicating the lack of response, please note that I did not reach out to Mr. Hunt, please see my email on May 14th (below). I would have to go through phone records to find the date/time when I left Mr. Hunt a message seeking to discuss the Antelope Valley RCIS earlier this year. Further, Chris Beale left Ms. Hernandez a voice on the afternoon of May 17, 2019 and did not receive a response as of today.

Further to my message, we'd be happy to meet with you or representatives to walk through how we intend to revise the draft, otherwise we will move forward and ensure that the depiction of the modeling results only cover the RCIS area.

Regards, Graham Chisholm

**Graham Chisholm <graham.chisholm@gmail.com>**

to Hunt

Gary, hopefully you haven't lost my number, I left you a message regarding Antelope Valley several months ago, a d never heard back.

Please let me know if you like to speak.

Thanks.

On Wed, May 22, 2019 at 10:26 AM Michael Houston <mhouston@tejonranch.com> wrote:

Mr. Chisolm and Mr. Edelman,

Initially, thank you both for the responses you provided. I've included an email that Mr. Edelman separately sent me yesterday, as an attachment to this email chain, for ease of communication. As reflected in my correspondence over the past year and a half (primarily directed to DMCA, and most recently to the Department of Fish & Wildlife), the most concerning aspect of this process has been attempting to understand what is occurring. I'll let my earlier correspondence speak for itself, in regard to what I think has been a less than clear or transparent process, but I pin that concern on the fact that nominally private entities have been managing and preparing a study that should really be undertaken through a governmental process (as statutorily required). I sincerely hope that your respective recent responses are an indication that the commitment made to us in 2017 will, in fact, be honored.

Permit me to clarify several points and raise them in a manner that is responsive to each of your comments.

1. As mentioned in my letter yesterday to Mr. Unger, we are aware that the current AVRCIS study area does not include Tejon Ranch. The concern, however, as expressed in my letter, is that the mitigation priority modeling and visualizations depicting this modeling <u>extend beyond the study area</u> and such depictions include Tejon Ranch and other lands <u>outside the boundary</u>. The letter sent to Mr. Unger included several examples from the February 2019 Draft AVRCIS that demonstrate this point (which are also attached to this email). The August – September 2017 correspondence from Mr. Beale and Mr. Chisolm and our September 2017 follow-up (all of which were noted and attached to our letter to DFW) made it clear that our expectation was not just to be removed from the formal study area, but to ensure that any graphical or textual discussion of mitigation modeling also excluded Tejon Ranch. Indeed, it makes sense to delimit the modeling to the study area, and our letters have provided several reasoned and practical reason to do so.
2. As a result, the current February 2019 Draft AVRCIS includes graphical depictions that can and should be modified so as not to extend the modeling beyond the study area. As Mr. Chisolm notes below, this is likely a "relatively easy solution" that probably involves modification to the multiple figures and depictions throughout the draft AVRCIS. I will defer to those that prepared the document as to whether any text or tables also need modification.
3. Bear in mind that we understood this issue was being resolved and it was only after we received notice of the May 7th DMCA meeting, attended that meeting, made a public records request to both DMCA and DFW, and received the February 2019 Draft AVRCIS that we thereafter learned the commitment made to us in 2017 was not entirely followed through. In that regard, and for clarity, let me correct Mr. Chisolm's comments below that (1) Jennifer Hernandez did not hear from anyone on this topic since the May 7th meeting and (2) only after Mr. Hunt reached out to others who have been involved in the AVRCIS process did Mr. Chisolm indicate on May 15th he was going to contact Mr. Hunt (which did not happen, although it bears mentioning that Mr. Hunt was out of the country for the past two weeks). At no point prior to our attending the May 7th DMCA meeting did we hear from any representatives preparing the AVRCIS before the AVRCIS's submittal to DFW in February.

I am happy to discuss further how you intend to implement the "relatively easy solution" you think can be accomplished. I do believe the solution is an easy one that involves revising the depictions so that modeling is only depicted within the AVRCIS boundary.

Sincerely,

Mike

Michael R.W. Houston

*Senior Vice President and General Counsel*

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Bio: http://tejonranch.com/company-executives/senior-vice-president-general-counsel/



**From:** Graham Chisholm <graham.chisholm@gmail.com>
**Sent:** Tuesday, May 21, 2019 1:27 PM
**To:** Michael Houston <mhouston@tejonranch.com>; Hunt Gary <ghunt@calstrat.com>
**Cc:** ronald.unger@wildlife.ca.gov; Beale Chris <cbeale@resourceslawgroup.com>; Paul Edelman

<edelman@smmc.ca.gov>
**Subject:** Re: Letter pertaining to Antelope Valley Regional Conservation Investment Strategy

Dear Mr. Houston, thank you for copying me on your letter addressed to Ron Unger. In initial review it seems like there could be a relatively easy solution to addressing the concern related to underlying modeling data that appears outside the RCIS boundary.

In the past week, we have reached out to Gary Hunt and Jennifer Hernandez without response, but we'd be happy to work with you to arrange a time to meet either in person or by phone to see if your issue of concern can be resolved.

Please let me know what would be most convenient for you.

Regards,

Graham Chisholm

On Tue, May 21, 2019 at 9:57 AM Michael Houston <mhouston@tejonranch.com> wrote:

> Mr. Unger,
>
> Please see the attached letter of today's date.
>
> Thank you,
>
> Michael R.W. Houston
>
> *Senior Vice President and General Counsel*

## Michael Houston

**From:** Graham Chisholm <graham@csgcalifornia.com>
**Sent:** Monday, September 18, 2017 7:46 AM
**To:** jennifer.hernandez@hklaw.com; ghunt@calstrat.com
**Cc:** Michael Houston; Paul Edelman; Spencer Eldred; elemke@counsel.lacounty.gov; scoleman@counsel.lacounty.gov
**Subject:** Tejon Ranch & the Antelope Valley RCIS

Jennifer and Gary,

This follows up on our August 14th call, on which we shared that we would be taking a recommendation to remove the Tejon Ranch from the RCIS to the RCIS steering committee and that Chris Beale would let Jennifer know the recommended action.

Chris Beale confirmed with me that he spoke with Jennifer on August 18th and let her know that the steering committee was comfortable with the recommendation to remove Tejon Ranch from the draft Antelope Valley Regional Conservation Investment Strategy (AVRCIS). ICF International is modifying the draft AVRCIS in order to implement the recommendation, including removing references to the Tejon Ranch from the draft AVRCIS' narrative analysis and maps.

When the draft AVRCIS is submitted to CDFW for review it will not include the Tejon Ranch.

Thanks and with regards,

Graham Chisholm

Cc:

Paul Edelman

Elain Lemke

Starr Coleman

Michael Houston

## Michael Houston

**From:** CBeale@resourceslawgroup.com
**Sent:** Tuesday, August 15, 2017 1:57 PM
**To:** Jennifer.Hernandez@hklaw.com
**Subject:** AV RCIS study area

Jennifer, after consulting with the AV RCIS steering committee, ICF will be removing Tejon Ranch from the AV RCIS study area, as requested by Tejon Ranch.

**Chris Beale**
RESOURCES LAW GROUP, LLP
555 CAPITOL MALL, SUITE 1090
SACRAMENTO, CA 95814
916.442.4880
916.442.4193 (FAX)
cbeale@resourceslawgroup.com
www.resourceslawgroup.com

# <u>Attachment 3</u>

June 15, 2016 DMCA Staff Reports regarding AVRCF (two staff reports)

DESERT AND MOUNTAIN CONSERVATION AUTHORITY

**MEMORANDUM**

**TO:** The Governing Board

**FROM:** Joseph T. Edmiston, FAICP, Hon. ASLA, Executive Officer

**DATE:** June 15, 2016

**SUBJECT:** **Agenda Item XIII: Discussion and possible action regarding the Antelope Valley Regional Conservation Framework (RCF) project and official Desert and Mountain Conservation Authority involvement.**

Staff Recommendation: That the Governing Board receive a briefing on the proposed Antelope Valley Regional Conservation Framework (RCF) project and provide any direction to staff.

Background: The California Department of Fish and Wildlife (CDFW) working with other State agencies and private groups is working on pilot projects called Regional Conservation Frameworks (RCF). This working group has determined that the Antelope Valley is an ideal location for such a project. A grant from the Windward Fund to a company called ICF has funded the preparation of an Antelope Valley Regional Conservation Framework. The study area will include most of Antelope Valley but the initial plan most likely would concentrate on the southwest corner of the valley. A Regional Conservation Assessment (RCA) will be part of the RCF.

The DMCA has been invited to be on the AVRCF steering committee that will meet for the first time on June 13th. Staff will be attending that meeting. On the June 22nd a meeting for an advisory committee will be held in Lancaster. Staff will be attending that meeting. The tentative schedule calls for the submittal of a draft RCF to CDFW in January 2017.

The DMCA is positioned to play a key role in the implementation of the RCF as an entity to hold and acquire properties and conservation easements. Staff will know a lot more about potential DMCA roles and timing after the June 13th meeting. The text on the following page was prepared by the consultants as a brief project description.

**Antelope Valley Regional Conservation Framework Description**

The Antelope Valley Regional Conservation Framework (RCF) is part of a state-wide effort to pilot a new flexible conservation planning tool, to identify high priority conservation areas within a region that can be proactively protected, restored, and managed. These RCFs will identify wildlife, fisheries, and habitat conservation needs including conservation actions needed to address climate change and protect wildlife corridors on a regional scale. The RCFs will be an important tool to guide and coordinate public and private investments in habitat conservation, wildlife and fisheries recovery strategies, infrastructure planning and development, and compensatory mitigation for impacts to threatened and endangered species and other natural resources.

The RCFs are voluntary, non-regulatory tools that will serve a number of beneficial purposes, including support proactive conservation planning in advance of development pressures, which will help reduce potential conflicts that may arise at the individual project stage. In addition, RCFs may guide conservation investments by state, federal, local and private entities and provide a basis for the development of advance mitigation agreements.

Regional Conservation Frameworks can also be used as a foundation for future action for communities that want to develop more comprehensive plans such as Natural Community Conservation Plans (NCCPs) or regional Habitat Conservation Plans (HCPs).

With private foundation support and coordination by the Conservation Strategy Group, ICF has teamed with the Conservation Biology Institute (CBI) and Terry Watt Consulting to develop the draft Antelope Valley Regional Conservation Framework. CBI will provide support on key technical tasks including management of GIS data; providing consultant team, client, and stakeholder access to GIS information; an assessment of climate change vulnerability; and general advisory support on conservation issues in the Antelope Valley and greater West Mojave Desert. CBI will manage all relevant existing data and any new data in Data Basin, an online mapping interface that provides visual tools so that stakeholders and technical participants are able to easily interpret the data being used in the planning process. Terry Watt Consulting will lead stakeholder facilitation for the Antelope Valley RCF, with logistical support from ICF public outreach staff.

The Antelope Valley RCF will build on the data, analyses, and conservation strategies that were developed as part of the Desert Renewable Energy Conservation Plan (DRECP). This RCF will also dovetail with the stakeholder engagement that has been so important to the DRECP process. This RCF will distill the information in the DRECP for the RCF study area and create a framework that will expand the utility of that information beyond its current application for renewable energy planning. An important driver in the development of an RCF is the information contained in a Regional Conservation Assessment (RCA). The DRECP along with other regional assessments such as the Mojave Desert Ecoregional Assessment (TNC 2010) will provide the key information for the RCA, and will be integrated into the Antelope Valley RCF. ICF assumes that very little new data will need to be collected or generated, with perhaps the exception of a limited number of additional species models. Where possible we attempt to identify presumed gaps in data that will need to be filled. In some cases, those gaps may not be apparent until the RCF is under development.

DESERT AND MOUNTAIN CONSERVATION AUTHORITY

**MEMORANDUM**

**TO:** The Governing Board

**FROM:** Joseph T. Edmiston, FAICP, Hon. ASLA, Executive Officer

**DATE:** June 15, 2016

**SUBJECT: Agenda Item XIV: Consideration of resolution authorizing: 1) an application for, and acceptance of, a Windward Fund grant for staff involvement in the Antelope Valley Regional Conservation Framework project, and 2) entering into a contract with the Mountains Recreation and Conservation Authority for staff services.**

Staff Recommendation: That the Governing Board adopt the attached resolution authorizing: 1) an application for, and acceptance of, a Windward Fund grant for staff involvement in the Antelope Valley Regional Conservation Framework project, and 2) entering into a contract with the Mountains Recreation and Conservation Authority for staff services.

Background: The California Department of Fish and Wildlife (CDFW) working with other State agencies and private groups is working on pilot projects called Regional Conservation Frameworks (RCF). This working group has determined that the Antelope Valley is an ideal location for such a project. A grant from the Windward Fund to a company called ICF has funded the preparation of an Antelope Valley Regional Conservation Framework.

The DMCA has been invited to be on the AVRCF steering committee that will meet for the first time on June 13th. On the June 22nd a meeting for an RCF advisory committee will be held in Lancaster. The tentative schedule calls for the submittal of a draft RCF to CDFW in January 2017.

The DMCA is positioned to play a key role in the implementation of the RCF as an entity to hold and acquire properties and conservation easements. Staff will know a lot more about potential DMCA roles and timing after the June 13th and 22nd meetings.

The working group desires to provide DMCA with a $20,000 grant to fund staff involvement in the preparation of the RCF. To provide such staff services the DMCA would contract with the Mountains Recreation and Conservation Authority.

**Attachment 4**

September 13, 2017 DMCA Staff Report regarding AVRCIS

## DESERT AND MOUNTAIN CONSERVATION AUTHORITY

**MEMORANDUM**

**TO:** The Governing Board

**FROM:** Joseph T. Edmiston, FAICP, Hon. ASLA, Executive Officer

**DATE:** September 13, 2017

**SUBJECT: Agenda Item VII: Consideration of resolution authorizing public agency sponsorship and submission of an Antelope Valley Regional Conservation Investment Strategy (RCIS) to the California Department of Fish and Wildlife for review and approval.**

Staff Recommendation: That the Governing Board adopt the attached resolution authorizing both public agency sponsorship and submission of an Antelope Valley Regional Conservation Investment Strategy (RCIS) to the California Department of Fish and Wildlife for review and approval.

Background: At the Governing Board's last meeting in June 2016, there was a discussion item about the evolving Antelope Valley Regional Conservation Investment Framework. Since that time staff has been an active member of the nine entity Steering Committee for the Antelope Valley Regional Conservation Investment Strategy planning effort. The RCIS program evolved out recently approved State legislation to create comprehensive pilot conservation planning programs for specific areas in the State. The program is run through the California Depart of Fish and Wildlife (CDFW). The CDFW project web home page and recently released RCIS guidelines are attached. The Antelope Valley was selected as one of the initial projects.

A private foundation has generously funded ICF Corporation to prepare the Antelope Valley RCIS. ICF has a dedicated planning team that has produced all of the draft documentation and mapping to date and has run Steering Committee and Advisory Committee meetings. The team includes experienced biologists and a GIS specialist that has worked extensively on the compilation and creation of data layers for the subject area. The ICF team has done an incredible job to date and continues to work on the project using the best available science and substantial public stakeholder input.

The planning team's goal was to submit a draft RCIS to CDFW this August. Currently, CDFW is reviewing a draft Santa Clara County RCIS. The planning team has wisely decided to wait for CDFW comments on that document to improve the efficiency of producing the first AV RCIS draft submitted to CDFW. The program requires a public agency sponsor for each RCIS. As discussed at the 2016 DMCA meeting, for a host of reasons the DMCA appears to be the best positioned agency to be the public sponsor. To avoid any delay in the progress of the Antelope Valley RCIS program, staff brings before the Governing Board the opportunity to authorize the DMCA as the public agency sponsor for the program.

To date, the RCIS Advisory and Steering committees have had multiple meetings to shape the RCIS approach and draft documents. In March the DMCA convened a publicly noticed meeting in Lancaster. Materials are on the DMCA website AND attached. In April the RCIS planning team, held a public meeting with the Association of Rural Town Councils. The planning team has incorporated over 700 comments to date. The public meeting presentation and an overview presentation of the current administrative draft are attached for background. Additional draft figures showing the project methodologies, mapping, and processes are also attached.

Once the planning team submits the first draft to CDFW, there will be a minimum 30 day public comment period. Following that period, the planning team and CDFW will work to improve the document. It must be emphasized that this is a science based planning document with no regulatory authority. It will be a guide to both development and mitigation efforts. Participation is one hundred percent voluntary and any individual or entity can participate or not The first step--of getting CDFW to approve the AV RCIS-- does not involve any mitigation agreements, credits, deals, or anything of that nature. After an approved RCIS is in place, any entity can work with CDFW on Mitigation Credit Agreements that must be consistent with the RCIS.

Having had access to the most recent administrative draft, staff is confident that the document submitted to CDFW will be of high caliber and reflective of the missions of the DMCA and most stakeholders. The Steering Committee will continue to provide input on the document. The Steering Committee is composed of the DMCA, Transition Habitat Conservancy, Conservation Strategies Group, California Energy Commission, Los Angeles County Regional Planning, SoCal Edison, LA Metro, The Nature Conservancy, and the Sierra Club.

The planning team's desire is to submit the first complete draft to CDFW and let public comment shape the document at that juncture. Staff concurs with the importance of moving the document forward so that the important scientific and planning information is available and recognized by CDFW. The staff recommendation is for the Governing Board to authorize the DMCA being the official public sponsor agency for the AV RCIS and to potentially submit the document. However, more likely the planning team will submit the document.

Both Los Angeles County and the Tejon Ranch, Corporation have submitted objections on the inclusion of areas in the RCIS. The County wanted designated Economic Opportunity Areas be excluded. That request has been rejected because it would completely warp the scientific modeling and outright exclude critical habitat areas. Some of those EOAs are in County-designated Significant Ecological Areas. The planning team has not made a decision (to staff's knowledge) as of yet about Tejon Ranch's request. Item 6(e) on this agenda addresses Tejon Ranch's concerns both about the RCIS and the DMCA's participation in the RCIS process.

The RCIS process is entirely new. The guidelines regarding implementation are not detailed. Much of how the RCIS program will actually work must be flushed out over time. Without question it will provide an unparalleled level of scientific and land use data on a single platform. Without question it will provide a powerful science based tool to expand the quality and quantity of biological mitigation in the study area. All of this must occur with the approval of the CDFW. Apprehensions about exactly how the implementation will play out should be outweighed by the above guaranteed advantages. In perspective, the existing process and available planning and mitigation tools are woefully inadequate to protect one of the most unique ecosystems in California.

The planning team and committees are shouldering the burden and expense of the work. To get through the CDFW RCIS approval process will not strain DMCA staff. All projected RCIS submission fees will be paid through other sources. The extent to which the DMCA gets involved in the preparation of Mitigation Credit Agreements can be determined in the future. There are no DMCA obligations involved. The RCIS will require scientific updating in ten years to remain valid. Hopefully the success of the program will make that update effort a non-issue at that juncture.

**Attachment 5**

May 21, 2019 Letter from Tejon Ranch to DFW re conflicts (with attachments)

**TEJON RANCH**
C O M P A N Y

May 21, 2019

*Via Electronic Mail (ronald.unger@wildlife.ca.gov)*
California Department of Fish and Wildlife
Attn.: Ron Unger, Environmental Program Mgr.
Habitat Conservation Planning Branch
Landscape Conservation Planning Program
1416 9th Street, 12th Floor
Sacramento, CA 95814

**Re: Antelope Valley Regional Conservation Investment Strategy ("AVRCIS")**

Dear Mr. Unger,

Tejon Ranch Company, on behalf of itself and its subsidiary/affiliated entities Tejon Ranchcorp and Centennial Founders, LLC (collectively, the "Tejon Ranch"), sends this letter to insist that the California Department of Fish & Wildlife ("DWF") take no further action on the AVRCIS until such time as those involved in its preparation unequivocally and entirely remove lands owned by Tejon Ranch not just from the AVRCIS study area (as has already been done in the most recent draft of the AVRCIS), ***but also from all purported scientific modeling and/or mitigation prioritization descriptions or visualizations contained in the AVRCIS.***

As will be explained below, removing Tejon Ranch's lands from the study area, while retaining mapping and descriptions in the AVRCIS that continue to overlay purported scientific modeling and/or mitigation prioritization descriptions or visualizations on Tejon Ranch lands (as well as surrounding areas) confounds not just the purpose of the RCIS statute, but also effects demonstrable harm and damage to Tejon Ranch, other property owners, and public agencies that are outside of the study area. Retaining Tejon Ranch lands in such visualizations and descriptions also is contrary to the written commitments that the AVRCIS preparers have given us, and on which we have relied, as we continue to pursue our entitlements and development of the Centennial project in Los Angeles County. DFW should not countenance such conduct.

Sending this correspondence is not taken lightly by Tejon Ranch. Indeed, we have undertaken significant effort with those preparing the AVRCIS to avoid sending this correspondence. We very much value and appreciate the longstanding relationship that Tejon Ranch shares with the DFW. This correspondence is sent in that spirit of partnership because, unfortunately, Tejon Ranch feels that its concerns as a stakeholder in the AVRCIS process have not been heard by those preparing the document that is being presented to DFW for consideration.

1. <u>The AVRCIS is Unnecessary on Tejon Ranch Lands and Contradicts Contractual Requirements</u>

It bears noting that when Tejon Ranch voluntarily agreed to conserve 90% of its 270,000 acre landholdings pursuant to the Tejon Ranch Conservation and Land Use Agreement (the "Ranchwide

Agreement"), it did so with the support of DFW. At the time, DFW joined other state agencies to acknowledge and support Tejon Ranch's actions. (See Attachment 1.) The Ranchwide Agreement itself involved countless hours of on-site biological study, analysis and consensus between Tejon Ranch and five well-respected environmental organizations.[1] The result of this extensive study was the development of a conservation plan that protected areas of Tejon Ranch with some of the highest conservation priorities, while identifying the remaining 10% as areas where development would be more appropriate.

The Ranchwide Agreement obligates Tejon Ranch to preserve and conserve approximately 240,000 acres of its property through the phased dedication of conservation easements to the independent Tejon Ranch Conservancy; to date over 100,000 acres have been put under conservation easements in furtherance of the Ranchwide Agreement. Locating these easements was the subject to significant analysis and negotiation between Tejon Ranch and the resource groups during preparation of the Ranchwide Agreement. Additionally, and specific to Tejon Ranch's request for exclusion from ***both*** the AVRCIS study area and from any mapping of mitigation priorities undertaken by the AVRCIS, the Ranchwide Agreement states that the "commercial operation of a mitigation bank, or the sale or other transfer of mitigation 'credits'" within conservation easements is prohibited. (*See* Ranchwide Agreement, Exh. M, § 2(a)(11).)

As a result of the Ranchwide Agreement, there is no land on Tejon Ranch to achieve the AVRCIS's primary purpose – nor does it therefore make sense to include purported scientific modeling and/or mitigation prioritization descriptions or visualizations that extend beyond the AVRCIS boundary. Simply put, the Ranchwide Agreement (i) already establishes a binding and comprehensive framework on Tejon Ranch for mitigating impacts of development, (ii) creates the funding mechanism by which such preservation will be maintained in perpetuity and (iii) does not authorize conservation on Tejon Ranch lands as described in the proposed draft AVRCIS.

For this reason alone, Tejon Ranch's land must be ***entirely*** excluded from both the AVRCIS study area (as has already occurred) ***and*** from purported scientific modeling and/or mitigation prioritization descriptions or visualizations from the AVRCIS.

2. The AVRCIS Process is Plagued by Conflicts of Interest, Precluding its Consideration by DFW

The AVRCIS has been prepared by a number of non-governmental organizations and a nominal governmental agency known as the Desert & Mountain Conservation Authority ("DMCA"). It bears noting that several of the organizations involved in preparing the AVRCIS, such as the Center for Biological Diversity and the California Native Plant Society, are presently litigating or will soon be litigating against Tejon Ranch. These (and other) conflicts of interest permeate the AVRCIS process and caution against DFW considering further the AVRCIS.

As referenced in the prior paragraph, the Center for Biological Diversity and California Native Plant Society have both played an active role in development of the AVRCIS, as reflected in Appendix C of the most recent draft AVRCIS (the "February 2019 Draft AVRCIS"). Appendix C of the February 2019 Draft AVRCIS indicates that, as members of the AVRCIS Advisory Committee, these organizations were heavily involved in preparing the draft versions of the AVRCIS by providing information on "ecological resources" and reviewing and commenting on interim AVRCIS work product. This Advisory Committee

[1] See https://www.sec.gov/Archives/edgar/data/96869/000119312508138009/dex1028.htm. Signatories to the Ranchwide Agreement include the Tejon Ranch Conservancy, along with the Natural Resources Defense Council, the National Audubon Society, the Sierra Club, the Endangered Habitats League and the Planning and Conservation League (collectively, "resource groups").

met at least four times, as noted in Appendix C. In addition, the representative of the California Native Plant Society also served on the AVRCIS Technical Subcommittee. As reflected in Appendix C, the Technical Subcommittee met seven times and appears to have been heavily involved in decisions on how resources were characterized and prioritized in the AVRCIS. This record indicates that these organizations were able to influence the preparation of the AVRCIS in its earlier as well as current iterations, which documentation was eventually used and acted on in a governmental capacity by DMCA.

Unsurprisingly, the Center for Biological Diversity turned its participation in the AVRCIS process to its advantage by submitting to Los Angeles County a June 2017 "administrative draft" AVRCIS as part of a comment letter that was critical of Tejon Ranch's Centennial Specific Plan.[2] Effectively, the Center for Biological Diversity weaponized an administrative draft document ***that it participated in creating*** for its self-serving purpose of opposing a development project within the draft document's initial study area – a study area that now nominally does not include Tejon Ranch. It should not be surprising, then, ***having used a draft document it helped create***, that the Center for Biological Diversity has mentioned multiple times since the Los Angeles County Board of Supervisor's December 11, 2018 approval that it intends to file suit over approval of the Centennial project. The Center for Biological Diversity is also presently a named plaintiff in two other suits against Tejon Ranch projects.

Separately, the California Native Plant Society has also been vocally critical of the Centennial project and has submitted written comments to Los Angeles, indicating its intention to file suit on approval of the Centennial project. The individual representative of the California Native Plant Society who has participated in the AVRCIS process and is listed in Appendix C of the most recent draft AVRCIS, Greg Suba, has sought to influence other state agencies to oppose Centennial. <u>See Attachment 2</u>.

Separately, each of the resource groups (who are signatories to the Ranchwide Agreement) participated in preparing the draft AVRCIS. Members of these resource groups served either on the AVRCIS Steering Committee or the AVRCIS Advisory Committee at some point during the process. Subsequently, many of these resource groups resigned from these committees when confronted with the evident conflict of interest in (i) serving in a governmental or quasi-governmental capacity to approve the AVRCIS, on one hand, and (ii) the potential that their service in preparing the AVRCIS constituted a breach of their fiduciary and contractual obligations under the Ranchwide Agreement, on the other hand.

One example of an obvious conflict was the participation and leadership of Ms. Terry Watt in the development of the AVRCIS. While there is only one reference to Ms. Watt in the most recent draft of the AVRCIS, her leadership in the AVRCIS is extensively documented in the June 2017 administrative draft AVRCIS (including multiple references in Section 6 of that document). During the timeframe Ms. Watt was providing consulting services to DMCA and those preparing the AVRCIS, she concurrently served a member of the Board of Directors of the Tejon Ranch Conservancy ***and, further,*** shortly before such activity regarding the AVRCIS she had received reimbursement for professional services from Tejon Ranch for her work with the Tejon Ranch Conservancy. Only after Tejon Ranch objected to these obvious conflicts of interest does it appear Ms. Watt recused herself (belatedly and without legal effect to

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[2] The County of Los Angeles responded to these comments, and specifically addressed and contradicted the analysis of the mitigation and prioritization concepts contained in the June administrative draft AVRCIS. This contradiction is even more forceful in light of the fact there is no pending draft AVRCIS, let alone a complete and approved study. Further, Los Angeles County has similarly objected multiple times to inclusion of "economic opportunity areas" within the approved Antelope Valley Area Plan (AVAP), adopted by the Los Angeles County Board of Supervisors. The AVAP was challenged by the Center for Biological Diversity, but Los Angeles prevailed entirely, resulting in an appellate court decision upholding the AVAP and its environmental analysis. Most recently, Los Angeles County submitted a letter to DMCA reiterating its objections, which is included with this letter as <u>Attachment 4</u>.

the prejudice already created and which permeates the AVRCIS process to this date, we might add). Recent correspondence from Ms. Watt is an admission of this conflict. See Attachment 3.

These blatant conflicts of interest do not appear to have been disclosed to the DMCA, DFW or others. Governmental decisions, such as DMCA's decision to act as the "public agency" submitting the AVRCIS or its decision to approve a draft AVRCIS, or such as DFW's decision to approve an RCIS should not involve the participation of such heavily self-interested individuals or groups. Allowing a study to proceed that was tainted at its formative stage, and continuing through the majority of the work being conducted, by these conflicts poses grave public ethics concerns; these concerns cannot be resolved at this late stage by the recusal of those conflicted individuals and groups.

3. The AVRCIS Must be Revised to Reflect the Commitments Made to Tejon Ranch

On May 8, 2019, Tejon Ranch learned that the DMCA submitted the February 2019 Draft AVRCIS to the DFW. At that time, Tejon Ranch also learned that the Santa Monica Mountains Conservancy (which itself negatively commented on the Centennial project that was approved by the Los Angeles County Board of Supervisors) acted to become the "state sponsor" of the AVRCIS (pursuant to Fish & Game Code § 1850(a)).

Until it received the agenda for the May 8th DMCA meeting, Tejon Ranch was unaware of any ongoing activity pertaining to the AVRCIS. In fact, we had been told that the AVRCIS process was on an indefinite hold. So, we were grateful that DFW provided a copy of the February 2019 Draft AVRCIS to us. Upon review of this draft, it became clear that commitments made by those preparing the AVRCIS to ***entirely*** remove Tejon Ranch from the AVRCIS had not been honored.

In August and September of 2017, Tejon Ranch communicated its demand to be removed from not just the AVRCIS study area but also from the purported scientific modeling and mitigation priority analysis. As stated in our September 5, 2017 letter to the DMCA and the AVRCIS Steering Committee:

> Tejon Ranch understands the AVRCIS will now (and in any future version prepared by DMCA) exclude any reference or depiction of Tejon Ranch lands as being within the AVRCIS study area, and will exclude any discussion of Tejon Ranch lands from substantive analysis. It is our further understanding that any modeling used in the AVRCIS is being revised to account for exclusion of Tejon Ranch lands and such revised modeling will not include discussion, depiction, analysis or reference to Tejon Ranch lands. (See Attachment 5.)

The aforementioned statement confirming our understanding was based on ***written representations*** from DMCA representatives on August 15, 2017 stating that, following "consulting with the AV RCIS steering committee, ICF will be removing Tejon Ranch from the AV RCIS study area . . . ." (See Attachment 6.) Thereafter, on September 18, 2017, Graham Chisolm, a primary author and consultant of DMCA for the AVRCIS, ***confirmed in writing*** Tejon Ranch's understanding:

> [T]he steering committee was comfortable with the recommendation to remove Tejon Ranch from the draft Antelope Valley Regional Conservation Investment Strategy (AVRCIS). ICF International is modifying the draft AVRCIS in order to implement the recommendation, ***including removing references to the Tejon Ranch from the draft AVRCIS' narrative analysis and maps.*** (See Attachment 7 (emph. supp.).)

Thus, Tejon Ranch not only understood, but detrimentally relied on, the written commitments of DMCA and AVRCIS proponents that the next version of the AVRCIS would not include Tejon Ranchlands in the AVRCIS study area ***and*** would not include any mapping overlay on Tejon Ranch lands.

To our surprise the February 2019 Draft AVRCIS demonstrates that DMCA and those preparing the AVRCIS did not honor their written commitments.[3] Tejon Ranch strongly urges DFW, DMCA and those preparing the AVRCIS to consider taking immediate steps to remove all mapping, depiction, visualization and other analysis or narrative from Tejon Ranch lands. In this case, Tejon Ranch has and is undertaking significant activity and incurring costs in relation to the planning and development of the Centennial project in reliance of the prior commitment that Tejon Ranch is being ***entirely*** removed from the AVRCIS. Not abiding by DMCA's commitment creates significant risk to DFW, DMCA and those preparing the AVRCIS. (*See HPT IHG-2 Properties Trust v. City of Anaheim* (2015) 243 Cal.App.4th 188.)

4. Other Infirmities Plague the AVRCIS Process, Rendering it Unlawful

The process to prepare and submit ***any version*** of the AVRCIS has been tainted by violations of state law. Without fully cataloguing these violations, which we reserve our right to do at a later date, there are several concerns that call into question the AVRICS process to date and which preclude DFW from taking any action on the current AVRCIS.

First, ***only*** a public agency has statutory authority to "propose", "develop", "create" or "submit" an RCIS for DFW's consideration. (Cal. Fish & Game Code §§ 1852(a), 1854(c).) The statute does not contemplate or authorize the preparation of an RCIS by private parties. Nor does the statute contemplate or authorize private party preparation of an RCIS to avoid compliance with applicable law, such as governmental transparency statutes found in the Brown Act, the Public Records Act or the Political Reform Act.[4] (*Compare,* Cal. Fish & Game Code § 1854(c) subdiv. (3)(A) *with* (D) (speaking to circumstances for holding a meeting where a "public agency proposing a strategy" has initiated an RCIS either before or following January 1, 2017).) For similar reasons, the statute does not permit private preparation of an RCIS, which is later "adopted" by a public agency in an effort to skirt applicable laws.

Notwithstanding the clear statutory requirement that an RCIS be developed, created and submitted by a public agency, the AVRCIS process did not involve the required public agency sponsorship until September 13, 2017 – at which time DMCA's governing body acted, ***for the first time***, to interject itself as the sponsor of the AVRCIS.[5]

The agenda for the September 13, 2017 regularly scheduled meeting of the DMCA included an item to officially (***and for the first time***) authorize DMCA to be the "sponsor" for the AVRCIS and to authorize submittal of "an AVRCIS" to the Department. As part of a staff report and discussion on this agenda item, staff for DMCA stated that (a) the AVRCIS process to that date had been purely private in nature and (b) it was the intention of those actually preparing the AVRCIS to avoid public scrutiny of their work

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[3] Numerous maps in the February 2019 Draft AVRCIS continue to include purported scientific modeling and mitigation prioritization overlaid on Tejon Ranch lands. As examples, attached hereto at Attachment 8 are several maps from the February 2019 Draft AVRCIS. These maps, all other maps, and any other narrative or analysis must be revised to remove any such overlay from Tejon Ranch lands.

[4] Based on analysis to date by Tejon Ranch, including review of records provided by DMCA, we believe that the AVRCIS process has encountered violations of all three of these statutes. As examples, this letter identifies conflicts of interest in those who have participated in preparing the AVRCIS. For the time being we reserve our rights with respect to these issues. It does bear noting, however, that each of these statutes includes private attorney general provisions and the ability to seek advice from (or bring complaints to) other independent state agencies.

[5] Prior to this September 13, 2017 meeting, the DMCA governing board only received two briefings on the "regional conservation framework" (the precursor to the RCIS process, which precursor had no basis in statute) and acted to receive a grant to assist with the RCF. At no time did the DMCA governing board, prior to September 13, 2017, take any action that could remotely be viewed as authorizing sponsorship, creation or preparation of the AVRCIS.

product until it was submitted to the Department. A full transcript of the September 13, 2017 meeting has been prepared by Tejon Ranch from audio files provided by DMCA. This transcript can be provided to DFW later, if needed. However, those statements made at the September 13, 2017 meeting that are germane to demonstrating the ***intentional*** desire to maintain secrecy are as follow:

> Mr. Edelman: "But right now, it's a private document that's moving forward through this planning team hired by Bechtel and the Windward Foundation." (Minute 21:58)
>
> ***
>
> Mr. Edelman: "Since you haven't seen the final draft of it, and that the people who are preparing it don't want that final draft to go public until it goes to the Department of Fish and Wildlife, that you could make it so that the chair could get final approval of it, potentially to... Before it gets submitted to Fish and Wildlife." .... "But that the planning team really thought it would be better, and move the process along farther, if it could go to that stage without being widely distributed public wide." (Minute 34:40.)

Against this factual background, it is also important to note that the February 2019 Draft AVRCIS inaccurately represents to DFW that the AVRCIS process was initiated by DMCA in 2016 – which it was not. The February 2019 Draft AVRCIS states, the "Antelope Valley RCIS development process began in March 2016." (February 2019 Draft AVRCIS at § 1.4.2.) The February 2019 Draft AVRCIS goes on to claim that "[t]he process was initiated by the Desert and Mountains Conservation Authority (DMCA) in collaboration with the California Energy Commission (CEC)." (*Ibid.*) This statement is not accurate.

The DMCA governing board did not meet at all in 2015 and only met twice in 2016. The only two meetings of the DMCA governing board occurred *after* March of 2016, on June 15, 2016 and on September 9, 2016. (*See* http://dmca.ca.gov/agenda_archive.asp.) Furthermore, neither of the meetings held in 2016 by the DMCA governing board created a "DMCA Steering Committee" or took any action to authorize or "initiate" preparation of the AVRCIS.[6]

Comparing (1) the action taken at the DMCA's September 13, 2017 meeting, the quoted statements of DMCA staff at this meeting describing the secretive nature of the AVRCIS process to date, and the omission of DMCA taking ***any*** action whatsoever until September 13, 2017 to become the "sponsoring" public agency for the AVRCIS with (2) the statements made in the February 2019 Draft AVRCIS, which are patently inaccurate, is itself sufficient basis to reject any further effort to process the AVRCIS.[7]

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[6] The June 15, 2016 DMCA governing board meeting included several agenda items pertaining to a "regional conservation framework" for the Antelope Valley, and consideration of a resolution accepting grant funding for involvement in the "regional conservation framework" *See* http://smmc.ca.gov/Agendas_DMCA/agenda_527.pdf (agenda); http://smmc.ca.gov/Agendas_DMCA/minute_527.pdf (minutes). The September 9, 2016 DMCA governing board meeting included consideration of a resolution supporting AB 2087, which legislation created the regional conservation investment strategy process. *See* http://smmc.ca.gov/Agendas_DMCA/agenda_534.pdf (agenda); http://smmc.ca.gov/Agendas_DMCA/minute_534.pdf (minutes).

[7] As noted above, only a public agency has statutory authority to "propose", "develop", "create" or "submit" an RCIS to the Department for consideration. Cal. Fish & Game Code §§ 1852(a), 1854(c). The statute does not contemplate, let alone authorize the preparation of an RCIS by private parties who, at some later date and time, then "forum shop" an RCIS to a public agency that later enters the process to serve as the nominal public agency sponsor. Such a charade not only contradicts the Fish & Game Code (*compare*, § 1854(c) subdiv. (3)(A) with (D) [describing circumstances for holding a meeting where a "public agency proposing a strategy" has initiated an RCIS either before or following January 1, 2017]), but such shenanigans run afoul of, if not are a blatant affront to, basic

Second, unless a public agency initiated a RCIS before January 1, 2017, the public agency must first publish a notice of intent to create an RCIS and file such notice with the Office of Planning and Research and the county clerk of counties where the RCIS is found. (Cal. Fish & Game Code § 1854(c)(1); *see also* Govt. Code § 6040 (specifying method of publication applicable to all public agency publication obligations).) DMCA, as the sole public agency that has initiated this activity to create the AVRCIS (which it did not do until September 13, 2017) has not complied with this requirement. Nor, as summarized above, does Tejon Ranch believe the statute authorizing creation of RCIS permit private third parties to prepare these studies on their own for later submittal to DFW.

Specifically, in this regard, Tejon Ranch made a public records request seeking proof of publication and a copy of this required notice. Tejon Rach sought: "The notice of intention to create the AVRCIS published by DMCA (as provided and required by Fish & Game Code § 1854(c)(1)). . . . Proof of publication for the notice of intention referenced in Item 2 above in an adjudicated newspaper of general circulation. See Gov. Code § 6041. . . . . Proof of filing of the notice referenced in Item 2 above with the Governor's Office of Planning and Research and the County Clerk of Los Angeles County (as provided and required by Fish & Game Code § 1854(c)(1))." No responsive documents were provided by DMCA to Tejon Ranch. Thus, the requirements of Fish & Game Code § 1854(c)(1) were not complied with.

For these and other reasons DFW lacks statutory authority to act on the AVRCIS. As also discussed, at a minimum, Tejon Ranch lands must be removed from all purported scientific modeling and/or mitigation prioritization descriptions or visualizations contained in the AVRCIS. Further, the study itself is flawed as a result of the participation of those with self-serving interest in its contents, including those who participated in the process to gain litigation advantage over land-owners.

Very Truly Yours,

Michael R.W. Houston
Senior Vice President, General Counsel & Secretary

cc: Mr. Charlton H. Bonham *(via electronic mail)*
Desert & Mountain Conservation Authority *(via electronic mail)*
Santa Monica Mountains Conservancy *(via electronic mail)*
Mr. Graham Chisolm *(via electronic mail)*
Resource Groups *(via electronic mail)*

Attachments:

1. May 1, 2008, Letter from California environmental agencies in support of Ranchwide Agreement
2. September 18, 2019, Email exchange between California Native Plant Society members and state agency representatives
3. May 15, 2019, Email from Ms. Watt
4. May 7, 2019, Letter from Los Angeles County to DMCA (with additional attachments)
5. September 5, 2017, Letter from Tejon Ranch to the DMCA and the AVRCIS Steering Committee
6. August 15, 2017, Email from AVRCIS representative to Tejon Ranch
7. September 18, 2017, Email from Mr. Chisolm to Tejon Ranch
8. Examples of depictions in February 2019 Draft AVRICS

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principles of governmental transparency, open record keeping, conflicts of interest and due process that apply to public agency operations.

## Attachment 1

May 1, 2008, Letter from California environmental agencies in support of Ranchwide Agreement

(omitted)

## Attachment 2

September 18, 2019, Email exchange between California Native Plant Society members and state agency representatives

| | |
|---|---|
| **From:** | Nick Jensen [njensen@cnps.org] |
| **Sent:** | 9/19/2018 8:48:55 AM |
| **To:** | Rabinowitsh, Nicholas@ARB [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=6e6383bd86f84a93a340406200df1e76-Nicholas Ra] |
| **CC:** | Alfredo Arredondo [alfredo@priorityca.com]; Greg Suba [gsuba@cnps.org] |
| **Subject:** | Re: Request for Meeting Re: CEQA Mitigation and Offsets |

**CAUTION:** This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

11 am on Friday works for me. We can use one of the CNPS conference call lines if needed.

Thanks,
Nick

On Wed, Sep 19, 2018 at 8:44 AM, Rabinowitsh, Nicholas@ARB <Nicholas.Rabinowitsh@arb.ca.gov> wrote:

Alfredo: that would be great, thanks!

Nick Rabinowitsh

Senior Attorney

California Air Resources Board, Legal Office

Tel: (916) 322-3762

**From:** Alfredo Arredondo <alfredo@priorityca.com>
**Sent:** Wednesday, September 19, 2018 7:43 AM
**To:** Rabinowitsh, Nicholas@ARB <Nicholas.Rabinowitsh@arb.ca.gov>
**Cc:** Greg Suba <gsuba@cnps.org>; Nick Jensen <njensen@cnps.org>

**Subject:** Re: Request for Meeting Re: CEQA Mitigation and Offsets

**CAUTION:** This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Let's make it 11am. Nick R., let me know if you would like me to use my conference line for this and I will send a calendar invite with the call information.

Thanks.

/Alfredo Arredondo
**Priority Strategies**

1225 8th St., Suite 375
Sacramento, CA 95814

o: 916-538-2452

c: 805-598-9350

e: alfredo@priorityca.com

On Tue, Sep 18, 2018 at 5:25 PM, Rabinowitsh, Nicholas@ARB <Nicholas.Rabinowitsh@arb.ca.gov> wrote:

All – yes, 10-1 range works for me. Let me know what specific time works best for you all. Thanks!

Nick Rabinowitsh

Senior Attorney

California Air Resources Board, Legal Office

Tel: (916) 322-3762

**From:** Greg Suba <gsuba@cnps.org>
**Sent:** Tuesday, September 18, 2018 4:07 PM
**To:** Nick Jensen <njensen@cnps.org>
**Cc:** Alfredo Arredondo <alfredo@priorityca.com>; Rabinowitsh, Nicholas@ARB <Nicholas.Rabinowitsh@arb.ca.gov>
**Subject:** Re: Request for Meeting Re: CEQA Mitigation and Offsets

**CAUTION:** This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

I'm available Friday from 10am-1pm, then otherwise in transit to/from Bay Area with spotty phone service (Amtrak).

If 10-1 works, then I'll join. If a time outside that is necessary, I'm happy to catch up with Nick (J) and Alfredo afterwards.

Greg

On Tue, Sep 18, 2018 at 4:04 PM, Nick Jensen <njensen@cnps.org> wrote:

My schedule on Friday afternoon is pretty open. Greg-how about you?

Thanks,
Nick

On Tue, Sep 18, 2018 at 3:49 PM, Alfredo Arredondo <alfredo@priorityca.com> wrote:

Hello Nick,

Friday afternoon would work on my end. I am copying Greg and Nick with CNPS as well to see what their availability is. Thanks for your time.

/Alfredo Arredondo
**Priority Strategies**

1225 8th St., Suite 375
Sacramento, CA 95814
o: 916-538-2452
c: 805-598-9350
e: alfredo@priorityca.com

On Tue, Sep 18, 2018 at 2:40 PM, Rabinowitsh, Nicholas@ARB <Nicholas.Rabinowitsh@arb.ca.gov> wrote:

Alfredo: Rajinder forwarded your email to me. I'd be happy to talk - would you be able to do a call on Friday? Perhaps in the afternoon? If so, what times work for you?

Thanks,

Nick Rabinowitsh
Senior Attorney
California Air Resources Board, Legal Office
Tel: (916) 322-3762

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**From:** Alfredo Arredondo <alfredo@priorityca.com>
**Sent:** Tuesday, September 18, 2018 1:22:47 PM
**To:** Sahota, Rajinder@ARB
**Cc:** Greg Suba; Nick Jensen
**Subject:** Request for Meeting Re: CEQA Mitigation and Offsets



Hello Rajinder,

I am reaching out on behalf of my client, the CA Native Plant Society, to see if we can find a time this week to discuss a proposed development in Southern California, the Centennial Project, and their use of offsets from the Cap and Trade regulation in order to comply with CEQA requirements. Attached is the FEIR Supplement related to GHG emissions compliance for the project (link to additional documents for project available here) which is raising lots of eyebrows for us. In particular, on the third page they say the following:

"Approximately 96 percent (150,808 MTCO2e/yr) of the Updated GHG Calculations emissions are covered by, and subject to, the purchase of emission allowances under the new, expanded state Cap and Trade program approved by the Legislature after the DEIR was issued, and signed into law in 2017 (Assembly Bill 398 [AB 398]). The Cap and Trade program was designed to comprehensively regulate fossil fuels (from "wells to wheels" – from production, through refining, through ultimate consumption) and is expected to raise gasoline prices within a range of approximately 15 to 63 cents per gallon by 2021, and from 24 to 73 cents per gallon by 2031, according to the non-partisan California Legislative Analyst Office.1 Compliance with the Cap and Trade program was upheld as a lawful CEQA mitigation measure to reduce GHG emissions to a less-than-significant-level for fossil fuels used by a refinery project for both direct refinery operations as well as indirect electricity consumption-related GHG emissions in a recent CEQA appellate court case, Association of Irritated Residents v. Kern County Board of Supervisors, et al. (Alon USA Energy, Inc., et al., Real Parties in Interest) (2017) 17 Cal.App.5th 708. The California Supreme Court declined to reverse, or de-publish, this case. The California Air Resources Board (CARB) has also determined that existing California law provides sufficient authority to extend the Cap and Trade program as required to meet state GHG reduction objectives.2 See Table 3. "

This raises a lot of questions for us that we hope to get your insight on including:

- Is this type of compliance pathway for non-capped or non-covered entities like a housing developer truly the intent of the cap-and-trade mechanism?
- Are there other examples of a developer in the state using offsets in this way?
- Does the Irritated Residents v. Kern case apply only to capped or covered entities or is the interpretation that this applies to any entity, regulated or not, correct?

I know that this is a lot of information, but I figure that having a conversation with you about this will help clear things up for us. Please let me know if there are some times that work for you this week. Greg Suba, copied on the message, is based in Sacramento, but Nick Jensen, is based in Southern California and could join by phone if possible.

Thanks for your time, and I look forward to reconnecting soon.

/Alfredo Arredondo
**Priority Strategies**

1225 8th St., Suite 375
Sacramento, CA 95814
o: 916-538-2452
c: 805-598-9350
e: alfredo@priorityca.com

--

Nick Jensen, PhD
Southern California Conservation Analyst
California Native Plant Society
1500 North College Ave

Claremont, CA 91711
njensen@cnps.org
(530) 368-7839

--

/Alfredo Arredondo
**Priority Strategies**

1225 8th St., Suite 375
Sacramento, CA 95814
o: 916-538-2452
c: 805-598-9350
e: alfredo@priorityca.com

--

Nick Jensen, PhD
Southern California Conservation Analyst
California Native Plant Society
1500 North College Ave
Claremont, CA 91711
njensen@cnps.org
(530) 368-7839

**Attachment 3**

May 15, 2019, Email from Ms. Watt

**From:**
**To:** FW: Antelope Valley RCIS Matter
**Subject:** Monday, May 20, 2019 12:24:15 PM
**Date:**

---

**From:** Terry Watt <terryjwatt@>
**Date:** May 15, 2019 at 1:16:03 AM GMT+2
**To:** "'Gary Hunt'" <ghunt@>
**Cc:** "'Dan Silver'" <dsilverla@>, "'Reynolds, Joel'" <jreynolds@>, <terryjwatt@>
**Subject: Antelope Valley RCIS Matter**

Gary,

This email is to inform you that I withdrew from any and all involvement in the Antelope Valley RCIS well over a year ago when the Ranch brought its concerns to the attention of the Tejon Ranch Conservancy Board.

Terry Watt

TerryJWatt@
Please update your contacts

## Attachment 4

May 7, 2019, Letter from Los Angeles County to DMCA (with additional attachments)

(omitted)

**Attachment 5**

September 5, 2017, Letter from Tejon Ranch to the DMCA and the AVRCIS Steering Committee

(omitted)

**Attachment 6**

August 15, 2017, Email from AVRCIS representative to Tejon Ranch

(omitted)

**Attachment 7**

September 18, 2017, Email from Mr. Chisolm to Tejon Ranch

(omitted)

## Attachment 8

Examples of depictions in February 2019 Draft AVRICS

(omitted)

**Attachment 6**

Audio recording of September 13, 2017
DMCA Governing Board Meeting (thumb-drive)
(only included in hard copy transmittals)

ANTELOPE VALLEY - EAST KERN WATER AGENCY
AVEK
ESTABLISHED 1959
A PUBLIC AGENCY



February 7, 2020

California Department of Fish and Wildlife
Habitat Conservation Planning Branch
ATTENTION: Antelope Valley RCIS Comments
P.O. Box 944209
Sacramento, Ca, 94244-2090

Re: Draft Antelope Valley Regional Conservation Investment Strategy

Dear Mr. Unger:

It has come to Antelope Valley-East Kern Water Agency's (AVEK) attention that the California
Department Fish and Wildlife (CDFW) released the Antelope Valley Regional Conservation
Investment Strategy (AVRCIS) document for public review on December 13, 2019. This came as
quite a surprise to the Agency as it was the first time we had been made aware of it. AVEK was not
informed, engaged or invited to share input in the formulation of this document. *Section 4.2.4.*
*Consultation, Consistency and Compliance* of the RCIS Program Guidelines states: *"The RCIS must*
*also consider existing and reasonably foreseeable land uses including agriculture and major*
11-1 *infrastructure."* How could the project proponents have considered future water infrastructure for
the Antelope Valley, if they haven't reached out to AVEK to discuss?

Furthermore, if the entire purpose of an RCIS program is to identify high value resources for future mitigation and that the project proponents should be identifying future infrastructure planning, as stated in Section 4.1 *"it is also the intent of the Program that RCISs inform infrastructure planning and provide project proponents with additional mechanisms for identifying and developing compensatory mitigation"* then it stands to reason we should have been at the table from the very beginning weighing in on key decisions.

What I have learned upon further research is that these guidelines, which your own agency created,
were not considered for the Antelope Valley RCIS and that because the document process had
11-2 already started, the AVRCIS was considered grandfathered and the guidelines did not apply. This
is unacceptable and at a very minimum the AVRCIS should be given the same treatment as the
other state RCIS's.

Due to the lack of transparency of this process and the fact that, as a major water provider and
11-3 infrastructure builder, AVEK was never party to this draft AVRCIS, we respectfully request the
following:

6500 WEST AVENUE N • PALMDALE, CALIFORNIA 93551
(661) 943-3201 • www.avek.org • info@avek.org

11-4. 1. Reject this draft AVRCIS

11-5 2. No longer exempt the Antelope Valley RCIS from the CDFW guidelines that are crucial to a balanced plan

11-6 3. Instruct the proponents of the draft to restart the process and engage with all key stakeholders in the Antelope Valley. This should include municipalities, utility providers, local elected officials, key trade and economic development organizations as well as conservation groups

11-7 4. Release a new AVRCIS that is more balanced, is consistent with the 2015 Antelope Valley Area Plan (a component of the Los Angeles County General Plan) and reflects a larger input from stakeholders and Antelope Valley residents

Thank you for your consideration.

Sincerely,

for Dwyane Chisam
General Manager
Antelope Valley-East Kern Water Agency

CC: Hon. Scott Wilk, California State Senator
Hon. Tom Lackey, California Assembly Member
Hon. Kathryn Barger, Chair, Board of Supervisors, County of Los Angeles
Los Angeles County Department of Regional Planning

# Los Angeles County Department of Regional Planning

*Planning for the Challenges Ahead*

**Amy J. Bodek, AICP**
Director of Regional Planning
**Dennis Slavin**
Chief Deputy Director,
Regional Planning

February 10, 2020

**VIA EMAIL TO:** edelman@smmc.ca.gov
david.zippin@icf.com
scott.fleury@icf.com
graham@scgcalifornia.com
cbeale@resourceslawgroup.com

Mr. Paul Edelman
Desert and Mountain Conservation Authority
44811 N. Date Avenue, Suite G
Lancaster, CA 93534

Dear Mr. Edelman:

**LOS ANGELES COUNTY DEPARTMENT OF REGIONAL PLANNING RESPONSE TO THE ANTELOPE VALLEY RESOURCE CONSERVATION INVESTMENT STRATEGY PUBLIC DRAFT**

12-1 The Department of Regional Planning (DRP) appreciates the opportunity to comment on the public draft of the Antelope Valley Resource Conservation Investment Strategy (AVRCIS). DRP continues to assert the position stated in its letters of May 7, 2019, and November 6, 2017, that the AVRCIS was not developed "in coordination with" DRP, and DRP subsequently withdrew from the AVRCIS Steering Committee. The County must not be identified as a party that participated in creation of the AVRCIS. Accordingly, the following comments only represent DRP's technical corrections to the AVRCIS.

It is DRP's understanding that the AVRCIS provides new insights to existing, publicly available information and data and that no new data or field work was conducted to verify the information sources used to create the AVRCIS. Furthermore, the document is intended to be used to streamline mitigation for public infrastructure projects and establish strategic priorities for conservation work. The AVRCIS does not establish any land use policies for the County, is voluntary, and creates no regulatory obligations for local government.

12-2 In recognition that this document has no legal or regulatory effects, and is only intended as a voluntary conservation/mitigation strategy available for public use, DRP believes that

12-2 cont. additional language can and should be added to the AVRCIS to clarify that this document does not precisely map environmental resources of hazardous or critical concern, and furthermore, does not conflict with the Significant Ecological Areas (SEA) Map adopted as part of the Countywide General Plan. 12-3 We also recommend re-evaluation of the High Desert Corridor as an area of potential future urbanization as there are more recent changes to this project given the settlement agreement between Caltrans and Climate Resolve. Our previous comment letters are attached for inclusion in the public draft comments, because it appears they were not previously considered for public comment.

Our technical comments are provided herein:

12-4 A. Overall - Add page numbers on documents that have figures or maps.

12-5 B. Page 1-2: Add an additional point to specifically clarify that this AVRCIS "does not designate, precisely map, or officially adopt environmental resources of hazardous or critical concern" for the purposes of California Environmental Quality Act (CEQA) [Section 15300.2 CEQA Guidelines] or for any other purpose under CEQA.

12-6 C. Page 1-6: Add in No. 11 that Conservation Priority Areas are also derived from public input (see flowchart on Page 3-3/Fig. 3-1).

12-7 D. Page 1-6: Are Conservation Priority Areas (No. 11) the same as High Conservation Value Areas on Page 3-3? Please clarify.

12-8 E. Page 1-7: Remove "county" reference under the 1.4.2.3 Advisory Committee Section because no county governments participated.

12-9 F. Page 1-15 (Paragraph 4): "…The public meeting was also broadly noticed through DCMA's listserv, **the County of Los Angeles**, and by many of the Steering Committee participating organizations…" Please clarify what was meant by the public meeting being broadly noticed through "the County of Los Angeles." DRP did not notice the public for this document and all references to the County's participation must be removed from the document.

12-10 G. Page 1-15 (Paragraph 6): Capitalize "Board of Supervisors" in the sentence that reads: "...DMCA [Desert and Mountain Conservation Authority] will notify the Los Angeles County **Board of Supervisors** and the city councils in Palmdale and Lancaster consistent with this requirement."

12-11 H. Page 2-4: Top paragraph, last sentence, revise to: "…with temperatures **averaging** from 50 to 75…".

12-12 I. Page 2-4, Section 2.1.2: **"There are two main watersheds within the [AV]RCIS area (Figure 2-2): the Northern Mojave River watershed, which covers approximately 98 percent of the RCIS area, and the Ventura–San Gabriel Coastal watershed, which overlaps with small portions of the [AV]RCIS area along the western border."** This is incorrect; nearly all of the drainage in the non-coastal slope portion of the plan area terminates at either Rosamond or Rodgers Lake and never reaches the Mojave River.

12-13 J. Figure 2-4: The legend item **"North American Warm Semi-Desert Cliff, Scree, and Other Rock Vegetation"** is incorrect. The area mapped with this designation is a form of playa/wetland.

12-14 K. Table 2-9: The determinations for many species appear arbitrary. For example, airborne pollutants could be expected to have an effect on a lot more than just the five plant species indicated. The changes in vegetation that they encourage would affect most wildlife species as well. Please indicate the analysis that was used to produce the determinations given in the table.

12-15 L. Page 2-70: Move Policy Land Use (LU) 2.1 to the policies listed in the Antelope Valley Area Plan (Page 111) – this is a policy from the Antelope Valley Area Plan.

12-16 M. Page 2-70: Move Policy LU 2.1 to the policies listed in the Antelope Valley Area Plan (Page 2-73) - this is a policy from the Antelope Valley Area Plan.

12-17 N. Page 2-70: Add the following Goal LU 3 and Policies 3.1 and 3.2:

- Goal LU 3: A development pattern that discourages sprawl, and protects and conserves areas with natural resources and SEAs.
- Policy LU 3.1: Encourage the protection and conservation of areas with natural resources, and SEAs; and
- Policy LU 3.2: Discourage development in areas with high environmental resources and/or severe safety hazards.

12-18 O. Page 2-72: There is a typo on Figure 2-14 ("Landcaster" spelled in Legend).

12-19 P. Page 2-73: Add the following Policy LU 2.1 from Page 2-73 along with Goal Conservation and Open Space (COS) 18, Policy COS 18.1, and Policy COS 19.3:

- Policy LU 2.1: Limit the amount of potential development in SEAs, including Joshua Tree Woodlands, wildlife corridors, and other sensitive habitat areas, through appropriate land use designations with very low residential densities, as indicated in the Land Use Policy Map (Map 2.1) of this Area Plan.
- Goal COS 18: Permanently preserved open space areas throughout the Antelope Valley.
- Policy COS 18.1: Encourage government agencies and conservancies to acquire mitigation lands in the following areas and preserve them as permanent open space: - SEA, including Joshua Tree Woodlands, wildlife corridors, and other sensitive habitat areas: - Hillside Management Areas; - Scenic Resource Areas, including water features such as the privately owned portion of Elizabeth Lake, significant ridgelines, buttes, and other natural landforms; - land adjoining preserves, sanctuaries, State Parks, and National Forests; and - privately owned lands within the National Forest.
- Policy COS 19.3: Pursue innovative strategies for open space acquisition and preservation through the land development process, such as Transfers of Development Rights, Land Banking, and Mitigation Banking, provided that such strategies preserve rural character.

12-20 Q. Page 2-74, Section 2.2.2.2: Please add the following language: "The AVRCIS shows some habitat areas within the County's Economic Opportunity Areas (EOAs), the County, however, has prioritized the EOAs for economic development projects and not conservation, and objects to land within an EOA as being an appropriate area for mitigation lands."

12-21 R. Page 2-97, Section 2.3.1.2: **"Because air pollutants, and particularly nitrogen, are greater closer to their sources, natural habitats that occur near population centers and roads are likely to be more affected."** What is the relevant scale that is being addressed in this statement? Nitrogen deposition occurs as a result of chemical activity in the atmosphere, resulting in forms of nitrogen that are deposited on land. This occurs on regional scales, not over the scales of feet or meters, which is what seems to be implied by the statement. In a regional scenario, virtually all vegetation communities within the Antelope Valley air basin are vulnerable to nitrogen deposition effects.

12-22 S. Table 2-10: What analysis went into this table? Joshua trees need freezing temperatures, and the Navarretia, turtle, and riparian bird species will be adversely affected if climate change results in a loss of aquatic and riparian habitats.

12-23 T. Page 2-102, Section 2.3.5.1: **"Focal species dependent either entirely or partially on these natural aquatic features include Alkali mariposa lily, spreading navarretia, western pond turtle, willow flycatcher, least Bell's vireo, tricolored blackbird, and most mammals including mountain lion, badger, and Tehachapi pocket mouse."** This isn't true for Tehachapi pocket mouse. Heteromyid rodents get most or all of their water from food and typically aren't limited by free water availability.

12-24 U. Figure 2-22: Consider including any lands within a mile of the Tehachapi Renewable Transmission Project and outside of SEAs as potential solar expansion areas.

12-25 V. Table 3-18: **"DETO-4 8.1, 8.2 Fence preserved lands with Agassiz's desert tortoise populations to exclude trespassers, domestic sheep, and recreational vehicles."** Fencing can provide perching opportunities for ravens, so this action should be used with caution and language should be added to so clarify.

12-26 W. Page 4-6, Section 4.4.1: **"MCAs identify the types and amounts of mitigation credits that will be created through implementation of conservation actions, and they provide a schedule for the release of the credits based on relevant milestones in project implementation (e.g., land protection, restoration goal achievement). Mitigation credits can be established for any conservation or enhancement action that contributes to the achievement of conservation goals and objectives outlined in this Antelope Valley RCIS [AVRCIS] and complies with CFGC [California Fish and Game Code] 1851(d) or (g). CDFW [California Department of Fish and Wildlife] must approve the release of all credits after the MCA [Mitigated Credit Agreement] sponsor meets performance-based milestones established by the MCA."** As the plan evolves and progress is assessed, may credits be developed for newly-recognized sensitive resources that weren't considered during the initial development of this AVRCIS?

Should you have any questions or need further clarification on the comments provided above, please feel free to contact Bianca Siegl, Deputy Director, Advance Planning Division at bsiegl@planning.lacounty.gov or 213-974-6457.

Sincerely,

AMY J. BODEK, AICP
Director of Regional Planning

AJB:BS:PH:KK:ra

Attachments:
Regional Planning response letters dated August 10, 2017; November 6, 2017; and May 7, 2019

S_AP_02102020_L_AVRICS

# Los Angeles County
# Department of Regional Planning

*Planning for the Challenges Ahead*

**Amy J. Bodek, AICP**
Director of Regional Planning
**Dennis Slavin**
Chief Deputy Director,
Regional Planning

May 7, 2019

**VIA EMAIL TO:** Diane.sacks@mrca.ca.gov
Spencer.eldred@mrca.ca.gov
Info@dmca.gov

Desert and Mountain Conservation Authority Board Members

Dear Board Members:

**MAY 7, 2019, AGENDA ITEM 11, ANTELOPE VALLEY REGIONAL CONSERVATION INVESTMENT STRATEGY**

The County of Los Angeles (County) opposes approval of the Antelope Valley Regional Conservation Investment Strategy (AV RCIS) that is being presented to the Desert and Mountain Conservancy Board this morning and for which you are being advised that the Santa Monica Mountains Resources Conservation Authority is requesting to be the sponsor. The County requests that you not approve said sponsorship.

In Mr. Edmiston's memorandum to your Board seeking sponsorship of the AV RCIS, he indicated that the AV RCIS was developed "in coordination with", among others, the Los Angeles County Planning Department. That statement is not only inaccurate but disingenuous given that the County withdrew from the AV RCIS Steering Committee in November 2017 specifically because the County's comments about the plan were ignored by the steering committee. The County's comments continue to be ignored. In sum, the AV RCIS was developed in contravention of County input, not in coordination with the County.[1]

The County pointed out to the AV RCIS Strategy Planning Team in August, 2017 that the AV RCIS was inconsistent with the Rural Preservation Strategy of the Antelope Valley Area Plan (County Area Plan), a plan now-beyond legal challenge, and a part of the County's General Plan. This Rural Preservation Strategy balances priorities for environmental conservation and preservation in the County with the need for development. As part of the strategy, the County Area Plan sets aside three Economic Opportunity Areas (EOAs) in the Antelope Valley located around major infrastructure

[1] The County's prior letters on these issues are attached.

projects planned by state and regional agencies, smartly prioritizing those areas for growth and development. In turn, preservation of vast ecological resources and the rural character of the Antelope Valley is achieved through various strategies in the County Area Plan designed to limit development in the non-EOA areas, such as the strategies related to Rural Town Centers, Rural Town Areas and Rural Preservation Areas. Areas outside EOAs were also significantly down-sized to limit development. Thus, the balance of preservation and development is achieved by concentrating the most intensive development within the EOAs to preserve the open and rural areas outside the EOAs.

In contravention of these policies, the AV RCIS prioritizes some of the EOAs for conservation, a policy in direct conflict with the Country Area Plan. The AV RCIS also conflicts with the regional conservation investment strategy legislation, which is to provide guidance not only to conservation groups but to developers for identification of areas for compensatory mitigation. In doing so, an RCIS must consider local land use planning designation and foreseeable development. It is an inherent conflict to designate an area for conservation priority that has already been designated by the local jurisdiction as an area for relatively-concentrated development, such as the EOAs.

Moreover, the County Board of Supervisors recently approved a development project in the West EOA, wholly consistent with its County Area Plan. Thus, the County has moved beyond designation of an EOA, and approved a project in an EOA. Accordingly, that area simply will not be available for conservation and should not be identified as such in the AV RCIS.

In the past, the AV RCIS team responded that its mapping of conservation areas was based on "science." Frankly, the County Area Plan too is based on science, science that is backed by an exhaustive Environmental Impact Report that withstood a legal challenge at the trial court and the Courts of Appeal with the petitioner in that litigation electing not to seek California Supreme Court review. As such, the County Area Plan is final and beyond challenge. The areas preserved already by the County Area Plan policies and strategies not to mention the Tejon Ranchwide Agreement adequately provide for plentiful conservation areas.

While we have not seen a final written AV RCIS, the mapping still reflects EOAs designated as conservation or preservation targets, including the West EOA for which development has already been approved by the County. Thus, the County cannot support the AV RCIS and objects to the Conservancy's sponsorship of the RCIS.

Sincerely,

ABodek

AMY J. BODEK, AICP
Director of Regional Planning

AJB:lg

Attachments

c: Board of Supervisors (Supervisor Kathryn Barger)
AVRCIS (Terry Watt -Terryjwatt@gmail.com)
CA Dept. of Fish and Wildlife (Ronald Unger – Ronald.unger@wildlife.ca.gov)
County Counsel (Elaine Lemke)
Santa Monica Mountains Conservancy (Joe Edmiston)

AP_05_07_2019_AV_RICS

Los Angeles County
Department of Regional Planning

*Planning for the Challenges Ahead*

Dennis Slavin
Acting Director

November 6, 2017 **VIA EMAIL TO terryjwatt@gmail.com**

Antelope Valley Regional Conservation Investment Strategy Planning Team
44811 N. Date Ave., Suite G
Lancaster, CA 93534

**SUBJECT: WITHDRAWAL OF LOS ANGELES COUNTY FROM THE ANTELOPE VALLEY RESOURCE CONSERVATION INVESTMENT STRATEGY (AVRCIS) STEERING COMMITTEE**

Dear AVRCIS Planning Team:

On August 10, 2017, the County sent a letter requesting changes to the administrative draft of the AVRCIS. These changes reflected the County's serious concerns regarding the AVRCIS' treatment of areas the recently adopted Antelope Valley Area Plan (AV Plan) designates as Economic Opportunity Areas (EOA). The County requested that the AVRCIS exclude these areas for conservation because of the inherent conflict with the adopted AV Plan's policies that designate those same areas for future economic development.

When the California Legislature created RCISs in 2016, it required that a local agency with land use authority be included in the process. The purpose of this requirement was to ensure that RCISs be developed in coordination with local land use plans such that the RCIS is consistent, and not in conflict, with local land use policy. The County's participation has been based on this understanding.

The County recently learned from the September 2017 Desert and Mountain Conservation Authority staff report that the AVRCIS project will move ahead without the changes the County requested. Because the adopted policy for EOAs will thus continue to conflict with the AVRCIS, the County is unable to support the AVRCIS effort and no longer see a purpose for continued participation in the Steering Committee.

Therefore, the County is withdrawing from the Steering Committee. Please be advised that any correspondence henceforth will be submitted as the County of Los Angeles, and not as a member of the Steering Committee.

Sincerely,

DEPARTMENT OF REGIONAL PLANNING
Dennis J. Slavin
Acting Director

Mark Child, AICP, Deputy Director
Advance Planning Division

DJS:MC:PH:ST/st

Attachment:
Additional comments on the Administrative Draft, AVRCIS (August 10, 2017)

Los Angeles County
Department of Regional Planning

*Planning for the Challenges Ahead*

Richard J. Bruckner
Director

August 10, 2017

**VIA EMAIL TO terryjwatt@gmail.com**

Antelope Valley Regional Conservation Investment Strategy Planning Team

**SUBJECT: ADDITIONAL COMMENTS ON THE ADMINISTRATIVE DRAFT, ANTELOPE VALLEY RESOURCE CONSERVATION INVESTMENT STRATEGY (AVRCIS) (JULY 2017)**

Dear AVRCIS Planning Team:

As you know, the County of Los Angeles ("County") Department of Regional Planning ("Department") has participated on behalf of the County as a member of the Antelope Valley Resource Conservation Investment Strategy ("AVRCIS") Steering Committee. The AVRCIS is a strategy intended to provide voluntary guidance for ways that will enhance the long-term viability of native species, habitat, and other natural resources within the Antelope Valley. This AVRCIS is largely defined as the County portion of the Antelope Valley, and includes the Cities of Lancaster and Palmdale as well as unincorporated County. We consider the County a main stakeholder in the AVRCIS process and had provided a previous comment letter on the administrative draft document in July.

The Los Angeles County General Plan 2035 ("General Plan") was adopted with five guiding principles that emphasizes sustainability, so that the needs of the existing population are met without compromising economic, social, and environmental resources that would be available to future generations.

The Antelope Valley Area Plan ("AV Plan"), adopted as a community-based plan for the Antelope Valley area and a component of the General Plan, relies on a Rural Preservation Strategy to meet the goals and objectives of the General Plan, by balancing priorities for environmental conservation and preservation against the need for development. As part of the AV Plan Rural Preservation Strategy, three Economic Opportunity Areas ("EOAs") were adopted. These EOAs, areas where major infrastructure projects are being planned by state and regional agencies, reflect the County's priority areas for growth and development within the Antelope Valley. In turn, preservation of the ecological resources and rural character of the surrounding areas are achieved through the Rural Preservation Strategy's Rural Town Center Areas, Rural Town Areas, and Rural Preservation Areas.

The AV Plan Rural Preservation Strategy achieves this balance of preservation and development by concentrating development within the EOAs to preserve the open and rural areas outside the EOAs. Areas mapped as EOAs are designated by the County as priority areas for development to occur.

In reviewing the administrative draft of the AVRCIS, it has become apparent that the AVRCIS has chosen to prioritize some of the EOAs for conservation. The County's adopted policy direction for the EOAs thus conflicts with the AVRCIS's designation that prioritizes the same areas for conservation This designation in the AVRCIS also conflicts with the regional conservation investment strategy legislation, which is to provide guidance for identification of areas for compensatory mitigation and must consider local land use planning designations and foreseeable development. EOAs, through the County's very recent AV Plan process, have been planned for development and not for conservation. To correct these inconsistencies the priority conservation designation in the EOAs under the AVRCIS must be amended to exclude the EOAs. By their function, EOAs cannot be considered areas of conservation priority.

To date, we have not seen a complete final version of the AVRCIS The administrative draft AVRCIS as well as most recently shared proposed changes provided on August 2, 2017, do not accurately reflect the County's priorities for conservation and in fact, create new issues of concern. Therefore, we respectfully request that a final version addressing our comments be provided to us for our review and further comment before the draft is submitted to the California Department of Fish and Wildlife.

We appreciate being able to participate in the AVRCIS process, as well as developing our working relationship with ICF and the other agencies involved. The County sees the potential for the AVRCIS to be a valuable resource of compiled biological information and a tool to streamline locating areas suitable for mitigation and conservation, and looks forward to continuing our collaboration.

Sincerely,

DEPARTMENT OF REGIONAL PLANNING
Richard J. Bruckner
Director

Patricia Lin Hachiya, AICP, Supervising Regional Planner
Environmental Planning and Sustainability Section

RJB:MC:PH:ST/st

CENTER *for* BIOLOGICAL DIVERSITY *Because life is good.*

*protecting and restoring natural ecosystems and imperiled species through science, education, policy, and environmental law*

***via email***

2/10/2020

CDFW: rcis@wildlife.ca.gov
Desert and Mountain Conservation Authority: diane.sacks@mrca.ca.gov

**RE: Comments on the Draft Antelope Valley – Regional Conservation Investment Strategy**

Dear RCIS team,

13-1 Thank you for the opportunity to review and comment on the Draft Antelope Valley – Regional Conservation Investment Strategy (RCIS). The Center for Biological Diversity has been and continues to be very involved in planning issues for the Antelope Valley, and generally supports the concept of a RCIS in this area. We appreciate the time and effort that the team has put into pulling together information about the Antelope Valley and recognizing the value of considering the introduction of the Valley's namesake mammal – pronghorn, although the document would be improved by including pronghorn as a focal species particularly because it would function as an "umbrella species" for grassland and desert plant communities. In the spirit of providing constructive comments, we submit the following comments on the Draft RCIS:

13-2
- We appreciate the clarifications for the definitions of categories called "Protected Lands" but remain concerned about including the 47,778 acres of DOD-managed lands in this category because of DOD's commitment to their mission of military readiness. The RCIS also identifies over 43,627 acres of public lands that are also included as "Protected Lands", yet it is unclear how many of these are managed or proposed to be managed for conservation purposes. These public lands potentially remain vulnerable to development.

13-3
- Table 2-2 needs to be updated to include
  - Western Joshua Tree (*Yucca brevifolia*) is petitioned under the California Endangered Species Act as a threatened species.
  - Spreading navarretia (*Navarretia fossalis*) has a State (California Rare Plant Rank) of 1B.1 – rare in California and elsewhere and seriously endangered in California.
  - Short-joint beavertail (*Opuntia basilaris* var. *brachyclada*) has a State (California Rare Plant Rank) of 1B.2 – rare in California and elsewhere and fairly endangered in California.
  - Mountain lion (*Felis concolor*) is petitioned under the California Endangered Species Act as a threatened species as part of the Southern California/Central Coast Evolutionarily Significant Unit (ESU).



Ileene Anderson, Senior Scientist
660 S. Figueroa Street, Suite 1000, Los Angeles, California 90017
*tel:* (323) 490-0223 *email*: ianderson@biologicaldiversity.org
*www.BiologicalDiversity.org*

- 13-4 The desert kit fox (*Vulpes macrotis arsipus*) actually is a special status species under State law, protected as a furbearing mammal under California Code of Regulations Title 14 Section 460, and the statement on page 2-54 needs to be updated to reflect that status.
- 13-5 Table 3-3 <u>Natural Community (Alliances and Macrogroups) Status and Existing Level of Protect Used for Assigning Emphasis Levels</u> is confusing. It is difficult to understand the eight S2 alliances – is each alliance represented by a single species? And six of those alliances – *Fremontodendron californicum, Ribes quercetorum, Achnatherum speciosum, Atriplex parryi, Isocoma acradenia,* and *Sporobolus airoides* are not on any "protected lands"? Similar confusion exists in the S3 alliance list, the Locally Rare Communities and the Special Interest Communities sections.
- 13-6 Table 3.10 still appears to base conservation goals on the habitat that is found in the cores and linkages. While this may be useful for some species, for others including rare plants which are often substrate/hydrologically constrained, it does not address conservation needs. For example, the alkali mariposa lily's predicted habitat includes 52,098 acres of modeled habitat. Conservation target is proposed at 90%. Based on those figures, 46,888 acres would be identified for conservation. Yet Table 3.10 identifies the Conservation Target as 30,385 acres, so effectively only 58% of the habitat for the alkali mariposa lily is proposed for conservation and it may not capture the important sheet flow hydrology and/or groundwater table that this species relies on.
- 13-7 The document fails to analyze if only conserving the cores and linkages is adequate to meet the goals and objectives of the RCIS. Does that approach adequately protect the focal species? Does it adequately protect the conservation values as a whole for the Antelope Valley?
- 13-8 Through unexplained boundary changes from the original boundaries of the RCIS, the last best contiguous native grasslands were removed from the plan area. Vollmar et al (2003)[1] documents the largest and best native grasslands remaining in the State of California within the RCIS area, yet this incredibly unique resource is no longer included for all the benefits to the Antelope Valley and California that it brings.
- Regarding Conservation Actions and Priorities:
    - 13-9 In general, we do not support the use of mitigation funding for species surveys, because surveys alone do little for conserving or recovering imperiled species. We do recognize that species surveys and monitoring is key to evaluating the effects of habitat improvement projects or to identify new populations. We request that specific language be included that carefully identifies the funding source for the different types of surveys/monitoring.
    - 13-10 Many of the objectives identify additional acreage that needs to be protected to order to meet the proposed conservation target. In addition to clarifying the actual amount of conservation that needs to take place (as per the discussion regarding Table 3.9) the document needs to analyze for the adequacy of "protection" based on land management/ownership by species and state that those "protected" areas need to be fully protected in perpetuity or additional acreage in specific locations will be needed in order to meet the conservation goals/objectives for each species.

1 Vollmar 2004 (see attached)

13-11
- For those species that rely on water/hydrological processes as a key part of their habitat requirements, the goals/objectives need to include acquiring adequate water rights to maintain not only the water upon which the species depend (ex. Western pond turtle) but also the hydrological processes that maintain the habitats and landscapes upon which the species depend.
- For the arboreal plant species:

13-12
  - Efforts to protect all stands (not just old growth stand in the case of California junipers) needs to be included. Early successional stands are just as important over the long-term as old growth stands.

13-13
  - Efforts to restore burned areas should include replanting of the focal species, not just native shrubs, forbs, and grasses.

13-14
- While the federally threatened spreading navarretia is a focal species, conservation of its habitat – the unique desert vernal pools/alkaline playa and scalds – is a more effective way to preserve the suite of unique plants and animals that share this type of habitat. By limiting preservation to this rare species alone, all pools that currently lack the navarretia (we note that the spreading navarretia has only been found at a single location in the Poppy Preserve) will fall out of preservation consideration, therefore we request that a more inclusive habitat approach be adopted in the RCIS.

13-15
- For those federally listed species that have recovery plans, the RCIS needs to adopt the recovery actions for those species as per the adopted recovery plans. Specifically, for the desert tortoise, recent scientific literature documents successful recovery of desert tortoise in the west Mojave Desert through a series of management strategies[2] that the RCIS needs to incorporate. The Mohave ground squirrel, a state listed threatened species also has a recent Conservation Strategy[3] which should also be adopted in full by the RCIS.
- Objectives for burrowing owl fail to include several of the most successful conservation strategies for the owls:

13-16
  - Working cooperatively with local farmers to coordinate crop plantings that benefit burrowing owls particularly during nesting and fledging seasons.
  - Installing burrows

13-17
- Due to fidelity in nesting sites, golden eagles need to have nest sites protected through acquisition and preservation in addition to having foraging habitat preserved.

13-18
- Mitigation Credit Agreements (MCA) – more information on how the MCA process and advance mitigation will operate is necessary. Will MCAs be available as part of public processes? How will advance mitigation be tracked and disclosed to the public? Will the progress reports from the MCA holders be publicly available? Because the MCAs and advance mitigation is one of the key features of the RCIS, it is important that the public have access to the terms of the agreements.

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2Berry et al. 2014
3 CDFW 2019 https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=171301&inline

3-19 Thank you for the opportunity to submit these comments. Because not all of our previous comments on the Administrative Draft RCIS were addressed in the current draft document, we have included them here as well. Please address all of our comments in the subsequent version of the RCIS.

Please feel free to reach out to me with any questions at the contact information provided above.

Respectfully submitted,

Senior Scientist
Center for Biological Diversity

Attachment: Vollmar 2004

References:

Berry, K.H., L.M. Lyren, J.L. Yee and T.Y. Bailey 2014. Protection Benefits Desert Tortoise (*Gopherus agassizii*) Abundance: the Influence of Three Management Strategies on a Threatened Species. Herpetological Monographs 28: 66–92. http://www.academia.edu/download/39134605/5500dc610cf2aee14b58e915.pdf

California Department of Fish and Wildlife 2019. A Conservation Strategy for the Mohave Ground Squirrel (*Xerospermophilus mohavensis*). California Department of Fish and Wildlife. Pgs. 129. https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=171301&inline

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# CENTENNIAL SPECIFIC PLAN PROJECT SITE

## 2003/2004 BOTANICAL SURVEY REPORT

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**LANDSCAPE SETTING**
**SPECIAL-STATUS PLANT SURVEYS**
**PERENNIAL BUNCHGRASS COMMUNITY STUDY**

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**Prepared for:**

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**Prepared by:**

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**510/559-9603**

**December 3, 2004**

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FIGURES:



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## 1.0 INTRODUCTION

This report presents the methods and results of botanical studies conducted by Vollmar Consulting during spring and summer of 2003 and 2004 on the Centennial Specific Plan project site. The studies were conducted to provide baseline information for assessing potential impacts of the proposed project to special-status plants and sensitive plant communities. The studies included special-status plant surveys, an ecological study of the perennial bunchgrass community predominant in the study area, and a detailed review of regional and site landscape features. These landscape features (especially geology, soils, and landscape position) strongly influence the distribution of sensitive botanical resources and their potential habitats in the study area.

The report is divided into the following four sections:

- Section 2.0: Background Information
- Section 3.0: Landscape Setting
- Section 4.0: Special-status Plant Surveys
- Section 5.0: Perennial Bunchgrass Plant Community Study

Section 2.0 provides information on site location, and defines the botanical study area. It also discusses the applicability of study results to project planning and permitting and lists the field staff involved in the studies.

Section 3.0 describes the regional and study area landscape features including geography, topography, geology, soils, habitats, and land use. These features are critical for understanding the distribution of occurrences and potential habitat for sensitive botanical resources throughout the study area as well as the factors influencing plant species diversity and richness. The information presented in this section is referred to throughout the remaining sections.

Section 4.0 presents the methods and results of comprehensive special-status plant surveys conducted in the study area. Surveys were conducted during peak spring and early summer flowering periods. The surveys were conducted to locate occurrences of special-status species and assess their microhabitat requirements. Survey data were used to assess the distribution of potential habitat for targeted species throughout the study area.

Section 5.0 presents the methods and results of an ecological study of the perennial bunchgrass community that occurs over much of the study area. This plant community has a relatively high cover of native perennial bunchgrasses and wildflowers, and a conspicuously low cover of introduced annual grasses. Historically, this community type occurred throughout interior lowland California but was almost entirely replaced by invasive annual grasses introduced during Europeans settlement. The bunchgrass stand on the site is unique in California as an extensive, high quality intact native perennial bunchgrass community. This study assessed the diversity and variation in cover of perennial bunchgrass species, wildflowers, and introduced annual grasses across different landscape positions. The study also compared the bunchgrass community on the site with other known occurrences in the region and across the state. The results can be used to assess potential impacts of the proposed project to this unique native perennial bunchgrass community.

# 2.0 BACKGROUND INFORMATION

## 2.1 Project Location

The project site is located east of I-5, adjacent to Highway 138 in NW Los Angeles County, California (Figure 2.1). It is situated in the far southwestern portion of Tejon Ranch, a 270,000-acre cattle ranch in the western Tehachapi Range. The site extends approximately six miles east to west parallel to the Highway 138 corridor and approximately four miles north to south.

## 2.2 Definition of the Study Area

The study area for this report incorporates approximately 9,542 acres within the larger 11,862-acre project planning area (Figure 2.2). The study area includes the 8,342-acre proposed development envelope plus a 500-foot wide buffer zone incorporating approximately 1,200 acres around the perimeter of the envelope.

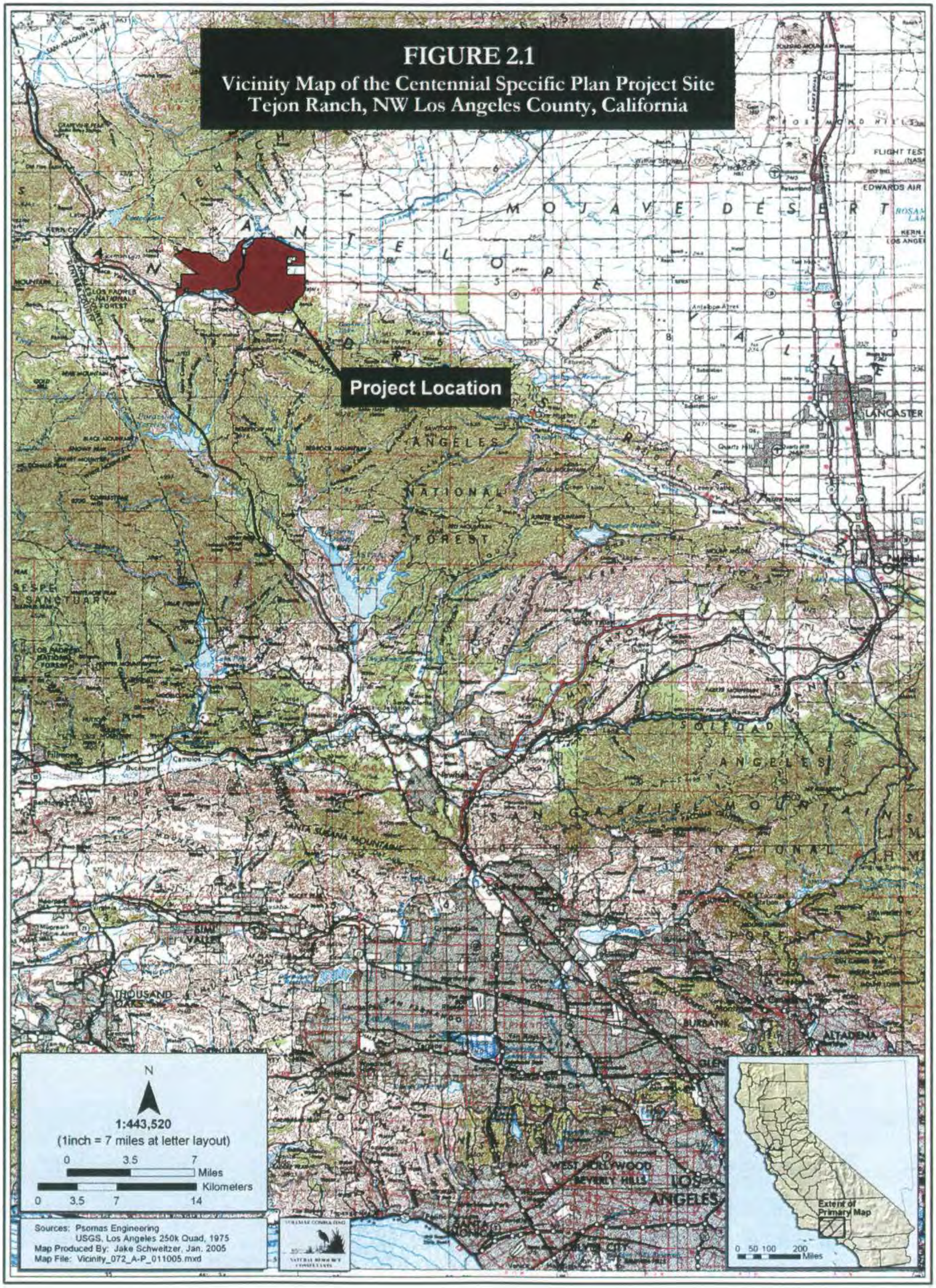
## 2.3 Survey Intensity and Applicability of Results

The surveys conducted for this report were comprehensive in nature but do not represent complete present/absence surveys given the size of the study area and the size of the area surveyed each day by the field crew. However, they were systematic and intensive and it is likely that all special-status plant species present within the study area were detected and that nearly all occurrences of these species were identified and mapped. Two special-status species identified on the site, sylvan microseris (*Microseris sylvatica*) and Tucker oak (*Quercus john-tuckeri*), were quite abundant and high potential habitat areas rather than individual occurrences were mapped. The survey results may be used for specific project planning and permitting. An additional round of peak spring surveys and precise mapping of sylvan microseris and Tucker oak stands would be required to achieve full presence/absence survey results. It is unclear, however, if these additional surveys would be required to obtain project permits.

## 2.4 Project Personnel

Staff from Vollmar Consulting conducted all project work including background review, field surveys, and reporting. John Vollmar served as project manager, senior field botanist, and principal report author. John Hale and Jon Kelsey served as senior field botanists and Shannon Hickey, Vir McCoy, Gretchen Vos, Jeffrey Congero and Michele Disney served as assistant field botanists for one or both years. John Hale and Gretchen Vos managed species lists and ecological data from special-status plant occurrences. Shannon Hickey and Gretchen Vos assisted with field preparations, GPS set up, and report preparation. John Hale and John Vollmar photographed all special-status plants. John Vollmar and Gretchen Vos conducted statistical analyses of field data. Jake Schweitzer managed all GPS and GIS data and created report figures. Jon Kelsey, Richard Gilligan, and Pauline Alessi provided project logistical support.

Keith Babcock of Impact Sciences provided outside review of the report and coordinated with Tejon Ranch regarding ranch access and safety issues. Psomas Engineers, Forma Engineering, and Tejon Ranch provided background files that Mr. Schweitzer incorporated into report figures.




# FIGURE 2.1

Vicinity Map of the Centennial Specific Plan Project Site
Tejon Ranch, NW Los Angeles County, California

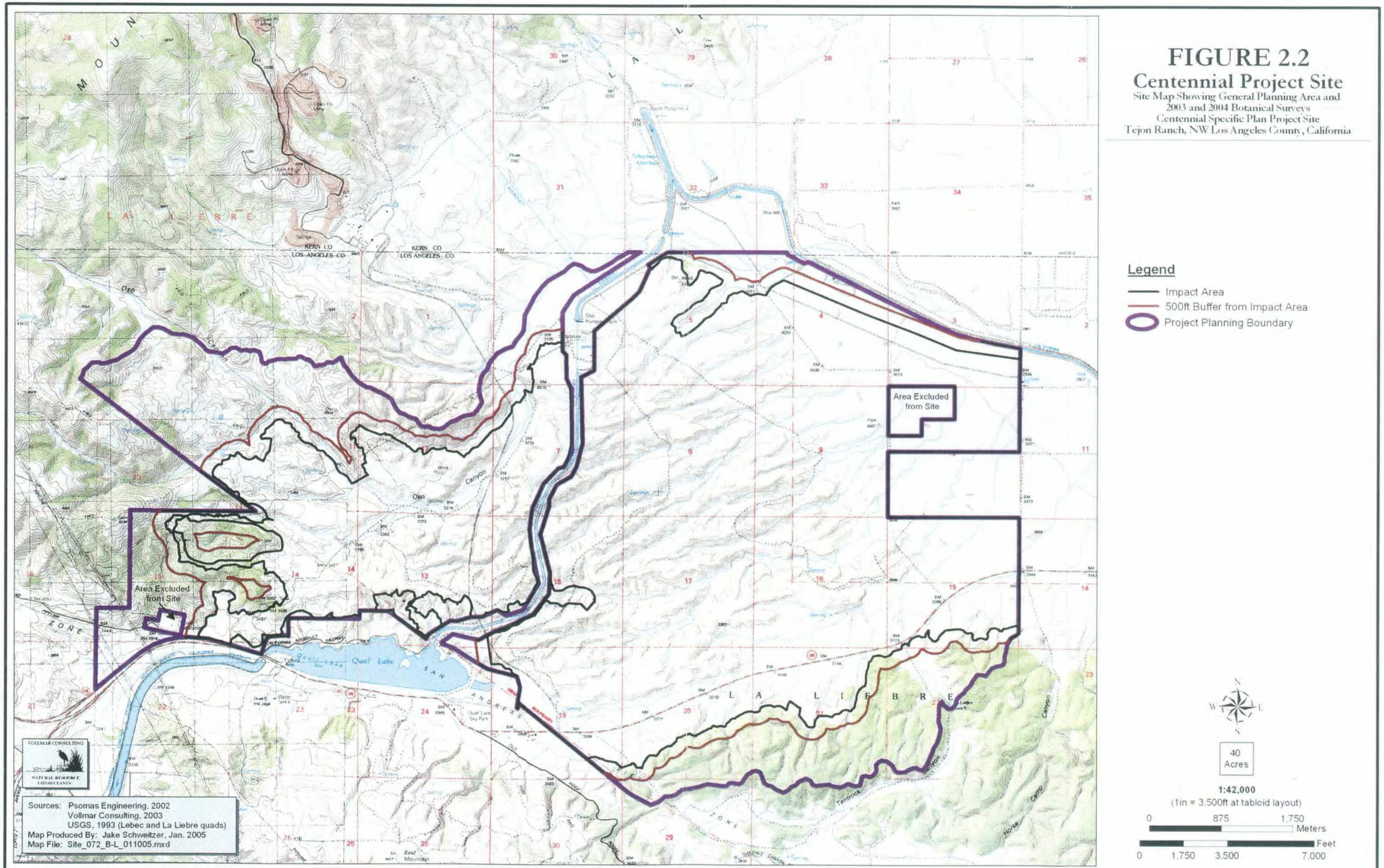


FIGURE 2.2
Centennial Project Site
Site Map Showing General Planning Area and
2003 and 2004 Botanical Surveys
Centennial Specific Plan Project Site
Tejon Ranch, NW Los Angeles County, California
Legend
Impact Area
500ft Buffer from Impact Area
Project Planning Boundary
Area Excluded from Site
Area Excluded from Site
KERN CO
LOS ANGELES CO
KERN CO
LOS ANGELES CO
Quail Lake
40 Acres
1:42,000
(1in = 3,500ft at tabloid layout)
0 875 1,750 Meters
0 1,750 3,500 7,000 Feet
VOLLMAR CONSULTING
NATURAL RESOURCE CONSULTANTS
Sources: Psomas Engineering, 2002
Vollmar Consulting, 2003
USGS, 1993 (Lebec and La Liebre quads)
Map Produced By: Jake Schweitzer, Jan. 2005
Map File: Site_072_B-L_011005.mxd

# 3.0 LANDSCAPE SETTING

## 3.1 Regional Overview

The landforms that occur in and around the study area are the result of more than 300 million years of geologic deposition, uplift, and erosion combined with extensive tectonic activity. The study area is located near the junction of three distinct geographic provinces: the Mojave Desert Province to the east, the Tehachapi Range (southern tip of Sierra Nevada Province) to the north, and the Central Transverse Ranges to the south (Figure 3.1). The boundaries between these provinces are defined by California's two largest faults: the San Andreas Fault, which divides the Mohave Desert Province from the Transverse Ranges; and the Garlock Fault, which divides the Mohave Desert Province from the Tehachapi Range. Each of these provinces has a unique set of geographic, geologic, and tectonic characteristics that have strongly influenced landscape characteristics within the study area. These characteristics, in turn, strongly influence the occurrence and distribution of special-status plants and other sensitive botanical resources.

The study area is situated at the far western tip of the Mohave Desert region. This region is roughly defined by an underlying, semi-triangular geologic feature known as the Mojave Block (Figure 3.1). It begins at the junction of the San Andreas and Garlock Faults near the town of Lebec (approximately seven miles east-northeast of the study area) and expands out a couple hundred miles east towards the Colorado River. Topographically, this block is much lower than the bordering mountains. While the study area may be technically confined to the Mohave Block and the Mohave Desert region, its geology and topography have been strongly influenced by uplift, tectonic movement, and alluvial outwash from the adjacent regions. Much of the study area consists of eroded hills and terraces formed from granitic alluvium washed from the Tehachapis and Transverse Ranges during the last 100,000 years. Granite outcrops associated with the Tehachapis underlie the study area and are exposed in a few areas in the northwest corner. Sedimentary rocks derived from Tertiary Continental Deposits are exposed in the eastern study area. Sedimentary rocks deposited in a shallow marine environment and uplifted by surrounding tectonic forces are exposed in the western study area. Andesitic volcanic rock, associated with the San Andreas Fault, is exposed along the southern edge of the study area (south of Highway 138).

The Tehachapi Range, which lies to the north of the study area, is composed of intrusive granitic rock. This range is considered to be the southernmost tip of the Sierra Nevada granitic batholith. The Garlock Fault, which defines the southern boundary of the range, lies two to three mile north of the study area. There are, however, extensive granitic intrusions south of the fault related to the Tehachapis. As mentioned above, most of the study area is underlain by this granite and there are limited areas of exposed granite bedrock in the northwest corner of the study area. Also, most of the alluvium on the site was derived from weathered granite. Just north of the study area, the granite is capped by a thick layer of limestone. The limestone was originally deposited in a deep marine environment more than 300 million years ago and was subsequently uplifted by the intruding granite. While there is no limestone mapped in the study area, field surveys identified unmapped remnant blocks and exposed strata, and associated limestone-derived soils in scattered areas in the northwestern, eastern and southeastern portions of the study area. Given elevation and proximity, these rocks are likely disjunct blocks that came from the

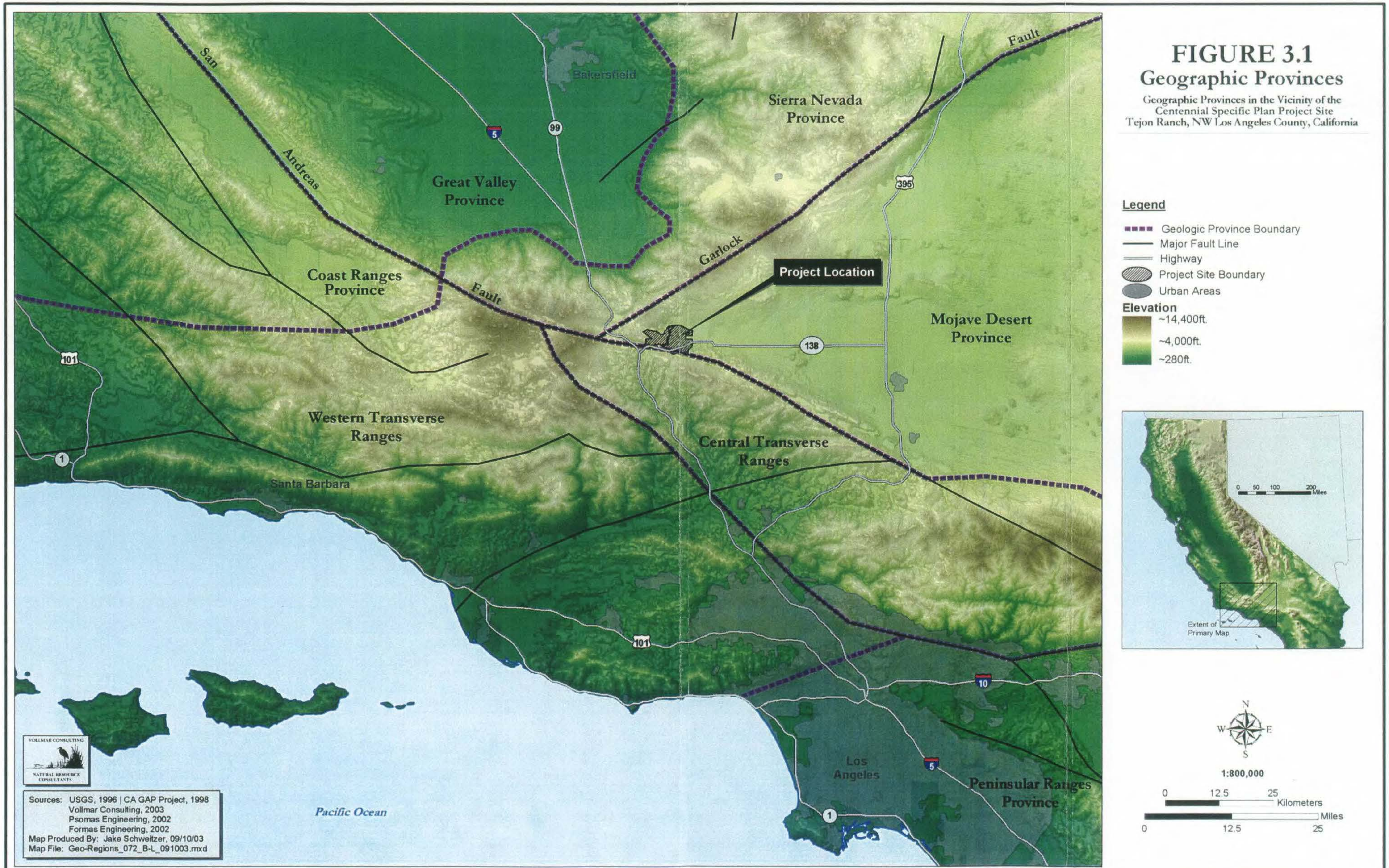


FIGURE 3.1
Geographic Provinces
Geographic Provinces in the Vicinity of the Centennial Specific Plan Project Site
Tejon Ranch, NW Los Angeles County, California
Legend
Geologic Province Boundary
Major Fault Line
Highway
Project Site Boundary
Urban Areas
Elevation
~14,400ft.
~4,000ft.
~280ft.
San Andreas Fault
Garlock Fault
Bakersfield
Sierra Nevada Province
Great Valley Province
Coast Ranges Province
Project Location
Mojave Desert Province
Western Transverse Ranges
Central Transverse Ranges
Santa Barbara
Los Angeles
Peninsular Ranges Province
Pacific Ocean
5
99
395
138
101
1
10
Extent of Primary Map
N
W
E
S
1:800,000
0 12.5 25 Kilometers
0 12.5 25 Miles
Sources: USGS, 1996 | CA GAP Project, 1998
Vollmar Consulting, 2003
Psomas Engineering, 2002
Formas Engineering, 2002
Map Produced By: Jake Schweitzer, 09/10/03
Map File: Geo-Regions_072_B-L_091003.mxd

limestone cap to the north. These blocks are situated within sedimentary formations deposited within the last 12 million years. Typical vegetation within the Tehachapi Range in the region of the study area includes intermixed chaparral, oak woodlands, and introduced annual grasslands.

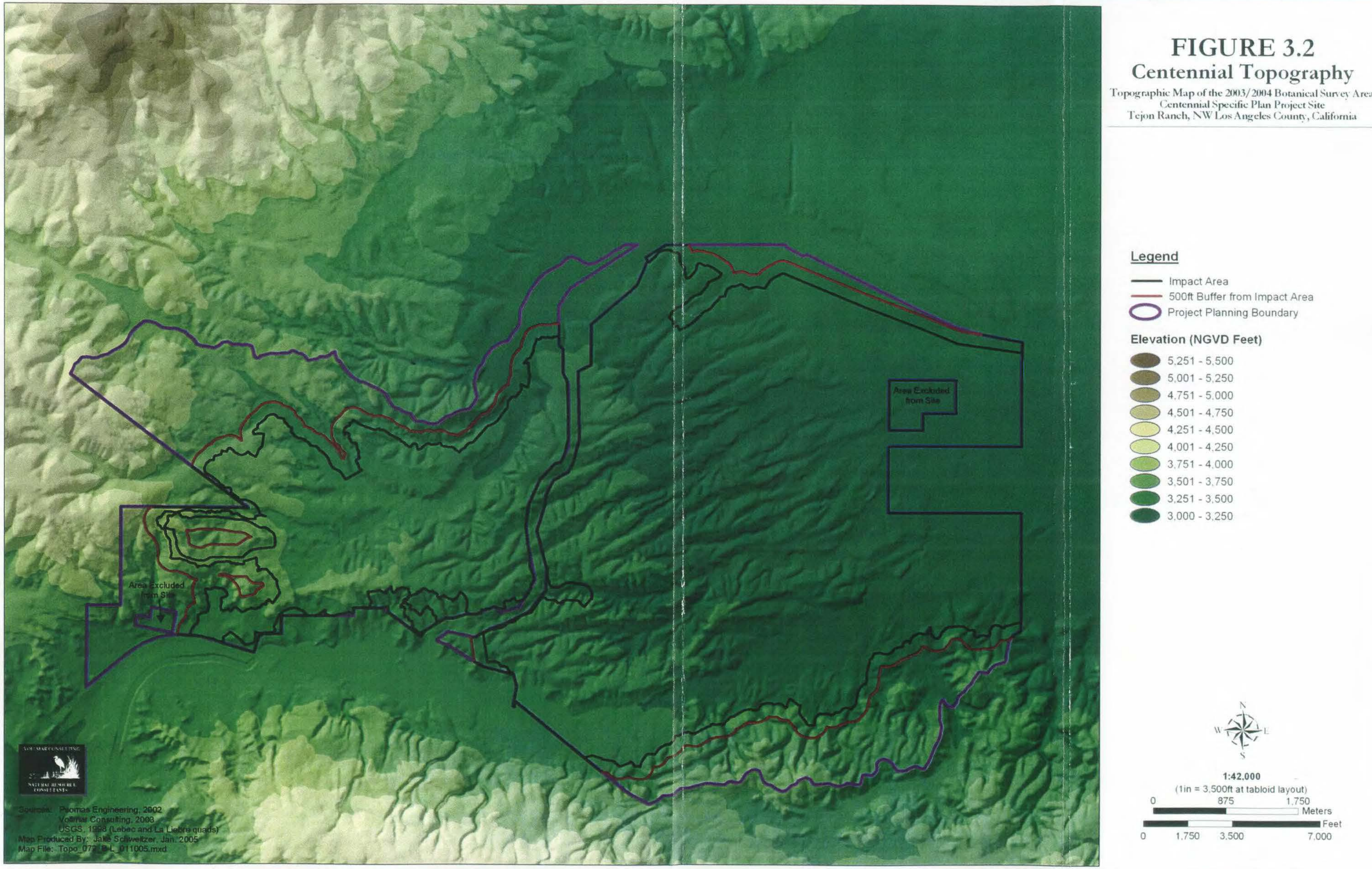
The Transverse Ranges lie just south of the study area. The San Andreas Fault, which defines the northern boundary of the range, runs along Highway 138 east to Quail Lake and then cuts through the hills bordering the highway to the south. The Transverse Ranges were uplifted by compressional forces exerted by a bend in the San Andreas Fault (termed the "Big Bend"). Since the San Andreas Fault lies entirely south of the study area, the steep hills along the southern edge of the study area may be from local compression and thrusting along the northern side of the fault. The geology along these hills consists of uplifted and weathered Continental Deposits (conglomerate, sandstone, shale, and limestone), localized Purple Andesite outcrops, and Recent Alluvium along stream courses and floodplains.

### 3.2 Topography

The study area incorporates a section of a complex, highly dissected landscape that slopes generally to the east (Figure 3.2) with west-east running ridges, terraces, valleys, and stream courses. Within this topography, there is a distinct set of primary landscape positions including floodplains, low alluvial plains, steep south- and north-facing slopes, elevated terraces, and narrow hilltops and ridges. The richness and diversity of plant species across the site, including special-status plant species and perennial bunchgrasses vary across the study area often in relation to these landscape positions.

Elevation on the site ranges from approximately 1,400 meters (4,600 feet) in the west to approximately 900 meters (2,950 feet) in the east. The highest areas (in the west and along the far southern edge) consist of exposed bedrock and steep, rounded hills cut by stream courses. The broad central section consists of steep to moderately steep rounded hills, generally arranged as parallel ridges running west to east with intervening valleys. There are also raised table-like terraces bordering the larger stream courses. These are part of the geologic formation referred to as Terrace Deposits. The far eastern section consists of a gently sloping alluvial plain, portions of which appear to have been leveled or disked in the past for farming.

# FIGURE 3.2
## Centennial Topography
Topographic Map of the 2003/2004 Botanical Survey Area
Centennial Specific Plan Project Site
Tejon Ranch, NW Los Angeles County, California



### 3.3 Geology and Soils

Geologic formations and associated soils exert a strong influence on the occurrence and distribution of special-status plants and other sensitive botanical resources in the study area. Information on geology and soils comes from Crowell (1952), Harden (1998), Hill (1976), SCS (1970), Weise (1950), and field observations made by staff from Vollmar Consulting.

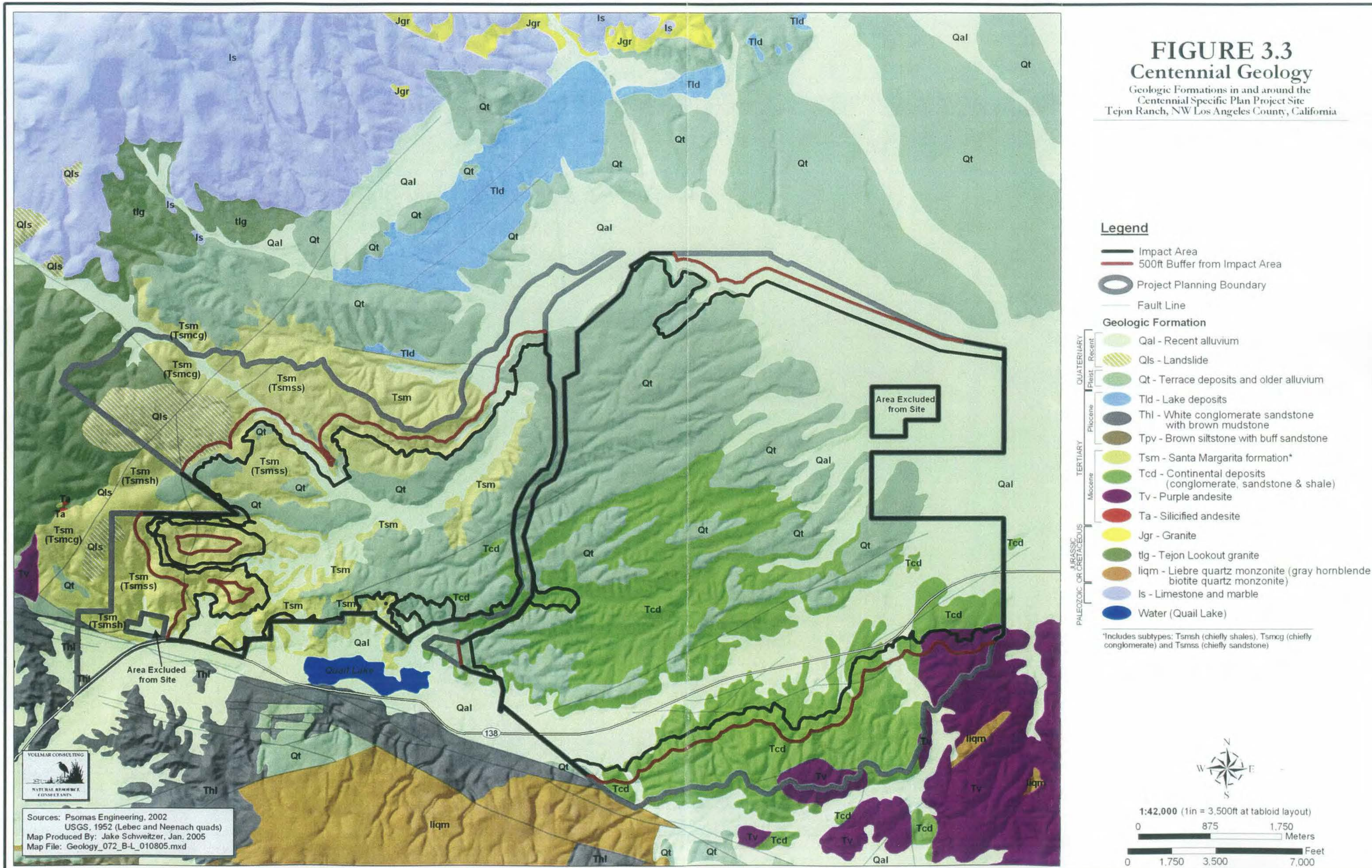
Seven distinct geologic formations occur within the study area. Six of these formations are mapped within the study area; the seventh (Limestone Beds) is mapped just north of but not within the study area. However, during field surveys, remnant limestone outcrops and blocks, and associated limestone-derived soils were identified in scattered locations in the northwestern, eastern, and southeastern portions of the study area. Table 3.1 summarizes these formations arranged by geologic age. Figure 3.3 shows the distribution of these formations within and adjacent to the study area. Table 3.2 summarizes the geologic formations and their associated soils. Figure 3.4 shows the mapped distribution of these soils in the study area.

Taken together, the geologic formations provide a rough geologic and geographic history of the region going back more than 300 million years. This history shows a beginning as a deep marine environment; followed by metamorphosis of the sea floor deposits into limestone beds; uplift of these beds by intruding Tehachapi granite; eruption of andesite volcanic flows along the young San Andreas Fault Zone; slow uplift of the area between the Tehachapis and Transverse Ranges (western Mohave Block) creating first a shallow marine or estuarine environment, followed by a mixed continental and lake environment; and, finally, the extensive disgorgement of alluvium (mostly granitic) from the Tehachapis and Transverse Ranges. These geologic formations each have distinct associated soils.

The distribution of special-status plant species and the diversity and abundance of native wildflowers and perennial bunchgrasses as well as introduced annual grasses were found to be strongly influenced by geologic formations and soils. Primary influencing factors include parent material, soil thickness, and texture. Soil pH does not appear to be a primary factor. Soil thickness varies greatly according to landscape position with thin soils along ridges, hill tops, and convex hill slopes and deeper soils along floodplains, alluvial terraces, and concave hill slopes. Soil texture is associated with the type and age of parent material. Most soils on the site are derived from granitic alluvium of the Terrace Deposits and Recent Alluvium. These sandy loam and gravelly loam soils are well-drained. Terrace Deposit soils vary from thin to deep depending on landscape position, with the thinnest soils along ridges and hilltops in the eastern study area, and the deepest soils on the elevated bench-like terraces bordering Oso Canyon. Soils of the Continental Deposits appear similar to those of the Terrace Deposits in the eastern portion of the study area with the distinct difference that the Continental Deposits have inclusions of limestone blocks rock that, upon weathering, creates an unusual friable clay loam soil. Soils of the Santa Margarita Formation tend to be thin and often overlying near-surface sedimentary bedrock. Soils derived from Tejon Lookout Granite are also thin and generally on steep slopes. The most unusual soils in the study area are those derived from limestone and andesite. The limestone-derived soils are silt or clay loams. The andesite-derived soils are sandy loams. Both of these soil types likely have unusual chemistries and available nutrients.

**Table 3.1 Geologic formations present within the Centennial Specific Plan Project Site. Information compiled by Vollmar Consulting. Data sources include Crowell (1952), Harden (1998), Hill (1976), SCS (1970), and Weise (1950).**

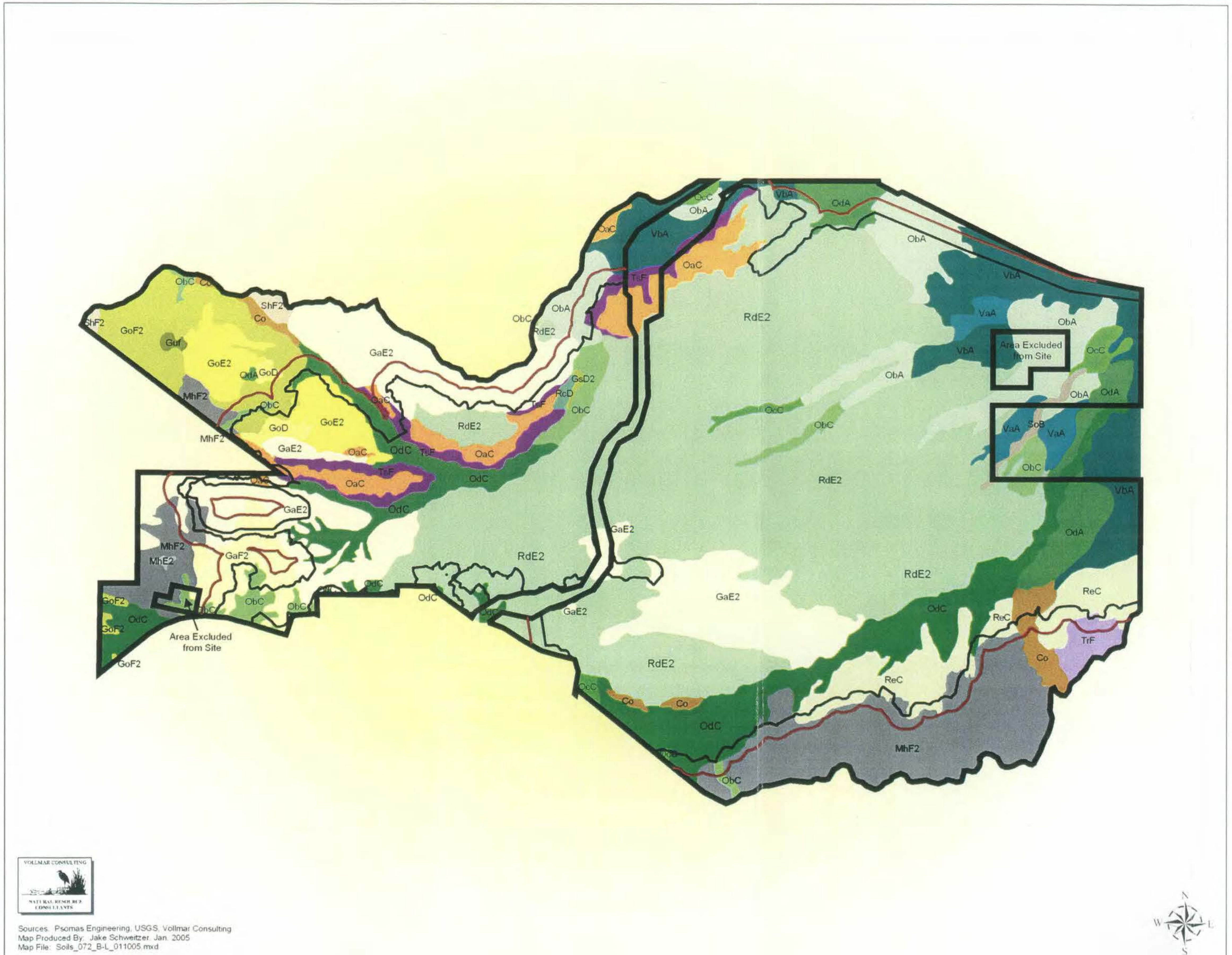
| Geologic Formation | Map Codes | Rock Type | Geologic Era | Period/ Epoch | Age | Notes |
|---|---|---|---|---|---|---|
| Limestone Beds | ls | Recrystallized Limestone (Metamorphic) | Paleozoic | n/a | 300+ my | Oldest rocks in the region; marine beds that have been metamorphosed and uplifted by granitic intrusion. There is a large mapped limestone bed capping the granitic ridge just north of the study area and unmapped disjunct blocks and soils exposed in scattered locations in the northwest of the study area. |
| Tejon Lookout Granite | tlg | Plutonic (Igneous) | Mesozoic | Jurassic or Cretaceous | 195-70 my | Formed from intrusive granitic plutons. The formation underlies most of the study area but is exposed in only a few areas in the northwest corner. It is the predominant formation west of the study area to the San Andreas and Garlock Faults and is the source of most alluvium in the Terrace Deposits and Recent Alluvium. |
| Purple Andesite | Tv | Volcanic (Igneous) | Cenozoic | Tertiary/ Early Miocene (?) | 26-20 my | Consists of massive purple andesite, extruded as thick flows with local dikes. The formation is along the north side of the San Andreas fault. Within the study area, there are exposed outcrops in the southeast (south of Highway 138). Stratigraphically, the formation lies on top of Tejon Lookout Granite and beneath the Santa Margarita Formation. |
| Santa Margarita Formation | Tsm, Tsmss, Tsmsh, Tsmcg | Marine Sandstone, Shale, and Conglomerate (Sedimentary) | Cenozoic | Tertiary/ Middle Miocene | 20-15 my | Consists of interbedded sedimentary rocks deposited in a shallow marine (estuarine?) environment. This formation is mapped along hills and slopes in the southwestern and central-northern regions of the study area. |
| Continental Deposits | Tcd | Continental Sandstone, Siltstone, and Shale (Sedimentary) | Cenozoic | Tertiary/ Late Miocene | 15-12 my | Consists of sedimentary sandstone, siltstone, and shale deposited in a continental environment (fluvial or alluvial) on top of the Santa Margarita Formation. Formation is mapped in the central, eastern and southeastern (south of Highway 138) portions of the study area. It is capped by Terrace Deposits north of Highway 138. There are scattered limestone blocks and associated weathered soils within these deposits. |
| Terrace Deposits | Qt | Consolidated, undeformed gravels, sands, and silts | Cenozoic | Quaternary/ Late Pleistocene | 100,000 to 10,000 yrs | These deposits occur in three distinct landscape positions. In the northeast of the study area, they occur as rounded, eroded hills; in the central western portion of the study area, they occur as elevated, flat-topped benches adjacent to Oso Creek and other larger stream courses; in the western portion of the study area, they form the upper stratum of the narrow fingerlike ridges and are underlain by Continental Deposits. They are composed of poorly sorted, consolidated alluvium derived from the upstream rock (mostly granite). |
| Recent Alluvium | Qal | Unconsolidated gravels, sands, and silts | Cenozoic | Quaternary/ Recent | 10,000 yrs to present | These deposits are widespread in low-lying valleys and floodplains in the study area, especially to the east. They consist of unconsolidated alluvium (mostly granite) deposited along present stream courses. |




# FIGURE 3.3
## Centennial Geology
Geologic Formations in and around the Centennial Specific Plan Project Site
Tejon Ranch, NW Los Angeles County, California

**Table 3.2 Soil types and associated geologic formations on or near the Centennial Specific Plan Project Site. Information compiled by Vollmar Consulting. Data sources include Crowell (1952), NRCS (1969), SCS (1970), and Weise (1950).**

| Geologic Formation/Soil Series | Code | Soil Type | Parent Material |
|---|---|---|---|
| **Limestone Beds** | | | |
| Ayar | AyD | Ayar clay loam, 5-15% slopes | Calcareous lacustrine deposits |
| Lebec | LeF | Lebec rocky loam, 15-30% slopes | Limestone |
| **Tejon Lookout Granite** | | | |
| Sheridan | ShF2 | Sheridan sandy loam, 30-50% slopes | Granite |
| **Andesite Flows** | | | |
| Temescal | TrF | Temescal-Rock land complex, 30-50% slopes | Purple andesite |
| **Santa Margarita Formation (SMF) and Continental Deposits (CD)** | | | |
| Gaviota (SMF and CD) | GaE2 | Gaviota rocky loam, 15-30% | Hard sandstone |
| Gaviota (SMF) | GaF2 | Gaviota rocky loam, 30-50% | Hard sandstone |
| Millsholm (SMF) | MhE2 | Millsholm rocky loam, 15-30% slopes | Hard shale/fine-grained sandstone |
| Millsholm (SMF and CD) | MhF2 | Millsholm rocky loam, 30-50% slopes | Hard shale/fine-grained sandstone |
| **Terrace Deposits (TD) and Continental Deposits (CD)** | | | |
| Gorman (TD) | GoD | Gorman sandy loam, 9-15% slopes | Old granitic alluvium |
| Gorman (TD) | GoE2 | Gorman sandy loam, 15-30% slopes | Old granitic alluvium |
| Gorman (TD) | GoF2 | Gorman sandy loam, 30-50% slopes | Old granitic alluvium |
| Gorman Gullied Land (TD) | GuF | Soils cut by gullies (within Gorman soils) | Old granitic alluvium |
| Oakdale (TD) | OaC | Oakdale sandy loam, 2-9% slopes | Old granitic alluvium |
| Oakdale Terrace Escarpments (TD) | TsF | Terrace escarpments (bordering Oakdale terraces) | Old granitic alluvium |
| Ramona (TD) | RcD | Ramona coarse sandy loam, 9-15% slopes | Old granitic alluvium |
| Ramona (TD and CD) | RdE2 | Ramona sandy loam, 9-30% slopes | Old granitic alluvium |
| Ramona (CD) | ReC | Ramona gravelly loam, 2-9% slopes | Old granitic alluvium |
| **Recent Alluvium** | | | |
| Chino | Co | Chino loam, nearly level | Mixed alluvium, mostly granitic |
| Greenfield | GsD2 | Greenfield sandy loam, 9-15% slopes, eroded | Granitic alluvium |
| Oak Glen | ObA | Oak Glen sandy loam, 0-2% slopes | Granitic alluvium |
| Oak Glen | ObC | Oak Glen sandy loam, 2-9% slopes | Granitic alluvium |
| Oak Glen | OcC | Oak Glen gravelly sandy loam, 2-9% slopes | Granitic alluvium |
| Oak Glen | OdA | Oak Glen loam, 0-2% slopes | Granitic alluvium |
| Oak Glen | OdC | Oak Glen loam, 2-9% slopes | Granitic alluvium |
| Soboba | SoB | Soboba cobbly sandy loam, 2-5% slopes | Granitic alluvium |
| Vernalis | VaA | Vernalis sandy loam, 0-2% slopes | Mixed alluvium, mostly granitic |
| Vernalis | VbA | Vernalis loam, 0-2% slopes | Mixed alluvium, mostly granitic |




# FIGURE 3.4
## Centennial Soils

Mapped Soils within the Centennial Specific Plan Project Site
Tejon Ranch, NW Los Angeles County, California

**Legend**

- Impact Area
- 500ft Buffer from Impact Area
- Project Planning Boundary

**Soils**

**Tejon Lookout Granite**
- ShF2--Sheridan

**Andesite Flows**
- TrF--Temescal

**Santa Margarita Formation (SMF) and Continental Deposits (CD)**
- GaE2--Gaviota (SMF and CD)
- GaF2--Gaviota (SMF)
- MhE2--Millsholm (SMF)
- MhF2--Millsholm (SMF and CD)

**Terrace Deposits (TD) and Continental Deposits (CD)**
- GoD--Gorman (TD)
- GoE2--Gorman (TD)
- GoF2--Gorman (TD)
- Guf--Gorman Gullied Land (TD)
- OaC--Oakdale (TD)
- RcD--Ramona (TD)
- RdE2--Ramona (TD and CD)
- ReC--Ramona (CD)
- TsF--Oakdale Terrace Escarpments (TD)

**Recent Alluvium**
- Co--Chino
- GsD2--Greenfield
- ObA--Oak Glen
- ObC--Oak Glen
- OdA--Oak Glen
- OdC--Oak Glen
- SoB--Soboba
- VaA--Vernalis
- VbA--Vernalis

40 Acres

1:42,000
(1in = 3,500ft at tabloid layout)

0 875 1,750 Meters

0 1,750 3,500 7,000 Feet

### 3.4 Plant Communities

Several plant communities are present in the study area. The predominant community is a combined perennial bunchgrass community/wildflower field. Additional plant community types include non-native annual grasslands and a number of oak woodland and chaparral communities. There are also limited stands of riparian woodlands, scattered freshwater marsh and alkali meadow. Although the study area occurs at the edge of the Mojave Desert region, it does not support desert (Mohavean) scrub vegetation. This is most likely related to the raised elevation and higher rainfall of the study area and its proximity to bordering ranges. Desert scrub begins to appear a mile or so east of the study area.

#### 3.4.1 Perennial Bunchgrass Community/Wildflower Field

Native perennial bunchgrass community/wildflower field, (referred to as a "perennial bunchgrass plant community" in this report), is one of the dominant plant communities in the study area. It occurs on the weathered ridges and terraces in the central and southeastern portions of the study area primarily on Tertiary Continental Deposits and Quaternary Terrace Deposits. These ridges and terraces begin approximately a mile and half west of the aqueduct and extend east to the transition with the flat, alluvial plain and also occur south of Highway 138 on the low hills at the base of the Transverse Ranges. Perennial bunchgrasses stands occur sporadically in other portions of the study area, particularly on the Santa Margarita Formation, but they are generally smaller and are often intruded by introduced annual grasses. Perennial bunchgrasses are generally absent from floodplains, the disturbed alluvial plains to the far east, and granitic formations.

This plant community is characterized by a relatively high cover of perennial bunchgrass species (typically greater than 20%), a conspicuously low cover of non-native annual grasses, and prominent open spaces between the individual bunchgrass clumps that support a showy, diverse array of native wildflowers during favorable rain years. Four perennial bunchgrass species occur in the study area as a common component of the bunchgrass community. These include nodding needlegrass (*Nasella cernua*), one-sided bluegrass (*Poa secunda* ssp. *secunda*), desert needlegrass (*Acnatherum speciosum)*, and big squirreltail (*Elymus multisetus*). Two other native perennial bunchgrasses, small-flowered melic grass (*Melica imperfecta*) and giant wild rye (*Leymus condensatus*), occur on the site but neither is a significant component of the perennial bunchgrass community. Small-flowered melic grass occurs primarily on rocky substrates in the southeastern and western portions of the study area. Giant wild rye occurs in a few scattered areas near seeps and along small drainages. Native wildflowers were especially conspicuous during the 2003 field season which had higher than average rainfall including late spring rains which extended the growing season. During this season, more than 70 species of native wildflowers were identified within the area occupied by the perennial bunchgrass community.

This plant community was identified during 2003 surveys as an herbaceous community, and the 2003 report describes the community as "dominated by a mix of native and non-native forbs and native perennial bunchgrasses." The perennial bunchgrass component appeared sub-dominant to the wildflower component during 2003 surveys because of the extraordinary 2003 spring wildflower display related to the above average 2002/2003 rainfall. Our continued plant community study, following the below average rainfall of 2003/2004, however, demonstrated that this community is indeed dominated by perennial bunchgrass species with a conspicuous wildflower component and an unusual lack of introduced annual grass species. Quite frankly, we have rarely seen extensive intact perennial bunchgrass stands of this nature, and it required a second year, with the wildflower component absent, to recognize the habitat as a perennial bunchgrass community.

Section 5.0 presents the methods and results of an ecological study of the perennial bunchgrass community that occurs over much of the study area. This plant community has a relatively high cover of native perennial bunchgrasses and wildflowers, and a conspicuously low cover of introduced annual grasses. Historically, this community type occurred throughout interior lowland California but was almost entirely replaced by invasive annual grasses introduced during Europeans settlement. This study assessed the diversity and variation in cover of perennial bunchgrass species, wildflowers, and introduced annual grasses across different landscape positions. The study also compared the bunchgrass community on the site with other known occurrences in the region and across the state. The results can be used to assess potential impacts of the proposed project to this unique native perennial bunchgrass community.

Historically, the perennial bunchgrass community type occurred throughout much of interior lowland California. It is generally agreed that this community was once common on nearly all well-drained upland sites throughout this area. However, the community has been almost entirely out-competed and replaced by invasive annual grasses introduced during Europeans settlement (Heady, 1995). It is estimated that less than 1% of the original bunchgrass community remains. The remaining stands are generally small (less than 100 acres), isolated in widely scattered areas throughout the state, and often intruded by introduced annual grasses. Given its dramatic decline, the perennial bunchgrass community is considered a sensitive plant community type in California (and other western states). The State of California also considers areas with conspicuous native wildflower displays to be a sensitive plant community called a wildflower field (Holland, 1986; CNDDB, 2004).

The perennial bunchgrass community on the site occupies roughly 5,500 acres within the entire 9,542-acre study area. The occurrence of such a large, intact stand is unusual and significant from both a regional and statewide perspective. Its ecological value is further enhanced by the co-occurrence of four different bunchgrass species, the conspicuously low cover of introduced annual grasses, and the strong and diverse association of native wildflowers. Section 5.0 provides a thorough assessment of this plant community regarding habitat preferences, distribution and variations in species composition and cover within the study area, regional landscape factors causing the local occurrence of this community, and comparisons with other known perennial grassland stands in the region and statewide.

### 3.4.2 Introduced Annual Grasslands

Non-native annual grassland is dominant in certain portions of the study area including the hills in the northwestern and western portions of the study area, on disturbed alluvial plains in the far eastern portion of the study area, and along the flood plains and lower slope positions between the ridges in the central study area. The annual grasses typically dominate on the relatively deeper soils associated with these landscape positions. Non-native annual grasslands also occur in a mosaic pattern within the oak woodland and chaparral communities that occur on the hills in the west and south, and in the far northwestern portions of the study area. The annual grassland community is dominated by a mix of exotic annual grass species. It also includes a low to moderate cover of native and exotic forbs (wildflowers). Common species in this plant community include slender oat grass *(Avena barbata)*, red brome *(Bromus madritensis ssp. rubens)*, ripgut brome (*Bromus diandrus)* and redstem filaree (*Erodium cicutarium)*.

### 3.4.3 Oak Woodlands

Five different oak species occur on the site including (in order of abundance) blue oak (*Quercus douglasii*), Tucker oak (*Quercus john-tuckeri*), valley oak (*Quercus lobata*), canyon live oak (*Quercus chrysolepis*), and interior live oak (*Quercus wislizenii* var. *frutescens*). Coast live oak (*Quercus agrifolia*), mistakenly reported from the site by a previous consultant, does not occur. Blue oak and Tucker oak woodland occurs throughout most of the higher hills in the northwest, southwest, and southeast portions of the site. These two oak woodlands are intermixed in some areas. Valley oak woodland occurs in scattered areas on floodplains along the larger stream courses in the study area. Many of the valley oaks are very large and mature. Individual trees and small stands of canyon live oak occur in scattered areas along protected, steep north- and east- facing slopes in the far western study area. One interior live oak was found on a sandstone hillside in the southwest of the study area.

### 3.4.4 Chaparral

Scrub and chaparral habitats occur on steeper, often rocky slopes and outcrops in the southern and western portions of the study area. In general, it is difficult to categorize these according to a specific plant community. Since the study area is located near the intersection of three distinct geographic provinces (Mojave Desert, Tehachapi Range, and Transverse Ranges), many of the scrub and chaparral communities on the site have a mix of species from more than one plant community type as defined by Holland (1986). Represented communities include Mojave Mixed Woody Scrub, Big Sagebrush Scrub, Rabbitbrush Scrub, and Semi-Desert Chaparral. Rabbitbrush Scrub and Big Sagebrush Scrub occur as distinct communities in scattered areas on the low-lying alluvial plains in the eastern portion of the study area.

### 3.4.5 Other Plant Community Types

There are other minor plant communities present in the study area. Alkali Meadow occurs in a low-lying area northeast of the intersection of Highway 138 and Cement Plant Road. This area may be an old borrow site. There are also local stands of Southern Cottonwood-Willow Riparian Forest along the two largest stream courses on the site, and Coastal and Valley Freshwater Marsh in a few scattered areas along these streams and in a few spring-fed stock ponds.

## 3.5 Land Use

Ranching and hunting are the primary land uses within the study area. Development is limited to unpaved ranch roads, fencing, stock ponds, a few electrical transmissions lines, and some buildings used as hunting cabins. The far eastern end of the study area appears to have been leveled and disked in the past for farming. While excluded from the actual study area, the California Aqueduct and several paved roads (including Highway 138 and access roads to the aqueduct and a cement plant located just north of the study area) traverse the study area. Surrounding lands are used primarily for ranching and hunting though there are some farmed parcels and rural residences. Quail Lake is located along the southern edge of the study area and there is an electrical substation just southwest of the study area.

# 4.0 SPECIAL-STATUS PLANT SURVEYS

## 4.1 Introduction

This section of the report summarizes the methods and results of special-status plant surveys conducted during spring and summer 2003 and 2004 throughout the study area. The purpose of the surveys was to identify occurrences of special-status species. In addition, the surveys assessed the specific microhabitat requirements of targeted special-status species through review of available site information (as summarized in Section 3.0 above), field visits to known locations in the project vicinity, and site field observations. This assessment was used to interpret the extent of potential habitat for targeted species across the study area.

The surveys conducted for this report were comprehensive in nature but do not represent complete present/absence surveys given the size of the study area and the size of the area surveyed each day by the field crew. However, they were systematic and intensive and it is likely that all special-status plant species present within the study area were detected and that nearly all occurrences of these species were identified and mapped. Two special-status species identified on the site, sylvan microseris (*Microseris sylvatica*) and Tucker oak (*Quercus john-tuckeri*), were quite abundant and high potential habitat areas rather than individual occurrences were mapped.

The survey results may be used for specific project planning and permitting. An additional round of peak spring surveys and precise mapping of sylvan microseris and Tucker oak stands would be required to achieve full presence/absence survey results. It is unclear, however, if these additional surveys would be required to obtain project permits.

## 4.2 Methods

### 4.2.1 Background Review

Prior to the 2003 field surveys, the project team gathered and reviewed available botanical information and developed an annotated list of special-status plants known to occur, or with potential to occur, in the study area. The list was modified for the 2004 surveys according to new information obtained during the 2003 surveys. Sources used to develop this information included California Native Plant Society's (CNPS) Inventory of Rare and Endangered Vascular Plants of California (CNPS 2001), California Department of Fish and Game's (CDFG) California Natural Diversity Data Base (CNDDB 2003), A Flora of Kern County, California (Twisselman, 1967), a list previously developed for the study area by Impact Sciences, Inc., and discussions with Maynard Moe, an expert botanist familiar with the region (Moe 2003).

For the purposes of this report, special-status species include:

- species listed or proposed for listing by the federal government as threatened or endangered under the Federal Endangered Species Act (ESA) (50 CFR 17.12) and federal species of concern;
- species listed or proposed for listing by the State of California as rare, threatened, or endangered under the California Endangered Species Act (CESA) (14 Cal. Adm. Code 670.5) and state species of special concern;
- species identified in California Native Plant Society's Inventory of Rare and Endangered Vascular Plants of California (CNPS 2001) as rare, threatened, or endangered in California (Lists 1 and 2), or on the review or watch lists (Lists 3 and 4, respectively);
- species that meet the definition of rare, threatened, or endangered under the California Environmental Quality Act (CEQA).

Table 4.1 is an annotated list of the special-status identified as known or with potential to occur in the study area.

The project team also gathered and reviewed information on the study area landscape features including geology, geomorphology and topography. Sources of information included geologic maps and books, and soils surveys pertaining to the region (Crowell (1952), Harden (1998), Hill (1976) and SCS (1970), as well as books or reports discussing the regional landscape setting and habitats (Twisselman, 1976; Holland, 1986). Impact Sciences, Inc. also provided the team with an aerial photo and topographic map of the study area. Mr. Schweitzer, the project GIS technician, developed a digital topographic map of the study area using a digital elevation model (DEM).

### 4.2.2 Field Surveys

The field survey teams consisted of two senior botanists and two to three assistant botanists. During the 2003 surveys, John Vollmar and John Hale served as senior botanists, and Vir McCoy, Michele Disney, and Shannon Hickey served as assistant botanists. During the 2004 surveys John Vollmar and Jon Kelsey served as senior botanists and Shannon Hickey, Gretchen Vos and Vir McCoy served as assistant botanists. Surveys were conducted by two teams working different areas. Each team consisted of one senior botanist and one or two assistant botanists. During surveys, each botanist worked independently. However, all botanists carried field radios so that any questions pertaining to plant taxonomy or other issues could be immediately addressed in the field by the senior botanist on the team. ATVs were used to access the study area and to conduct the reconnaissance-level surveys. More intensive surveys were conducted on foot in areas with potential to support special-status species or areas which could not be accessed by ATVs.

Prior to conducting site surveys, the team conducted regional status surveys of known special-status species occurrences to become familiar with microhabitats, plant associates, and current phenology. Status surveys were conducted in the adjacent interior Coast Ranges, around Fort Tejon, along the low foothills and plains bordering the southern San Joaquin Valley to the south and east, in the hills east of the study area, and in the western Antelope Valley surrounding hills.

**Table 4.1. Special-status plant species known to occur in the general region of the Centennial Specific Plan Project Site, Tejon Ranch, northwestern Los Angeles County.[1] Prepared March 2004 by Vollmar Consulting (Berkeley, CA).**

| SCIENTIFIC NAME/ COMMON NAME[2] | STATUS[3] | HABITAT/RANGE/ELEVATION | REGIONAL OCCURRENCE | BLOOM PERIOD |
|---|---|---|---|---|
| *Chorizanthe spinosa* Mojave spineflower | CNPS 4 | Chenopod scrub, Joshua tree woodland, Mohavean scrub; known only from Kern, Los Angeles, and San Bernadino Counties; 6-1300 meters. | No records in the project vicinity prior to survey. | Apr-Jul |
| *Eriophyllum lanatum* var. *hallii* Fort Tejon wooly sunflower | CNPS 1B | Slopes in chaparral, oak woodland; known only from Kern and Santa Barbara Counties; 1065-1500 meters. | Known from a few sites north of the study area in the canyon west of Fort Tejon State Park and on Tejon Ranch east of I-5. | May-Jul |
| *Erodium macrophyllum* Round-leaved filaree | CNPS 2 | Friable clay soils in valley and foothill grassland, oak woodland; known from scattered locations throughout the central and southern Coast Ranges, Great Valley, and Sierra Foothills; 15-1200 meters. | Known from three sites in a localized area just north of the study area on Tejon Ranch; reported by Twisselman (1967) along the northern foothills of the Tehachapi Mtns and along the NW side of Antelope Valley. | Mar-May |
| *Eschscholzia lemmonii* ssp. *kernensis* Tejon poppy | CNPS 1B | Heavy clay soils in valley and foothill grassland, chenopod scrub; known only from Kern County in the hills south of Bakersfield and the Tejon Pass region; 160-1000 meters. | Known from Comanche Point (hills along the SE edge of the San Joaquin Valley) and in the canyon west of Fort Tejon State Park. | Mar-May |
| *Githopsis tenella* Delicate bluecup | CNPS 1B | Mesic sites in chaparral, woodland habitats; known only from Kern and Tulare Counties in the Sierra Nevada and Tehachapi Mountains, and (possibly) Monterey County; 1100-1900 meters. | Reported by Twisselman along Purdy Ridge in the Tehachapi Mountains several miles NE of the study area. | May-Jun |
| *Layia leucopappa* Comanche Point layia | CNPS 1B | Vernally wet, usually whitish clay soils (small flats on slopes) in valley and foothill grassland, chenopod scrub; known only from Kern County near the Comanche Hills and Tejon Hills (Twisselman, 1967); 100-350 meters. | Known from Comanche Point and the Tejon Hills several miles NE of the study area. | Mar-Apr |
| *Microseris sylvatica* Sylvan microseris | CNPS 4 | Thin, gravelly soils in valley and foothill grassland, woodland, Great Basin scrub; known from scattered locations throughout the central and southern Coast Ranges and the Sierra Nevada foothills; 45-1500 meters. | No records in the project vicinity prior to this survey. | Mar-Jun |
| *Monardella linoides* ssp. *oblonga* Flax-like monardella | CNPS 1B | Montane coniferous forest, pinyon/juniper woodland; known only from mountainous areas in Kern, Tulare and Venture Counties; 900-2470 meters. | Known occurrence a few miles NW of the study area below Chuchupate Campground, south of Fort Tejon State Park. | Jun-Aug |
| *Navarretia setiloba* Piute Mountains navarretia | CNPS 1B | Clay or gravelly loam soils in oak woodland, pinyon/juniper woodland, valley and foothill grassland; known from fewer than ten sites in the SW Tehachapi Mountains (Kern and Tulare Counties); 305-2100 meters. | Reported by Twisselman from Grasshopper flat, in the Tehachapi foothills bordering the San Joaquin Valley, several miles north of the study area. | Apr-Jul |
| *Opuntia basilaris* var. *treleasei* Bakersfield cactus | CE/FT CNPS 1B | Sandy or gravelly soils on alluvial benches and fans along the south and SE edge of the San Joaquin Valley in valley and foothill grassland, chenopod scrub, oak woodland; known only from Kern County; 120-550 meters. | Known from the base of the Tehachapis just west of I-5 (several miles NW of the study area) and from Comanche Point (several miles NE of the study area). | May |

| SCIENTIFIC NAME/ COMMON NAME[2] | STATUS[3] | HABITAT/RANGE/ELEVATION | REGIONAL OCCURRENCE | BLOOM PERIOD |
|---|---|---|---|---|
| *Quercus john-tuckeri* Tucker oak | CNPS 4 | Arid oak woodlands, pinyon/juniper woodlands, chaparral and slopes on desert borders. Known to occur on the east slope of the Tehachapis, the northern slope of the Western Transverse Range, the northern slope of the San Gabriel Mountains, and the interior South Coast Range; 900 – 2,000 meters. | Reported by Twisselman in Kern County from the San Emgdio and Temblor ranges, southwest to the north flank of Mt. Abel, and occasionally northeast through the Piute Mountains to Erskine Canyon. Also on the arid slopes in the northeastern Tehachapi Mountains in the Cache Peak, Weldon Peak and upper Pine Tree Canyon. | Mar-May |
| *Perideridia pringlei* Adobe yampah | CNPS 4 | Often on clay or serpentine soils in chaparral, woodland, coastal scrub, and pinyon/juniper woodland; known from the central and southern Coast Ranges and the southern Sierra foothills; 300-1,800 meters. | Known from Kern and Los Angeles Counties but not previously reported in the immediate vicinity of the project site. | Apr-June |
| *Syntrichopappus lemmonii* Lemmon's syntrichopappus | CNPS 4 | Sandy and gravelly slopes in chaparral and Joshua tree woodlands, on the SW border of Mojave Desert and adjoining slopes of the San Gabriel, San Jacinto and San Bernardino Mountains. Also in Monterey County; 900-1500 meters. | Known from Los Angeles, San Bernardino and Monterey Counties but not previously reported in the immediate vicinity of the project site. | Apr-May |
| *Thermopsis macrophylla* var. *argentata* Silvery false lupine | CNPS 1B | Slopes in woodland, valley and foothill grassland, lower coniferous forest; Known from widely scattered locations in California (southern Coast Range, Tehachapis, northern Sierra Nevada, southern Cascades); 900-1960 meters; synonymous with *Thermopsis californica* var. *argentata* (CNPS 2001). | Known from occurrences just north of the study area near the Cement Plant and several miles to the north, east of Tejon Lake. | Apr-Jul |

1. Sources of information include California Department of Fish and Game's California Natural Diversity Data Base (CNDDB 2001), California Native Plant Society's Inventory of Rare and Endangered Vascular Plants of California (CNPS 2001), A Flora of Kern County (Twisselman, 1967), The Jepson Manual (Hickman, 1993), A California Flora (1968), special-status species lists and technical reports previously prepared for the site by Impact Sciences, Inc. (Oakland, CA), and discussions with knowledgable experts.
2. Scientific nomenclature from Hickman (1993); common names from CNPS (2001).
3. Federal Status: FT = Federal Threatened; State Status: CE = California Endangered; CT = State Threatened; CNPS 1B = plants rare, threatened or endangered over entire range; CNPS 2 = plants rare, threatened or endangered in California but more common elsewhere; CNPS 4 = watch list of plants that are uncommon but not currently rare, threatened or endangered

The teams conducted two rounds of surveys each year, the first during the peak spring flowering period and the second during the late spring flowering period. Surveys covered the entire survey area during each round. During the 2003 surveys, the first round was conducted April 1-11, and the second round was conducted June 23-27. During 2004, the first round was conducted April 15-24, and the second was conducted June 10-13.

Survey intensity (number of acres surveyed per person per day) differed within a given area, according to terrain and accessibility, and between years as the 2004 surveys were intended to augment 2003 survey data. Table 4.2 summarizes survey intensity by survey area and year.

**Table 4.2. Comparison of survey intensities during the 2003 and 2004 botanical surveys on the Centennial Specific Plan Project Site, Tejon Ranch, Los Angeles County, California.**

| Centennial Project Survey Areas | Survey Intensity (Acres Surveyed/Person/Day) | | | |
|---|---|---|---|---|
| | 2003 Peak Spring Surveys | 2003 Late Spring Surveys | 2004 Peak Spring Surveys | 2004 Late Spring Surveys |
| Eastern Area (flat-moderate) | 320 acres | 640 acres | 640 acres | 640 acres |
| Western Area (steep or rocky) | 160 acres | 320 acres | 640 acres | 640 acres |

At the beginning of each survey day, each team identified a targeted survey area. Team members then communicated during the course of the day, dividing the survey area into smaller blocks and conducting focused surveys. After a particular block was surveyed, it was marked off on a field map. In this way, the team could track survey progress and avoid missing or resurveying areas.

Surveys were floristic in nature whereby all plants encountered were identified to species (or subspecies/variety as appropriate). During surveys, each botanist used a notebook to record all species observed. Species that could not be readily identified in the field were collected and identified in the evening using botanical field manuals. During the 2003 surveys, John Hale kept a master list of all species observed, adding any new species identified at the end of each field day. During 2004, Gretchen Vos maintained and updated the master species list.

Each occurrence of a special-status species identified during the surveys was assigned a unique number. The boundary of each occurrence was mapped using a professional GPS unit with meter accuracy (GeoXT). Ecological data were collected following the form from the California Natural Diversity Data Base. Voucher specimens were collected for each of the special-status species found in the study area. Pictures were also taken of all special-status species except Lemmon's syntrichopappus (*Syntrichopappus lemmonii*) and Tucker Oak (*Quercus john-tuckeri*).

### 4.2.3 Mapping and Analysis

GPS field data were downloaded into a GIS data base for mapping and analysis. All data were differentially corrected to improve accuracy. These data were then used to create maps showing distribution of mapped special-status plant occurrences in relation to study area features including topography, plant communities, and geology.

## 4.3 Results

Seven special-status plant species were identified within the study area:

- Mojave spineflower (*Chorizanthe spinosa*)
- Round-leaved filaree (*Erodium macrophyllum*)
- Sylvan microseris (*Microseris sylvatica*)
- Piute Mountains navarretia (*Navarretia setiloba)*
- Adobe yampah (*Perideridia pringlei*)
- Tucker oak (*Quercus john-tuckeri)*
- Lemmon's syntrichopappus (*Syntrichopappus lemmonii*)

The occurrence, distribution, and microhabitats for each of these species are discussed below. Table 4.3 summarizes the number of occurrences and area of each species stratified by impact and non-impact areas within the project site. Figures 4.1, 4.2, 4.3, 4.4a and 4.4b show the occurrences of each species in relation to site geography (USGS topographic map), aerial photography, and geology, respectively. Appendix B provides photographs of five of the seven special-status species. Photos of Lemmon's syntrichopappus (*Syntrichopappus lemmonii*) and Tucker oak (*Quercus john-tuckeri)* are not included.

### 4.3.1 Overview of Plant Diversity in the Study Area

A total of 255 plant taxa were identified in the study area (see list in Appendix 4-B). Of these, 222 (87%) were natives and 33 (13%) were non-natives. The perennial bunchgrass plant community, which dominates in the central and southeastern portions of the project site, supports a diverse mix of native wildflowers and perennial bunchgrasses. There is also a strong cover of filaree (*Erodium cicutarium*), a common non-native rangeland forb. Overall, the study area is relatively free of invasive or noxious weeds, except in the low-lying alluvial plains in the far eastern study area. Past farming on portions of these plains degraded the habitat and facilitated invasion by non-native weeds such as tansy mustard (*Descurania sophia*) and summer mustard (*Hirshfeldia incana*). The woodland and chaparral communities in the western and southern study area contribute important unique elements to the plant diversity in the study area, as do the alkali meadow, riparian and freshwater marsh communities.

**Table 4.3 Summary of special-status plant occurrences identified during 2003 and 2004 botanical surveys conducted by Vollmar Consulting on the Centennial Specific Plan Project Site, Tejon Ranch, Los Angeles County.**

| | Total Study Area | | | | | | | Inside Impact Areas | | Inside Impact Buffer | | Outside Impact, Inside Project Planning | | Outside Project Planning Boundary | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Species[1] | Total Number of Occurrences[2] | Number of Occurrences[2] Identified in 2003 | Number of Occurrences[2] Identified in 2004 | Total Acreage | Max. Occurrence Size (Acres) | Min. Occurrence Size (Acres) | Average Occurrence Size (Acres) | Number of Occurrences[2] | Total Acreage | Number of Occurrences[2] | Total Acreage | Number of Occurrences[2] | Total Acreage | Number of Occurrences[2] | Total Acreage |
| CHSP | 19 | 10 | 9 | 0.62 | 0.29 | .001 | 0.03 | 20 | 0.62 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| ERMA | 46 | 32 | 14 | 46.92 | 12.9 | .004 | 1.02 | 38 | 25.76 | 6 | 5.76 | 5 | 9.15 | 6 | 6.24 |
| MISY[3] | N/A | N/A | N/A | 4,458 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| NASE | 3 | 0 | 3 | 1.79 | 1.55 | .038 | 0.60 | 0 | 0.0 | 3 | 0.83 | 1 | 0.97 | 0 | 0.0 |
| PEPR | 1 | 0 | 1 | 0.02 | 0.02 | 0.02 | 0.02 | 1 | 0.02 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| QUJO[3] | N/A | N/A | N/A | 1,420 | N/A | N/A | N/A | N/A | 73 | N/A | 399 | N/A | 948 | N/A | N/A |
| SYLE | 1 | 0 | 1 | 0.013 | .013 | .013 | .013 | 0 | 0.0 | 1 | .013 | 0 | 0.0 | 0 | 0.0 |
| All Species | | | | 5,927 | | | | | | | | | | | |

Notes:[1] CHSP = *Chorizanthe spinosa;* ERMA = *Erodium macrophyllum*; MISY = *Microseris sylvatica*; NASE = *Navarretia setiloba*; PEPR = *Perideridia pringlei*; QUJO = *Quercus john-tuckeri;* and SYLE = *Syntrichopappus lemmonii.* [2]Note that the total number of occurrences may be less than the number of occurrences shown in the other columns. This is due to the fact that some occurrences crossed the boundaries between impact and non-impact areas and were counted in two different areas. [3]The total number of *occurrences* for *Microseris sylvatica* and *Quercus john-tuckeri* were not calculated, as numerous occurrences of both species were located over extensive areas in the study area.

## 4.3.2 Special-Status Plants

### 4.3.2.1 Mojave Spineflower *(Chorizanthe spinosa)*

Listing Status: CNPS List 4; no state or federal status

Mojave spineflower is a prostrate to ascending annual forb in the buckwheat family (Polygonaceae). It has small white flowers surrounded by spine-tipped bracts (see photographs in Appendix 4-A). It typically occurs in chenopod scrub, Joshua tree woodland, Mohavean scrub habitats well east of the study area. It is known only from Kern, Los Angeles, and San Bernardino Counties and, prior to these surveys, was not known from the vicinity of the study area. It is a CNPS List 4 species (watch list) and has no state or federal listing status.

A total of nineteen occurrences of Mojave spineflower were located in the study area. The 2003 surveys identified ten locations, in two separate clusters, along alluvial slopes near the central southern edge of the study area. Nine additional occurrences, in four clusters, were identified during the 2004 surveys. These additional occurrences were all located either adjacent to the previous 2003 occurrences or within the same localized habitat. (Figures 4.1 and 4.2).

The microhabitat occupied by the species is highly specialized. First, the occurrences were situated along two finger-like corridors of Recent Alluvium bordered by much older Continental Deposits which included limestone blocks and, further up the hill slope to the south, a large andesite outcrop (Figures 4.3 and 4.4a). Due to this complex geologic setting, the soils in and around the Mojave spineflower locations were unique, consisting in large part of mixed andesitic and limestone alluvium. Together, these two types of alluvium undoubtedly create a soil with a unique chemistry and texture.

Second, all mapped locations were within eroded soil barrens. In these barrens, the top one to two inches of soil had been stripped away through erosion, leaving a very thin mineral soil as the top horizon. These barrens occurred in scattered locations along the Recent Alluvium surface. Most of these barrens were colonized by a dense stand of Mohave spineflower. Subdominant associated species within the barrens included California goldfields (*Lasthenia californica)*, red brome *(Bromus madritensis* ssp. *rubens)*, one-sided bluestem *(Poa secunda* ssp. *seconda)*, vinegar weed (*Trichostemma lanceolatum)*, and turkey mullein (*Eremocarpus setigerus).* The surrounding hillsides supported the perennial bunchgrass plant community described elsewhere in this report.

Given the highly specialized microhabitat conditions associated with the Mojave spineflower occurrences, especially its association with mixed andesite and limestone alluvia, it is assumed this species would only occur along the southern edge of the study area (south of Highway 138), immediately below an exposed andesite outcrop. No occurrences of the species were found elsewhere in this localized area even though there are extensive andesite outcrops to the east. The species is not expected to occur elsewhere in the study area (i.e. north of Highway 138) due to a lack of suitable habitat.

#### 4.3.2.2 Round-leaved Filaree (*Erodium macrophyllum*)

Listing Status: CNPS List 2; no state or federal listing status

Round-leaved filaree is a low-growing annual or biennial forb in the geranium family (Geraniaceae). It has reniform (kidney-shaped) leaves and inconspicuous white to pink-tinged flowers (see photographs in Appendix 4-A). The species is uncommon but widely distributed throughout the central and southern Coast Ranges, southern Sierra Nevada, and Great Valley regions of California. Round-leaved filaree is a CNPS List 2 species, meaning it is rare in California but more common elsewhere. It has no state or federal listing status.

The surveys identified a total of forty-six occurrences of round-leaved filaree. Thirty-two occurrences were found during 2003 surveys. Fourteen additional occurrences were identified during 2004 surveys. The additional 2004 occurrences were located near the 2003 occurrences on the slopes and flats below the hills south of Highway 138. All occurrences are mapped on Figures 4.1 and 4.2. Population size among occurrences ranged from small occurrences covering less than forty square feet and supporting fewer than 20 plants to large occurrences covering several acres and supporting several thousand plants. Most occurrences were found along the low hills and slopes south of Highway 138. The remaining occurrences were located in a localized area on the dissected terraces north of Highway 138 and east of the California Aqueduct. During 2003 surveys several additional occurrences were also found outside of the study area, just north of the study area in upper Oso Canyon and east of the cement plant. The eight occurrences east of upper Oso Canyon were mapped and are shown on the report figures.

The distribution of round-leaved filaree is strongly influenced by site geology (Figures 4.3 and 4.4a). Round-leaved filaree is typically associated with friable clay loam soils. At the beginning of the 2003 surveys, it seemed unlikely this species would be found in the study area since none of the associated geologic formations weather into clay soils except perhaps for shale of the Santa Margarita Formation. However, once the surveys began, unmapped limestone outcrops and soils were found in scattered, isolated locations across in the central and southeastern portions of the study area. Also, limestone outcrops and limestone-derived soils were found in the steep hills in the northwest study area along upper Oso Canyon. The soils derived from these limestone deposits are unusual friable clay loam soils that were found to provide suitable habitat for round-leaved filaree. All occurrences of this species within the study area were directly associated with these soils as evidenced by the presence of limestone fragments in the soils and, in some cases, nearby limestone outcrops. The limestone apparently comes from two different sources. The limestone in the northwestern of the study area, mapped as Terrace Deposits, likely comes from remnant blocks or buried layers associated with the Limestone Beds capping the ridges to the north of the study area. The limestone in the central and southeastern portions of the study area come from either remnant limestone blocks deposited as part of the alluvium within Continental Deposits or from lake-deposited calcareous rock integral to the Continental Deposits. Though not mapped within the study area, there is a geologic stratum closely associated with the Continental Deposits called Lake Deposits. One component of these Lake Deposits is 'marl', a sedimentary rock type derived from mixed clay and microcrystalline limestone. Significantly, this rock weathers into a friable clay loam.

Interestingly, in an area south of Highway 138, round-leaved filaree alternated with Mojave spineflower across alternating geologic surfaces. Round-leaved filaree was on mapped Continental Deposits while Mojave spineflower was mapped on intervening fingers of Recent Alluvium composed of mixed andesite and limestone alluvia (discussed above).

From a topographic perspective, round-leaved filaree typically occurs on moderate to steep slopes on a variety of aspects. The apparent strong association of round-leaved filaree with moderate to steep slopes appears to be related more to the location of the limestone soils, rather than any specific preference for these slopes. There did not appear to be any unique hydrologic conditions other than the fact that clay soils retain more water and remain moister longer than the surrounding granite- and sedimentary-derived soils.

Most occurrences of the species were located in annual grassland inclusions within the perennial bunchgrass plant community. A few were in openings within blue oak or Tucker oak woodlands. All occurrences had a unique suite of plant associates, many of which were also exclusively found on limestone-derived soils. Common associates included lanceolate monolopia (*Monolopia lanceolata)*, ciliate phacelia (*Phacelia ciliata)*, peppergrass (*Lepidium nitidum)*, miner's lettuce (*Claytonia perfoliata)*, blue dicks (*Dichelostemma capitata)*, and tidytips (*Layia platyglossa)*. One occurrence had common lomatium (*Lomatium utriculatum)* as a dominant associate. The associates proved very useful in finding occurrences of round-leaved filaree. Lanceolate monolopia is a unique, neon-yellow color that can be distinguished at a great distance. Many of the initial occurrences of round-leaved filaree were located by standing on a tall hill overlooking the study area and picking out occurrences of monolopia. Each of these sites was then visited, many of which were found to support round-leaved filaree. Though not as striking, tidytips also had a characteristic cream color which could also be distinguished at a distance. It is important to note that not all sites with limestone-derived soils supported round-leaved filaree even though many of its typical plant associates were present.

Potential habitat for round-leaved filaree within the study area is restricted to areas supporting limestone-derived friable clay loam soils. These soils occur sporadically along steep slopes on areas mapped as Terrace Deposits in the northwestern corner of the study area and in scattered areas on Continental Deposits along the slopes in the southern portion of the study area (south of Highway 138) and in a few widely scattered locations in the eastern portion of the study area (north of Highway 138 and east of the aqueduct). While the surveys conducted for this study found nearly all the occurrences in the study area, there are undoubtedly some additional occurrences that were not found given the scattered, sometimes random distribution of the limestone-derived soils. Nonetheless, all additional occurrences should be restricted to those geologic formations with associated limestone (i.e. northwestern Terrace Deposits and all Continental Deposits). The species is not expected to occur within the Andesite, Tejon Lookout Granite, Santa Margarita, central or eastern Terrace Deposits, or Recent Alluvium Formations.

#### 4.3.2.3 Sylvan Microseris (*Microseris sylvatica*)

Listing Status: CNPS List 4; no state or federal status

Sylvan microseris is an erect annual herb in the sunflower family (Asteraceae). It has a basal leaf cluster and pale yellow flowers that nod in bud (see photographs in Appendix 4-A). The species is uncommon but widely distributed in California through the central and southern Coast Ranges and the Sierra Nevada foothills. Prior to the survey, it was unclear if it occurred in Los Angeles County (CNPS 2001). It is a CNPS List 4 species, a watch list of species that are uncommon but not presently rare, threatened, or endangered.

Numerous (500+) occurrences of sylvan microseris were found in the study area during the 2003 surveys. Additional occurrences were located during 2004 surveys. Given this abundance and large population size, individual occurrences were not mapped. Instead, areas where sylvan microseris is likely to occur are mapped as large polygons in the study area. The area totals approximately 4,458 acres. With regards to geologic preferences and distribution, the large majority of occurrences were on soils associated with Continental Deposits and Terrace Deposits in the central and southeastern portions of the study area, in the same area supporting the perennial bunchgrass community. It did not generally occur on the bench-like Terrace Deposits, bordering Oso Creek and was uncommon on the mapped Terrace Deposits in the northwest portion of the study area. The species was conspicuously absent from intervening floodplains composed of Recent Alluvium. It was also absent from volcanic- and limestone-derived soils and was uncommon on soils of the Santa Margarita and Tejon Lookout Granite Formations.

In those areas where the species occurred, it exhibited clear geomorphic preferences. While it occurred sporadically in a variety of landscape positions, it was by far most common on thin, well-drained gravelly or coarse sandy loam and clay loam soils on the upper north sides of ridges and hills, and on slopes and flats immediately bordering ephemeral drainages. The species was often particularly abundant on the triangular bench just above and between the confluence of small drainages.

Nearly all occurrences were located within the perennial bunchgrass plant community. A few were in areas bordered by blue oak woodland (south of Highway 138). There were no obvious unique plant associates. Some typical dominant associates included cheatgrass (*Bromus tectorum)*, soft chess (*Bromus hordeaceus)*, ripgut brome (*Bromus diandrus)*, turkey mullein (*Eremocarpus setigerus)*, redstem filaree (*Erodium cicutarium)*, and whitetip clover (*Trifolium albopurpureum* var. *albopurpureum)*.

Since sylvan microseris occurs sporadically within a variety of landscape positions, all areas within the central and southeastern portions of the study area that are mapped as Continental Deposits and Terrace Deposits should be regarded as providing good potential habitat for the species (Figure 4.1 and 4.2). The perennial bunchgrass plant community and open oak woodland habitat within areas mapped as Santa Margarita Formation and Terrace Deposits (excluding the bench-like deposits bordering Oso Creek) in the western portion of the study area also provide moderate potential habitat. Areas mapped as Recent Alluvium, Andesite, and Tejon Lookout granite provide low to no potential habitat.

#### 4.3.2.4 Piute Mountains Navarretia (*Navarretia setiloba*)

Listing Status: CNPS 1B; no state or federal status

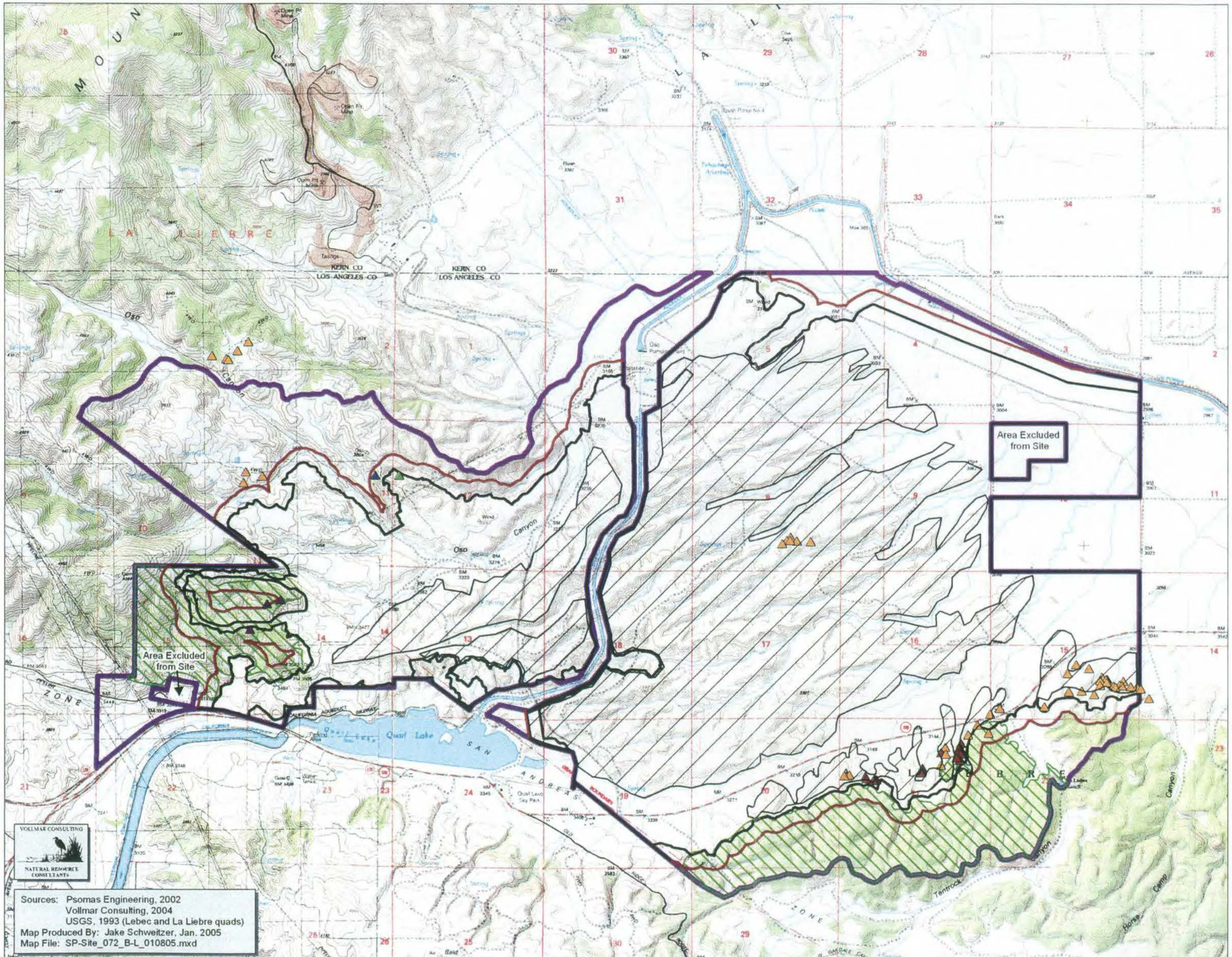
Piute Mountains navarretia is a low-growing annual forb in the phlox family (Polemoniaceae). It has narrow, clustered, spine-tipped leaves, and blue-purple and white flowers in clustered heads (Appendix B). It is distinguished from the more common *Navarretia pubescens* by having flowering bracts widened above the middle and a white rather than purple flower throat.

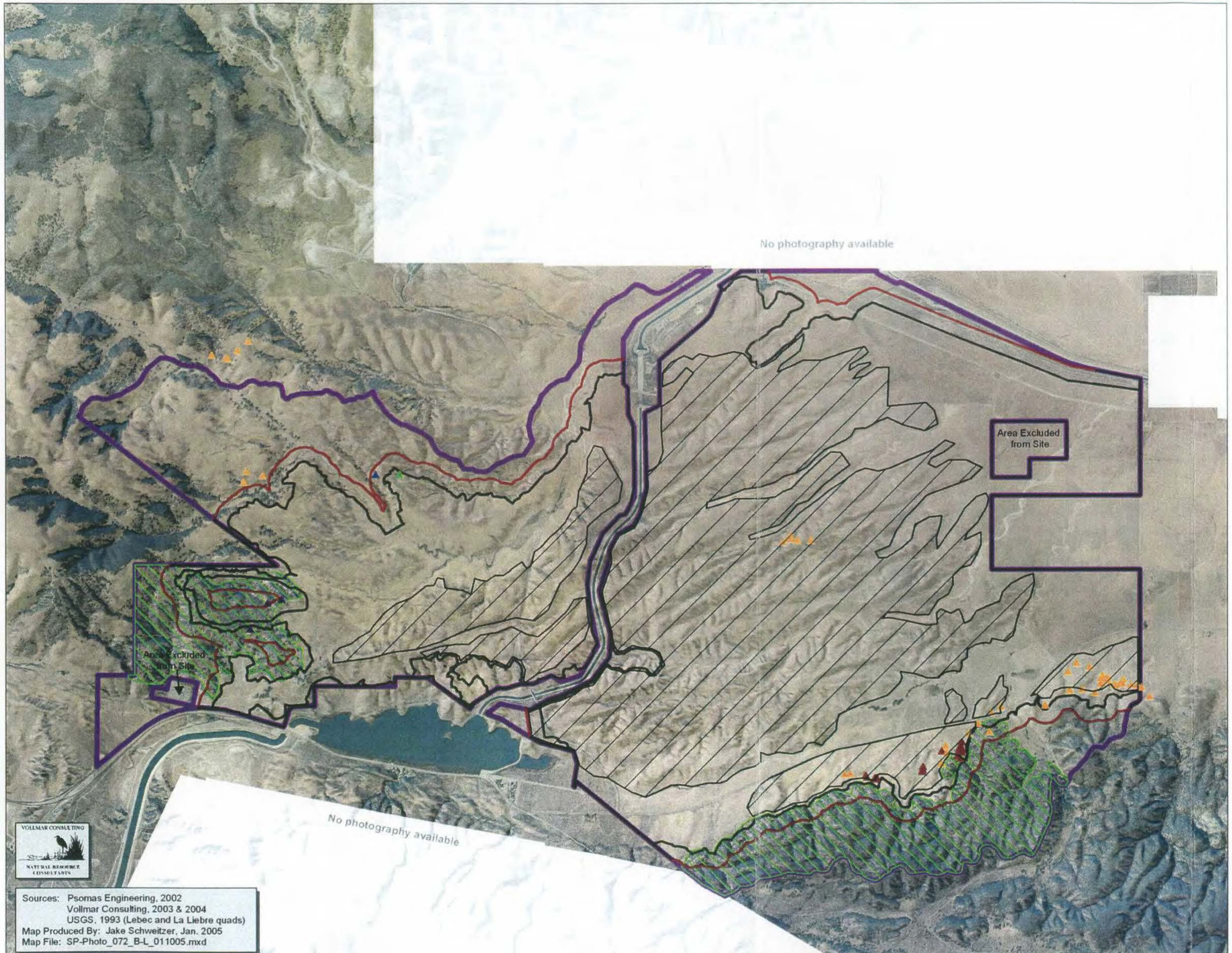
Piute Mountains navarretia is a rare local endemic restricted to the far southern Sierra Nevada mountains and Tehachapi Ranges in Tulare and Kern Counties. The species occurs on heavy clay and gravelly loam soils in woodland and valley and foothill grassland habitats. Prior to these surveys, it was known from fewer than ten occurrences statewide, and, according to CNPS (2004), many historical occurrences have been searched for without success. The species had not been identified in the study area prior to these surveys. The nearest known occurrence was from Grasshopper Flat, about six miles north of Tejon Lake in the northern Tehachapi foothills. A total of 39 occurrences were located a few miles north of the study area on the Tejon Mountain Village Project Site during 2003 and 2004 surveys conducted by Vollmar Consulting. In all of those occurrences, Piute Mountain navarretia was found to be strictly associated with limestone-derived clay loam soils, and occurred within annual grassland or open oak woodland habitats.

# FIGURE 4.1

## Centennial Special-status Plant Occurrences

Special-status Plant Occurrences in Relation to Local Geography, 2003 Botanical Surveys
Centennial Specific Plan Project Site
Tejon Ranch, NW Los Angeles County, California






# FIGURE 4.2
## Special Status Plants and Aerial Photography

Special-status Plant Occurrences in Relation to Aerial Photography, Centennial Specific Plan Project Site
Tejon Ranch, NW Los Angeles County, California

**Legend**

- Impact Area
- 500ft Buffer from Impact Area
- Project Planning Boundary
- Medium to High Potential Habitat for Sylvan Microseris (*Microseris sylvatica*)
- Medium to High potential Habitat for Tucker Oak (*Quercus john-tuckeri*)

**Locations of Special-status Plant Occurrences**

- Occurrence of Mojave Spineflower (*Chorizanthe spinosa*)
- Occurrence of Round-leaved Filaree (*Erodium macrophyllum*)
- Occurrence of Piute Mountains navarretia (*Navarretia setiloba*)
- Occurrence of Adobe yampah (*Perideridia pringlei*)
- Occurrence of Lemmon's syntrichopappus (*Syntrichopappus lemmonii*)

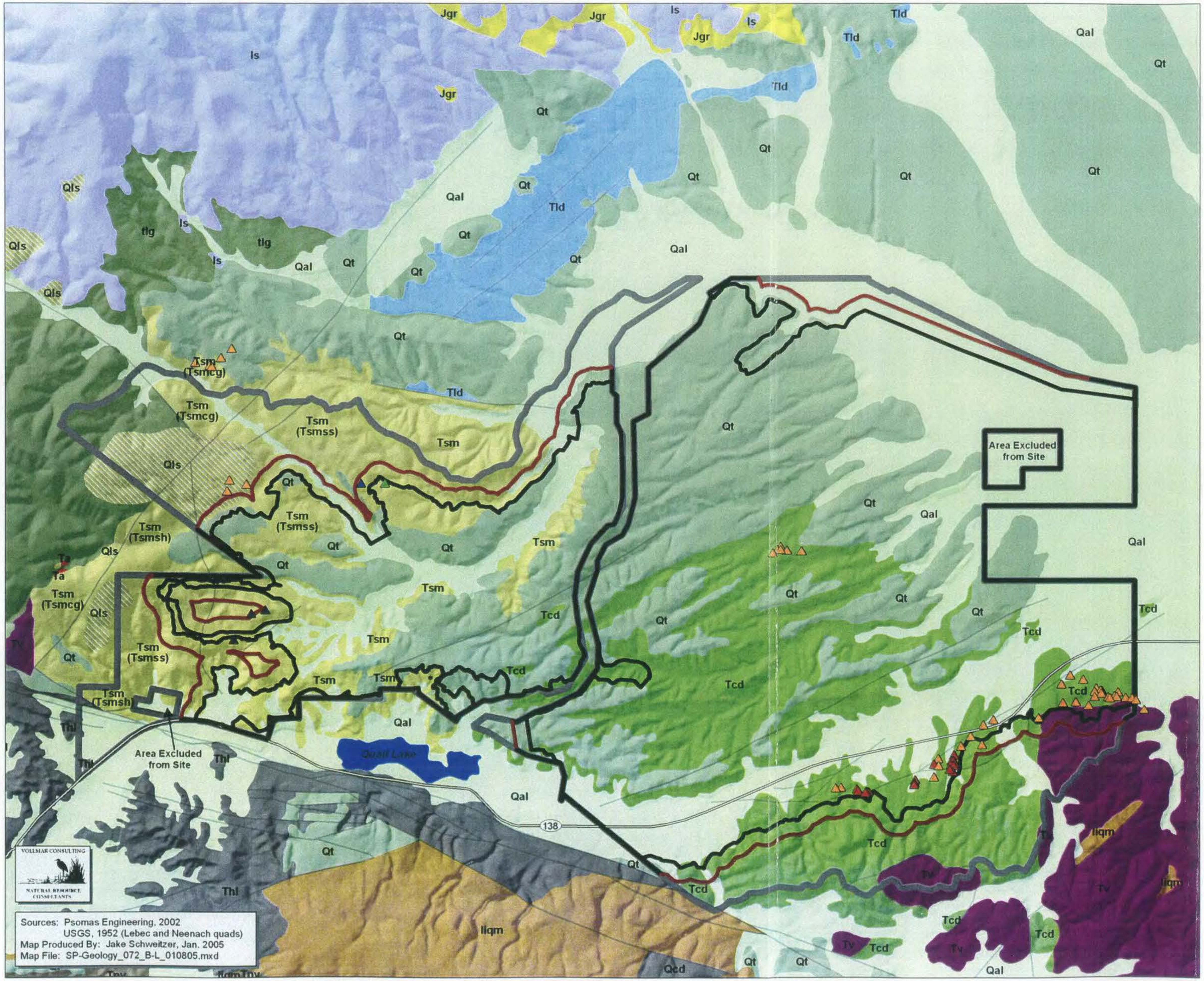
N
W E
S

40 Acres

1:42,000
(1in = 3,500ft at tabloid layout)

0 875 1,750 Meters

0 1,750 3,500 7,000 Feet




# FIGURE 4.3

## Special-status Plant Occurrences and Geology

Special-status Plant Occurences in Relation to Geology
2003 and 2004 Botanical Surveys
Centennial Specific Plan Project Site
Tejon Ranch, NW Los Angeles County, California

**Legend**

**Locations of Special-status Plant Occurrences**

- Occurrence of Mojave Spineflower (*Chorizanthe spinosa*)
- Occurrence of Round-leaved Filaree (*Erodium macrophyllum*)
- Occurrence of Piute Mountains navarretia (*Navarretia setiloba*)
- Occurrence of Adobe yampah (*Perideridia pringlei*)
- Occurrence of Lemmon's syntrichopappus (*Syntrichopappus lemmonii*)

- Impact Area
- 500ft Buffer from Impact Area
- Project Planning Boundary
- Fault Line

**Geologic Formation**

QUATERNARY — Recent
- Qal - Recent alluvium
- Qls - Landslide

QUATERNARY — Pleist
- Qt - Terrace deposits and older alluvium

TERTIARY — Pliocene
- Tld - Lake deposits
- Thl - White conglomerate sandstone with brown mudstone
- Tpv - Brown siltstone with buff sandstone

TERTIARY — Miocene
- Tsm - Santa Margarita formation*
- Tcd - Continental deposits (conglomerate, sandstone & shale)
- Tv - Purple andesite
- Ta - Silicified andesite

JURASSIC OR CRETACEOUS
- Jgr - Granite
- tlg - Tejon Lookout granite
- liqm - Liebre quartz monzonite (gray hornblende biotite quartz monzonite)

PALEOZOIC
- ls - Limestone and marble
- Water (Quail Lake)

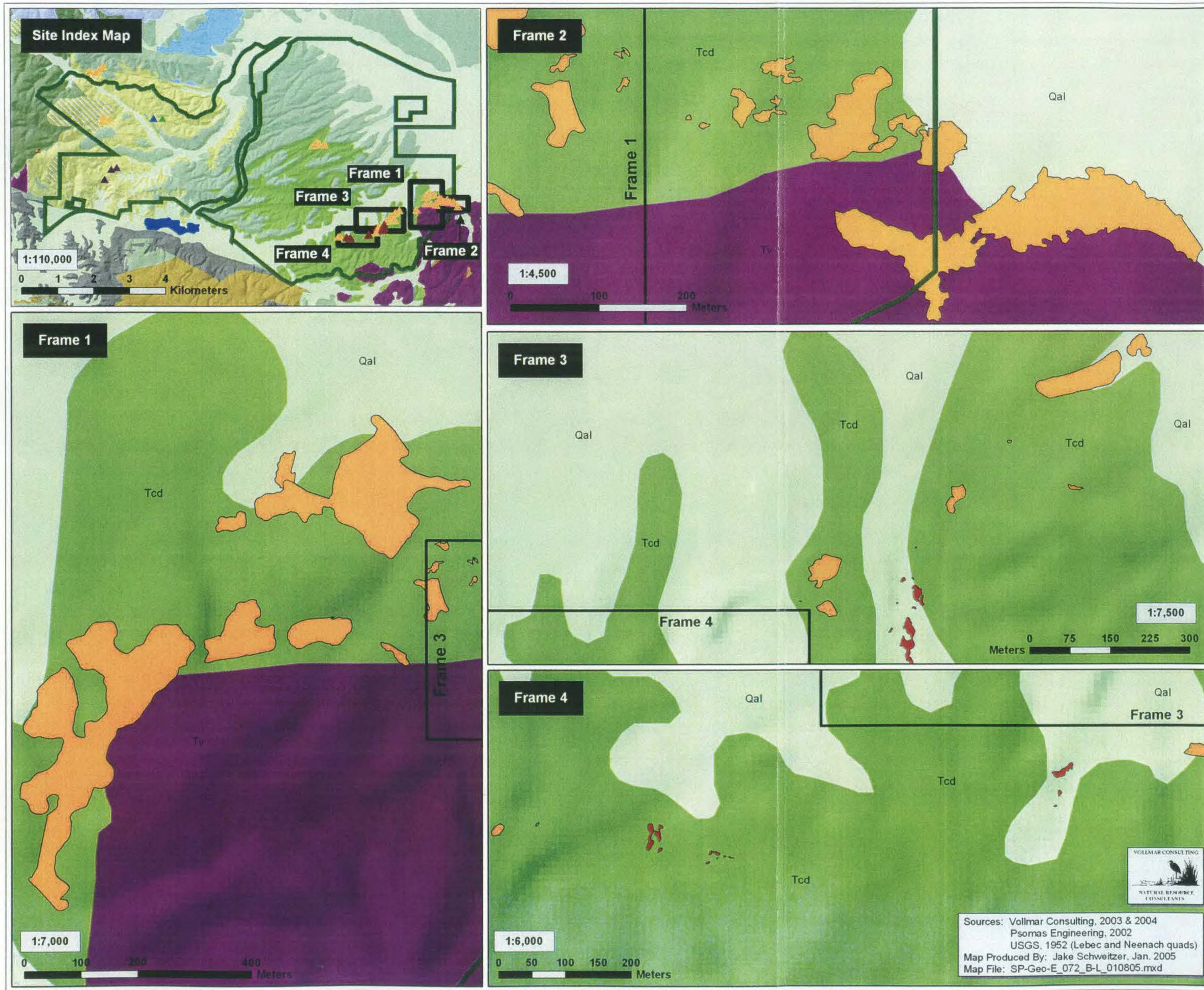
*Includes subtypes: Tsmsh (chiefly shales), Tsmcg (chiefly conglomerate) and Tsmss (chiefly sandstone)

N W E S

1:42,000 (1in = 3,500ft at tabloid layout)

0 875 1,750 Meters

0 1,750 3,500 7,000 Feet




# FIGURE 4.4a

## Special-status Plants and Geology Eastern Map

Special-status Plant Occurences in Relation to Geology
2003 and 2004 Botanical Surveys
Centennial Specific Plan Project Site
Tejon Ranch, NW Los Angeles County, California

**Legend**

Project Planning Boundary

**Locations of Special-status Plant Occurrences**

- Occurrence of Mojave Spineflower *(Chorizanthe spinosa)*
- Occurrence of Round-leaved Filaree *(Erodium macrophyllum)*
- Occurrence of Piute Mountains navarretia *(Navarretia setiloba)*
- Occurrence of Adobe yampah *(Perideridia pringlei)*
- Occurrence of Lemmon's syntrichopappus *(Syntrichopappus lemmonii)*

**Geologic Formation**

QUATERNARY — Recent
- Qal - Recent alluvium
- Qls - Landslide

QUATERNARY — Pleist.
- Qt - Terrace deposits and older alluvium

TERTIARY — Pliocene
- Tld - Lake deposits
- Thl - White conglomerate sandstone with brown mudstone
- Tpv - Brown siltstone with buff sandstone

TERTIARY — Miocene
- Tsm - Santa Margarita formation*
- Tcd - Continental deposits (conglomerate, sandstone & shale)
- Tv - Purple andesite
- Ta - Silicified andesite

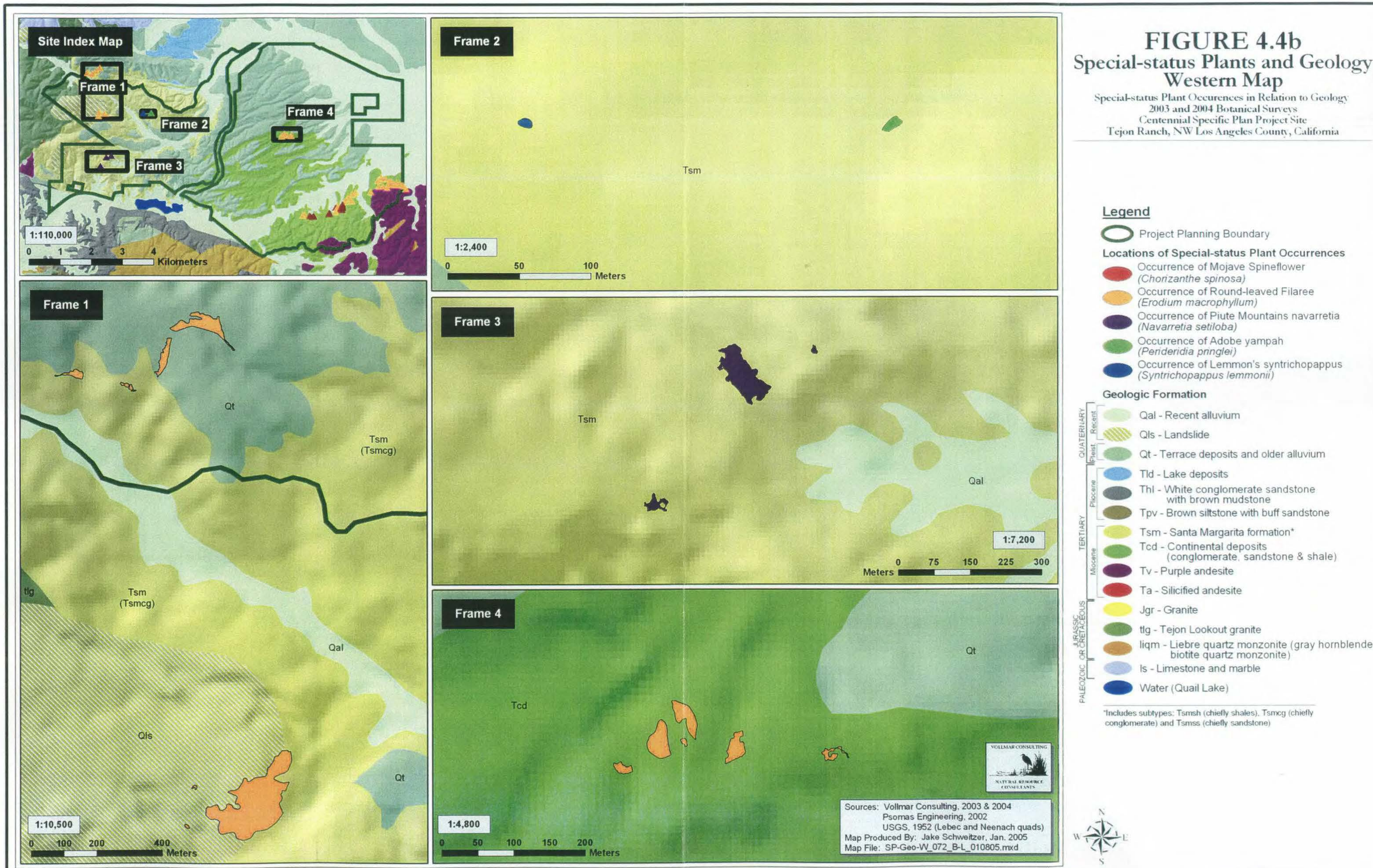
JURASSIC OR CRETACEOUS
- Jgr - Granite
- tlg - Tejon Lookout granite
- liqm - Liebre quartz monzonite (gray hornblende biotite quartz monzonite)

PALEOZOIC
- ls - Limestone and marble
- Water (Quail Lake)

*Includes subtypes: Tsmsh (chiefly shales), Tsmcg (chiefly conglomerate) and Tsmss (chiefly sandstone)

VOLLMAR CONSULTING
NATURAL RESOURCE CONSULTANTS

N S E W




# FIGURE 4.4b
## Special-status Plants and Geology Western Map

Special-status Plant Occurences in Relation to Geology
2003 and 2004 Botanical Surveys
Centennial Specific Plan Project Site
Tejon Ranch, NW Los Angeles County, California

Three occurrences of Piute Mountains navarretia were located and mapped in the study area during 2004 surveys. The species was not found in the study area during the 2003 surveys. These occurrences represent the only known occurrences in Los Angeles County and the southernmost known occurrences. These occurrences were all found in the hills in the far western region of the study area. The first occurrence was located on a west-facing upper slope in a mixed perennial bunchgrass/introduced annual grassland community and supported approximately 15,000 plants in a 1.5-acre area. The second occurrence was located approximately 800 feet south-southwest of the first occurrence, on a southeast-facing slope in an annual grassland opening within a juniper-scrub oak woodland, and supported approximately 5000 plants scattered over a 0.20-acre area. A third smaller occurrence was located approximately 400 feet northeast of the initial occurrence near the top of a west-facing slope in an open mixed oak woodland-annual grassland, and supported approximately 100 plants in a 0.04-acre area. All three occurrences were situated on heavy clay loam and sandy clay loam soils apparently derived from the weathering of Santa Margarita Formation shales. Dominant associated species included one-sided bluestem (*Poa secunda ssp. secunda),* cheatgrass *(Bromus tectorum),* red brome (*Bromus madritensis ssp. rubens*), redstem filaree (*Erodium cicutarium)* and peppergrass (*Lepidium nitidum*).

The three occurrences were found to be exclusively associated with areas that had been rooted by pigs. In all three occurrences, the populations were strictly limited to the boundaries of soils recently disturbed from pig rooting. Intensive surveys of the areas immediately surrounding the disturbed areas found no additional individuals.

It is difficult to characterize potential habitat for Piute Mountains navarretia in the study area due to the small number of identified occurrences and the fact that all occurrences were associated with pig-disturbed soils. Some information can be derived from the 39 occurrences identified on the nearby Tejon Mountain Village Project Site. All of these occurrences were found to be strictly associated with limestone-derived clay loam soils in grasslands and/or open oak woodlands. In contrast, the three occurrences in this study area were not found on limestone-derived clay soils but were found on clay soils apparently derived from weathered shales.

Given the common occurrence on soils with a high clay content, potential habitat for Piute Mountains navarretia in the study area includes all areas with heavy clay soils whether derived from limestone, shale, or some other rock type. These soils occur sporadically along steep slopes in the northwestern corner of the study area, in scattered areas on Santa Margarita Formation in the southwestern portion of the study area, and in the few scattered areas where limestone-derived soils occur in the central and southeastern portions of the study area. The species is not expected to occur within the Andesite, Tejon Lookout Granite, central or eastern Terrace Deposits, or Recent Alluvium Formations.

#### 4.3.2.5 Adobe Yampah (*Perideridia pringlei*)

Listing Status: CNPS List 4; no state or federal status

Adobe yampah is a 40-70 centimeter tall perennial herb in the carrot family (Apiaceae). It has a tuberous edible root, elongate, pinnately-divided leaves, and an open umbellate flowering head with small, white flowers (Appendix B). The species occurs in scattered areas in the southern Sierra Nevada foothills, central Coast Ranges, and Western Transverse Ranges. While this species is known from sporadic occurrences in Kern and Northern Los Angeles Counties, it was not previously known in the immediate vicinity of the study area. It occurs in chaparral, woodland, and coastal scrub habitats. Adobe yampah is a CNPS List 4 species, a watch list of species that are uncommon but not presently rare, threatened, or endangered.

One occurrence of adobe yampah was identified during the 2004 surveys on an open north-facing slope in the western portion of the study area. The species was not identified in the study area during the 2003 surveys. The occurrence consisted of a small cluster of approximately 16 plants. The site was located on sandy to gravelly loam soils in a perennial bunchgrass plant community. The habitat is a dry, moderately steep slope with bare soil and low total vegetation cover, and is above an intermittent streambed and adjacent to annual grassland habitat. The site occurs on thin soils derived from sandstones of the Santa Margarita Formation. Dominant species at this site included one-sided bluestem grass (*Poa secunda ssp. secunda*), redstem filaree (*Erodium cicutarium*) and common lomatium (*Lomatium utriculatum).*

It is difficult to characterize potential habitat for adobe yampah based on only a single occurrence. Potential habitat for the species in the study area can be more accurately assessed by analyzing the ten occurrences located by Vollmar Consulting in 2003 and 2004 on the Tejon Mountain Village Project site a few miles north of this study area. The majority of these occurrences were located on gravelly, limestone-derived soils, although two occurrences were found on granitic soils. All ten occurrences were located within openings in oak woodlands or associated annual grasslands.

Based on assessments of the ten Tejon Mountain Village Project Site occurrences and the single occurrence in the study area, the best potential habitat for adobe yampah in the study area appears to be within grassland openings and open oak woodlands on slopes with gravelly loam soils. Areas where the species may occur include the steep slopes in the northwestern corner of the study area, the hills in the western portion of the study area, on north-facing slopes of the Santa Margarita Formation, and on the hills in the southeastern portion of the study area.

#### 4.3.2.6 Tucker Oak *(Quercus john-tuckeri)*

Listing Status: CNPS List 4; no state or federal status

Tucker oak is an evergreen shrub or small tree, typically less than 7 meters tall, in the oak family (Fagaceae). Tucker oak can range from a scrubby six-foot tall shrub to a 20 to 30-foot tall tree with a single large trunk. It has finely hairy twigs and small leaves with irregularly spine-toothed margins and "fuzzy" lower surfaces. It occurs in chaparral, lower montane and pinyon and juniper habitats, and is known to hybridize with scrub oak (*Quercus berberidifolia*), blue oak (*Quercus douglasii*) and valley oak (*Quercus lobata*).

Formerly, California populations of what is now known as Tucker oak (*Quercus john-tuckeri*) were included with the species Sonoran scrub oak (*Quercus turbinella),* an oak that occurs in the Sonoran and Chihuahua deserts of the western United States. These California populations were named *Quercus turbinella* ssp. *californica.* Differences in leaf and acorn characteristics distinguished the California populations from other populations. It was subsequently determined that these differences were substantial enough that the California populations should be considered a separate species called Tucker oak (*Quercus john-tuckeri*), named after John Tucker, a professor of botany from U.C. Davis. CNPS' Inventory of Rare and Endangered Plans of California (2004) still use *Quercus turbinella* as the primary name for the taxon but recognizes *Quercus john-tuckeri* as a synonym for the California population. The Jepson Manual names the taxon as *Quercus john-tuckeri* and this is the name that will be used in this report.

Tucker Oak is CNPS List 4 species, a watch list of species that are uncommon but not presently rare, threatened, or endangered. List 4 species occur either with limited distribution or infrequently throughout a broader area in California, and as such are not eligible for state listing. Nevertheless, CNPS strongly recommends that List 4 species be evaluated for consideration during CEQA documentation. Tucker Oak is classified as a List 4 species based on its disjunct distribution and limited range. The species occurs on the north slope of the San Gabriel Mountains, on the north slope of the Western Transverse Ranges and east slope of the Tehachapis, and then again on the interior South Coast Ranges. The Tucker Oak population within the study area occurs at the northeastern edge of the species range and therefore warrants careful management considerations.

Numerous Tucker oaks were found over large areas of the study area during the 2003 and 2004 surveys. Given the abundance and large population size, individual occurrences were not mapped. Instead, areas where Tucker oaks are likely to occur were mapped as large polygons. These areas total approximately 1,420 acres. Tucker oaks were found in two general regions in the study area. First, numerous Tucker oaks were found scattered in the hills in the southwestern region of the study area in open mixed oak woodland and chaparral habitat. It was typically found on moderate to steep slopes, on various aspects, growing with blue oak (*Quercus douglasii*), valley oak (*Quercus lobata*), bigberry manzanita (*Arctostaphylos glauca*) and red brome (*Bromus madritensis* ssp. *rubens*). A second population was found in oak woodland and chaparral habitat along the southeast edge of the study area, in the hills south of highway 138. In this second occurrence, the Tucker oaks were found on more open slopes growing as homogeneous woodland stands with a grassland understory or in mixed stands other tree and shrub species such as blue oak, California juniper (*Juniperus californica*), and Bigelow's coreopsis (*Coreopsis bigelovii*).

With regards to geologic preferences and distribution, the Tucker oak population in the western portion of the study area occurred on sandy to gravelly soils derived from weathered sandstone, shale and/or conglomerate of the Santa Margarita Formation. In the southeast region, it occurred on gravelly soils derived from Purple Andesite and Continental Deposits. It did not occur on the Continental Deposits and Terrace Deposits of the terrace tops and ridgelines in the central region of the study area nor on the Disturbed Alluvial Plains. It was also generally absent from the hills in the northwestern and northern portions of the study area where blue oak was the dominant species.

All of the oak woodlands on hill slopes in the southeastern and southwestern regions of the study area should be regarded as providing good potential habitat for Tucker oak.

#### 4.3.2.7 Lemmon's Syntrichopappus (*Syntrichopappus lemmonii*)

Listing Status: CNPS List 4; no state or federal status

Lemmon's syntrichopappus is a small (2-10 cm tall) erect annual in the sunflower family (Asteraceae). It has alternate, simple leaves and solitary heads with tiny petals that are white with pink veins above and pinkish-purple below. The species is uncommon and occurs on sandy to gravelly slopes in chaparral and Joshua tree woodlands, on the southwest border of the Mojave Desert and adjoining slopes of the San Gabriel, San Jacinto and San Bernardino Mountains. It is known to occur in Los Angeles, San Bernardino and Monterey Counties, but prior to the surveys was not located in the vicinity of the study area. It is a CNPS List 4 species, a watch list of species that are uncommon but not presently rare, threatened, or endangered.

During 2004 surveys, one occurrence of Lemmon's syntrichopappus was located on an open, moderately steep northwest-facing slope in the north-central region of the study area. The site was located in a sparsely vegetated, mixed plant community dominated by non-native annual grasses, perennial bunchgrasses and native forbs, with prominent areas of bare soil and exposed sandstone bedrock. The site occurs on the Santa Margarita Formation on thin, eroding sandy to gravelly soils. The occurrence consists of approximately 30 plants scattered over a total area of approximately 450 square feet. Dominant associated species include one-sided bluestem (*Poa secunda* ssp. *secunda*), rock phacelia (*Phacelia egena*), mountain violet (*Viola purpurea* ssp. *quercetorum*), red brome (*Bromus madritensis* ssp. *rubens*), common lomatium (*Lomatium utriculatum*), and blue dicks (*Dichelostemma capitatum* ssp. *capitatum*).

Within this occurrence, Lemmon's syntrichopappus plants were typically located within a short distance of mountain violet. While mountain violet is certainly not a rare plant, it did occur infrequently in the study area. Lemmon's syntrichopappus and mountain violet appear to prefer similar soil types and/or other environmental conditions. Their association appears to be significant and mountain violet, when it occurs on similarly open sandy soils, can be used as an indicator for high potential habitat for Lemmon's syntrichopappus.

It is difficult to characterize potential habitat for Lemmon's syntrichopappus based on one occurrence in the study area. Based on this single occurrence, potential habitat appears to include north- and northwest-facing slopes with thin sandy soils over bedrock in open mixed annual or perennial grassland and forb communities. It may be that this species prefers the thin eroding soils derived from the marine sandstones of the Santa Margarita Formation. As such, all similar north- and northwest-facing slopes on Santa Margarita Formation should be considered as potential habitat for this species. This formation occurs in the north-central and southwestern regions of the study area.

Lemmon's syntrichopappus is a tiny ephemeral early-blooming annual (the plants located during 2004 surveys were typically less than 4 centimeters tall). Considering its tiny size, early blooming time, and the low 2004 rainfall year, it is likely that there are additional occurrences in the study area in areas with potential habitat.

#### 4.3.2.8 Other Special-status Plants

Seven other special-status plant species were identified as potentially occurring in the study area. The listing status, habitat, and other pertinent information for each of these species are summarized in Table 4.1 above. None of these species was found in the study area. Their potential for occurrence is discussed below.

Two species, Tejon poppy (*Eschscholtzia lemmonii* ssp. *kernensis*) [CNPS List 1B], and Comanche Point layia (*Layia leucopappa*) [CNPS List 1B], are associated with heavy clay soils and are found on the north side of the Tehachapi Mountains. Tejon poppy is also reported from the canyon west of Fort Tejon State Park. The best potential habitat for these species in the study area is the limestone-derived friable clay loam soils discussed at length above. Also, there were a few small areas with clay soils that appeared to be derived from shale of the Santa Margarita Formation. Given the importance of clay soils for round-leaved filaree and Piute Hills navarretia, these soils were carefully surveyed wherever they occurred throughout the survey area. Yet, neither of these other species was found. During status surveys, the survey team visited the purported location for Tejon poppy west of Fort Tejon State Park. Tejon poppy was not found but a similar species, foothill poppy (*Eschscholtzia caespitosa*), was found in the same location. As such, it may be that this foothill poppy was misidentified as Tejon poppy in this location. Since the study area is several miles outside the known range of Tejon poppy and Comanche Point layia, and since neither species was found during intensive surveys of potentially suitable soils, it is concluded that neither species is likely to occur in the study area.

Fort Tejon woolly sunflower (*Eriophyllum lanatum* var. *hallii*) [CNPS List 1B] is known from nineteen sites located a few miles north of the study area. One of the nineteen sites is located west of Fort Tejon State Park on a steep, south-facing shaded hillside within annual grassland habitat. Surrounding areas support a mosaic of grassland, oak woodland, and scrub habitats. Prior to these surveys, this site and one additional site located on the Tejon Ranch were the only known occurrences of this species in the vicinity of the study area. Eighteen of the nineteen Fort Tejon woolly sunflower sites occur on the Tejon Ranch, seventeen of which were located by Vollmar Consulting during 2003 and 2004 surveys of the Tejon Mountain Village Project Site. Two of these sites are situated along the rocky/gravelly upper edge of north-facing road cuts along unpaved ranch roads. Surrounding habitat is a mosaic of oak woodlands, annual grasslands, and chaparral. The remaining sixteen sites are all located on steep, north-facing hillsides within or adjacent to dense or moderately open oak woodlands-with mosaic stands of valley oak, black oak and shin oak. Canopy cover varied from dense to moderate. The typical understory was annual grasslands. With regards to substrate, the Fort Tejon woolly sunflower appears to prefer soils derived from metamorphic rock in areas mapped as brown hornfels or mixed hornfels and limestone. Given the known locations and habitat preferences of this species in the Tejon Mountain Village Project Site, the best potential habitat for Fort Tejon woolly sunflower is along the steep, north-facing hills with oak woodland and chaparral/scrub habitats in the western, northwestern, and southern portions of the study area. These areas were carefully surveyed but the species was not found though a similar species, golden yarrow (*Eriophyllum confertiflorum* var. *confertiflorum*) was found.

Delicate blue cups (*Githopsis tenella*) [CNPS List 1B] is known from a high ridge (Purdy Ridge, approximately 1,600 meters (5,250 feet) in elevation) several miles northeast of the study area. This is the only known occurrence in the general region of the study area. This ridge, which was visited during status surveys, supports an isolated stands of white fir (*Abies concolor*) within a copse of canyon live oak. There were no habitats remotely like this within the study area and so it is concluded that there is no potential habitat for the species.

Flax-like monardella (*Monardella linoides* ssp. *oblonga*) [CNPS List 1B] is reported to occur in montane coniferous forest and pinyon/juniper woodland (CNPS 2001). There is a known occurrence below Chuchupate campground (south of Fort Tejon State Park). This site, which was visited during the status surveys, is situated on a rocky, north-facing slope with thin soils. The surrounding habitat is chaparral dominated by big-berry manzanita (*Arctostaphylos glauca*) and California flannelbush (*Fremontodendron californicum* ssp. *californicum*). Kennedy's mariposa lily (*Calochortus kennedyi* ssp. *kennedyi*) was found growing near the species. Chaparral dominated by big-berry manzanita occurs in scattered areas in the southwestern portion of the study area. These chaparral stands, which were thoroughly surveyed during 2003 and 2004, occur at a lower elevation and feel more arid than that found in association with the flax-like monardella. In addition, California flannelbush was not found in this habitat nor anywhere within the study area. Kennedy's mariposa lily was located in the far southeast region of the study area (south of Highway 138) in a mixed juniper woodland-perennial bunchgrass community. The two small populations were found growing in thin andesite soils. Given these conditions, it is concluded that flax-like monardella is unlikely to occur in the study area.

Bakersfield cactus (*Opuntia basilaris* var. *treleasei*) [State Endangered; Federal Threatened; CNPS List 1B] is endemic to the alluvial benches and fans along the southern and southeastern edges of the San Joaquin Valley. Known occurrences of the species west of I-5 and at Comanche Point were visited during the status surveys. Given its restricted distribution and particular microhabitat, it is concluded that there is no potential habitat for this species in the study area. The surveys did identify beavertail cactus (*Opuntia basilaris* var. *basilaris*), a closely related 'cousin', near the southern edge of the study area.

Silvery false lupine (*Thermopsis macrophylla* var. *argentata*) [CNPS List 1B] is known to occur on slopes in woodland, valley and foothill grassland, and lower coniferous forest habitats. It was found by Vollmar Consulting in numerous locations a few miles north of the study area during 2003 and 2004 surveys of the Tejon Mountain Village Project Site. Surveys conducted by previous consultants also reported the species in scattered locations in the vicinity of the cement plant just north of the study area. On the Tejon Mountain Village Project Site, silvery false lupine was often found on alluvial slopes below the uplifted limestone cap described earlier in this report. Given this association, it is not surprising the species was found in the vicinity of the cement plant (which is situated just below this cap to the south). However, no occurrences of this species were observed during field surveys either in the study area or around the cement plant. Nonetheless, potential habitat for this species is considered to occur within the study area along the steep slopes bordering upper Oso Canyon, especially areas below limestone outcrops or limestone-derived soils.

### 4.4 Summary

Seven special-status plant species were identified within the study area including Mojave spineflower, round-leaved filaree, sylvan microseris, Piute Mountains navarretia, adobe yampah, Tucker oak and Lemmon's syntrichopappus. The occurrence and distribution of known and potential habitat for these special-status plants within the study area can best be understood by considering the underlying geologic and geomorphic landscape preferences of each species.

The nineteen occurrences of Mojave spineflower all occur on unusual soil barrens within the perennial bunchgrass community located south of Highway 138. This species appears to prefer the mixed andesite and limestone alluvial soils that are unique to this region of the study area.

The forty-six occurrences of round-leaved filaree scattered in the southeastern, eastern, and northwestern portions of the study area all occur on the limestone-derived friable clay soils. In the northwest, these soils are derived from weathering of underlying limestone bed rock or disjunct blocks from the nearby limestone cap. In the east and southeast, these soils appear to be derived from isolated, remnant weathered limestone blocks emplaced along with other alluvium as part of the Continental Deposit formation.

The large majority of sylvan microseris occurrences were found on the thin, well-drained gravelly or coarse sandy loam soils associated with Continental Deposits and Terrace Deposits in the central and southeastern portions of the study area. Within this area, the species was most commonly found on upper north-facing slopes and along the thin, well-drained gravelly soils bordering small, ephemeral drainages. The species generally did not occur on the bench-like Terrace Deposits bordering Oso Creek and was uncommon on the mapped Terrace Deposits in the northwest portion of the study area. The species was conspicuously absent from intervening floodplains of Recent Alluvium. It was also absent from volcanic- and limestone-derived soils and was uncommon on soils of the Santa Margarita and Tejon Lookout Granite Formations.

The three occurrences of Piute Mountains navarretia are located on upper slopes of sandy-clay loam soils associated with the Santa Margarita Formation in the southwest portion of the study area. These soils appear to be derived from weathered shales. In the study area, the species was strictly associated with areas disturbed by pig rooting. Given that these pigs are non-native species and the disturbance they cause began only with their introduction, it is unclear where, if at all, the species would have historically occurred. Piute Mountains navarretia is a very rare species, known from fewer than 20 occurrences primarily in the northern Tehachapi Range. The occurrences in the study area are the only known occurrences in Los Angeles County and are the southernmost known occurrences of the species.

The one occurrence of Adobe yampah in the study area was located on sandy to gravelly soils derived from sandstones of the Santa Margarita formation. It is difficult to summarize the environmental preferences of this species based on one occurrence. The ten occurrences located north of the study area, on the Tejon Mountain Village Project Site, however, provide additional evidence of this species habitat preferences. In the ten occurrences on that project site, eight of the locations were found on limestone-derived clay loam soils, and two were located on more gravelly-textured granitic soils. Given these occurrences along with the one occurrence on sandstone-derived soils in the study area, it appears this species is not endemic to any particular soil or geologic type. Rather, it is restricted to certain geomorphic positions, particularly, north- and northwest-facing slopes with gravelly, well-drained soils.

The two large populations of Tucker oaks were found in the study area on hilly areas in the southwest and southeast regions of the study area. The population in the southwest occurred on thin, sandy soils derived from Santa Margarita Formation. The population in the southeast occurred on gravelly soils derived from Purple Andesite and Continental Deposits. Given the diversity of substrates, it appears that the dry, hilly conditions are more important for this species than the specific geologic formation. Interestingly, the species was generally absent from the hilly areas in the northwestern and northern portions of the study area. Blue oak was the dominant instead. This may be due to local differences in climate or soil conditions.
The one occurrence of Lemmon's syntrichopappus in the study area was located on thin, steep, northwest-facing sandy soils derived from the Santa Margarita Formation. There were areas of exposed soils and bedrock in the immediate vicinity of the occurrence. This occurrence was tucked in a canyon on a slope somewhat protected from the sun. There were few other places like this in the study area and this likely accounts for the overall rarity of the species in the study area.

# APPENDIX 4-A

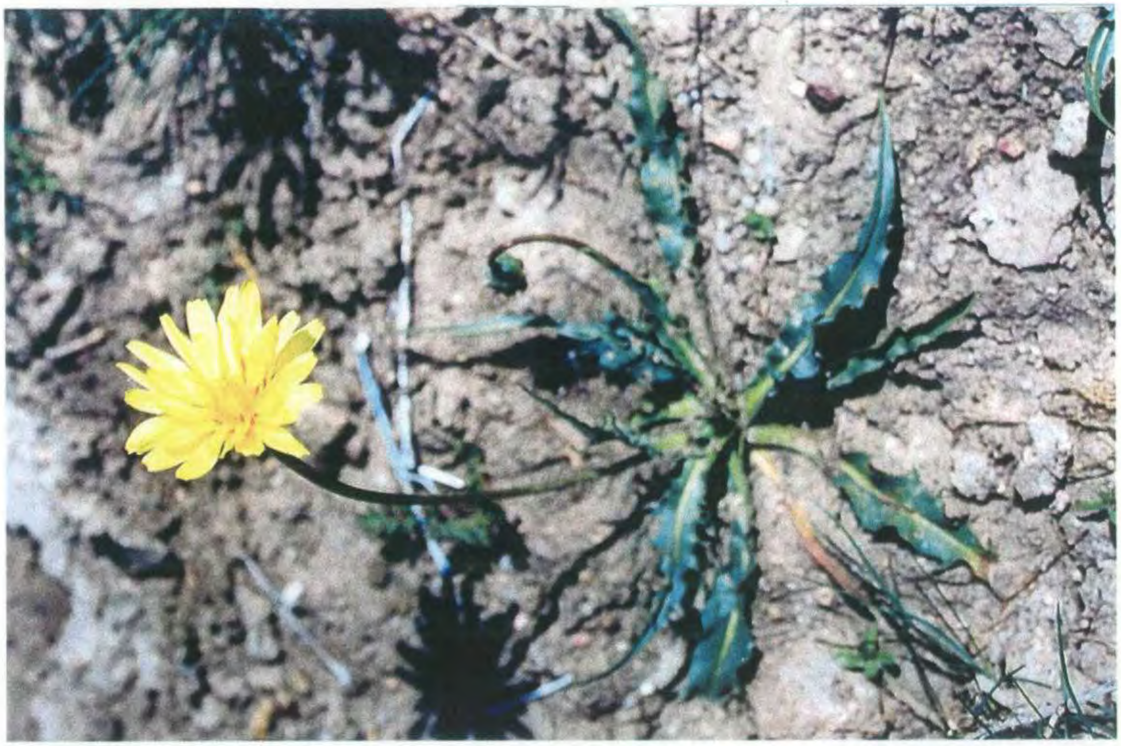
# PHOTOGRAPHS OF SPECIAL-STATUS PLANT SPECIES IDENTIFIED IN THE STUDY AREA

Mojave Spineflower (*Chorizanthe spinosa*) [Photo Credit: John Hale]

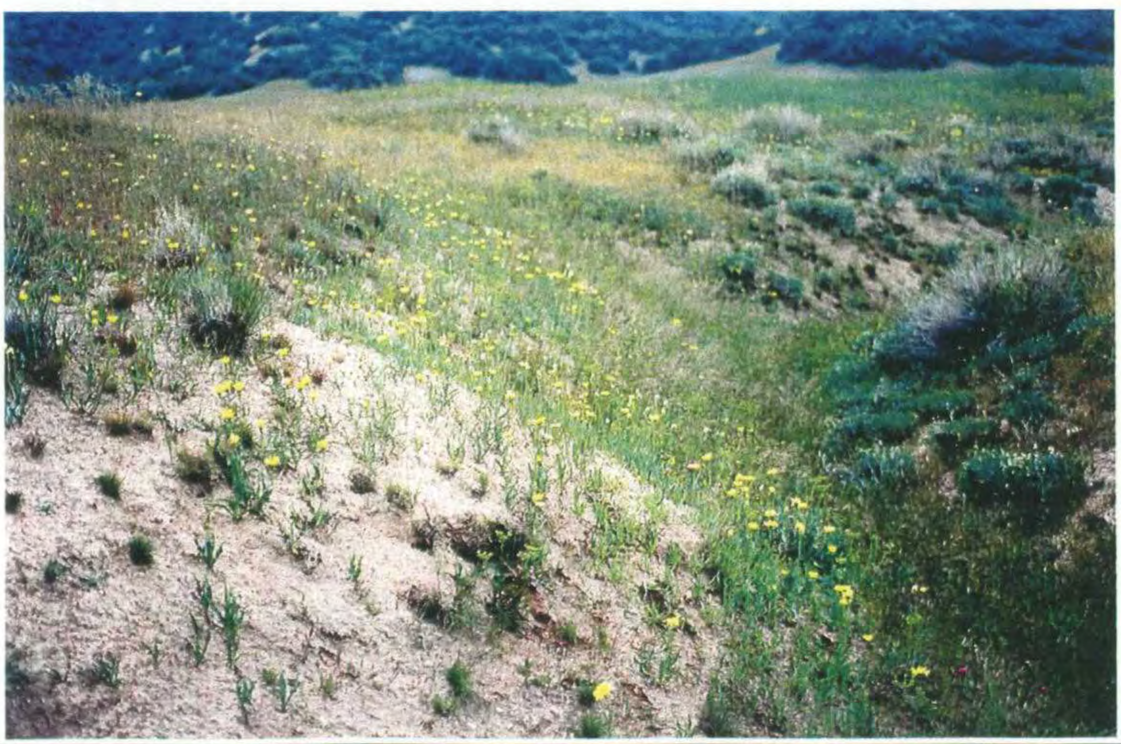
Habitat for Mojave Spineflower [Photo Credit: John Hale]

**Round-leaved Filaree (*Erodium macrophyllum*) [Photo Credit: John Hale]**

**Habitat for Round-leaved Filaree [Photo Credit: John Hale]**



**Sylvan Microseris (*Microseris sylvatica*) [Photo Credit: John Hale]**



**Habitat for Sylvan Microseris [Photo Credit: John Hale]**

**Piute Mountains Navarretia (*Navarretia setiloba*) [Photo Credit: John Hale]**

**Habitat for Piute Mountains Navarretia [Photo Credit: John Hale]**

Adobe Yampah (*Perideridia pringlei*) [Photo Credit: John Hale]

Habitat for Adobe Yampah [Photo Credit: John Hale]

# APPENDIX 4-B

# LIST OF ALL PLANT SPECIES IDENTIFIED IN THE STUDY AREA

**Appendix 4-B. List of plant species observed on the Centennial Specific Plan Project Site during surveys conducted by Vollmar Consulting during spring and summer 2003. Scientific nomenclature corresponds to the Jepson Manual (Hickman, 1993). Asterisk (*) indicates non-native species; plus sign (+) indicates special-status species.**

| | *FAMILY/Scientific Name* | **FAMILY/Common Name** |
|---|---|---|
| | AMARANTHACEAE | AMARANTH FAMILY |
| * | *Amaranthus albus* | Tumbleweed |
| * | *Amaranthus retroflexus* | Red-root amaranthus |
| | APIACEAE | CELERY FAMILY |
| | *Bowlesia incana* | Hoary bowlesia |
| | *Lomatium utriculatum* | Common lomatium |
| + | *Perideridia pringlei* | Adobe yampah |
| | ASCLEPIADACEAE | MILKWEED FAMILY |
| | *Asclepias californica* | California milkweed |
| | *Asclepias erosa* | Desert milkweed |
| | *Asclepias fascicularis* | Narrow-leaved milkweed |
| | ASTERACEAE | SUNFLOWER FAMILY |
| | *Achillea millefolium* | California white yarrow |
| | *Achyrachaena mollis* | Blow wives |
| | *Agoseris heterophylla* | Mountain dandelion |
| | *Agoseris retrorsa* | Retrorse mountain dandelion |
| | *Ambrosia acanthicarpa* | Annual bur-sage |
| | *Anaphalis margaritacea* | Pearly everlasting |
| | *Ancistrocarphus filagineus* | Wooly fishhooks |
| | *Artemisia douglasiana* | Mugwort |
| | *Artemisia tridentata ssp. tridentata* | Big sagebrush |
| | *Baccharis salicifolia* | Mule fat |
| | *Balsamorhiza deltoidea* | Deltoid balsamroot |
| | *Cirsium sp.* | Thistle |
| * | *Centaurea solstitialis* | Yellow star-thistle |
| | *Chaenactis glabriuscula var. glabriuscula* | Common yellow chaenactis |
| | *Chaenactis xantiana* | Mojave pincushion |
| | *Chrysothamnus nauseosus* | Rabbitbrush |
| | *Conyza canadensis var. canadensis* | Western horseweed |
| | *Coreopsis bigelovii* | Bigelow's coreopsis |
| | *Ericameria linearifolia* | Narrowleaf goldenbush |
| | *Erigeron breweri var. covillei* | Brewer's daisy |
| | *Eriophyllum confertiflorum var. confertiflorum* | Golden yarrow |
| | *Eriophyllum pringlei* | Pringle's wooly sunflower |
| | *Euthamia occidentalis* | Western goldenrod |
| | *Filago californica* | California fluffweed |
| | *Grindelia camporum var. camporum* | Valley gumplant |
| | *Helianthus annuus* | Western sunflower |
| | *Heterotheca grandiflora* | Telegraph weed |
| | *Heterothca sessiflora var. echioides* | Golden aster |
| | *Isocoma acradenia* | Alkali goldenbush |

| FAMILY/Scientific Name | FAMILY/Common Name |
|---|---|
| *Iva axillaris ssp. robusta* | Poverty weed |
| * *Lactuca serriola* | Prickly wild lettuce |
| *Lasthenia californica* | California goldfields |
| *Layia glandulosa ssp. glandulosa* | White layia |
| *Layia pentachaeta ssp. albida* | White sierra layia |
| *Layia platyglossa* | Tidy tips |
| *Lessingia lemmonii var. piersonii* | Cudweed aster |
| *Macaeranthera canascens* | Hoary aster |
| *Malacothrix californica* | California cliff-aster |
| *Malacothrix coulteri* | Snakeheads |
| + *Microseris sylvatica* | Woodland microseris |
| *Monolopia lanceolata* | Lanceolate monolopia |
| *Psilocarphus brevissimus var. brevissimus* | Dwarf woolly-heads |
| *Senecio breweri* | Brewer's butterweed |
| *Senecio flaccidus var. douglasii* | Bush groundsel |
| *Solidago californica* | California goldenrod |
| *Stephanomeria exigua ssp. coronaria* | Wreath stephanomeria |
| *Stephanomeria virgata ssp. pleurocarpa* | Wand stephanomeria |
| *Syntrichopappus fremontii* | Fremont's syntrichopappus |
| + *Syntrichopappus lemmonii* | Lemmon's syntrichopappus |
| *Uropappus lindleyi* | Silver puffs |
| * *Xanthium strumarium* | Cocklebur |
| AZOLLACEAE | MOSQUITO FERN FAMILY |
| *Azolla filiculoides* | Mosquito fern |
| BORAGINACEAE | BORAGE FAMILY |
| *Amsinckia menziesii var. intermedia* | Common fiddlenck |
| *Amsinckia menziesii var. menziesii* | Menzies' fiddleneck |
| *Amsinckia tessellata var. gloriosa* | Devil's lettuce |
| *Amsinckia tessellata var. tessellata* | Devil's lettuce |
| *Cryptantha sp.* | Cryptantha |
| *Heliotropium curassavicum* | Wild heliotrope |
| *Pectocarya linearis ssp. ferocula* | Slender pectocarya |
| *Pectocarya pennicillata* | Hair-tufted pectocarya |
| *Pectocarya setosa* | Setose pectocarya |
| *Plagiobothrys fulvus* | Common popcornflower |
| *Plagiobothrys nothofulvus* | Rusty popcornflower |
| BRASSICAEAE | MUSTARD FAMILY |
| *Arabis pulchra var. pulchra* | Rockcress |
| * *Brassica nigra* | Black mustard |
| *Caulanthus coulteri* | Coulter's jewelflower |
| * *Descurainia sophia* | Tansy mustard |
| *Guillenia lasiophylla* | California mustard |
| *Guillenia lemmonii* | Lemmon's guillenia |
| * *Hirschfeldia incana* | Summer mustard |
| * *Lepidium latifolium* | Broad-leaved pepper- grass |
| *Lepidium nitidum* | Common pepper-grass |

| FAMILY/Scientific Name | FAMILY/Common Name |
|---|---|
| *Rorippa nasturtium-aquaticum* | Water-cress |
| * *Sisymbryium altissimum* | Tumble mustard |
| *Thysanocarpus curvipes* | Lace pod |
| *Thysanocarpus laciniatus* | Slender lace pod |
| *Tropidocarpum gracile* | Twisted slender tropidocarpum |
| CACTACEAE | CACTUS FAMILY |
| *Opuntia basilaris var. basilaris* | Beavertail cactus |
| CAPPARACEAE | CAPER FAMILY |
| *Isomeris arborea* | Bladderpod |
| CAPRIFOLIACEAE | HONEYSUCKLE FAMILY |
| *Sambucus mexicana* | Blue elderberry |
| *Symphoricarpos rotundifolius var. parishii* | Mountain snowberry |
| CHENOPODIACEAE | GOOSE-FOOT FAMILY |
| * *Chenopodium album* | White goosefoot |
| CONVOLVULACEAE | MORNING-GLORY FAMILY |
| *Calystegia occidentalis ssp. fulcrata* | Wild morning-glory |
| *Cressa truxillensis* | Alkali weed |
| CUCURBITACEAE | CUCUMBER FAMILY |
| *Cucurbita foetidissima* | Stinking gourd |
| *Marah fabaceus* | Man-root |
| CUPRESSACEAE | CYPRESS FAMILY |
| *Juniperus californica* | California juniper |
| CUSCUTACEAE | DODDER FAMILY |
| *Cuscuta californica* | California dodder |
| CYPERACEAE | SEDGE FAMILY |
| *Carex sp.* | Sedge |
| *Eleocharis macrostachya* | Common spike-rush |
| *Scirpus acutus var. occidentalis* | Viscid tule |
| EPHEDRACEAE | EPHEDRA FAMILY |
| *Ephedra viridis* | Green Mormon tea |
| ERICACEAE | HEATH FAMILY |
| *Arctostaphylos glauca* | Bigberry manzanita |
| EUPHORBIACEAE | SPURGE FAMILY |
| *Chamaesyce albomarginata* | Rattlesnake spurge |
| *Eremocarpus setigerus* | Dove weed |
| FABACEAE | PEA FAMILY |
| *Astragalus didymocarpus var. didymocarpus* | Locoweed |
| *Astragalus douglasii var. douglasii* | Douglas' locoweed |
| *Astragalus purshii var. tinctus* | Pursh's dyed milk-vetch |
| *Lotus humistratus* | Short-podded lotus |
| *Lotus scoparius* | Deerweed |
| *Lotus strigosus var. strigosus* | Strigose lotus |
| *Lotus wrangelianus* | Wrangel's lotus |
| *Lupinus bicolor* | Bicolored lupine |
| *Lupinus excubitus var. austromontanus* | Interior bush lupine |
| *Lupinus formosus var. formosus* | Summer bush lupine |

| *FAMILY/Scientific Name* | | FAMILY/Common Name |
|---|---|---|
| * | *Lupinus microcarpus var. densiflorus* | White-worled lupine |
| * | *Lupinus microcarpus var. microcarpus* | Chick lupine |
| * | *Medicago polymorpha* | Bur-clover |
| * | *Melilotus indica* | Yellow sweetclover |
| | *Pediomelum californicum* | California Indian beard |
| | *Robinia pseudoacacia* | Black locust |
| | *Trifolium albopurpureum var. albopurpureum* | Whitetip clover |
| | *Trifolium gracilentum var. gracilentum* | Pin-point clover |
| | *Trifolium wildenovii* | Tomcat clover |
| | *Vicia americana ssp. americana* | American vetch |
| * | *Vicia benghalensis* | Mediterranean vetch |
| | *Vicia hassei* | Vetch |
| | FAGACEAE | BEECH FAMILY |
| | *Quercus chrysolepis* | Canyon live or golden-cup oak |
| | *Quercus douglasii* | Blue oak |
| + | *Quercus john-tuckeri* | Tucker oak |
| | *Quercus lobata* | Valley oak |
| | *Quercus wislizenii var. frutescens* | Interior live oak |
| | GERANIACEAE | GERANIUM FAMILY |
| * | *Erodium botrys* | Long-beaked filaree |
| * | *Erodium cicutarium* | Redstem filaree |
| + | *Erodium macrophyllum* | Large-leaved erodium |
| | GROSSULARIACEAE | GOOSEBERRY FAMILY |
| | *Ribes quercetorum* | Oak gooseberry |
| | HYDROPHYLLACEAE | WATERLEAF FAMILY |
| | *Emmenanthe penduliflora var. penduliflora* | Yellow whispering-bells |
| | *Eriodictyon crassifolium var. nigrescens* | Black thickleaf yerba santa |
| | *Nemophila menziesii ssp. menziesii* | Baby blue-eyes |
| | *Phacelia ciliata* | Ciliate phacelia |
| | *Phacelia egena* | Rock phacelia |
| | *Phacelia fremontii* | Fremont's phacelia |
| | *Phacelia tanacetifolia* | Tansy-leaved phacelia |
| | *Pholistoma membranaceum* | White fiesta flower |
| | JUNCACEAE | RUSH FAMILY |
| | *Juncus balticus* | Baltic rush |
| | *Juncus bufonius var. bufonius* | Common toad rush |
| | *Juncus effusus var. pacificus* | Bog rush |
| | *Juncus mexicanus* | Mexican rush |
| | *Juncus xiphioides* | Iris-leaved rush |
| | LAMIACAEAE | MINT FAMILY |
| * | *Marrubium vulgare* | White horehound |
| | *Salvia carduacea* | Thistle sage |
| | *Salvia columbariae* | Chia |
| | *Stachys albens* | White hedge nettle |
| | *Stachys bullata* | California hedge nettle |
| | *Trichostemma lanceolatum* | Vinegar weed |

| *FAMILY/Scientific Name* | FAMILY/Common Name |
|---|---|
| LILIACEAE | LILY FAMILY |
| *Allium fimbriatum var. fimbriatum* | onion |
| *Allium lacunosum ssp. davisiae* | onion |
| *Bloomeria crocea* | Common goldenstar |
| *Calochortus kennedyi ssp. kennedyi* | Kennedy mariposa lilly |
| *Dichelostemma capitatum ssp. capitatum* | Blue dicks |
| *Muilla maritima* | Common muilla |
| *Triteleia hyacinthina* | White triteleia |
| *Yucca whipplei* | Our lord's candle |
| LOASACEAE | LOASA FAMILY |
| *Mentzelia albicaulis* | White-stemmed stickleaf |
| LYTHRACEAE | LOOSESTRIFE FAMILY |
| *Lythrum californicum* | California loosestrife |
| MALVACEAE | MALLOW FAMILY |
| *Sidalcea malvaeflora ssp. sparsifolia* | Checker bloom |
| NYCTAGINACEAE | FOUR O'CLOCK FAMILY |
| *Mirablis californica* | Wishbone bush |
| ONAGRACEAE | EVENING PRIMROSE FAMILY |
| *Camissonia campestris ssp. campestris* | Sun cups |
| *Clarkia purpurea ssp. quadrivulneris* | Purple clarkia |
| *Epilobium canum* | California fuschia |
| *Oenothera californica ssp. californica* | White evening primrose |
| *Oenothera deltoides ssp. cognata* | Dune evening primrose |
| PAPAVERACEAE | POPPY FAMILY |
| *Argemone munita* | Prickly poppy |
| *Eschscholzia californica* | California poppy |
| *Platystemon californicus* | Cream cups |
| PINACEAE | PINE FAMILY |
| *Pinus sabiniana* | Foothill pine |
| POACEAE | GRASS FAMILY |
| *Acnatherum speciosum* | Showy needlegrass |
| * *Avena barbata* | Slender wild oat |
| * *Bromus diandrus* | Ripgut grass |
| * *Bromus hordeaceus* | Soft chess |
| * *Bromus madritensis ssp. rubens* | Red brome |
| * *Bromus tectorum* | Cheat grass |
| * *Cynodon dactylon* | Bermuda grass |
| *Deschampsia danthonioides* | Annual hairgrass |
| *Distichlis spicata* | Coastal saltgrass |
| *Elymus multisetus* | Big squirreltail |
| *Hordeum brachyantherum ssp. brachyantherum* | Meadow barley |
| * *Hordeum murinum ssp. leporinum* | Hare barley |
| *Leymus condensatus* | Giant wild rye |
| *Leymus triticoides* | Alkali rye-grass |
| *Melica imperfecta* | Coast or small-flowered melic grass |
| *Muhlenbergia rigens* | Deer grass |

| FAMILY/Scientific Name | | FAMILY/Common Name |
|---|---|---|
| | *Nassella cernua* | Nodding needlegrass |
| * | *Poa annua* | Annual bluegrass |
| | *Poa bulbosa* | Fruiting bluegrass |
| | *Poa secunda ssp. secunda* | One-sided bluegrass |
| * | *Polypogon monspeliensis* | Rabbitsfoot grass |
| * | *Schismus barbatus* | Bearded Mediterranean grass |
| * | *Secale cereale* | Cultivated rye |
| | *Vulpia bromoides* | Six-weeks fescue |
| | *Vulpia microstachys var. microstachys* | Fescue |
| | *Vulpia microstachys var. pauciflora* | Few-flowered fescue |
| | POLEMONIACEAE | PHLOX FAMILY |
| | *Gilia aliquanta ssp. aliquanta* | Gilia |
| | *Gilia breccarium ssp. breccarium* | Gilia |
| | *Gilia capitata ssp. abrotanifolia* | Gilia |
| | *Gilia tricolor var. diffusa* | Gilia |
| | *Gilia tricolor var. tricolor* | Gilia |
| | *Linanthus bigelovii* | Bigelow's linanthus |
| | *Linanthus dichotomus* | Evening snow |
| | *Linanthus liniflorus* | Flax-flowered linanthus |
| | *Linanthus parryae* | Parry's linanthus |
| | *Linanthus parviflorus* | Common linanthus |
| + | *Navarretia setiloba* | Piute mountain navarretia |
| | *Phlox gracilis* | Slender phlox |
| | POLYGONACEAE | BUCKWHEAT FAMILY |
| + | *Chorizanthe spinosa* | Mojave spineflower |
| | *Chorizanthe xanti* | Xantus' spineflower |
| | *Eriogonum baileyi* var. *baileyi* | Bailey's buckwheat |
| | *Eriogonum elongatum var. elongatum* | Long-stemmed buckwheat |
| | *Eriogonum fasciculatum* ssp. *polifolium* | Hoary California buckwheat |
| | *Eriogonum nudum* var. *westonii* | Weston's barestem buckwheat |
| | *Eriogonum roseum* | Wand buckwheat |
| | *Eriogonum viridescens* | Slender buckwheat |
| * | *Polygonum arenastrum* | Common knotweed |
| * | *Rumex crispus* | Curly dock |
| | *Rumex hymenosepalus* | Wild rhubarb |
| | *Rumex salicifolius var. salcifolius* | Willow dock |
| | PORTULACACEAE | PURSLANE FAMILY |
| | *Calandrinia ciliata* | Redmaids |
| | *Claytonia exigua* ssp. *exigua* | Little miner's lettuce |
| | *Claytonia parvifolia* ssp. *parviflora* | Small-flowered miner's lettuce |
| | *Claytonia perfoliata* ssp. *perfoliata* | Miner's lettuce |
| | ROSACEAE | ROSE FAMILY |
| | *Adenostoma fasciculatum* | Chamise |
| | RUBIACEAE | BEDSTRAW FAMILY |
| | *Galium andrewsii ssp.andrewsii* | Needle bedstraw |
| | *Galium angustifolium ssp. angustifolium* | Narrow-leaved bedstraw |

| *FAMILY/Scientific Name* | **FAMILY/Common Name** |
|---|---|
| *Galium aparine* | Catchweed bedstraw |
| SALICACEAE | WILLOW FAMILY |
| *Populus fremontii* | Fremont cottonwood |
| *Salix exigua* | Sandbar willow |
| *Salix gooddingii* | Gooding's black willow |
| *Salix laevigata* | Red willow |
| *Salix lasiolepis* | Arroyo willow |
| SAURURACEAE | LIZARD-TAIL FAMILY |
| *Anemopsis californica* | Yerba mansa |
| SCROPHULARIACEAE | SNAPDRAGON FAMILY |
| *Castilleja affinis* var. *affinis* | Coastal paintbrush |
| *Castilleja exserta* ssp. *exserta* | Purple owl's-clover |
| *Collinsia bartisaefolia* var. *davidsonii* | Collinsia |
| *Keckiella breviflora* var. *breviflora* | Small-flowered keckiella |
| *Keckiella ternata* var. *septontrionalis* | Blue-stemmed keckiella |
| *Mimulus fremontii* | Fremont's monkeyflower |
| *Mimulus guttatus* | Common streamside monkeyflower |
| *Penstemon centranthifolius* | Scarlet bugler |
| *Penstemon heterophyllus* var. *heterophyllus* | Penstemon |
| *Veronica anagallis-aquatica* | Common speedwell |
| SOLANCAEAE | NIGHTSHADE FAMILY |
| *Datura wrightii* | Jimson weed |
| *Nicotiana quadrivalvis* | Indian tobacco |
| TAMARICACEAE | TAMARISK |
| * *Tamarix parviflora* | Small-flowered salt cedar |
| VIOLACEAE | VIOLET FAMILY |
| *Viola purpurea* ssp. *quercetorum* | Mountain violet |
| VISCACEAE | MISTLETOE FAMILY |
| *Phoradendron villosum* | Oak mistletoe |

# 5.0 PERENNIAL BUNCHGRASS PLANT COMMUNITY STUDY

## 5.1 Introduction

This section of the report summarizes the methods and results of an ecological study of the sensitive perennial bunchgrass plant community that dominates the broad central and southeastern regions of the study area. This plant community is characterized by a high cover of native perennial bunchgrasses and wildflowers, and a conspicuously low cover of introduced annual grasses. Historically, this community type is thought to have occurred throughout much of interior lowland California but has been almost entirely replaced by invasive annual grasses introduced during Europeans settlement (Heady, 1995; Keeley, 1990). While individuals and small clusters of bunchgrasses occur sporadically throughout California's annual grasslands, there are currently no more than a couple of dozen moderate- to high-quality perennial bunchgrass community stands documented in California, most of which are smaller than 300 acres in total area (Barry, 1972). Given its extreme rarity and endangerment, the perennial bunchgrass community is considered a sensitive habitat by the State of California. Table 5.1 summarizes the current perennial bunchgrass community sites known to occur in California.

This plant community was identified during 2003 surveys as an herbaceous community, and was described in the 2003 report as "dominated by a mix of native and non-native forbs and native perennial bunchgrasses." The perennial bunchgrass component of the community appeared sub-dominant to the wildflower component in 2003 because of the favorable rains of 2002/2003 and the subsequent showy 2003 spring wildflower display. Our continued plant community study during the below average rainfall of 2003/2004, however, demonstrated that this community is indeed dominated by perennial bunchgrass species with a conspicuous wildflower component, and an unusual lack of introduced annual grass species. Quite frankly, we have rarely seen extensive intact perennial bunchgrass stands of this nature, and it required a second year, with the wildflower component absent, to recognize the habitat as a perennial bunchgrass community.

The perennial bunchgrass community on the site is unique in California for its total size and quality. It incorporates approximately 5,500 continuous acres distributed across a distinct geomorphic feature consisting of a series of weathered ridges and terraces formed from old and very old alluvium. The stand has minimal intrusion of introduced annual grasses and a high richness of bunchgrass species. Six different species occur within the stand. Four of these are either dominant or subdominant and form a complex matrix with semi-predictable distribution patterns across the ridges and terraces based on landscape position. During favorable rain years, such as 2002/2003, the community supports a diverse, showy array of more than 70 native wildflower species. These species were also found to be highly stratified by landscape position.

This study was conducted to determine the overall distribution of the bunchgrass community within the study area and to assess its habitat quality across different landscape positions (i.e. floodplains, hill slopes, ridge tops, etc.). The study also compares the perennial bunchgrass stand on the site with other known stands in the region and across the state based on a review of available literature and reconnaissance-level site visits to known occurrences. The results of this study can be used to assess relative potential impacts of the proposed project to the perennial bunchgrass community in different regions of the study area and locally on specific landscape features, and to develop approaches for avoiding or minimizing these impacts.

This section begins with a landscape and habitat characteristics associated with the bunchgrass community. A full discussion of the perennial bunchgrass plant community study then follows with a description of the methods, results, and discussion. Statistical tables of data analyses are provided in appendices.

**Table 5.1 Statewide perennial bunchgrass plant communities in California (Barry, 1972, Dremann, 2003, and Vollmar and Vos, pers. comm., 2004)**

| County | Location | Acres | Quality |
|---|---|---|---|
| Colusa | Salt Creek Canyon | 200 | Good |
| Lassen | Lynn's Prairie | 2,500 | Excellent |
| Los Angeles | Hungry Valley State Vehicular Recreation Area | 3,000 | Fair |
| **Los Angeles** | **Centennial Specific Plan Project Site** | **5,500** | **Excellent** |
| Los Angeles | Terrace Deposits Northeast of Centennial Specific Plan Project Site | 3,000 – 4,000 | Good - Excellent |
| Kern | Wind Wolves Preserve | 300 | Fair |
| San Luis Obispo | Cal. State Poly College | 300 | Excellent |
| San Luis Obispo | Montana de Oro State Park | <50 | Fair |
| San Luis Obispo | Camp San Luis Obispo Military Reserve | Unknown | Unknown |
| San Luis Obispo/Monterey | Camp Roberts Military Reserve | 1,500 – 2,000 | Fair - Excellent |
| San Luis Obispo | Carrizo Plain National Monument | Unknown | Fair |
| Solano | Dozier North & South | 1,000 | Excellent |
| Solano | Leutholz Ranch & Rio Vista Jct. | 150 | Fair |
| Sonoma | Bennett Mtn./Annadel State Park | 550 | Fair |

## 5.2 Background Landscape and Plant Community Information

### 5.2.1 Landscape Setting

#### 5.2.1.1 Regional Geography

The study area, and its associated bunchgrass community, is situated at the junction of three major geographic provinces: the Mojave Desert Province to the east, the Western Transverse Ranges to the west, and the Sierra Nevada Province (the Tehachapi Range) to the north (see Figure 3.1). The boundaries between these provinces are defined by California's two largest faults: the San Andreas Fault, which divides the Mohave Desert Province from the Transverse Ranges; and the Garlock Fault, which divides the Mohave Desert Province from the Tehachapi Range. The study area technically resides on the far western tip of the Mojave Desert Province but is directly bordered by the foothills of the Tehachapi Ranges to the north and northeast, and the foothills of the Western Transverse Ranges to the south and southwest. Each of these provinces has a unique set of geographical, tectonic, geological, and biological characteristics that strongly influence landscape and plant community characteristics within the study area including the occurrence, quality, and diversity of the perennial bunchgrass community.

#### 5.2.1.2 Climate

The junction of the Tehachapi Ranges and Western Transverse Ranges creates a 'notch' just west of the study area that has several effects on the local climate. High winds are common across the study area throughout the year due to channeling of coastal winds through the notch. These winds undoubtedly cause accelerated erosion and drying of exposed ridge top soils. This notch also appears to influence the local rainfall levels and associated plant communities across a gradient that extends from a few miles west of the study area to a few miles east of the study area. Though rainfall data were not obtained for this report, the drop in rainfall across the site from west to east is apparent in the change in plant communities. Just west of the study area, the dominant plant communities are introduced annual grasslands, oak woodlands, and chaparral. Within the central study area, the dominant habitat is perennial bunchgrass community and annual grasslands. Less than a mile east of the study area, the dominant habitat is desert scrub. The rainfall gradient across the study area is more gradual than in regions north and south of the study area that are blocked by tall mountains of the Tehachapi and Western Transverse Ranges. These areas have a more dramatic rainshadow effect and, typically, a more abrupt transition from mountain forest and scrub communities to desert scrub communities. The more gradual rainfall gradient across the study area region, and the specific rainfall patterns within the study area, appear to be significant factors influencing the presence and quality of the perennial bunchgrass community within the study area.

#### 5.2.1.3 Geology and Geomorphology

The geologic formations within and adjacent to the study area provide a rough geologic and geographic history of the region going back more than 300 million years (see full discussion in Section 3.0). This history shows a beginning as a deep marine environment; followed by metamorphosis of the sea floor deposits into limestone beds; uplift of these beds by intruding

Tehachapi granite; eruption of andesite volcanic flows along the young San Andreas Fault Zone; slow uplift of the area between the Tehachapis and Transverse Ranges (western Mohave Block) creating first a shallow marine or estuarine environment, followed by a mixed continental and lake environment; and, finally, the extensive disgorgement of alluvium (mostly granitic) from the Tehachapis and Transverse Ranges. These geologic formations each have distinct landscape characteristics and soils that strongly influence the diversity and abundance of plant species.

The predominant geologic formations in the broad central and southeastern regions of the study area include 12 million year old Continental Deposits and 100,000 to one million year old Terrace Deposits (see Figure 3.3, Table 3.1). The perennial bunchgrass community occurs primarily on these formations. Together, these formations form a distinct, unified geomorphic feature that includes a series of generally west to east oriented ridges and intervening drainages and associated alluvial terraces. The terrain and orientation of the ridges creates a natural set of distinct landscape positions within the perennial bunchgrass community including alluvial plains, floodplains, south-facing slopes, ridge tops, north-facing slopes, and terrace tops. Limestone soils are also included as an additional landscape position since the associated plant species on these soils are so distinct. These landscape positions have differences in slope, aspect, soils, and disturbance that strongly influence plant species richness and cover. Soils on the ridge tops and upper slopes are thin, excessively drained gravelly and coarse sandy loams. Soils on the intervening floodplains, lower hill slopes, and terrace tops have a similar texture but are deeper.

#### 5.2.1.4 Regional Flora

Each of the three geologic provinces in the region has distinct floristic characteristics due to differences in geology, climate, and other factors. The immediate region of the study area is located where the floras of these three provinces merge. It is also a region where the floras of the mountains of southern and northern California merge, and, to a lesser degree, the floras of the coastal regions and the Great Central Valley. This merging of different floras is evident in the large number of native wildflower species present in the study area. The richness of perennial bunchgrass species, with six species present, is due to the merging of desert, southwest, and interior lowland California bunchgrass species.

### 5.2.2 Perennial Bunchgrass Characteristics

#### 5.2.2.1 General Community Description

The perennial bunchgrass community is characterized by a relatively high cover of native perennial bunchgrasses and wildflowers, and a conspicuously low cover of introduced annual grasses. A total of six bunchgrass species occur in the study area. Foothill needlegrass (*Nasella cernua*) and one-sided bluegrass (*Poa secunda* ssp. *secunda*) are the dominant species within the bunchgrass community. Big squirreltail (*Elymus multisetus*) and desert needlegrass (*Achnatherum speciosum*) are sub-dominants. Two other bunchgrass species, small-flowered melic grass (*Melica imperfecta*) and giant wild rye (*Leymus condensatus*), occur sporadically on the site but neither is a significant component of the perennial bunchgrass community. The native sod-forming grass creeping wildrye (*Leymus triticoides*) occurs on low-lying floodplains.

Common native wildflowers within the perennial bunchgrass community include devil's lettuce (*Amsinckia tessellata* var. *tessellata*), purple owl's-clover (*Castilleja exserta* ssp. *exserta*), California poppy (*Eschscholzia californica*), California goldfields (*Lasthenia californica*), common lomatium (*Lomatium utriculatum*), miniature lupine (*Lupinus bicolor*), California cliff-aster (*Malacothrix californica*), rusty popcornflower (*Plagiobothrys nothofulvus*), white-tip clover (*Trifolium albopurpureum* var. *albopurpureum*), pin-point clover (*Trifolium gracilentum* var. *gracilentum*), and silver puffs (*Uropappus lindleyi*). More than 60 other wildflower species also occur within the community (see plant list in Appendix 4-B). During early to mid spring, there are showy displays of these native wildflowers. In late spring and early summer, the wildflowers decline and perennial bunchgrasses become more prominent.

There are only a limited number of non-native forbs within the bunchgrass community. Red-stem filaree (*Erodium cicutarium*) is the only dominant. There are stands of non-native annual grassland intermixed within the bunchgrass community. Common species include red brome (*Bromus madritensis* ssp. *rubens*), cheatgrass (*Bromus tectorum*), ripgut (*Bromus diandrus*), soft chess (*Bromus hordeaceus*), and wild oats (*Avena fatua*). These grasslands typically dominate only in areas with deeper, accumulated soils such as floodplains and lower hill slopes.

#### 5.2.2.2 Description of Perennial Bunchgrass Species

Four perennial bunchgrass species occur as either dominants or sub-dominants within the perennial bunchgrass community. The general distribution and habitat characteristics of these species are described below.

**Nodding Needlegrass (*Nasella cernua*)**

Nodding needlegrass historically occurred as a common to dominant species in drier bunchgrass communities in the Transverse Ranges, Peninsular Ranges, and South Coast Ranges in southwestern California, and the northern Baja Peninsula in Mexico. It also occurred in isolated pockets further north in the interior North Coast Ranges. It occurs in more arid climates than the more northern purple needlegrass (*Nasella pulchra*), typically in areas with less than 12 to 14 inches of annual rainfall. The decline of the species is due to competition with non-native annual grasses. The species currently occurs only sporadically, typically as scattered individuals or small stands within non-native annual grasslands. Large, dense stands such as that found in the study area are very rare. There have been efforts to list the species due to its current rarity and endangerment (Dremann, 2004).

Within the study area, nodding needlegrass is a dominant on upper southern slopes, ridge tops, and terrace tops on Continental Deposits and Terrace Deposits in the central and southeastern regions of the study area. Nodding needlegrass is considered a "climax" grassland species and large clumps were occasionally observed in the study area.

**One-sided Bluegrass (*Poa secunda* ssp. *secunda*)**

One-sided bluegrass is a widespread species, ranging from Alaska through California to northwestern Mexico and east to the Rocky Mountains. It also occurs in South America. The species is a common component of bunchgrass communities in the western United States. Like other bunchgrass species, one-sided bluegrass has experienced significant declines due to competition with invasive annual grasses. While the species remains more common than nodding needlegrass, it typically occurs now as scattered individuals or isolated stands within introduced annual grasslands. Large dense stands such as that found in the study area are uncommon.

Within the study area, one-sided bluegrass is a dominant on northern slopes, ridge tops, and terrace tops on Continental Deposits and Terrace Deposits in the central and southeastern regions of the study area. Isolated stands also occur on north slopes within areas mapped as Santa Margarita Formation in the southwest and north central regions of the study area.

**Big Squirreltail (*Elymus multisetus*)**

Big squirreltail grass is also a widespread bunchgrass species, ranging from Washington through California and east to the Rocky Mountains. More locally, it occurs occasionally to commonly in the foothills of Kern County as a component of grassland and oak woodland communities, where it is typically found on open rocky or sandy soils. Little information is available on the historic or current status of the species in terms of abundance and decline.

Within the study area, big squirrel tail occurs in scattered clusters primarily on upper slopes and terrace tops on Continental Deposits and Terrace Deposits in the central and southeastern regions of the study area. Big squirreltail grass is considered a "colonizer" grassland species.

**Desert Needlegrass (*Achnatherum speciosum*)**

Desert needlegrass is a robust desert or arid climate species, restricted to areas with low annual rainfall. It is fairly widespread, extending from the lower slopes of the Tehachapi Mountains east to Colorado and south to Arizona and Northern Mexico. It also occurs in South America. It typically occurs on coarse-textured soils, often on alluvial fans. Desert needlegrass occurs in a variety of desert habitat types including the desert scrub habitat that begins just east of the study area. Its occurrence in the study area within a strict perennial bunchgrass community is unusual and represents the westernmost range limit of the species in the region. This species apparently has not experienced the same dramatic declines as nodding needle grass and purple needle grass since it grows in areas with less competition from introduced annual grasses. Cheatgrass (*Bromus tectorum*), an introduced annual grass common in arid regions of the west, is of concern as a competitor (Rafferty and Young 2002).

Within the study area, desert needlegrass occurs on thinner, more sandy and droughty soils, primarily on ridge tops and upper slopes on Continental Deposits and Terrace Deposits in the central and southeastern regions of the study area. Desert Needlegrass is considered a "climax" grassland species and large clumps were common in the study area.

### 5.2.2.3 Plant Community Classification

The two most commonly used classification systems for California's terrestrial plant communities are Holland's *Preliminary Descriptions of the Terrestrial Natural Communities of California* (1986) and Sawyer and Keeler-Wolf's *A Manual of California Vegetation* (1995).

These two classification systems follow different approaches. Holland identifies different plant communities based on a common set of landscape characteristics and associated plant species. Sawyer and Keeler-Wolf identify vegetation series dominated by one or more specific plant species. The Holland classification system is used as a reference for plant communities for this report given its broader, more ecologically-based approach to classification.

The perennial bunchgrass community in the study area is a composite of three different herbaceous Holland plant community types. Valley Needlegrass Grassland, One-sided Bluegrass Grassland, and Wildflower Fields. These three community types occur together primarily on thin soils along ridges, upper hill slopes, and terrace tops. Two other community types are interspersed within the bunchgrass community. Non-native Annual Grassland occurs primarily in areas with deeper, accumulated soils on lower south-facing slopes and on floodplains. Valley Wildrye Grassland occurs primarily on seasonally moist floodplains and lower north-facing slopes. Table 5.2 summarizes these community types and also compares them to Sawyer and Keeler-Wolf vegetation series for reference.

Valley Needlegrass Grassland, One-sided Bluegrass Grassland, and Wildflower Fields are all identified as "sensitive" plant communities by the State of California based on statewide rarity and continuing decline. Occurrences of these communities are included in the CDFG's Natural Diversity Data Base (CNDDB 2004). Valley Wildrye Grassland is not a sensitive plant community. Non-native Annual Grassland is an introduced plant community.

**Table 5.2. Individual plant community types within the perennial bunchgrass community on the Centennial Specific Plan Project Site.**

| Holland Plant Community | Description | CDFG Status | Related Sawyer and Keeler-Wolf Series |
|---|---|---|---|
| Valley Needlegrass Grassland | A native grassland dominated by perennial, tussock-forming purple needlegrass (*Nasella pulchra*) in northern and central California and nodding needlegrass in southern California; native and introduced annuals occur between the perennials, often exceeding the bunchgrass cover. One-sided blue grass is often a component of this community. Formerly extensive around Sacramento, San Joaquin, Salinas Valley, and the Los Angeles Basin but now much reduced. | Sensitive Plant Community | Foothill Needlegrass Series |
| One-sided Bluegrass Grassland (also Pine Bluegrass Grassland) | A native grassland dominated by one-sided bluegrass with high cover and constancy of several native forbs. Often on toe slopes, protected slopes, and clay flats. Occurs at lower elevations primarily along the inner South Coast Ranges. | Sensitive Plant Community | One-sided Bluegrass Series |
| Wildflower Field | An amorphous grab bag of herb-dominated types noted for conspicuous annual wildflower displays; dominance varies from site to site and from year to year at a particular site. Usually on fairly poor sites (droughty, low in nutrients) with reduced competition from annual grasses. Associated habitats include grasslands and oak woodlands. | Sensitive Plant Community | No related series. |
| Valley Wildrye Grassland | A dense prairie sod dominated by creeping wildrye. Occurs on low-lying, moist sites, often adjacent to riparian habitat or freshwater marsh. Scattered widely throughout the Central Valley, other interior valleys and the surrounding lower foothills. | No Status | Creeping ryegrass series |
| Non-native Grassland | A dense to sparse cover of primarily introduced annual grasses. Often with numerous associated species of showy, native wildflowers, especially in years of favorable rainfall. | No Status | California annual grassland series |

### 5.3 Methods

Field data were collected during the 2003 and 2004 field seasons. The 2003 surveys focused on determining the general distribution of the perennial bunchgrass community within the study area and its relative habitat quality on different landforms and landscape positions. The 2004 surveys focused on clarifying the local, distribution patterns of bunchgrass community and non-native annual grasslands within areas identified from the 2003 survey data as high potential habitat for bunchgrass community. The methods for each year are summarized separately below. Field data was collected using standard vegetation community sampling metholdogy (Mueller-Dombois, and Ellenberg, 1974).

#### 5.3.1 2003 Field Surveys

During 2003, field sampling was conducted within seven different dominant landscape positions present in the study area. During earlier surveys, John Vollmar, senior botanist for the study, had noted apparent differences in plant species diversity and richness among these landscape positions especially relating to cover and richness of native versus non-native grasses and forbs versus bunchgrasses. The sampled landscape positions included:

- Disturbed Alluvial Plains
- Floodplains
- South-facing Slopes
- Ridge Tops
- North-facing Slopes
- Terrace Tops
- Limestone Soils

Field work was conducted April 28-29, 2003 by John Vollmar and John Hale. Sampling was conducted within fifty-five 10 x 3 meter plots placed along ten transects traversing the study area (Figure 5.1). Plots locations were stratified by landscape position. Actual plot locations were randomized by selecting a point while walking along the transect and then pacing fifty steps along the transect to the plot location. Two types of data were collected within each plot. First, all plant species within the entire plot were recorded. Then, three one-meter square quadrats were placed along the center line of the plot (one in the center and one at each end) and the absolute cover of each species present within each quadrat was recorded. Together, these data provided information on species richness and cover. Table 5.3 summarizes the number of plots per landscape position.

John Vollmar and Michael Weiler entered all field data into a spreadsheet, performed basic analyses, and prepared the report. Data were separated by landscape position. Within each position, plant species were separated by plant type including native forbs, native annual grasses, native perennial bunchgrasses, native perennial sod grasses, native shrubs, non-native forbs, and non-native annual grasses. Relative cover values were calculated from absolute cover. Basic statistics were generated using statistical software (MiniTab Version 13) for each landscape position and plant type within each position. Descriptive statistics and Mann-Whitney significance tests were generated for each landscape position by plant type.

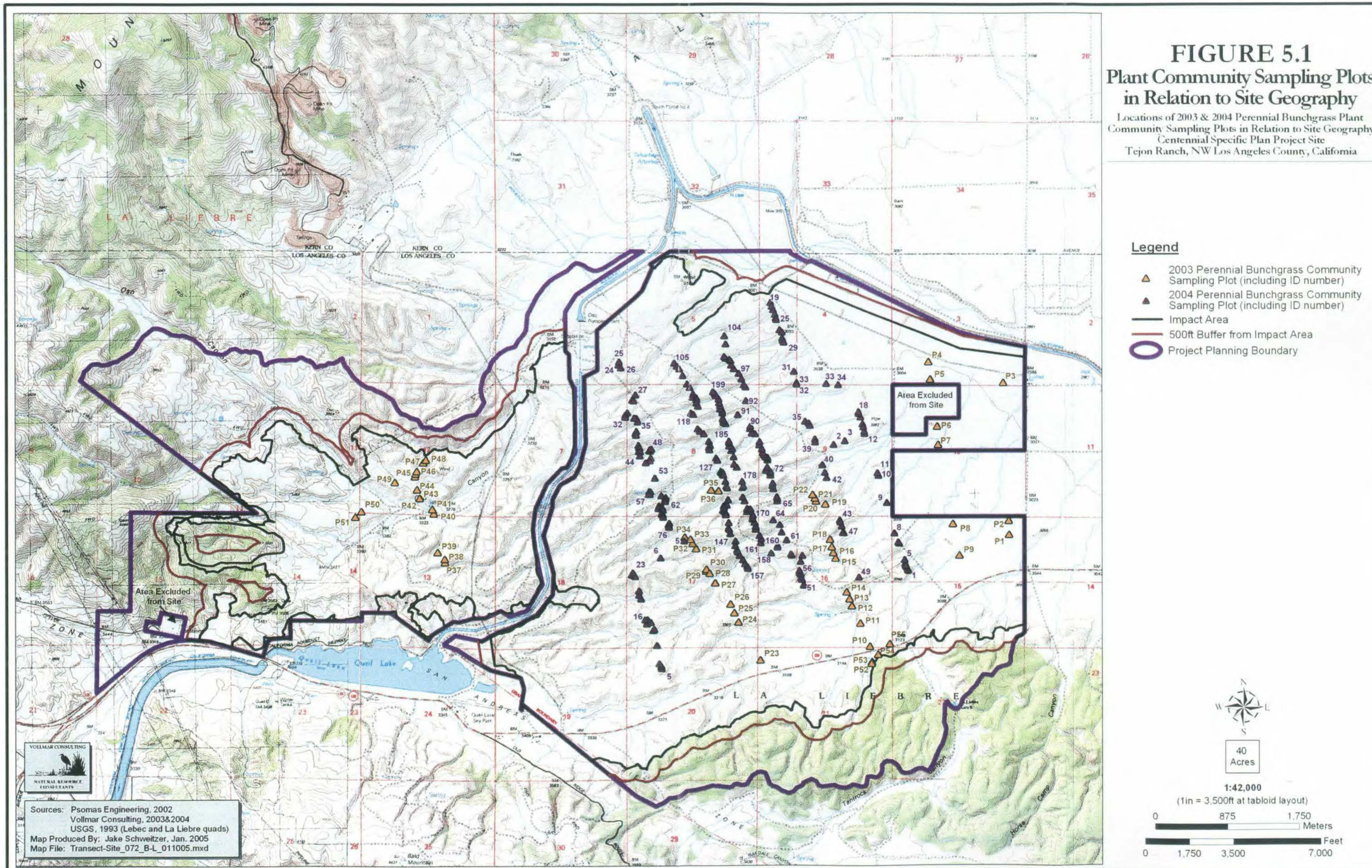


FIGURE 5.1
Plant Community Sampling Plots in Relation to Site Geography
Locations of 2003 & 2004 Perennial Bunchgrass Plant Community Sampling Plots in Relation to Site Geography
Centennial Specific Plan Project Site
Tejon Ranch, NW Los Angeles County, California
Legend
2003 Perennial Bunchgrass Community Sampling Plot (including ID number)
2004 Perennial Bunchgrass Community Sampling Plot (including ID number)
Impact Area
500ft Buffer from Impact Area
Project Planning Boundary
Area Excluded from Site
Area Excluded from Site
KERN CO
LOS ANGELES CO
Quail Lake
40 Acres
1:42,000
(1in = 3,500ft at tabloid layout)
0 875 1,750 Meters
0 1,750 3,500 7,000 Feet
VOLLMAR CONSULTING
NATURAL RESOURCE CONSULTANTS
Sources: Psomas Engineering, 2002
Vollmar Consulting, 2003&2004
USGS, 1993 (Lebec and La Liebre quads)
Map Produced By: Jake Schweitzer, Jan. 2005
Map File: Transect-Site_072_B-L_011005.mxd

**Table 5.3 Number of plots per landscape position sampled in the perennial bunchgrass plant community study conducted in 2003 and 2004 by Vollmar Consulting, Centennial Specific Plan Project Site, Los Angeles County, California**

| Landscape Position | Number of Plots, 2003 | Number of Plots, 2004 |
|---|---|---|
| Disturbed Alluvial Plain | 9 | 0 |
| Floodplains | 9 | 20 |
| North-facing Slopes (Mid-slope) | 9 | N/A |
| North-Facing, Lower, Concave Slopes | N/A | 26 |
| North-Facing, Lower, Convex Slopes | N/A | 19 |
| North-Facing, Upper, Concave Slopes | N/A | 23 |
| North-Facing, Upper, Convex Slopes | N/A | 36 |
| Ridge tops | 8 | 56 |
| Terrace Tops | 4 | 0 |
| South-Facing Slopes (Mid-slope) | 9 | N/A |
| South-Facing, Upper, Convex Slopes | N/A | 33 |
| South-Facing, Upper, Concave Slopes | N/A | 18 |
| South-Facing, Lower, Convex Slopes | N/A | 16 |
| South-Facing, Lower, Concave Slopes | N/A | 31 |
| Limestone Soils | 6 | 0 |
| **Total Number of Plots:** | **55** | **278** |

### 5.3.2 2004 Field Surveys

Field sampling in 2004 was restricted to the weathered ridge system in the central-eastern region of the study area. This landform was identified from the 2003 field data as supporting high-quality perennial bunchgrass community. The 2004 field surveys continued the study of species distribution across landscape positions but further stratified the landscape positions and focused primarily on the distribution of perennial bunchgrasses versus non-native annual grasses to better describe the quality of the bunchgrass community, more precisely map its local distribution within identified habitat, and compare its quality to other known bunchgrass stands in the state.

Ten landscape positions were surveyed in 2004. Two of the 2003 landscape positions (disturbed alluvial plains and limestone soils) were not surveyed in 2004. Also, the north- and south-facing slopes were further stratified by slope position (upper and lower) and topography (convex and concave) to assess plant species distribution in relation to microtopography. Thus, the following ten landscape positions were surveyed:

- Floodplains
- North-Facing, Lower, Concave Slopes
- North-Facing, Lower, Convex Slopes
- North-Facing, Upper, Concave Slopes
- North-Facing, Upper, Convex Slopes
- Ridge tops
- South-Facing, Lower, Concave Slopes
- South-Facing, Lower, Convex Slopes
- South-Facing, Upper, Concave Slopes
- South-Facing, Upper, Convex Slopes

Disturbed alluvial plains were not included since the 2003 data clearly showed that bunchgrass species do not occur on this landform. Limestone soils were not included since these soils occur in a few localized areas mostly outside of the 2004 study region.

Field sampling was conducted on June 17, 2004 by John Vollmar, Gretchen Vos, Jeffrey Congero, and Ayzik Solomeshch. Sampling was conducted along parallel transects laid out perpendicular to the ridgelines (roughly north to south) and separated by 300 meters. Transect locations were loaded into a professional GPS unit (Trimble GeoXT) which was used to navigate along transects. Data were collected within 278 10 x 3 meter plots placed in targeted landscape positions along the transects. Surveyors placed plots in these positions as they were encountered along a transect. In some cases, surveyors moved laterally away from transects to establish plots in under-represented positions (especially for upper concave and lower convex slope positions). Table 5.3 summarizes the number of plots per landscape position. Table 5.15, in Appendix 5, summarizes transects, plots, and landscape positions. Environmental and floristic data were collected within each plot. Environmental data included landscape position, aspect, percent slope, slope position, microtopography, soil condition and parent material. Floristic data included relative percent cover for individual perennial bunchgrass and annual grass species, combined forbs, and bare ground. Transects and plot locations are shown on Figure 5.1.

Upon completion of the sampling, Gretchen Vos entered all field data into a spreadsheet and performed basic statistical analyses. Data were separated by landscape position for each perennial and annual grass species, combined forb species, and bare ground. Basic statistics were generated using statistical software (MiniTab Version 13). Descriptive statistics and Mann-Whitney significance tests were generated for each landscape position by individual grass species, combined forb species, and bare ground.

Mean cover values were used to assess and describe the distribution of individual and combined bunchgrass species and introduced annual grasses within the study site. The threshold for determining dominance of combined perennial bunchgrasses versus annual grasses was 20% relative cover. For individual bunchgrass species, high potential habitat for nodding needle grass and one-sided bluegrass included landscape positions with >10% mean cover values for these species. These species are common with relatively continuous distributions across the landscape. High potential habitat for big squirreltail and desert needlegrass included landscape positions with >1% mean cover values for these species. These species are less common than the other two species and have highly clustered distributions across the landscape. [Standardized criteria for determining thresholds of cover dominance in grassland communities are not well established in the literature. The relative cover thresholds are based on conservative estimates based on field observations].

Soil samples were randomly collected at 100 of the 278 plots in all ten landscape positions. Table 5.16 in Appendix 5 lists the soil sample plot locations. Soil samples were collected from the top horizon (upper 6") from one location in each plot. Forty-six of the 100 samples, stratified by landscape position, were sent to a lab for analysis. Soils were analyzed for percent organic matter, major and minor cations, cation exchange capacity and pH. Mean values were calculated for percent organic matter, cation exchange capacity, and pH for each landscape position. Basic statistics were generated using statistical software (MiniTab Version 13).

## 5.4 Results

The field surveys conducted in 2003 and 2004 served different goals. As described above, the 2003 surveys focused on determining the general distribution and relative habitat quality of the perennial bunchgrass community throughout the study area while the 2004 surveys focused on clarifying the local distribution patterns of bunchgrasses, forbs and non-native annual grasses within mapped high-quality perennial bunchgrass habitat. Given these different goals and associated data collection methods, results for the two years are presented separately below. The interpretation of these results is integrated in the Discussion section.

### 5.4.1 2003 Field Surveys

Table 5.4 lists all plant species recorded in sampled plots. Species are separated by plant type (i.e. native forbs, native perennial bunchgrass, etc.). The abundance of each species within each landscape position is noted as either dominant (>10% mean cover), subdominant (2-10% mean cover), or uncommon (<2% mean cover). Table 5.5 summarizes the means for species richness, absolute cover, and relative cover by plant type and landscape position. The means for bare soil by landscape position are also included with the absolute cover values. Appendix 5 includes five tables (Table 5.9-5.13) summarizing descriptive statistics and Mann-Whitney tests for significance for richness, relative plant cover, and bare soil cover. Most of differences were found to be very significant (0.01 confidence level) to significant (0.05 confidence level).

Mean native richness and cover was high on south-facing slopes, ridge tops, north-facing slopes, and limestone soils and low on disturbed alluvial plains and floodplains. Terrace tops were mixed with a high mean cover of native species but a low mean richness.

Mean non-native richness and cover values were generally the inverse of the native values, with high non-native values recorded on disturbed alluvial plains and floodplains and low values recorded on south-facing slopes, ridge tops, north-facing slopes, and terrace tops. Limestone soils had a low cover of non-native plants but a high number of species due to the presence of a several non-native annual grass species in most plots. Most of the non-native cover on south-facing slopes, ridge tops, north-facing slopes, and terrace tops came from one species, red-stem filaree. Among native species, mean richness and cover of native wildflowers were both high on south- facing slopes and limestone soils and low on disturbed alluvial plains and floodplains.

Ridge tops and north-facing slopes had high wildflower richness but moderate relative cover. Terrace tops had low wildflower richness and moderate relative cover. Mean richness and cover of native perennial bunchgrasses were high on ridge top, north-facing slopes, and terrace tops, low to moderate on south-facing slopes and limestone soils, and very low on floodplains. No perennial bunchgrasses were recorded on disturbed alluvial plains.

Interestingly, the richness and cover of native bunchgrasses was inversely correlated with the richness and cover of native wildflowers on most landscape positions. This is most likely due to competition for space. On all landscape positions except disturbed alluvial plains and floodplains, the combined relative cover of native wildflowers and bunchgrasses was around 50-60%. Where the cover of native wildflowers was highest (south-facing slopes and limestone soils), the cover of native bunchgrasses was lowest; where the cover of native wildflowers was lowest (ridge tops and north-facing slopes), the cover of native bunchgrasses was highest. Where the cover of native wildflowers was moderate (terrace tops), the cover of native bunchgrasses was also moderate. These correlations did not occur on disturbed alluvial plains and floodplains. Native bunchgrasses were generally absent on these surfaces and native wildflowers had a low cover and richness.

Non-native annual grasses had the highest richness on limestone soils and floodplains, moderate richness on disturbed alluvial plains and south-facing slopes, and lowest richness on ridge tops, north-facing slopes and terrace tops. The highest relative cover was recorded on south-facing slopes, moderate covers were recorded on floodplains and limestone soils, and low covers were recorded on disturbed alluvial plains, ridge tops, north-facing slopes, and terrace tops.

Perennial sod grass (i.e. creeping wildrye) was only recorded on floodplains. Native annual grasses and native shrubs were each recorded on five of the seven landscape positions but in such low cover values that no conclusions can be made.

The cover of bare soil varied greatly among the landscape positions. The cover values were directly associated with soil depth on the various landscape positions. The thin, weathered ridge top soils had the highest mean cover of bare soil. Adjacent south-facing and north-facing slopes were moderately bare. These surfaces are weathered like the ridge tops but accumulate some deeper soils more amenable to plant growth, especially when the slopes are concave. Disturbed alluvial plains, terrace tops, and limestone soils all had moderately low mean covers of bare soils. All of these landscape positions have flat to gentle sloping surface with well-developed soils and fairly dense plant growth. Floodplains had the lowest mean cover of bare soil. Floodplains have the deepest soils in the study area and support dense plant growth.

### 5.4.2 2004 Field Surveys

Table 5.6 lists the mean relative covers across different landscape positions for individual and combined perennial bunchgrass species, combined annual grass species, combined forb species and bare ground. Numbers in the table are color-coded to show high, moderate, and low cover values for each species or plant group. These cover classes were used to develop perennial bunchgrass and annual grass distribution maps. Appendix A includes three tables (Tables 5.16 – 5.18) that summarize descriptive statistics and Mann-Whitney tests for significance of the mean values. Table 5.7 shows the frequency of occurrence of the four perennial bunchgrass species within sampled plots across different landscape positions. This table demonstrates the broad distributions of nodding needlegrass and one-sided bluegrass versus the more clustered distributions of big squirreltail and especially desert needlegrass. Table 5.8 presents mean data on soil characteristics at different landscape positions based on lab analysis of soil samples.

Mean cover values for combined perennial bunchgrass species and introduced annual grasses followed similar patterns as for the 2003 data, with the highest covers of perennial bunchgrasses on ridge tops and upper slopes and the highest covers of annual grasses on lower slope and floodplain positions. However, increased stratification of landscape positions on the north-facing and south-facing slopes revealed a more intricate and exquisite distribution pattern between these two competing groups of plants. Table 5.6 shows the inverse relationship between mean cover values for these two groups across the landscape gradient from a floodplain, up and over a ridge top from north to south, and back down to a floodplain. The abundance of each group was inversely correlated at each landscape position. Where the perennial bunchgrass cover was highest, the annual grass cover was the lowest and vice versa. Furthermore, these cover values roughly followed a normal curve across the landscape gradient from floodplain to floodplain. This normal inverse relationship is clearly shown in Graph 5.1.

The four perennial bunchgrass species also showed normal abundance curves across sequential landscape positions though each species had a unique distribution pattern. These different patterns are shown by color-coding in Table 5.6 and graphically in Graph 5.2. Nodding needlegrass is most abundant on ridge tops and upper south-facing convex slopes, while one-sided bluegrass is most abundant on upper and lower north-facing slopes (convex and concave) with moderate abundance on ridge tops. Big squirreltail, a sub-dominant species with a clustered distribution, is most abundant on north-facing upper slopes and lower convex slopes. Desert needlegrass, also a sub-dominant species with a highly clustered distribution, is most abundant on ridge tops and north-facing upper convex slopes.

The soils across the different landscape positions change from thin, gravelly exposed soils on ridge tops to deeper accumulated loamy soils on lower slopes and floodplains. The results from the soil sample analyses were less significant than results from floristic data (Table 5.8). Mean percent organic matter was marginally higher on floodplains and lower slope positions. This is expected since these are accumulation zones. Cation exchange capacity (CEC) is a measurement of a soil's capacity to hold exchangeable cations (i.e. nutrients important for plant growth) such as potassium, magnesium, calcium, sodium, and hydrogen. CEC is directly related to soil texture and percent organic matter. Clay soils typically have a higher CEC, and soils with high organic matter content also have a higher CEC. Coarse textured soils typically have lower CEC. A low CEC value is 10 and under. A high CEC value is typically greater than 40. The recorded mean CEC values at all landscape positions is considered low. The mean CEC was generally highest in the floodplain and lower slope positions and lowest in the upper slope positions. The mean CEC for ridge tops, however, did not follow this trend and was significantly higher than for the adjacent upper slopes. Mean soil pH values ranged from 7.42 to 7.62, all within the slightly alkaline range. The elevated pH values are likely related to low levels of calcium from limestone incorporated in the alluvial parent material.

**Table 5.4 Plant species identified during spring 2003 perennial bunchgrass plant community sampling conducted by Vollmar Consulting on the Centennial Specific Plan Project Site, Los Angeles County, California. D = Dominant (>10% mean cover); S = Subdominant (2-10% mean cover); U = Uncommon (<2% mean cover).**

| Scientific Name | Acronym | Disturbed Alluvial Plain | Floodplain | S-Facing Slope | Ridge Top | N-Facing Slope | Terrace Tops | Limestone Soils |
|---|---|---|---|---|---|---|---|---|
| **Native Forbs** | | | | | | | | |
| *Achyrachaena mollis* | ACMO | | | U | | | | U |
| *Agoseris heterophylla* | AGHE | | | U | U | U | | |
| *Agoseris retrorsa* | AGRE | U | | | | U | | |
| *Amsinckia menziesii var. intermedia* | AMMEI | U | U | | | | | |
| *Amsinckia menziesii var. menziesii* | AMMEM | | U | | | | | |
| *Amsinckia tessellata var. tessellata* | AMTET | S | S | U | U | S | D | S |
| *Ancistrocaphus filagineus* | ANFI | | | | | | | U |
| *Asclepias californica* | ASCA | | | U | | | | |
| *Asclepias sp.* | ASSP | | | U | | | | |
| *Astragalus didymocarpus var. didymocarpus* | ASDID | | | | | | | S |
| *Astragalus douglasii var. douglasii* | ASDOD | | U | | | | | |
| *Astragalus purshii var. tinctus* | ASPUT | | | | U | | U | |
| *Astragalus sp.* | ASSP | | | | | U | | |
| *Balsamorhiza deltoidea* | BADE | | | | | U | | |
| *Calandrinia ciliata* | CACI | | | U | U | U | | |
| *Calochortus sp.* | CASP | | | | | | | U |
| *Calystegia occidentalis ssp. fulcrata* | CAOCF | | | U | S | U | | |
| *Camissonia campestris ssp. campestris* | CACAC | U | | | U | U | | |
| *Castilleja exserta ssp. exserta* | CAEXE | U | U | U | U | U | U | U |
| *Chaenactis glabriuscula var. glabriuscula* | CHGLG | | | S | U | | | |
| *Chaenactis xantiana* | CHXA | U | | U | U | U | | |
| *Chamaesyce albomarginata* | CHAL | U | | S | U | | U | |
| *Claytonia perfoliata ssp. perfoliata* | CLPEP | | | | | U | | U |
| *Collinsia bartisaefolia var. davidsonii* | COBAD | | | | | U | | |
| *Cryptantha sp.* | CRSP | | | U | U | U | U | |
| *Dichelostemma capitatum ssp. capitatum* | DICAC | | | U | U | U | U | U |
| *Eremocarpus setigerus* | ERSE | | U | U | U | U | U | |
| *Eriogonum sp.* | ERSP | U | | U | U | U | | |
| *Erodium macrophyllum* | ERMA | | | | | | | S |
| *Eschscholzia californica* | ESCA | U | | S | U | U | U | |
| *Gilia aliquanta ssp. aliquanta* | GIALA | | | U | | U | | |
| *Gilia breccarium ssp. breccarium* | GIBRB | U | | | | U | | |
| *Guillenia lemmonii* | GULE | | | | | | | U |
| *Helianthus annuus* | HEAN | | | | | | | U |
| *Lasthenia californica* | LACA | U | U | S | S | U | | U |
| *Layia platyglossa* | LAPL | | | | | | | D |
| *Lepidium nitidum* | LENI | | | U | U | U | | S |
| *Linanthus dichotomus* | LIDI | | | U | U | U | | |
| *Linanthus liniflorus* | LILI | | U | U | U | | U | |
| *Linanthus sp.* | LISP | U | U | | U | | U | |
| *Lomatium utriculatum* | LOUT | U | U | U | U | S | U | S |
| *Lotus wrangelianus* | LOWR | | | U | | | | U |
| *Lupinus bicolor* | LUBI | S | D | S | U | S | D | |
| *Lupinus excubitus var. austromontanus* | LUEXA | | | | U | U | | |
| *Lupinus formosus var. formosus* | LUFOF | U | | | | U | | |
| *Macaranthera canescens* | MACA1 | U | | S | U | U | U | |
| *Macaranthera sp?* | MACA3 | | | | U | | | |
| *Malacothrix californica* | MACA2 | U | U | U | U | | | |

| Scientific Name | Acronym | Disturbed Alluvial Plain | Floodplain | S-Facing Slope | Ridge Top | N-Facing Slope | Terrace Tops | Limestone Soils |
|---|---|---|---|---|---|---|---|---|
| *Malacothrix sp.* | MASP | | | | | U | | |
| *Marah fabaceus* | MAFA | U | | | | | | |
| *Mentzelia albicaulis* | MEAL | U | | | U | U | | |
| *Microseris sylvatica* | MISY | | | U | U | U | | |
| *Monolopia lanceolata* | MOLA | | | | | | | D |
| *Pectocarya linearis ssp. ferocula* | PELIF | S | | | U | U | | |
| *Pectocarya setosa* | PESE | | | U | | | | |
| *Phacelia ciliata* | PHCI | | | | | | | D |
| *Phlox gracilis* | PHGR | | U | | | | | |
| *Plagiobothrys nothofulvus* | PLNO | | U | U | | U | U | |
| *Plagiobothrys sp.* | PLSP | | U | | | U | | |
| *Platystemon californicus* | PLCA | | U | | | | | |
| *Sidalcea malvaeflora ssp. sparsifolia* | SIMAS | | U | | | U | | |
| *Thysanocarpus curvipes* | THCU | | | | | U | | |
| *Trifolium albopurpureum var. albopurpureum* | TRALA | | U | U | U | U | | |
| *Trifolium gracilentum var. gracilentum* | TRGRG | | S | S | | U | U | |
| *Trifolium wildenovii* | TRWI | | U | | | | | |
| *Yellow woolly comp* | UNCO1 | | | | U | | | |
| *Unknown composite* | UNCO3 | | | | | U | | |
| *Unknown composite* | UNCO4 | | | | | | | U |
| *Unknown forb* | UNFO1 | | | | U | | | |
| *Uropappus lindleyi* | URLI | U | U | U | U | | U | |
| *Vicia sp.* | VISP | | | | | | | U |
| **Native Annual Grasses** | | | | | | | | |
| *Vulpia microstachys var. microstachys* | VUMIM | U | U | U | | U | | U |
| **Native Perennial Bunch Grasses** | | | | | | | | |
| *Elymus multisetus* | ELMU | | | | | U | | |
| *Nassella pulchra* | NAPU | | | U | U | U | U | U |
| *Poa secunda ssp. secunda* | POSES | | U | U | D | D | D | S |
| **Native Perennial Sod Grasses** | | | | | | | | |
| *Leymus triticoides* | LETR | | U | | | | | |
| **Native Shrubs** | | | | | | | | |
| *Chrysothamnus nauseosus* | CHNA | S | | | U | | | U |
| *Chrysothamnus-like shrub?* | UNCO2 | | | U | U | U | | |
| *Isocoma acradenia* | ISAC | | | U | U | U | | |
| **Non-Native Forbs** | | | | | | | | |
| *Erodium cicutarium* | ERCI | D | D | D | D | D | D | D |
| *Descurainia sophia* | DESO | U | U | | | | | |
| *Hirschfeldia incana* | HIIN | U | | U | U | | | U |
| *Lupinus microcarpus var. microcarpus* | LUMIM | U | | | | | | S |
| *Vicia benghalensis* | VIBE | | | | U | U | U | |
| **Non-Native Annual Grasses** | | | | | | | | |
| *Avena fatua* | AVFA | U | U | S | U | | | U |
| *Bromus diandrus* | BRDI | | U | | | | | |
| *Bromus hordeaceus* | BRHO | | U | U | | | | S |
| *Bromus madritensis ssp. rubens* | BRMAR | U | S | S | U | U | S | S |
| *Bromus tectorum* | BRTE | U | S | U | U | U | U | U |
| *Hordeum murinum ssp. leporinum* | HOMUL | | S | | | | | U |
| *Secale cereale* | SECE | U | | U | | | | |

**Table 5.5 Mean values from 2003 plant community sampling for plant species richness, absolute cover, and relative cover. Centennial Specific Plan Project Site, Los Angeles County, California.**

## SPECIES RICHNESS

| Landscape Position | Native Forbs | Native Annual Grasses | Native Perennial Bunch Grasses | Native Perennial Sod Grasses | Native Shrubs | TOTAL NATIVE PLANTS | Non-Native Forbs | Non-Native Annual Grasses | TOTAL NON-NATIVE PLANTS | TOTAL ALL PLANTS |
|---|---|---|---|---|---|---|---|---|---|---|
| Disturbed Alluvial Plain | 5.44 | 0.44 | 0.00 | 0.00 | 0.22 | **6.11** | 2.44 | 2.22 | **4.67** | **10.78** |
| Flood Plain | 7.00 | 0.89 | 0.33 | 0.11 | 0.00 | **8.33** | 1.11 | 3.00 | **4.11** | **12.44** |
| S-Facing Slope | 10.56 | 0.22 | 1.33 | 0.00 | 0.22 | **12.33** | 1.22 | 2.11 | **3.33** | **15.67** |
| Ridge Top | 10.50 | 0.00 | 1.88 | 0.00 | 0.50 | **12.88** | 1.38 | 1.38 | **2.75** | **15.63** |
| N-Facing Slope | 12.11 | 0.11 | 1.78 | 0.00 | 0.22 | **14.22** | 1.22 | 1.56 | **2.78** | **17.00** |
| Terrace Top | 6.00 | 0.00 | 1.80 | 0.00 | 0.00 | **7.80** | 1.20 | 1.20 | **2.40** | **10.20** |
| Limestone Soils | 10.67 | 0.33 | 1.00 | 0.00 | 0.33 | **12.33** | 2.00 | 3.67 | **5.67** | **18.00** |

## ABSOLUTE PLANT COVER AND BARE SOIL

| Landscape Position | Native Forbs | Native Annual Grasses | Native Perennial Bunch Grasses | Native Perennial Sod Grasses | Native Shrubs | TOTAL NATIVE PLANTS | Non-Native Forbs | Non-Native Annual Grasses | TOTAL NON-NATIVE PLANTS | TOTAL ALL PLANTS | BARE SOIL |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Disturbed Alluvial Plain | 11.00 | 0.30 | 0.00 | 0.00 | 2.04 | **13.33** | 79.67 | 2.70 | **82.37** | **95.70** | **8.67** |
| Flood Plain | 22.56 | 0.96 | 0.78 | 0.93 | 0.00 | **25.22** | 76.63 | 10.30 | **86.93** | **112.15** | **3.15** |
| S-Facing Slope | 38.22 | 0.07 | 3.00 | 0.00 | 0.37 | **41.67** | 31.63 | 14.44 | **46.07** | **87.74** | **28.44** |
| Ridge Top | 14.75 | 0.00 | 13.42 | 0.00 | 1.04 | **29.21** | 21.54 | 1.38 | **22.92** | **52.54** | **50.42** |
| N-Facing Slope | 22.41 | 0.11 | 15.81 | 0.00 | 0.56 | **38.89** | 34.00 | 3.22 | **37.22** | **76.11** | **26.67** |
| Terrace Top | 38.33 | 0.00 | 16.47 | 0.00 | 0.00 | **54.80** | 43.67 | 6.33 | **50.00** | **104.80** | **10.13** |
| Limestone Soils | 56.17 | 0.06 | 2.00 | 0.00 | 0.28 | **58.50** | 23.72 | 8.83 | **32.56** | **91.06** | **12.00** |

## RELATIVE PLANT COVER

| Landscape Position | Native Forbs | Native Annual Grasses | Native Perennial Bunch Grasses | Native Perennial Sod Grasses | Native Shrubs | TOTAL NATIVE PLANTS | Non-Native Forbs | Non-Native Annual Grasses | TOTAL NON-NATIVE PLANTS | TOTAL ALL PLANTS |
|---|---|---|---|---|---|---|---|---|---|---|
| Disturbed Alluvial Plain | 11.49 | 0.31 | 0.00 | 0.00 | 2.13 | **13.93** | 83.25 | 2.83 | **86.07** | **100.00** |
| Flood Plain | 20.12 | 0.86 | 0.69 | 0.83 | 0.00 | **22.49** | 68.33 | 9.18 | **77.51** | **100.00** |
| S-Facing Slope | 43.56 | 0.08 | 3.42 | 0.00 | 0.42 | **47.49** | 36.05 | 16.46 | **52.51** | **100.00** |
| Ridge Top | 28.07 | 0.00 | 25.54 | 0.00 | 1.98 | **55.60** | 41.00 | 2.62 | **43.62** | **100.00** |
| N-Facing Slope | 29.44 | 0.15 | 20.77 | 0.00 | 0.73 | **51.10** | 44.67 | 4.23 | **48.90** | **100.00** |
| Terrace Top | 36.57 | 0.00 | 15.72 | 0.00 | 0.00 | **52.29** | 41.67 | 6.04 | **47.71** | **100.00** |
| Limestone Soils | 61.68 | 0.06 | 2.20 | 0.00 | 0.31 | **64.24** | 26.05 | 9.70 | **35.76** | **100.00** |

**Table 5.6 Comparison of mean relative cover of individual and combined perennial bunchgrasses, combined non-native annual grasses, combined forb species, and bare soil. 2004 field surveys, Centennial Specific Plan Project Site, Los Angeles County, California.**

| Landscape Position | Mean Relative Cover[1] | | | | | | |
|---|---|---|---|---|---|---|---|
| | ACSP[2] | ELMU[2] | NACE[2] | POSES[2] | Total Bunchgrasses | Total Non-Native Annual Grasses | Bare Ground |
| Floodplain | 0.00 | 0.10 | 0.10 | 2.25 | 2.45 | 32.70 | 20.20 |
| North-facing Lower Concave Slopes | 0.00 | 0.15 | 1.35 | 17.62 | 19.08 | 23.73 | 20.00 |
| North-facing Lower Convex Slopes | 0.53 | 2.21 | 2.37 | 17.89 | 23.00 | 15.74 | 28.42 |
| North-facing Upper Concave Slopes | 0.57 | 3.00 | 4.00 | 21.74 | 29.30 | 10.35 | 30.48 |
| North-facing Upper Convex Slopes | 2.36 | 2.33 | 5.64 | 22.97 | 33.31 | 6.28 | 32.64 |
| Ridge tops | 1.63 | 0.96 | 17.71 | 12.02 | 32.32 | 4.07 | 40.63 |
| South-facing Upper Convex Slopes | 0.03 | 0.18 | 16.97 | 3.73 | 20.91 | 12.33 | 33.64 |
| South-facing Upper Concave Slopes | 0.06 | 0.11 | 8.11 | 1.39 | 9.67 | 27.56 | 25.83 |
| South-facing Lower Convex Slopes | 0.00 | 0.81 | 6.56 | 0.44 | 7.81 | 33.75 | 20.13 |
| South-facing Lower Concave Slopes | 0.03 | 0.03 | 4.19 | 0.71 | 4.97 | 31.16 | 22.32 |

1. Color-coding:

| | |
|---|---|
| ACSP and ELMU: | Dark Purple = high cover, clustered distribution (>1%)<br>Med. Purple = moderate cover, clustered distribution (0.3-1%)<br>Light Purple = low cover, clustered distribution (<0.5%) |
| NACE and POSES: | Dark Blue = high cover, broad distribution (>10%)<br>Med. Blue = moderate cover, broad distribution (5-10%)<br>Light Blue = low cover, broad distribution (<5%) |
| NACE and POSES: | Dark Blue = high cover, broad distribution (>10%)<br>Med. Blue = moderate cover, broad distribution (5-10%)<br>Light Blue = low cover, broad distribution (<5%) |
| Total Grasses: | Dark Green = high cover, broad distribution (>20%)<br>Med. Green = moderate cover, broad distribution (10-20%)<br>Light Green = low cover, broad distribution (<10%)' |
| Bare ground: | Dark Tan = high bare ground (>30%)<br>Med. Tan = moderate bare ground (10-30%) |

2. ACSP = *Achnatherum speciosum;* ELMU = *Elymus multisetus*; NACE = *Nasella cernua*; POSES = *Poa secunda* ssp. *secunda*

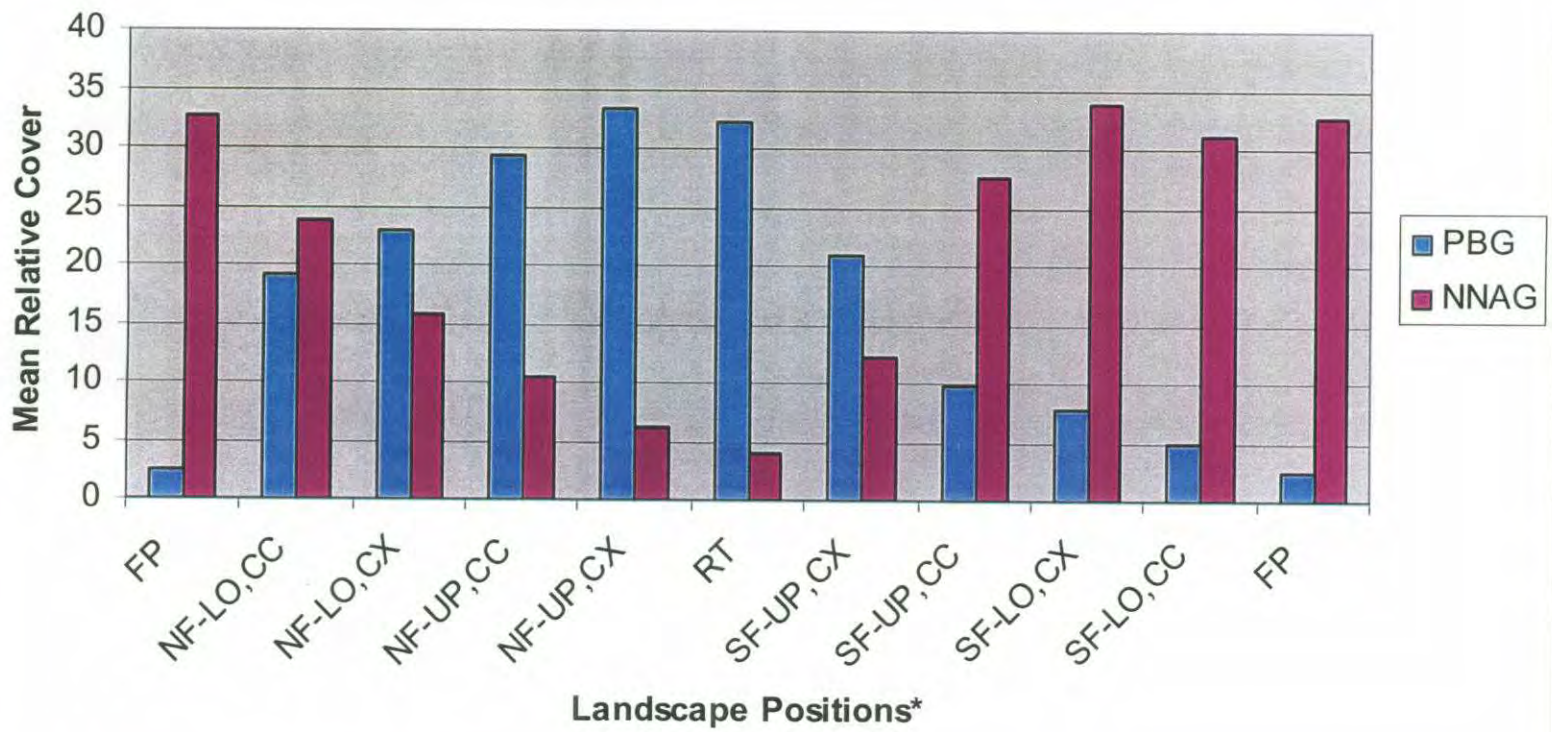
**Table 5.7 Frequency of occurrence of individual perennial bunchgrass species within sampled plots at different landscape positions. Centennial Specific Plan Project Site, Los Angeles County, California.**

| Landscape Position | Total Number of Plots | Frequency of Occurrence by Species | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Nodding Needlegrass (*Nasella cernua*) | | One-sided Bluegrass (*Poa secunda* ssp. *secunda*) | | Big Squirreltail (*Elymus multisetus*) | | Desert Needlegrass (*Achnatherum speciosum*) | |
| | | Number of Plots | Frequency (% of plots) | Number of Plots | Frequency (% of plots) | Number of Plots | Frequency (% of plots) | Number of Plots | Frequency (% of plots) |
| Floodplains | 20 | 1 | 5.00% | 7 | 35.00% | 1 | 5.00% | 0 | 0.00 |
| North-Facing, Lower, Concave Slopes | 26 | 8 | 30.77% | 24 | 92.31% | 3 | 11.54% | 0 | 0.00 |
| North-Facing, Lower, Convex Slopes | 19 | 8 | 42.11% | 18 | 94.74% | 8 | 42.11% | 2 | 10.53% |
| North-Facing, Upper, Concave Slopes | 23 | 16 | 69.57% | 22 | 95.65% | 12 | 52.17% | 2 | 8.70% |
| North-Facing, Upper, Convex Slopes | 36 | 29 | 80.56% | 36 | 100.00% | 21 | 58.33% | 6 | 16.67% |
| Ridge tops | 56 | 55 | 98.21% | 53 | 94.64% | 10 | 17.86% | 10 | 17.86% |
| South-Facing, Upper, Convex Slopes | 33 | 32 | 96.97% | 29 | 87.88% | 1 | 3.03% | 1 | 3.03% |
| South-Facing, Upper, Concave Slopes | 18 | 15 | 83.33% | 6 | 33.33% | 1 | 5.56% | 1 | 5.56% |
| South-Facing, Lower, Convex Slopes | 16 | 11 | 68.75% | 2 | 12.50% | 0 | 0.00 | 0 | 0.00 |
| South-Facing, Lower, Concave Slopes | 31 | 18 | 58.06% | 5 | 16.13% | 1 | 3.23% | 1 | 3.23% |
| All Landscape Positions | 278 | 193 | 69.42% | 202 | 72.66% | 58 | 20.86% | 23 | 8.27% |

**Table 5.8 Summary of soil characteristics (percent organic matter, total cation exchange capacity (CEC), and pH) at different landscape positions, conducted by Vollmar Consulting, Spring, 2004 Centennial Specific Plan Project Site, Los Angeles County, California.**

| Landscape Position | Sample Size (N) | Soil Chemical and Physical Properties | | |
|---|---|---|---|---|
| | | Mean % OM | Mean Total CEC (meq/100g) | Mean Soil pH |
| Floodplains | 5 | 2.90 | 9.72 | 7.42 |
| North-facing Lower Concave Slopes | 6 | 2.58 | 9.78 | 7.57 |
| North-facing Lower Convex Slopes | 3 | 2.77 | 8.97 | 7.57 |
| North-facing Upper Concave Slopes | 4 | 1.90 | 5.55 | 7.48 |
| North-facing Upper Convex Slopes | 5 | 1.98 | 7.44 | 7.48 |
| Ridge tops | 5 | 2.12 | 10.44 | 7.62 |
| South-facing Upper Convex Slopes | 5 | 2.14 | 7.62 | 7.48 |
| South-facing Upper Concave Slopes | 5 | 2.54 | 8.16 | 7.46 |
| South-facing Lower Convex Slopes | 3 | 2.30 | 8.87 | 7.50 |
| South-facing Lower Concave Slopes | 5 | 2.22 | 9.64 | 7.60 |

## Graph 5.1 Comparison of Mean Relative Cover Values of Perennial Bunchgrasses (PBG) and Non-native Annual Grasses (NNAG) across Different Landscape Positions (2004, Centennial Specific Plan Project Site)




Landscape Position Codes:

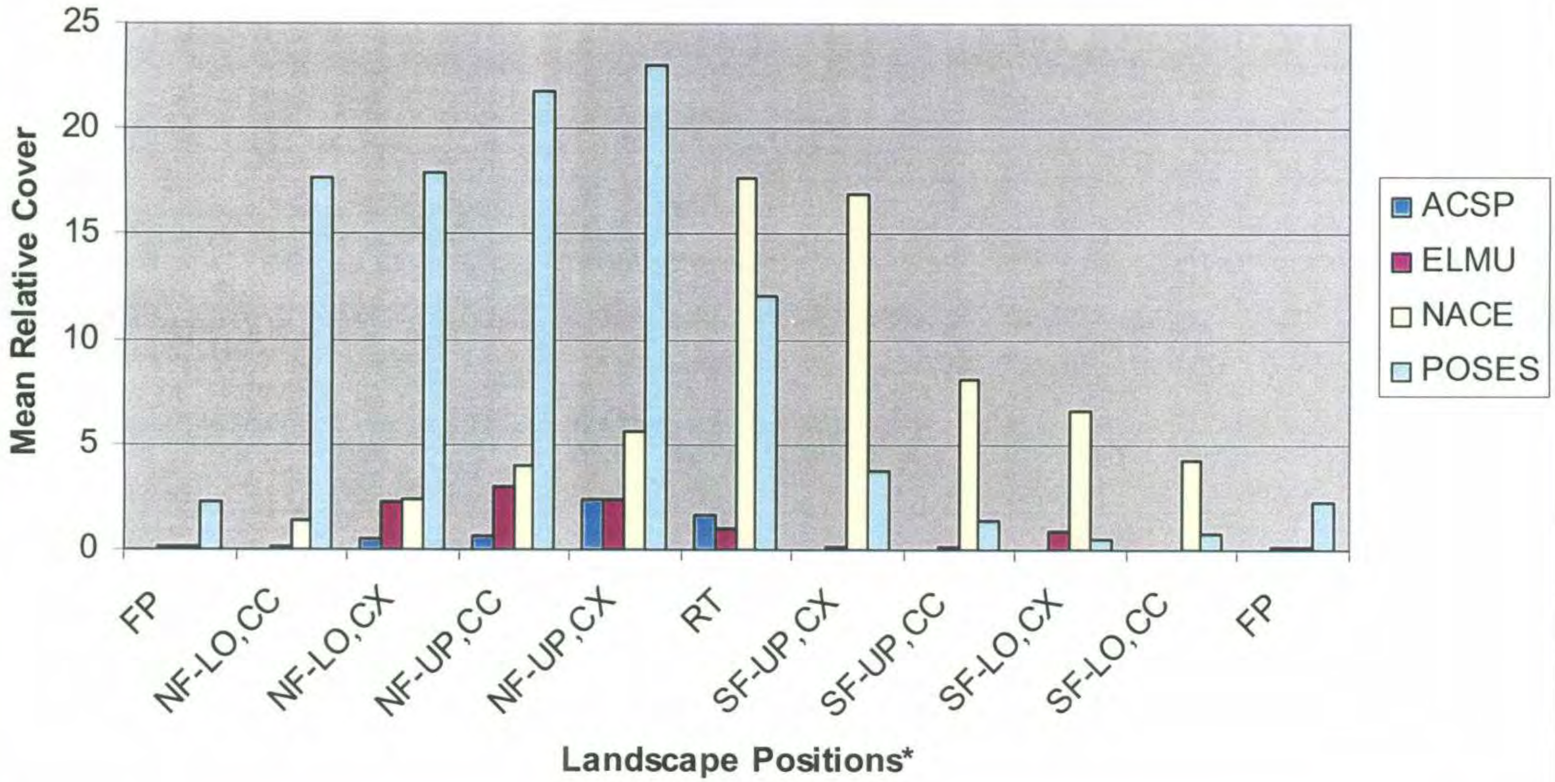
FP = Floodplain

NF-LO,CC = North-facing Lower Concave Slope
NF-LOCX = North-facing Lower Convex Slope
NF-UP,CC = North-facing Upper Concave Slope
NF-UP,CX = North-facing Upper Convex Slope

RT = Ridge top

SF-UP,CX= South-facing Upper Convex Slope
SF-UP,CC = South-facing Upper Concave Slope
SF-LO,CX= South-facing Lower Convex Slope
SF-LO,CC = South-facing Lower Concave Slope

## Graph 5.2 Comparison of Mean Relative Cover Values of Four Perennial Bunchgrass Species across Different Landscape Positions (2004, Centennial Specific Plan Project Site)




Landscape Position Codes:

FP = Floodplain

NF-LO,CC = North-facing Lower Concave Slope
NF-LOCX = North-facing Lower Convex Slope
NF-UP,CC = North-facing Upper Concave Slope
NF-UP,CX = North-facing Upper Convex Slope

RT = Ridge top

SF-UP,CX= South-facing Upper Convex Slope
SF-UP,CC = South-facing Upper Concave Slope
SF-LO,CX= South-facing Lower Convex Slope
SF-LO,CC = South-facing Lower Concave Slope

## 5.5 DISCUSSION

### 5.5.1 Study Area Distribution of the Perennial Bunchgrass Community

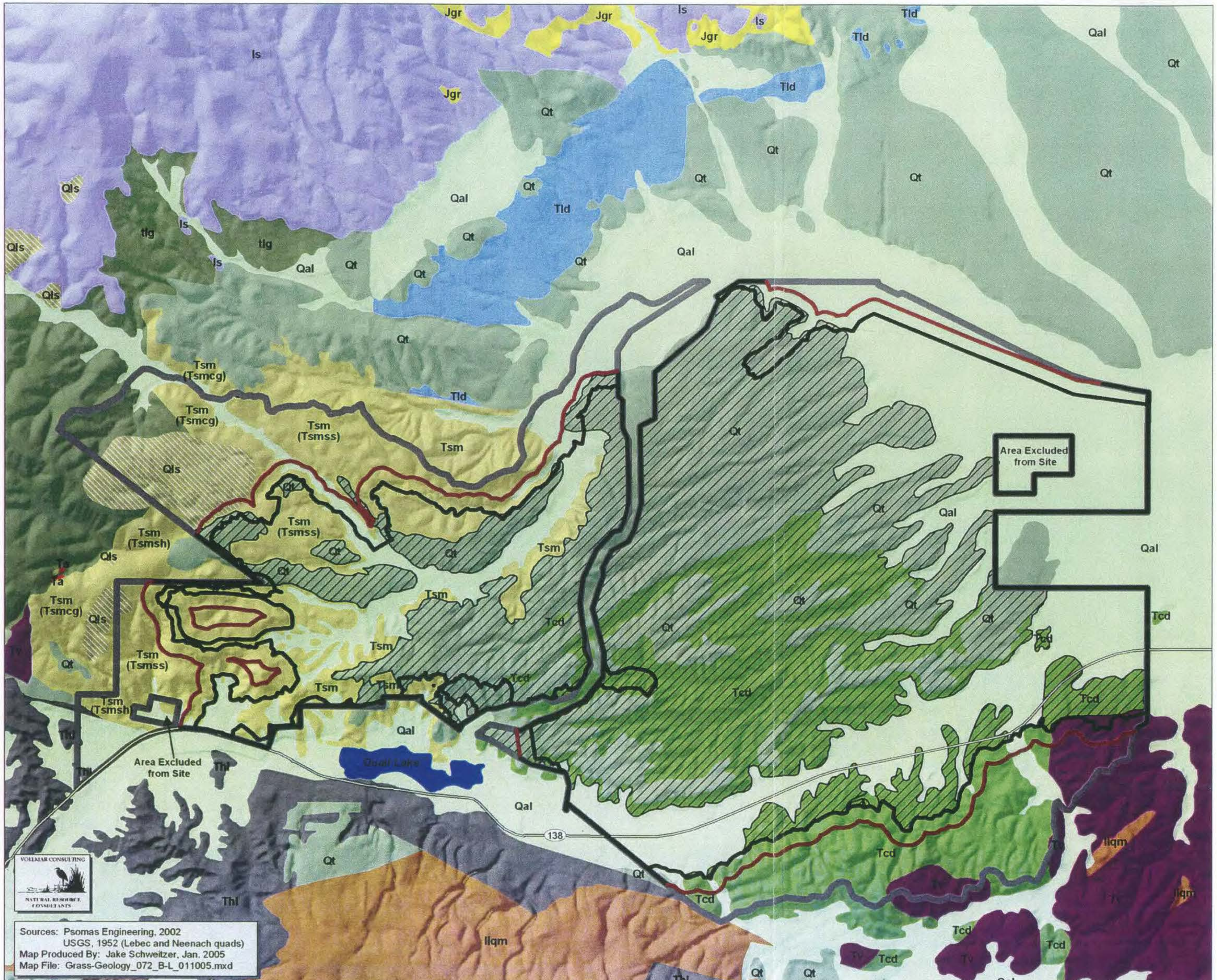
The perennial bunchgrass community is primarily restricted to two geologic formations within the study area: the 12-million year old Continental Deposits and the 100,000 to one million year old Terrace Deposits. Together, these formations form a cohesive, recognizable geomorphic feature within the broad central and southeastern regions of the study area (Figure 5.2). This feature consists of west to east trending ridges, deeply cut intervening drainages, and associated remnant alluvial fans and terraces. The flat terrace tops are remnants of a former alluvial surface that covered the local region. During the past 100,000 years, this surface has been steadily eroding, revealing the underlying Continental Deposits and resulting in the current topography.

There are scattered bunchgrass stands in other regions of the study area, especially one-sided bluegrass on Santa Margarita Formation in the southwestern region of the study area. However, these stands are small in total area and isolated within surrounding annual grasslands. Certain formations including Recent Alluvium (existing floodplains and recent alluvial plains), all the granitic formations, and Purple Andesite have little to no occurrence of perennial bunchgrasses.

### 5.5.2 Local Distribution of the Perennial Bunchgrass Community

The perennial bunchgrass community has a distinct local distribution pattern within the ridges and terraces. The highest quality stands (those with a dominant cover of bunchgrasses and native wildflowers and a low cover of non-native annual grasses) are concentrated in areas with thinner, eroded soils including ridge tops, terrace tops, upper slopes, and lower convex slopes (especially north-facing). Other landscape positions with deeper, accumulated soils, including floodplains, lower slopes, and upper concave slopes tend to be dominated by non-native annual grasses with a low to very low bunchgrass cover. The abundance of bunchgrasses follows a roughly normal curve across the landscape gradient (e.g. from one floodplain, up and over a ridge top and back down to another floodplain). The abundance of annual grasses is inversely related to this gradient and to the abundance of bunchgrasses. This inverse relationship, clearly shown in Graph 5.1, appears to be due to a combination of competitive exclusion by annual grasses in areas with deeper soils and the inability of the annual grasses to survive and compete on thinner more exposed soils.

Within the community, each of the four individual bunchgrass species also has a distinct local distribution pattern related to aspect and slope position. Like the perennial bunchgrasses as a whole, the distribution and abundance of each species follows a roughly normal curve. However, each species has a different center of abundance and span across the landscape gradient as shown in Graph 5.2. Nodding needlegrass and one-sided bluegrass, the two dominant bunchgrass species, are centered on different aspects, with the former preferring more exposed, south-facing slopes and ridge tops, and the latter preferring north-facing slopes. These species overlap considerably along the ridge tops. The lower slope distributions of these species appear to be limited by competition with non-native annual grasses. Big squirreltail and desert needlegrass, both sub-dominant species, have considerable overlap in their distributions; desert




# FIGURE 5.2

## Centennial Perennial Bunchgrass Community and Geology

Distribution of High Quality Perennial Bunchgrass Plant Community in Relation to Geologic Formations
Centennial Specific Plan Project Site
Tejon Ranch, NW Los Angeles County, California

**Legend**

- High Quality Perennial Bunchgrass Plant Community (~5,507 acres)*
- Project Planning Boundary
- Impact Area
- 500ft Buffer from Impact Area

*Typically occurs on ridgetops and upper slopes; see Graph 5.2

**Geologic Formation**

QUATERNARY — Recent
- Qal - Recent alluvium
- Qls - Landslide

QUATERNARY — Pleist.
- Qt - Terrace deposits and older alluvium

TERTIARY — Pliocene
- Tld - Lake deposits
- Thl - White conglomerate sandstone with brown mudstone
- Tpv - Brown siltstone with buff sandstone

TERTIARY — Miocene
- Tsm - Santa Margarita formation**
- Tcd - Continental deposits (conglomerate, sandstone & shale)
- Tv - Purple andesite
- Ta - Silicified andesite

JURASSIC
- Jgr - Granite

PALEOZOIC OR CRETACEOUS
- tlg - Tejon Lookout granite
- liqm - Liebre quartz monzonite (gray hornblende biotite quartz monzonite)
- ls - Limestone and marble
- Water (Quail Lake)

**Includes subtypes: Tsmsh (chiefly shales), Tsmcg (chiefly conglomerate) and Tsmss (chiefly sandstone)

N W E S

**1:42,000** (1in = 3,500ft at tabloid layout)

0 875 1,750 Meters

0 1,750 3,500 7,000 Feet

needlegrass is most abundant on ridge tops and north-facing convex slopes, and big squirreltail is most abundant on north-facing upper slopes and lower convex slopes. Both species have distinctly clustered distributions within their areas of abundance that appear to minimize competitive exclusion.

Areas with high cover of perennial bunchgrasses also had a high percentage of bare ground, as shown especially in the 2003 survey data. The current paradigm of the historic bunchgrass community theorizes that the open areas between bunchgrass clumps were occupied by a diverse array of native annual wildflowers and grasses (Heady, 1995). During favorable rain years, these wildflowers are thought to have provided a showy display. Indeed, this very pattern was observed during the 2003 field season. Heavy winter rains and prolonged spring rains produced a very showy bloom that, according to locals, only occurs once every five to ten years. The profusion of wildflowers included more than 70 native species within the perennial bunchgrass community, including many unusual or uncommon species. Sylvan microseris, a special-status species, was among these. Like the bunchgrasses, many of these wildflowers had landscape-specific distribution patterns with certain species occurring exclusively or primarily on south slopes, and others occurring exclusively or primarily on north slopes. Also like the bunchgrasses, the ridge tops and upper slopes tended to be mixing zones for species from the different slopes.

### 5.5.3 Environmental Factors Influencing the Regional Occurrence and Local Distribution of the Perennial Bunchgrass Community

The extreme statewide rarity of such a large, continuous perennial bunchgrass stand begs the questions as to why this stand occurs in this particular region. Information gathered during this study indicates it is due to a unique combination of environmental factors related primarily to regional geography, local climate, and geology.

As described earlier, the study area is situated just east of the junction of the Tehachapi Ranges and Western Transverse Ranges. This junction, located where the San Andreas Fault cuts through the two mountain ranges, creates a topographic 'notch' that strongly influences local climatic. High winds are common in this area throughout the year. These winds undoubtedly accelerate drying of the exposed ridge top and upper slope soils, creating harsh conditions for annual grasses. In summer 2003, John Vollmar observed that some ridge areas were heavily wind blown and nearly devoid of vegetation except for perennial bunchgrass clumps. With regards to precipitation, there is a rainfall gradient across the study area as evidenced by the local transition in plant communities from oak woodlands and chaparral west of the study area, to perennial and annual grasslands in the center of the study area, to desert scrub less than a mile east of the study area. This gradual transition from mountain to desert plant communities with an intervening grassland community is partly due to the topographic notch, which provides for a more gradual rainfall gradient than regions to the north and south that are blocked by tall mountains. These areas have a more dramatic rainshadow effect and, typically, an abrupt transition from mountain to desert plant communities without intervening interior California grasslands.

The specific transitional rainfall levels within the study area appear to directly influence the presence of the perennial bunchgrass community. The non-native annual grasses require a certain minimum rainfall level and/or seasonal soil moisture to thrive. These rainfall levels are obviously achieved west of the study area where annual grasslands predominate on the open hills between the study area and the I-5 corridor. Within the study area, the annual grasses occur as a dominant community in areas with deeper, accumulated soils such as floodplains and lower concave slopes. These soils have a comparatively higher moisture holding capacity and accumulate and hold enough moisture to sustain annual grasses. On the ridge tops and upper slope, the soils are thinner and coarser with a diminished water holding capacity. In these areas, the annual grasses apparently cannot survive as a dominant community. There is, however, enough seasonal precipitation and soil moisture to sustain perennial bunchgrasses and associated native wildflowers. East of the study area, the precipitation levels gradually drop as the habitat transitions to a desert scrub community with desert needlegrass as the only associated bunchgrass. Apparently, the lower annual rainfall levels and/or seasonal rainfall patterns are insufficient to sustain the other three bunchgrass species. The non-native annual grasses are also generally absent except for cheat grass.

The local geology and associated soils appear to be critical factors influencing the presence of the perennial bunchgrass community though it is unclear why. The bunchgrass community is primarily restricted to two geologic formations, Continental Deposits and Terrace Deposits. While these formations differ in age by more than 10 million years, they both have similar geologic and soil characteristics. Both are formed from mixed alluvium with the same broad range of parent materials including granite, sandstone, shale, limestone and perhaps andesite. Both have characteristically thin, coarse, weathered soils. Both are slightly alkaline due to the presence of calcium from limestone. The elevated pH is probably unlike the nearby granitic soils, which are typically slightly acidic. While identical rainfall levels fall on other adjacent formations, they do not, for whatever reason, support dominant stands of perennial bunchgrasses. This may be related to differences in moisture holding capacity, nutrient balance, soil texture, soil pH or other soil characteristic or combination of characteristics.

Historic and ongoing land use may also be a contributing factor. The region of the study area has been continuously owned and grazed by the Tejon Ranch for more than 150 years. Many of the remnant perennial bunchgrass stands in California are on large, intact ranches and military installations that have had long-term consistent ownership and management. As such, the presence and quality of this stand may be attributed in part to the long-term management approaches and stewardship by Tejon Ranch. The current grazing practices do not appear to be having a negative impact on the perennial bunchgrass community. There was ample evidence of cattle foraging on the bunchgrasses, in some cases down to the ground. However, there was also ample evidence of regeneration and recruitment within the community based the presence of differently sized individual grass clumps.

### 5.5.4 Comparison with Other Known Perennial Bunchgrass Stands

Historically, the perennial bunchgrass plant community is thought to have occurred throughout interior lowland California. Nearly all of the original perennial bunchgrass community has been altered or replaced by introduced annual grasses and only a couple of dozen remnant patches of the historic California native perennial grasslands still exist today. The remaining intact perennial bunchgrass stands are scattered across the state in preserves and on privately owned ranchlands and military installations. Most are isolated stands, generally less than 300 acres in total area, and often with a high cover of introduced annual grasses. The largest stands of better quality bunchgrass community are located in Kern and San Luis Obispo counties. Within the local region, perennial bunchgrass stands occur on the Terrace Deposit formations northeast of the study area (Figure 5.2). These flat terraces and adjacent lower hill slopes are dominated by fairly extensive stands of nodding needlegrass and, occasionally, other bunchgrass species. Together, these stands may incorporate a total of 3,000 to 4,000 acres. These stands are notable for their lack of introduced annual grasses but lack the geologic and landscape complexity of the study area stands. As a result, these stands appear to have a lower diversity of wildflowers and a lower richness of bunchgrass species as compared with those in the study area.

Isolated stands of perennial bunchgrasses occur west of the study area region, in the Hungry Valley State Vehicular Recreation Area located west of Gorman, in a few scattered areas in the hills southeast of the study area, scattered along Interstate 5 near Gorman, and in the foothills and terraces of the San Emigdio Mountains south of Maricopa in the southwest corner of Kern County. In all of these areas, stands of nodding needlegrass and/or one-sided bluegrass occur but typically have a moderate to heavy associated cover of introduced annual grasses. These areas also lack the diversity of the perennial bunchgrass and wildflower species that highlight the bunchgrass community in the study area. Most of these areas have three bunchgrass species – nodding needlegrass, one-sided bluegrass, and big squirreltail – but lack desert needlegrass due to higher rainfall levels.

The best comparative example of a relatively large stand of undisturbed perennial bunchgrass community occurs on Camp Roberts at the boundary of San Luis Obispo and Monterey counties in the southern Salinas Valley. Isolated and scattered clumps of nodding needlegrass occur over an estimated 1,500 to 2,000 acres. Some of the clumps also support one-sided bluegrass. Overall, the bunchgrass stands in Camp Roberts lacks the diversity of bunchgrass and wildflower species and the large contiguous stands of uninterrupted perennial bunchgrasses found in the study area. Small areas of perennial bunchgrass stands also occur in the hills of the Carrizo Plain National Monument in southeastern San Luis Obispo County. While some stands of undisturbed perennial grasses (nodding needlegrass and one-sided bluegrass) do occur in the Carrizo Plain, most are dominated or co-dominated by introduced annual grasses. Again, these bunchgrass stands lack the diversity of perennial bunchgrass species, the richness of wildflower species, and the large expanses of uninterrupted bunchgrass community that characterize the unique, high-quality perennial bunchgrass community in the study area. Several smaller relic perennial bunchgrass sites are scattered across the northern region of the Central Valley. These sites are typically small isolated areas, generally less than 300 acres in total area, in preserves and parks and range from fair to excellent quality.

## 5.6 CONCLUSION

Based on data collected within the study area, a review of available information (Barry, 1972) and discussions with native grassland experts (Dremann, 2004; Barbour, 2004), it is concluded that the perennial bunchgrass community in the study area is unique in California as a large, high quality interior valley (*Nasella-Poa* dominated) native bunchgrass community. This stand incorporates more than 5,500 semi-continuous acres within the study area, larger by a couple thousand acres than any other known stand. Its high quality is due to the high cover and richness of perennial bunchgrass species, the association of a large, diverse assemblage of showy native wildflower species, the conspicuously low cover of non-native annual grasses, and the general lack of invasive weeds. The topographic variability, with alternating steep north-facing and south-facing slopes, ridge tops, terrace tops, and floodplains, increases the habitat quality by providing diverse and intricate species distribution patterns and associations which can serve as a model for understanding the species dynamics within a currently rare but historically important and widespread plant community. The stand also provides important information on the competitive dynamics between native bunchgrass community and non-native annual grasslands.

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# APPENDIX 5

# PERENNIAL BUNCHGRASS PLANT COMMUNITY STUDY RESULTS, STATISTICAL TABLES, MANN-WHITNEY SIGNIFICANCE TESTS

**Table 5.9 Descriptive statistics for species richness within sampled plots by plant category and landscape position (2003 field data). Perennial Bunchgrass Plant Community Study, Centennial Specific Plan Project Site, Los Angeles, California.**

| DISTURBED ALLUVIAL PLAINS | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Category | N | N* | Mean | SE Mean | StDev | Min | Q1 | Med | Q3 | Max |
| Native Forbs | 9 | 0 | 5.44 | 1.09 | 3.28 | 1 | 3.00 | 4.00 | 8.50 | 11 |
| Native Annual Grasses | 9 | 0 | 0.44 | 0.18 | 0.53 | 0 | 0.00 | 0.00 | 1.00 | 1 |
| Native Perennial Bunch Grasses | 9 | 0 | 0.00 | 0.00 | 0.00 | 0 | 0.00 | 0.00 | 0.00 | 0 |
| Native Perennial Sod Grasses | 9 | 0 | 0.00 | 0.00 | 0.00 | 0 | 0.00 | 0.00 | 0.00 | 0 |
| Native Shrubs | 9 | 0 | 0.22 | 0.15 | 0.44 | 0 | 0.00 | 0.00 | 0.50 | 1 |
| **TOTAL NATIVE PLANTS** | **9** | **0** | **6.11** | **1.27** | **3.82** | **1** | **3** | **5** | **10** | **12** |
| Non-Native Forbs | 9 | 0 | 2.44 | 0.18 | 0.53 | 2 | 2 | 2 | 3 | 3 |
| Non-Native Annual Grasses | 9 | 0 | 2.22 | 0.40 | 1.20 | 0 | 1.50 | 2.00 | 3.00 | 4 |
| **TOTAL NON-NATIVE PLANTS** | **9** | **0** | **4.67** | **0.44** | **1.32** | **2** | **4** | **5** | **6** | **6** |
| **TOTAL ALL PLANTS** | **9** | **0** | **10.78** | **1.42** | **4.27** | **3** | **8** | **10** | **15** | **16** |

| FLOODPLAINS | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Category | N | N* | Mean | SE Mean | StDev | Min | Q1 | Med | Q3 | Max |
| Native Forbs | 9 | 0 | 7.00 | 0.53 | 1.58 | 5 | 6.00 | 7.00 | 8.00 | 10 |
| Native Annual Grasses | 9 | 0 | 0.89 | 0.26 | 0.78 | 0 | 0.00 | 1.00 | 1.50 | 2 |
| Native Perennial Bunch Grasses | 9 | 0 | 0.33 | 0.17 | 0.50 | 0 | 0.00 | 0.00 | 1.00 | 1 |
| Native Perennial Sod Grasses | 9 | 0 | 0.11 | 0.11 | 0.33 | 0 | 0.00 | 0.00 | 0.00 | 1 |
| Native Shrubs | 9 | 0 | 0.00 | 0.00 | 0.00 | 0 | 0.00 | 0.00 | 0.00 | 0 |
| **TOTAL NATIVE PLANTS** | **9** | **0** | **8.33** | **0.60** | **1.80** | **5** | **7** | **9** | **9.5** | **11** |
| Non-Native Forbs | 9 | 0 | 1.11 | 0.11 | 0.33 | 1 | 1 | 1 | 1 | 2 |
| Non-Native Annual Grasses | 9 | 0 | 3.00 | 0.37 | 1.12 | 2 | 2.00 | 3.00 | 4.00 | 5 |
| **TOTAL NON-NATIVE PLANTS** | **9** | **0** | **4.11** | **0.35** | **1.05** | **3** | **3** | **4** | **5** | **6** |
| **TOTAL ALL PLANTS** | **9** | **0** | **12.44** | **0.73** | **2.19** | **9** | **10.5** | **12** | **14.5** | **15** |

| SOUTH-FACING SLOPES | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Category | N | N* | Mean | SE Mean | StDev | Min | Q1 | Med | Q3 | Max |
| Native Forbs | 9 | 0 | 10.56 | 0.93 | 2.80 | 6 | 8.00 | 11.00 | 13.00 | 14 |
| Native Annual Grasses | 9 | 0 | 0.22 | 0.15 | 0.44 | 0 | 0.00 | 0.00 | 0.50 | 1 |
| Native Perennial Bunch Grasses | 9 | 0 | 1.33 | 0.17 | 0.50 | 1 | 1.00 | 1.00 | 2.00 | 2 |
| Native Perennial Sod Grasses | 9 | 0 | 0.00 | 0.00 | 0.00 | 0 | 0.00 | 0.00 | 0.00 | 0 |
| Native Shrubs | 9 | 0 | 0.22 | 0.15 | 0.44 | 0 | 0.00 | 0.00 | 0.50 | 1 |
| **TOTAL NATIVE PLANTS** | **9** | **0** | **12.33** | **1.00** | **3.00** | **7** | **10** | **13** | **15** | **16** |
| Non-Native Forbs | 9 | 0 | 1.22 | 0.15 | 0.44 | 1 | 1 | 1 | 1.5 | 2 |
| Non-Native Annual Grasses | 9 | 0 | 2.11 | 0.35 | 1.05 | 1 | 1.00 | 2.00 | 3.00 | 4 |
| **TOTAL NON-NATIVE PLANTS** | **9** | **0** | **3.33** | **0.47** | **1.41** | **2** | **2** | **3** | **4.5** | **6** |
| **TOTAL ALL PLANTS** | **9** | **0** | **15.67** | **0.99** | **2.96** | **12** | **12.5** | **16** | **18.5** | **19** |

| RIDGE TOPS | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Category | N | N* | Mean | SE Mean | StDev | Min | Q1 | Med | Q3 | Max |
| Native Forbs | 8 | 0 | 10.50 | 1.21 | 3.42 | 5 | 7.00 | 11.50 | 12.75 | 15 |
| Native Annual Grasses | 8 | 0 | 0.00 | 0.00 | 0.00 | 0 | 0.00 | 0.00 | 0.00 | 0 |
| Native Perennial Bunch Grasses | 8 | 0 | 1.88 | 0.23 | 0.64 | 1 | 1.25 | 2.00 | 2.00 | 3 |
| Native Perennial Sod Grasses | 8 | 0 | 0.00 | 0.00 | 0.00 | 0 | 0.00 | 0.00 | 0.00 | 0 |
| Native Shrubs | 8 | 0 | 0.50 | 0.27 | 0.76 | 0 | 0.00 | 0.00 | 1.00 | 2 |
| **TOTAL NATIVE PLANTS** | **8** | **0** | **12.88** | **1.04** | **2.95** | **8** | **10** | **14** | **14** | **17** |
| Non-Native Forbs | 8 | 0 | 1.38 | 0.26 | 0.74 | 1 | 1 | 1 | 1.75 | 3 |
| Non-Native Annual Grasses | 8 | 0 | 1.38 | 0.26 | 0.74 | 1 | 1 | 1 | 1.75 | 3 |
| **TOTAL NON-NATIVE PLANTS** | **8** | **0** | **2.75** | **0.31** | **0.89** | **2** | **2** | **2.5** | **3.75** | **4** |
| **TOTAL ALL PLANTS** | **8** | **0** | **15.63** | **1.18** | **3.34** | **10** | **12.25** | **16.5** | **18** | **19** |

| NORTH-FACING SLOPES | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Category | N | N* | Mean | SE Mean | StDev | Min | Q1 | Med | Q3 | Max |
| Native Forbs | 9 | 0 | 12.11 | 0.99 | 2.98 | 8 | 9.50 | 12.00 | 14.50 | 17 |
| Native Annual Grasses | 9 | 0 | 0.11 | 0.11 | 0.33 | 0 | 0.00 | 0.00 | 0.00 | 1 |
| Native Perennial Bunch Grasses | 9 | 0 | 1.78 | 0.15 | 0.44 | 1 | 1.50 | 2.00 | 2.00 | 2 |
| Native Perennial Sod Grasses | 9 | 0 | 0.00 | 0.00 | 0.00 | 0 | 0.00 | 0.00 | 0.00 | 0 |
| Native Shrubs | 9 | 0 | 0.22 | 0.15 | 0.44 | 0 | 0.00 | 0.00 | 0.50 | 1 |
| **TOTAL NATIVE PLANTS** | **9** | **0** | **14.22** | **1.16** | **3.49** | **9** | **11** | **14** | **17.5** | **19** |
| Non-Native Forbs | 9 | 0 | 1.22 | 0.15 | 0.44 | 1 | 1 | 1 | 1.5 | 2 |
| Non-Native Annual Grasses | 9 | 0 | 1.56 | 0.18 | 0.53 | 1 | 1.00 | 2.00 | 2.00 | 2 |
| **TOTAL NON-NATIVE PLANTS** | **9** | **0** | **2.78** | **0.22** | **0.67** | **2** | **2** | **3** | **3** | **4** |
| **TOTAL ALL PLANTS** | **9** | **0** | **17.00** | **1.28** | **3.84** | **11** | **14** | **17** | **20** | **23** |

| TERRACE TOPS | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Category | N | N* | Mean | SE Mean | StDev | Min | Q1 | Med | Q3 | Max |
| Native Forbs | 5 | 0 | 6.00 | 0.78 | 1.73 | 5 | 5.00 | 5.00 | 7.50 | 9 |
| Native Annual Grasses | 5 | 0 | 0.00 | 0.00 | 0.00 | 0 | 0.00 | 0.00 | 0.00 | 0 |
| Native Perennial Bunch Grasses | 5 | 0 | 1.80 | 0.20 | 0.45 | 1 | 1.50 | 2.00 | 2.00 | 2 |
| Native Perennial Sod Grasses | 5 | 0 | 0.00 | 0.00 | 0.00 | 0 | 0.00 | 0.00 | 0.00 | 0 |
| Native Shrubs | 5 | 0 | 0.00 | 0.00 | 0.00 | 0 | 0.00 | 0.00 | 0.00 | 0 |
| **TOTAL NATIVE PLANTS** | **5** | **0** | **7.80** | **0.80** | **1.79** | **7** | **7** | **7** | **9** | **11** |
| Non-Native Forbs | 5 | 0 | 1.20 | 0.20 | 0.45 | 1 | 1 | 1 | 1.5 | 2 |
| Non-Native Annual Grasses | 5 | 0 | 1.20 | 0.20 | 0.45 | 1 | 1 | 1 | 1.5 | 2 |
| **TOTAL NON-NATIVE PLANTS** | **5** | **0** | **2.40** | **0.25** | **0.55** | **2** | **2** | **2** | **3** | **3** |
| **TOTAL ALL PLANTS** | **5** | **0** | **10.20** | **0.74** | **1.64** | **9** | **9** | **10** | **11.5** | **13** |

| LIMESTONE SOILS | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Category | N | N* | Mean | SE Mean | StDev | Min | Q1 | Med | Q3 | Max |
| Native Forbs | 6 | 0 | 10.67 | 0.62 | 1.51 | 9 | 9.00 | 11.00 | 11.50 | 13 |
| Native Annual Grasses | 6 | 0 | 0.33 | 0.21 | 0.52 | 0 | 0.00 | 0.00 | 1.00 | 1 |
| Native Perennial Bunch Grasses | 6 | 0 | 1.00 | 0.26 | 0.63 | 0 | 0.75 | 1.00 | 1.25 | 2 |
| Native Perennial Sod Grasses | 6 | 0 | 0.00 | 0.00 | 0.00 | 0 | 0.00 | 0.00 | 0.00 | 0 |
| Native Shrubs | 6 | 0 | 0.33 | 0.21 | 0.52 | 0 | 0.00 | 0.00 | 1.00 | 1 |
| **TOTAL NATIVE PLANTS** | **6** | **0** | **12.33** | **0.62** | **1.51** | **10** | **10.75** | **13** | **13.25** | **14** |
| Non-Native Forbs | 6 | 0 | 2.00 | 0.26 | 0.63 | 1 | 1.75 | 2 | 2.25 | 3 |
| Non-Native Annual Grasses | 6 | 0 | 3.67 | 0.42 | 1.03 | 2 | 2.75 | 4.00 | 4.25 | 5 |
| **TOTAL NON-NATIVE PLANTS** | **6** | **0** | **5.67** | **0.49** | **1.21** | **4** | **4.75** | **5.5** | **7** | **7** |
| **TOTAL ALL PLANTS** | **6** | **0** | **18.00** | **1.00** | **2.45** | **15** | **15** | **19** | **20** | **20** |

**Table 5.10 Descriptive statistics for relative plant cover within sampled plots by plant category and landscape position (2003 field data). Perennial Bunchgrass Plant Community Study, Centennial Specific Plan Project Site, Los Angeles County, California.**

| DISTURBED ALLUVIAL PLAINS | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Category | N | N* | Mean | SE Mean | St Dev | Min | Q1 | Med | Q3 | Max |
| Native Forbs | 27 | 0 | 11.51 | 2.74 | 14.26 | 0.00 | 2.02 | 5.94 | 13.51 | 56.00 |
| Native Annual Grasses | 27 | 0 | 0.31 | 0.09 | 0.49 | 0.00 | 0.00 | 0.00 | 0.98 | 1.33 |
| Native Perennial Bunch Grasses | 27 | 0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Native Perennial Sod Grasses | 27 | 0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Native Shrubs | 27 | 0 | 1.92 | 0.96 | 4.98 | 0.00 | 0.00 | 0.00 | 0.00 | 19.05 |
| **TOTAL NATIVE PLANTS** | **27** | **0** | **13.74** | **3.08** | **16.01** | **0.00** | **2.13** | **8.00** | **20.95** | **57.33** |
| Non-Native Forbs | 27 | 0 | 83.38 | 3.07 | 15.93 | 41.33 | 77.14 | 89.55 | 94.06 | 100.00 |
| Non-Native Annual Grasses | 27 | 0 | 2.88 | 0.58 | 2.99 | 0.00 | 1.00 | 2.02 | 5.26 | 12.50 |
| **TOTAL NON-NATIVE PLANTS** | **27** | **0** | **86.26** | **3.08** | **16.01** | **42.67** | **79.05** | **92.00** | **97.87** | **100.00** |

| FLOODPLAINS | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Category | N | N* | Mean | SE Mean | St Dev | Min | Q1 | Med | Q3 | Max |
| Native Forbs | 27 | 0 | 20.72 | 2.58 | 13.42 | 5.56 | 10.81 | 14.81 | 29.09 | 54.08 |
| Native Annual Grasses | 27 | 0 | 0.83 | 0.30 | 1.54 | 0.00 | 0.00 | 0.00 | 0.83 | 5.45 |
| Native Perennial Bunch Grasses | 27 | 0 | 0.64 | 0.33 | 1.70 | 0.00 | 0.00 | 0.00 | 0.00 | 7.75 |
| Native Perennial Sod Grasses | 27 | 0 | 0.74 | 0.48 | 2.50 | 0.00 | 0.00 | 0.00 | 0.00 | 12.00 |
| Native Shrubs | 27 | 0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| **TOTAL NATIVE PLANTS** | **27** | **0** | **22.63** | **2.62** | **13.62** | **9.35** | **12.00** | **16.67** | **34.55** | **54.08** |
| Non-Native Forbs | 27 | 0 | 67.58 | 3.32 | 17.23 | 13.70 | 59.41 | 73.17 | 83.33 | 87.39 |
| Non-Native Annual Grasses | 27 | 0 | 9.49 | 2.42 | 12.56 | 0.00 | 1.82 | 5.43 | 8.41 | 47.01 |
| **TOTAL NON-NATIVE PLANTS** | **27** | **0** | **77.07** | **2.62** | **13.62** | **45.92** | **65.45** | **83.33** | **88.00** | **90.65** |

| SOUTH-FACING SLOPES | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Category | N | N* | Mean | SE Mean | St Dev | Min | Q1 | Med | Q3 | Max |
| Native Forbs | 27 | 0 | 42.32 | 3.40 | 17.65 | 13.04 | 28.57 | 44.55 | 56.84 | 76.52 |
| Native Annual Grasses | 27 | 0 | 0.08 | 0.08 | 0.41 | 0.00 | 0.00 | 0.00 | 0.00 | 2.13 |
| Native Perennial Bunch Grasses | 27 | 0 | 4.48 | 1.38 | 7.15 | 0.00 | 0.00 | 0.00 | 7.25 | 26.67 |
| Native Perennial Sod Grasses | 27 | 0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Native Shrubs | 27 | 0 | 0.53 | 0.53 | 2.75 | 0.00 | 0.00 | 0.00 | 0.00 | 14.29 |
| **TOTAL NATIVE PLANTS** | **27** | **0** | **47.30** | **3.77** | **19.60** | **13.04** | **35.00** | **45.45** | **61.29** | **90.41** |
| Non-Native Forbs | 27 | 0 | 35.34 | 4.50 | 23.38 | 6.17 | 10.53 | 34.48 | 50.51 | 81.63 |
| Non-Native Annual Grasses | 27 | 0 | 17.35 | 4.01 | 20.84 | 0.00 | 1.90 | 5.94 | 30.43 | 79.71 |
| **TOTAL NON-NATIVE PLANTS** | **27** | **0** | **52.70** | **3.77** | **19.60** | **9.59** | **38.71** | **54.55** | **65.00** | **86.96** |

| RIDGE TOPS | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Category | N | N* | Mean | SE Mean | St Dev | Min | Q1 | Med | Q3 | Max |
| Native Forbs | 24 | 0 | 25.69 | 4.08 | 19.97 | 2.04 | 9.10 | 21.70 | 41.42 | 80.19 |
| Native Annual Grasses | 24 | 0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Native Perennial Bunch Grasses | 24 | 0 | 32.54 | 5.06 | 24.80 | 0.00 | 8.00 | 37.35 | 54.97 | 75.00 |
| Native Perennial Sod Grasses | 24 | 0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Native Shrubs | 24 | 0 | 1.16 | 1.16 | 5.67 | 0.00 | 0.00 | 0.00 | 0.00 | 27.78 |
| **TOTAL NATIVE PLANTS** | **24** | **0** | **59.39** | **4.89** | **23.97** | **19.05** | **39.82** | **60.67** | **79.20** | **97.78** |
| Non-Native Forbs | 24 | 0 | 37.01 | 4.86 | 23.82 | 0.00 | 17.70 | 34.90 | 59.63 | 79.37 |
| Non-Native Annual Grasses | 24 | 0 | 2.56 | 0.39 | 1.02 | 0.00 | 1.10 | 2.18 | 4.59 | 5.68 |
| **TOTAL NON-NATIVE PLANTS** | **24** | **0** | **39.57** | **4.87** | **23.86** | **2.22** | **20.80** | **36.04** | **60.18** | **80.95** |

| NORTH-FACING SLOPES | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Category | N | N* | Mean | SE Mean | St Dev | Min | Q1 | Med | Q3 | Max |
| Native Forbs | 27 | 0 | 29.94 | 1.96 | 10.18 | 7.27 | 21.74 | 29.58 | 38.57 | 45.00 |
| Native Annual Grasses | 27 | 0 | 0.16 | 0.10 | 0.51 | 0.00 | 0.00 | 0.00 | 0.00 | 2.38 |
| Native Perennial Bunch Grasses | 27 | 0 | 22.37 | 2.81 | 14.59 | 0.00 | 10.53 | 23.53 | 28.57 | 59.32 |
| Native Perennial Sod Grasses | 27 | 0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Native Shrubs | 27 | 0 | 0.96 | 0.71 | 3.68 | 0.00 | 0.00 | 0.00 | 0.00 | 17.54 |
| **TOTAL NATIVE PLANTS** | **27** | **0** | **53.42** | **3.20** | **16.61** | **20.91** | **38.83** | **59.26** | **70.18** | **78.33** |
| Non-Native Forbs | 27 | 0 | 42.62 | 2.81 | 14.61 | 21.67 | 28.57 | 36.59 | 70.18 | 78.33 |
| Non-Native Annual Grasses | 27 | 0 | 3.96 | 0.67 | 3.47 | 0.00 | 1.32 | 2.91 | 5.88 | 11.76 |
| **TOTAL NON-NATIVE PLANTS** | **27** | **0** | **46.58** | **3.20** | **16.61** | **21.67** | **29.82** | **40.74** | **61.17** | **79.09** |

| TERRACE TOPS | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Category | N | N* | Mean | SE Mean | St Dev | Min | Q1 | Med | Q3 | Max |
| Native Forbs | 15 | 0 | 35.29 | 8.32 | 32.21 | 4.17 | 8.40 | 22.22 | 67.48 | 91.74 |
| Native Annual Grasses | 15 | 0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Native Perennial Bunch Grasses | 15 | 0 | 16.09 | 3.41 | 13.19 | 1.71 | 5.00 | 16.48 | 20.83 | 53.76 |
| Native Perennial Sod Grasses | 15 | 0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Native Shrubs | 15 | 0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| **TOTAL NATIVE PLANTS** | **15** | **0** | **51.38** | **6.86** | **26.56** | **14.08** | **25.00** | **50.00** | **71.54** | **96.33** |
| Non-Native Forbs | 15 | 0 | 42.93 | 6.37 | 24.67 | 0.00 | 25.64 | 44.44 | 57.69 | 84.51 |
| Non-Native Annual Grasses | 15 | 0 | 5.69 | 1.84 | 7.13 | 0.00 | 1.50 | 2.08 | 5.56 | 22.90 |
| **TOTAL NON-NATIVE PLANTS** | **15** | **0** | **48.62** | **6.86** | **26.56** | **3.67** | **28.46** | **50.00** | **75.00** | **85.92** |

| LIMESTONE SOILS | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Category | N | N* | Mean | SE Mean | St Dev | Min | Q1 | Med | Q3 | Max |
| Native Forbs | 18 | 0 | 64.18 | 5.34 | 22.67 | 20.17 | 47.12 | 69.83 | 81.43 | 94.64 |
| Native Annual Grasses | 18 | 0 | 0.07 | 0.07 | 0.28 | 0.00 | 0.00 | 0.00 | 0.00 | 1.18 |
| Native Perennial Bunch Grasses | 18 | 0 | 2.24 | 0.75 | 3.18 | 0.00 | 0.00 | 0.46 | 4.17 | 11.11 |
| Native Perennial Sod Grasses | 18 | 0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Native Shrubs | 18 | 0 | 0.35 | 0.23 | 0.97 | 0.00 | 0.00 | 0.00 | 0.00 | 3.77 |
| **TOTAL NATIVE PLANTS** | **18** | **0** | **66.84** | **5.58** | **23.69** | **20.17** | **47.85** | **74.84** | **83.82** | **100.00** |
| Non-Native Forbs | 18 | 0 | 23.19 | 4.53 | 19.23 | 0.00 | 7.88 | 14.68 | 43.94 | 58.82 |
| Non-Native Annual Grasses | 18 | 0 | 9.97 | 1.92 | 8.15 | 0.00 | 3.93 | 7.33 | 17.39 | 27.36 |
| **TOTAL NON-NATIVE PLANTS** | **18** | **0** | **33.16** | **5.58** | **23.69** | **0.00** | **16.18** | **25.16** | **52.15** | **79.83** |

**Table 5.11 Descriptive statistics for bare soil cover within sampled plots by landscape position (2003 field data). Perennial Bunchgrass Plant Community Study, Centennial Specific Plan Project Site, Los Angeles County, California.**

| Category | N | N* | Mean | SE Mean | StDev | Min | Q1 | Med | Q3 | Max |
|---|---|---|---|---|---|---|---|---|---|---|
| Disturbed Alluvial Plains | 27 | 0 | 8.67 | 1.11 | 5.67 | 1.00 | 5.00 | 10.00 | 15.00 | 20.00 |
| Floodplains | 27 | 0 | 3.15 | 0.54 | 2.82 | 0.00 | 1.00 | 2.00 | 5.00 | 10.00 |
| South-facing Slopes | 27 | 0 | 28.44 | 4.07 | 21.15 | 1.00 | 10.00 | 25.00 | 50.00 | 70.00 |
| Ridge Tops | 24 | 0 | 50.42 | 3.62 | 17.75 | 10.00 | 36.25 | 50.00 | 60.00 | 80.00 |
| North-facing Slopes | 27 | 0 | 26.67 | 2.85 | 14.81 | 5.00 | 15.00 | 25.00 | 40.00 | 50.00 |
| Terrace Tops | 15 | 0 | 10.13 | 3.19 | 12.34 | 1.00 | 1.00 | 3.00 | 15.00 | 40.00 |
| Limestone Soils | 18 | 0 | 12.00 | 3.12 | 13.22 | 1.00 | 5.00 | 5.00 | 15.00 | 50.00 |

**Table 5.12 Mann-Whitney tests for plant number (2003 field data). Bold = signif. difference (<0.05); bold italic = mod. signif. difference (<0.10). DAP = Disturbed Alluvial Plain; FP = Floodplain; SFS = South-facing Slopes; RT = Ridge Tops; NFS = North-facing Slopes; TT = Terrace Tops; LS = Limestone Soils. Perennial Bunchgrass Plant Community Study, Centennial Specific Plan Project Site, Los Angeles County, CA.**

Native Forbs

| | DAP | FP | SFS | RT | NFS | TT | LS |
|---|---|---|---|---|---|---|---|
| DAP | 0 | 0.216 | **0.007** | **0.011** | **0.002** | 0.505 | **0.010** |
| FP | | 0 | **0.013** | ***0.054*** | **0.002** | 0.162 | **0.006** |
| SFS | | | 0 | 1.000 | 0.453 | **0.011** | 0.906 |
| RT | | | | 0 | 0.471 | **0.034** | 0.747 |
| NFS | | | | | 0 | **0.006** | 0.346 |
| TT | | | | | | 0 | **0.014** |
| LS | | | | | | | 0 |

Native Perennial Bunchgrasses

| | DAP | FP | SFS | RT | NFS | TT | LS |
|---|---|---|---|---|---|---|---|
| DAP | 0 | 0.377 | **0.000** | **0.001** | **0.000** | **0.003** | **0.011** |
| FP | | 0 | **0.006** | **0.002** | **0.001** | **0.006** | ***0.088*** |
| SFS | | | 0 | 0.124 | 0.122 | 0.182 | 0.409 |
| RT | | | | 0 | 0.847 | 0.942 | ***0.053*** |
| NFS | | | | | 0 | 1.000 | **0.045** |
| TT | | | | | | 0 | **0.083** |
| LS | | | | | | | 0 |

All Native Plants

| | DAP | FP | SFS | RT | NFS | TT | LS |
|---|---|---|---|---|---|---|---|
| DAP | 0 | 0.233 | **0.005** | **0.005** | **0.002** | 0.351 | **0.006** |
| FP | | 0 | **0.009** | **0.011** | **0.002** | 0.463 | **0.004** |
| SFS | | | 0 | 0.923 | 0.310 | **0.028** | 0.814 |
| RT | | | | 0 | 0.387 | **0.010** | 0.366 |
| NFS | | | | | 0 | **0.008** | 0.216 |
| TT | | | | | | 0 | **0.018** |
| LS | | | | | | | 0 |

Non-native Forbs

| | DAP | FP | SFS | RT | NFS | TT | LS |
|---|---|---|---|---|---|---|---|
| DAP | 0 | **0.001** | **0.002** | **0.012** | **0.002** | **0.009** | 0.263 |
| FP | | 0 | 0.724 | 0.630 | 0.724 | 0.842 | **0.022** |
| SFS | | | 0 | 0.885 | 1.000 | 1.000 | **0.045** |
| RT | | | | 0 | 0.885 | 0.884 | 0.121 |
| NFS | | | | | 0 | 1.000 | **0.045** |
| TT | | | | | | 0 | ***0.083*** |
| LS | | | | | | | 0 |

Non-native Annual Grasses

| | DAP | FP | SFS | RT | NFS | TT | LS |
|---|---|---|---|---|---|---|---|
| DAP | 0 | 0.289 | 0.757 | 0.112 | 0.145 | ***0.096*** | **0.045** |
| FP | | 0 | 0.133 | **0.006** | **0.008** | **0.008** | 0.289 |
| SFS | | | 0 | 0.149 | 0.310 | 0.125 | **0.029** |
| RT | | | | 0 | 0.441 | 0.884 | **0.006** |
| NFS | | | | | 0 | 0.317 | **0.005** |
| TT | | | | | | 0 | **0.011** |
| LS | | | | | | | 0 |

All Non-native Plants

| | DAP | FP | SFS | RT | NFS | TT | LS |
|---|---|---|---|---|---|---|---|
| DAP | 0 | 0.289 | ***0.070*** | **0.011** | **0.006** | **0.014** | 0.216 |
| FP | | 0 | 0.171 | **0.024** | **0.013** | **0.011** | **0.039** |
| SFS | | | 0 | 0.471 | 0.566 | 0.257 | **0.016** |
| RT | | | | 0 | 0.885 | 0.608 | **0.004** |
| NFS | | | | | 0 | 0.386 | **0.002** |
| TT | | | | | | 0 | **0.008** |
| LS | | | | | | | 0 |

**Table 5.13 Mann-Whitney tests for relative plant cover (2003 field data). Bold = signif. difference (<0.05); bold italic = mod. significant difference (<0.10). DAP = Disturbed Alluvial Plain; FP = Floodplain; SFS = South-facing Slopes; RT = Ridge Tops; NFS = North-facing Slopes; TT = Terrace Tops; LS = Limestone Soils. Perennial Plant Community Study, Centennial Specific Plan Project Site, Los Angeles County, CA.**

Native Forbs

| | DAP | FP | SFS | RT | NFS | TT | LS |
|---|---|---|---|---|---|---|---|
| DAP | 0 | **0.000** | **0.000** | **0.002** | **0.000** | **0.002** | **0.000** |
| FP | | 0 | **0.000** | 0.624 | **0.003** | 0.813 | **0.000** |
| SFS | | | 0 | **0.002** | **0.006** | 0.189 | **0.002** |
| RT | | | | 0 | 0.146 | 0.613 | **0.000** |
| NFS | | | | | 0 | 0.637 | **0.000** |
| TT | | | | | | 0 | **0.012** |
| LS | | | | | | | 0 |

Native Perennial Bunchgrasses

| | DAP | FP | SFS | RT | NFS | TT | LS |
|---|---|---|---|---|---|---|---|
| DAP | 0 | 0.333 | **0.008** | **0.000** | **0.000** | **0.000** | **0.007** |
| FP | | 0 | ***0.053*** | **0.000** | **0.000** | **0.000** | ***0.066*** |
| SFS | | | 0 | **0.000** | **0.000** | **0.000** | 0.817 |
| RT | | | | 0 | 0.238 | ***0.081*** | **0.000** |
| NFS | | | | | 0 | 0.106 | **0.000** |
| TT | | | | | | 0 | **0.000** |
| LS | | | | | | | 0 |

All Native Plants

| | DAP | FP | SFS | RT | NFS | TT | LS |
|---|---|---|---|---|---|---|---|
| DAP | 0 | **0.001** | **0.000** | **0.000** | **0.000** | **0.000** | **0.000** |
| FP | | 0 | **0.000** | **0.000** | **0.000** | **0.000** | **0.000** |
| SFS | | | 0 | ***0.070*** | 0.201 | 0.713 | **0.007** |
| RT | | | | 0 | 0.299 | 0.306 | 0.322 |
| NFS | | | | | 0 | 0.684 | **0.019** |
| TT | | | | | | 0 | ***0.083*** |
| LS | | | | | | | 0 |

Non-native Forbs

| | DAP | FP | SFS | RT | NFS | TT | LS |
|---|---|---|---|---|---|---|---|
| DAP | 0 | **0.000** | **0.000** | **0.000** | **0.000** | **0.000** | **0.000** |
| FP | | 0 | **0.000** | **0.000** | **0.000** | **0.002** | **0.000** |
| SFS | | | 0 | 0.828 | 0.139 | 0.319 | ***0.093*** |
| RT | | | | 0 | 0.299 | 0.444 | **0.034** |
| NFS | | | | | 0 | 0.969 | **0.001** |
| TT | | | | | | 0 | **0.030** |
| LS | | | | | | | 0 |

Non-native Annual Grasses

| | DAP | FP | SFS | RT | NFS | TT | LS |
|---|---|---|---|---|---|---|---|
| DAP | 0 | **0.017** | **0.004** | 0.806 | 0.183 | 0.306 | **0.001** |
| FP | | 0 | 0.337 | **0.011** | 0.130 | 0.227 | 0.303 |
| SFS | | | 0 | **0.004** | **0.022** | ***0.062*** | 0.746 |
| RT | | | | 0 | 0.199 | 0.634 | **0.000** |
| NFS | | | | | 0 | 0.927 | **0.009** |
| TT | | | | | | 0 | ***0.055*** |
| LS | | | | | | | **0** |

All Non-native Plants

| | DAP | FP | SFS | RT | NFS | TT | LS |
|---|---|---|---|---|---|---|---|
| DAP | 0 | **0.001** | **0.000** | **0.000** | **0.000** | **0.000** | **0.000** |
| FP | | 0 | **0.000** | **0.000** | **0.000** | **0.000** | **0.000** |
| SFS | | | 0 | **0.044** | 0.201 | 0.713 | **0.007** |
| RT | | | | 0 | 0.227 | 0.254 | 0.374 |
| NFS | | | | | 0 | 0.684 | **0.019** |
| TT | | | | | | 0 | ***0.083*** |
| LS | | | | | | | 0 |

**Table 5.14 Summary of 2003 plots sampled for the perennial bunchgrass plant community study. Centennial Specific Plan Project Site, Los Angeles County, California.**

| Transect Number | Plot Number | Landscape Position |
|---|---|---|
| T1 | P1 | Disturbed Alluvial Plain |
| T1 | P2 | Disturbed Alluvial Plain |
| T1 | P3 | Disturbed Alluvial Plain |
| T2 | P4 | Disturbed Alluvial Plain |
| T2 | P5 | Disturbed Alluvial Plain |
| T2 | P6 | Disturbed Alluvial Plain |
| T2 | P7 | Disturbed Alluvial Plain |
| T2 | P8 | Disturbed Alluvial Plain |
| T2 | P9 | Disturbed Alluvial Plain |
| T3 | P10 | Floodplain |
| T3 | P11 | Floodplain |
| T3 | P12 | South-facing Slope |
| T3 | P13 | Ridge Top |
| T3 | P14 | North-facing Slope |
| T3 | P15 | Floodplain |
| T3 | P16 | South-facing Slope |
| T3 | P17 | Terrace Top |
| T3 | P18 | North-facing Slope |
| T3 | P19 | Floodplain |
| T3 | P20 | South-facing Slope |
| T3 | P21 | Ridge Top |
| T3 | P22 | North-facing Slope |
| T6 | P23 | Floodplain |
| T6 | P24 | South-facing Slope |
| T6 | P25 | Ridge Top |
| T6 | P26 | North-facing Slope |
| T6 | P27 | Floodplain |
| T6 | P28 | South-facing Slope |
| T6 | P29 | Ridge Top |
| T6 | P30 | North-facing Slope |
| T6 | P31 | Floodplain |
| T6 | P32 | South-facing Slope |
| T6 | P33 | Ridge Top |
| T6 | P34 | North-facing Slope |
| T7 | P35 | Limestone Soils |
| T7 | P36 | Limestone Soils |
| T8 | P37 | South-facing Slope |
| T8 | P38 | Ridge Top |
| T8 | P39 | North-facing Slope |
| T8 | P40 | Floodplain |
| T8 | P41 | Floodplain |
| T8 | P42 | South-facing Slope |
| T8 | P43 | Terrace Top |
| T8 | P44 | South-facing Slope |
| T8 | P45 | Ridge Top |
| T8 | P46 | North-facing Slope |
| T8 | P47 | Ridge Top |
| T8 | P48 | North-facing Slope |
| T9 | P49 | Terrace Top |
| T10 | P50 | Terrace Top |
| T10 | P51 | Terrace Top |
| T4 | P52 | Limestone Soils |
| T4 | P53 | Limestone Soils |
| T4 | P54 | Limestone Soils |
| T5 | P55 | Limestone Soils |

**Table 5.15 Summary of 2004 plots sampled for the perennial bunchgrass plant community study. Centennial Specific Plan Project Site, Los Angeles County, California.**

| Transect Number | Plot Number | Landscape Position |
|---|---|---|
| T1 | P1 | Ridgetop |
| T1 | P2 | North-facing, Upper, Convex Slopes |
| T1 | P3 | North-facing, Lower, Concave Slopes |
| T1 | P4 | South-facing, Lower, Concave Slopes |
| T1 | P5 | South-facing, Upper, Convex Slopes |
| T1 | P6 | Ridgetop |
| T1 | P7 | North-facing, Upper, Convex Slopes |
| T1 | P8 | North-facing, Lower, Concave Slopes |
| T1 | P9 | Floodplain |
| T1 | P10 | South-facing, Lower, Concave Slopes |
| T1 | P11 | South-facing, Upper, Convex Slopes |
| T1 | P12 | Ridgetop |
| T1 | P13 | North-facing, Upper, Concave Slopes |
| T1 | P14 | North-facing, Upper, Convex Slopes |
| T1 | P15 | North-facing, Lower Convex Slopes |
| T1 | P16 | Floodplain |
| T1 | P17 | South-facing, Lower, Concave Slopes |
| T1 | P18 | South-facing, Upper, Convex Slopes |
| T3 | P1 | Ridgetop |
| T3 | P2 | South-facing, Upper, Convex Slopes |
| T3 | P3 | South-facing, Lower, Concave Slopes |
| T3 | P4 | Floodplain |
| T3 | P5 | North-facing, Lower, Concave Slopes |
| T3 | P6 | North-facing, Upper, Convex Slopes |
| T3 | P7 | Ridgetop |
| T3 | P8 | South-facing, Upper, Convex Slopes |
| T3 | P9 | South-facing, Lower, Concave Slopes |
| T3 | P10 | North-facing, Lower, Concave Slopes |
| T3 | P11 | North-facing, Upper, Concave Slopes |
| T3 | P12 | Ridgetop |
| T3 | P13 | South-facing, Lower, Concave Slopes |
| T3 | P14 | South-facing, Lower, Concave Slopes |
| T3 | P15 | Ridgetop |
| T3 | P16 | North-facing, Upper, Convex Slopes |
| T3 | P17 | North-facing, Upper, Concave Slopes |
| T3 | P18 | North-facing, Upper, Concave Slopes |
| T3 | P19 | Ridgetop |
| T3 | P20 | Ridgetop |
| T3 | P21 | South-facing, Upper, Convex Slopes |
| T3 | P22 | South-facing, Lower, Convex Slopes |
| T3 | P23 | Floodplain |
| T3 | P24 | North-facing, Lower, Concave Slopes |
| T3 | P25 | North-facing, Upper, Convex Slopes |
| T3 | P26 | Ridgetop |
| T3 | P27 | South-facing, Upper, Convex Slopes |
| T3 | P28 | South-facing, Lower, Concave Slopes |
| T3 | P29 | North-facing, Lower, Concave Slopes |
| T3 | P30 | North-facing, Upper, Convex Slopes |
| T3 | P31 | North-facing, Upper, Concave Slopes |
| T3 | P32 | Ridgetop |
| T5 | P1 | Ridgetop |
| T5 | P2 | North-facing, Upper, Convex Slopes |
| T5 | P3 | North-facing, Lower, Concave Slopes |
| T5 | P4 | South-facing, Lower, Convex Slopes |

| Transect Number | Plot Number | Landscape Position |
|---|---|---|
| T5 | P5 | South-facing, Upper, Convex Slopes |
| T5 | P6 | Ridgetop |
| T5 | P7 | North-facing, Upper, Convex Slopes |
| T5 | P8 | Floodplain |
| T5 | P9 | South-facing, Lower, Concave Slopes |
| T5 | P10 | South-facing, Upper, Convex Slopes |
| T5 | P11 | Ridgetop |
| T5 | P12 | North-facing, Upper, Concave Slopes |
| T5 | P13 | North-facing, Lower Convex Slopes |
| T5 | P14 | South-facing, Lower, Convex Slopes |
| T5 | P15 | South-facing, Upper, Convex Slopes |
| T5 | P16 | Ridgetop |
| T5 | P17 | North-facing, Upper, Convex Slopes |
| T5 | P18 | North-facing, Lower, Concave Slopes |
| T5 | P19 | South-facing, Lower, Convex Slopes |
| T5 | P20 | South-facing, Upper, Concave Slopes |
| T5 | P21 | Ridgetop |
| T5 | P22 | North-facing, Upper, Concave Slopes |
| T5 | P23 | North-facing, Lower Convex Slopes |
| T5 | P24 | South-facing, Lower, Concave Slopes |
| T5 | P25 | Ridgetop |
| T5 | P26 | South-facing, Upper, Convex Slopes |
| T5 | P27 | North-facing, Upper, Concave Slopes |
| T5 | P28 | Ridgetop |
| T5 | P29 | North-facing, Upper, Convex Slopes |
| T5 | P30 | North-facing, Lower, Concave Slopes |
| T5 | P31 | South-facing, Lower, Convex Slopes |
| T5 | P32 | South-facing, Upper, Convex Slopes |
| T5 | P33 | Ridgetop |
| T5 | P34 | North-facing, Upper, Convex Slopes |
| T5 | P35 | North-facing, Lower, Concave Slopes |
| T5 | P36 | Floodplain |
| T5 | P37 | South-facing, Lower, Concave Slopes |
| T5 | P38 | South-facing, Upper, Convex Slopes |
| T5 | P39 | Ridgetop |
| T5 | P40 | North-facing, Upper, Convex Slopes |
| T5 | P41 | North-facing, Lower, Concave Slopes |
| T5 | P42 | Ridgetop |
| T5 | P43 | Ridgetop |
| T5 | P44 | North-facing, Upper, Convex Slopes |
| T5 | P45 | North-facing, Lower, Concave Slopes |
| T5 | P46 | South-facing, Lower, Convex Slopes |
| T5 | P47 | South-facing, Upper, Convex Slopes |
| T5 | P48 | Ridgetop |
| T5 | P49 | North-facing, Upper, Concave Slopes |
| T5 | P50 | North-facing, Lower Convex Slopes |
| T5 | P51 | South-facing, Lower, Convex Slopes |
| T5 | P52 | South-facing, Upper, Concave Slopes |
| T5 | P53 | Ridgetop |
| T5 | P54 | North-facing, Upper, Convex Slopes |
| T5 | P55 | North-facing, Lower Convex Slopes |
| T6 | P1 | South-facing, Lower, Convex Slopes |
| T6 | P2 | Ridgetop |
| T6 | P3 | South-facing, Upper, Convex Slopes |
| T6 | P4 | North-facing, Upper, Convex Slopes |
| T6 | P5 | North-facing, Lower Convex Slopes |
| T6 | P6 | South-facing, Lower, Convex Slopes |
| T6 | P7 | Ridgetop |

| Transect Number | Plot Number | Landscape Position |
| --- | --- | --- |
| T6 | P8 | South-facing, Upper, Convex Slopes |
| T6 | P9 | North-facing, Upper, Concave Slopes |
| T6 | P10 | North-facing, Lower Convex Slopes |
| T6 | P11 | Ridgetop |
| T6 | P12 | North-facing, Upper, Convex Slopes |
| T6 | P13 | South-facing, Lower, Concave Slopes |
| T6 | P14 | South-facing, Upper, Convex Slopes |
| T6 | P15 | Ridgetop |
| T6 | P16 | North-facing, Upper, Concave Slopes |
| T6 | P17 | North-facing, Lower Convex Slopes |
| T6 | P18 | South-facing, Lower, Concave Slopes |
| T6 | P19 | South-facing, Upper, Convex Slopes |
| T6 | P20 | Ridgetop |
| T6 | P21 | North-facing, Upper, Convex Slopes |
| T6 | P22 | North-facing, Upper, Convex Slopes |
| T6 | P23 | North-facing, Lower, Concave Slopes |
| T6 | P24 | Floodplain |
| T6 | P25 | South-facing, Lower, Concave Slopes |
| T6 | P26 | South-facing, Upper, Convex Slopes |
| T6 | P27 | Ridgetop |
| T6 | P28 | North-facing, Upper, Concave Slopes |
| T6 | P29 | North-facing, Lower Convex Slopes |
| T6 | P30 | South-facing, Upper, Convex Slopes |
| T6 | P31 | Ridgetop |
| T6 | P32 | North-facing, Upper, Concave Slopes |
| T6 | P33 | North-facing, Lower Convex Slopes |
| T6 | P34 | Ridgetop |
| T6 | P35 | South-facing, Lower, Concave Slopes |
| T6 | P36 | South-facing, Upper, Convex Slopes |
| T6 | P37 | Ridgetop |
| T6 | P38 | North-facing, Upper, Concave Slopes |
| T6 | P39 | North-facing, Lower Convex Slopes |
| T6 | P40 | South-facing, Lower, Concave Slopes |
| T6 | P41 | South-facing, Upper, Convex Slopes |
| T6 | P42 | Ridgetop |
| T7 | P1 | South-facing, Lower, Convex Slopes |
| T7 | P2 | North-facing, Lower Convex Slopes |
| T7 | P3 | North-facing, Upper, Concave Slopes |
| T7 | P4 | Ridgetop |
| T7 | P5 | South-facing, Upper, Convex Slopes |
| T7 | P6 | South-facing, Lower, Concave Slopes |
| T7 | P7 | North-facing, Lower, Concave Slopes |
| T7 | P8 | North-facing, Upper, Concave Slopes |
| T7 | P9 | Ridgetop |
| T7 | P10 | South-facing, Upper, Convex Slopes |
| T7 | P11 | South-facing, Lower, Concave Slopes |
| T7 | P12 | North-facing, Lower Convex Slopes |
| T7 | P13 | North-facing, Upper, Convex Slopes |
| T7 | P14 | Ridgetop |
| T7 | P15 | Ridgetop |
| T7 | P16 | South-facing, Upper, Convex Slopes |
| T7 | P17 | South-facing, Lower, Concave Slopes |
| T7 | P18 | Floodplain |
| T7 | P19 | North-facing, Lower, Concave Slopes |
| T7 | P20 | North-facing, Upper, Concave Slopes |
| T7 | P21 | Ridgetop |
| T7 | P22 | South-facing, Upper, Convex Slopes |
| T7 | P23 | North-facing, Lower, Concave Slopes |

| Transect Number | Plot Number | Landscape Position |
|---|---|---|
| T7 | P24 | North-facing, Lower Convex Slopes |
| T7 | P25 | North-facing, Upper, Convex Slopes |
| T7 | P26 | Ridgetop |
| T7 | P27 | South-facing, Upper, Concave Slopes |
| T7 | P28 | South-facing, Lower, Concave Slopes |
| T7 | P29 | North-facing, Upper, Convex Slopes |
| T7 | P30 | Ridgetop |
| T7 | P31 | South-facing, Upper, Convex Slopes |
| T7 | P32 | South-facing, Lower, Concave Slopes |
| T7 | P33 | North-facing, Lower Convex Slopes |
| T7 | P34 | North-facing, Upper, Convex Slopes |
| T7 | P35 | South-facing, Upper, Convex Slopes |
| T7 | P36 | South-facing, Lower, Convex Slopes |
| T7 | P37 | North-facing, Lower, Concave Slopes |
| T7 | P38 | North-facing, Upper, Convex Slopes |
| T7 | P39 | Ridgetop |
| T7 | P40 | North-facing, Lower, Concave Slopes |
| T7 | P41 | North-facing, Upper, Convex Slopes |
| T7 | P42 | Ridgetop |
| T7 | P43 | South-facing, Upper, Convex Slopes |
| T7 | P44 | South-facing, Lower, Concave Slopes |
| T7 | P45 | North-facing, Lower, Concave Slopes |
| T7 | P46 | North-facing, Lower, Concave Slopes |
| T7 | P47 | Ridgetop |
| T7 | P48 | South-facing, Upper, Convex Slopes |
| T7 | P49 | South-facing, Lower, Concave Slopes |
| T7 | P50 | Floodplain |
| T7 | P51 | North-facing, Lower Convex Slopes |
| T7 | P52 | North-facing, Upper, Concave Slopes |
| T7 | P53 | Ridgetop |
| T9 | P1 | North-facing, Upper, Concave Slopes |
| T9 | P2 | North-facing, Lower, Concave Slopes |
| T9 | P3 | Ridgetop |
| T9 | P4 | South-facing, Upper, Convex Slopes |
| T9 | P5 | North-facing, Lower Convex Slopes |
| T9 | P6 | North-facing, Lower, Concave Slopes |
| T9 | P7 | North-facing, Upper, Concave Slopes |
| T9 | P8 | Ridgetop |
| T9 | P9 | South-facing, Upper, Convex Slopes |
| T9 | P10 | South-facing, Upper, Convex Slopes |
| T9 | P11 | South-facing, Upper, Convex Slopes |
| T9 | P12 | South-facing, Lower, Concave Slopes |
| T9 | P13 | North-facing, Upper, Convex Slopes |
| T9 | P14 | North-facing, Lower, Concave Slopes |
| T9 | P15 | Ridgetop |
| T9 | P16 | Ridgetop |
| T9 | P17 | South-facing, Upper, Convex Slopes |
| T9 | P18 | South-facing, Upper, Convex Slopes |
| T9 | P19 | South-facing, Lower, Concave Slopes |
| T9 | P20 | South-facing, Lower, Convex Slopes |
| T9 | P21 | Floodplain |
| T9 | P22 | South-facing, Lower, Convex Slopes |
| T9 | P23 | South-facing, Lower, Concave Slopes |
| T9 | P24 | South-facing, Upper, Convex Slopes |
| T9 | P25 | South-facing, Upper, Convex Slopes |
| T9 | P26 | Ridgetop |
| T9 | P27 | North-facing, Lower Convex Slopes |
| T9 | P28 | North-facing, Upper, Convex Slopes |

| Transect Number | Plot Number | Landscape Position |
|---|---|---|
| T9 | P29 | North-facing, Upper, Concave Slopes |
| T9 | P30 | Ridgetop |
| T9 | P31 | South-facing, Upper, Convex Slopes |
| T9 | P32 | South-facing, Upper, Convex Slopes |
| T9 | P33 | South-facing, Lower, Convex Slopes |
| T9 | P34 | South-facing, Lower, Concave Slopes |
| T9 | P35 | Floodplain |
| T9 | P36 | North-facing, Lower, Concave Slopes |
| T9 | P37 | North-facing, Upper, Convex Slopes |
| T9 | P38 | South-facing, Upper, Convex Slopes |
| T9 | P39 | South-facing, Lower, Concave Slopes |
| T9 | P40 | Floodplain |
| T9 | P41 | North-facing, Lower, Concave Slopes |
| T9 | P42 | North-facing, Upper, Convex Slopes |
| T9 | P43 | North-facing, Upper, Convex Slopes |
| T9 | P44 | Ridgetop |
| T9 | P45 | South-facing, Upper, Convex Slopes |
| T9 | P46 | South-facing, Lower, Concave Slopes |
| T9 | P47 | Floodplain |
| T9 | P48 | North-facing, Lower Convex Slopes |
| T9 | P49 | North-facing, Upper, Convex Slopes |
| T9 | P50 | Ridgetop |
| T9 | P51 | North-facing, Upper, Convex Slopes |
| T9 | P52 | South-facing, Upper, Convex Slopes |
| T9 | P53 | South-facing, Lower, Concave Slopes |
| T11 | P1 | Ridgetop |
| T11 | P2 | North-facing, Upper, Concave Slopes |
| T11 | P3 | North-facing, Upper, Convex Slopes |
| T11 | P4 | North-facing, Lower, Concave Slopes |
| T11 | P5 | North-facing, Upper, Convex Slopes |
| T11 | P6 | South-facing, Lower, Convex Slopes |
| T11 | P7 | South-facing, Lower, Concave Slopes |
| T11 | P8 | South-facing, Upper, Convex Slopes |
| T11 | P9 | South-facing, Upper, Convex Slopes |
| T11 | P10 | Ridgetop |
| T11 | P11 | North-facing, Upper, Convex Slopes |
| T11 | P12 | North-facing, Upper, Concave Slopes |
| T11 | P13 | Floodplain |
| T11 | P14 | South-facing, Lower, Convex Slopes |
| T11 | P15 | South-facing, Upper, Convex Slopes |
| T11 | P16 | Ridgetop |
| T11 | P17 | South-facing, Upper, Convex Slopes |
| T11 | P18 | South-facing, Upper, Convex Slopes |
| T11 | P19 | North-facing, Upper, Convex Slopes |
| N/A | FP1 | Floodplain |
| N/A | FP2 | Floodplain |
| N/A | FP3 | Floodplain |
| N/A | FP4 | Floodplain |
| N/A | FP5 | Floodplain |
| N/A | FP6 | Floodplain |

**Table 5.16 Summary of 2004 soil sample plot locations for the perennial bunchgrass community study. Centennial Specific Plan Project Site, Los Angeles County, California.**

| Transect Number | Plot Number | Landscape Position |
|---|---|---|
| N/A | FP2 | Floodplain |
| T3 | P23 | Floodplain |
| T3 | P4 | Floodplain |
| T5 | P36 | Floodplain |
| T7 | P50 | Floodplain |
| T3 | P18 | North-facing Lower Concave Slope |
| T3 | P29 | North-facing Lower Concave Slope |
| T7 | P19 | North-facing Lower Concave Slope |
| T7 | P23 | North-facing Lower Concave Slope |
| T7 | P40 | North-facing Lower Concave Slope |
| T7 | P46 | North-facing Lower Concave Slope |
| T5 | P50 | North-facing Lower Convex Slope |
| T7 | P24 | North-facing Lower Convex Slope |
| T7 | P33 | North-facing Lower Convex Slope |
| T3 | P11 | North-facing Upper Concave Slope |
| T3 | P31 | North-facing Upper Concave Slope |
| T5 | P12 | North-facing Upper Concave Slope |
| T5 | P22 | North-facing Upper Concave Slope |
| T3 | P30 | North-facing Upper Convex Slope |
| T3 | P6 | North-facing Upper Convex Slope |
| T5 | P34 | North-facing Upper Convex Slope |
| T5 | P54 | North-facing Upper Convex Slope |
| T7 | P29 | North-facing Upper Convex Slope |
| T3 | P26 | Ridge top |
| T3 | P32 | Ridge top |
| T7 | P15 | Ridge top |
| T7 | P30 | Ridge top |
| T7 | P39 | Ridge top |
| T3 | P2 | South-facing Upper Convex Slope |
| T3 | P21 | South-facing Upper Convex Slope |
| T5 | P10 | South-facing Upper Convex Slope |
| T5 | P32 | South-facing Upper Convex Slope |
| T5 | P38 | South-facing Upper Convex Slope |
| N/A | ACSP4 | South-facing Upper Concave Slope |
| N/A | ACSP21 | South-facing Upper Concave Slope |
| T5 | P20 | South-facing Upper Concave Slope |
| T5 | P52 | South-facing Upper Concave Slope |
| T7 | P27 | South-facing Upper Concave Slope |
| T5 | P14 | South-facing Lower Convex Slope |
| T5 | P46 | South-facing Lower Convex Slope |
| T7 | P36 | South-facing Lower Convex Slope |
| T3 | P28 | South-facing Lower Concave Slope |
| T3 | P3 | South-facing Lower Concave Slope |
| T7 | P17 | South-facing Lower Concave Slope |
| T7 | P44 | South-facing Lower Concave Slope |
| T7 | P49 | South-facing Lower Concave Slope |

**Table 5.17 Descriptive statistics for relative plant cover and bare soil by landscape position (spring 2004 field data). Perennial Bunch Grass Community Study, Centennial Specific Plan Project Site, Los Angeles County, California.**

**FLOODPLAIN**

| Species: | N | N* | Mean | SE Mean | St Dev | Q1 | Med | Q3 | Min | Max |
|---|---|---|---|---|---|---|---|---|---|---|
| Acnatherum speciosum | 20 | 0 | 0 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 |
| Elymus mutisetus | 20 | 0 | 0.1 | 0.10 | 0.45 | 0 | 0 | 0 | 0 | 2 |
| Nasella cernua | 20 | 0 | 0.1 | 0.10 | 0.45 | 0 | 0 | 0 | 0 | 2 |
| Poa secunda ssp. secunda | 20 | 0 | 2.25 | 1.26 | 5.66 | 0 | 0 | 2 | 0 | 25 |
| Total Perennial Bunch Grasses | 20 | 0 | 2.45 | 1.29 | 5.79 | 0 | 0 | 2 | 0 | 25 |
| Leymus triticoides | 20 | 0 | 6.55 | 2.15 | 9.63 | 0 | 2 | 8.75 | 0 | 30 |
| Vulpia bromoides | 20 | 0 | 0 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 |
| Vulpia microstachys var. microstachys | 20 | 0 | 0.25 | 0.25 | 1.12 | 0 | 0 | 0 | 0 | 5 |
| Vulpia myuros var. myuros | 20 | 0 | 0.25 | 0.25 | 1.12 | 0 | 0 | 0 | 0 | 5 |
| Avena barbata | 20 | 0 | 0 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 |
| Bromus diandrus | 20 | 0 | 7.4 | 4.39 | 19.65 | 0 | 0 | 1.75 | 0 | 80 |
| Bromus hordeaceus | 20 | 0 | 1.3 | 1.02 | 4.54 | 0 | 0 | 0 | 0 | 20 |
| Bromus madritensis ssp. rubens | 20 | 0 | 8.35 | 2.20 | 9.84 | 2.75 | 5 | 10 | 0 | 40 |
| Bromus tectorum | 20 | 0 | 15.15 | 3.63 | 16.22 | 3.5 | 10 | 23.75 | 1 | 65 |
| Total Non-Native Annual Grasses | 20 | 0 | 32.7 | 5.80 | 25.95 | 13.25 | 25.5 | 40 | 1 | 90 |
| Total Forbs | 20 | 0 | 37.25 | 4.27 | 19.09 | 15 | 42.5 | 50 | 5 | 60 |
| Bare Soil | 20 | 0 | 20.2 | 3.52 | 15.72 | 11.25 | 15 | 30 | 2 | 65 |

**NORTH SLOPES, LOWER, CONCAVE**

| Species | N | N* | Mean | SE Mean | St Dev | Q1 | Med | Q3 | Min | Max |
|---|---|---|---|---|---|---|---|---|---|---|
| Acnatherum speciosum | 26 | 0 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 |
| Elymus mutisetus | 26 | 0 | 0.15 | 0.09 | 0.46 | 0 | 0 | 0 | 0 | 2 |
| Nasella cernua | 26 | 0 | 1.35 | 0.55 | 2.80 | 0 | 0 | 2 | 0 | 10 |
| Poa secunda ssp. secunda | 26 | 0 | 17.62 | 2.31 | 11.80 | 5 | 20 | 30 | 0 | 35 |
| Total Perennial Bunch Grasses | 26 | 0 | 19.08 | 2.35 | 11.98 | 5.75 | 20 | 30 | 0 | 37 |
| Leymus triticoides | 26 | 0 | 5.08 | 1.70 | 8.65 | 0 | 0 | 10 | 0 | 30 |
| Vulpia bromoides | 26 | 0 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 |
| Vulpia microstachys var. microstachys | 26 | 0 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 |
| Vulpia myuros var. myuros | 26 | 0 | 0.19 | 0.19 | 0.98 | 0 | 0 | 0 | 0 | 5 |
| Avena barbata | 26 | 0 | 0.08 | 0.08 | 0.39 | 0 | 0 | 0 | 0 | 2 |
| Bromus diandrus | 26 | 0 | 0.58 | 0.58 | 2.94 | 0 | 0 | 0 | 0 | 15 |
| Bromus hordeaceus | 26 | 0 | 0.62 | 0.58 | 2.94 | 0 | 0 | 0 | 0 | 15 |
| Bromus madritensis ssp. rubens | 26 | 0 | 10.54 | 2.84 | 14.49 | 2.75 | 5 | 11.25 | 2 | 70 |
| Bromus tectorum | 26 | 0 | 11.73 | 2.47 | 12.60 | 1.75 | 10 | 20 | 0 | 50 |
| Total Non-Native Annual Grasses | 26 | 0 | 23.73 | 4.14 | 21.09 | 7.5 | 15 | 32.75 | 2 | 80 |
| Total Forbs | 26 | 0 | 32.12 | 2.06 | 10.50 | 28.75 | 30 | 40 | 5 | 50 |
| Total Bare Soil | 26 | 0 | 20.00 | 1.88 | 9.59 | 13.75 | 20 | 26.25 | 5 | 40 |

**NORTH SLOPES, LOWER CONVEX**

| Species | N | N* | Mean | SE Mean | St Dev | Q1 | Med | Q3 | Min | Max |
|---|---|---|---|---|---|---|---|---|---|---|
| Acnatherum speciosum | 19 | 0 | 0.53 | 0.36 | 1.58 | 0 | 0 | 0 | 0 | 5 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Elymus mutisetus | 19 | 0 | 2.21 | 0.93 | 4.04 | 0 | 0 | 2 | 0 | 15 |
| Nasella cernua | 19 | 0 | 2.37 | 0.86 | 3.74 | 0 | 0 | 5 | 0 | 10 |
| Poa secunda ssp. secunda | 19 | 0 | 17.89 | 2.40 | 10.45 | 10 | 20 | 30 | 0 | 35 |
| Total Perennial Bunch Grasses | 19 | 0 | 23.00 | 2.77 | 12.08 | 10 | 30 | 32 | 6 | 40 |
| Leymus triticoides | 19 | 0 | 2.11 | 0.96 | 4.19 | 0 | 0 | 5 | 0 | 15 |
| Vulpia bromoides | 19 | 0 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 |
| Vulpia microstachys var. microstachys | 19 | 0 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 |
| Vulpia myuros var. myuros | 19 | 0 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 |
| Avena barbata | 19 | 0 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 |
| Bromus diandrus | 19 | 0 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 |
| Bromus hordeaceus | 19 | 0 | 0.58 | 0.53 | 2.29 | 0 | 0 | 0 | 0 | 10 |
| Bromus madritensis ssp. rubens | 19 | 0 | 8.53 | 2.76 | 12.01 | 2 | 5 | 10 | 0 | 50 |
| Bromus tectorum | 19 | 0 | 6.63 | 2.41 | 10.52 | 0 | 1 | 10 | 0 | 40 |
| Total Non-Native Annual Grasses | 19 | 0 | 15.74 | 3.58 | 15.58 | 3 | 10 | 20 | 0 | 50 |
| Total Forbs | 19 | 0 | 30.79 | 2.40 | 10.44 | 25 | 30 | 40 | 15 | 50 |
| Total Bare Soil | 19 | 0 | 28.42 | 2.10 | 9.14 | 20 | 30 | 35 | 10 | 45 |

**NORTH SLOPES, UPPER, CONCAVE**

| Species | N | N* | Mean | SE Mean | St Dev | Q1 | Med | Q3 | Min | Max |
|---|---|---|---|---|---|---|---|---|---|---|
| Acnatherum speciosum | 23 | 0 | 0.57 | 0.40 | 1.93 | 0 | 0 | 0 | 0 | 8 |
| Elymus mutisetus | 23 | 0 | 3.00 | 0.87 | 4.18 | 0 | 1 | 5 | 0 | 15 |
| Nasella cernua | 23 | 0 | 4.00 | 1.07 | 5.13 | 0 | 2 | 5 | 0 | 20 |
| Poa secunda ssp. secunda | 23 | 0 | 21.74 | 1.95 | 9.37 | 20 | 25 | 30 | 0 | 35 |
| Total Perennial Bunch Grasses | 23 | 0 | 29.30 | 2.33 | 11.19 | 28 | 32 | 35 | 0 | 45 |
| Leymus triticoides | 23 | 0 | 1.30 | 0.65 | 3.10 | 0 | 0 | 0 | 0 | 10 |
| Vulpia bromoides | 23 | 0 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 |
| Vulpia microstachys var. microstachys | 23 | 0 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 |
| Vulpia myuros var. myuros | 23 | 0 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 |
| Avena barbata | 23 | 0 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 |
| Bromus diandrus | 23 | 0 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 |
| Bromus hordeaceus | 23 | 0 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 |
| Bromus madritensis ssp. rubens | 23 | 0 | 4.83 | 1.01 | 4.86 | 1 | 5 | 5 | 0 | 20 |
| Bromus tectorum | 23 | 0 | 5.52 | 3.09 | 14.84 | 0 | 1 | 2 | 0 | 70 |
| Total Non-Native Annual Grasses | 23 | 0 | 10.35 | 3.26 | 15.64 | 2 | 5 | 12 | 0 | 72 |
| Total Forbs | 23 | 0 | 28.26 | 1.82 | 8.74 | 25 | 25 | 30 | 15 | 55 |
| Total Bare Soil | 23 | 0 | 30.48 | 2.33 | 11.16 | 25 | 35 | 40 | 2 | 45 |

**NORTH SLOPES, UPPER, CONVEX**

| Species | N | N* | Mean | SE Mean | St Dev | Q1 | Med | Q3 | Min | Max |
|---|---|---|---|---|---|---|---|---|---|---|
| Acnatherum speciosum | 36 | 0 | 2.36 | 1.24 | 7.41 | 0 | 0 | 0 | 0 | 40 |
| Elymus mutisetus | 36 | 0 | 2.33 | 0.52 | 3.12 | 0 | 1 | 4.5 | 0 | 10 |
| Nasella cernua | 36 | 0 | 5.64 | 0.91 | 5.43 | 1.25 | 5 | 9.25 | 0 | 20 |
| Poa secunda ssp. secunda | 36 | 0 | 22.97 | 1.51 | 9.07 | 16.25 | 25 | 30 | 2 | 40 |
| Total Perennial Bunch Grasses | 36 | 0 | 33.31 | 1.29 | 7.75 | 30 | 35 | 40 | 8 | 45 |
| Leymus triticoides | 36 | 0 | 0.97 | 0.52 | 3.14 | 0 | 0 | 0 | 0 | 15 |
| Vulpia bromoides | 36 | 0 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Vulpia microstachys var. microstachys | 36 | 0 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 |
| Vulpia myuros var. myuros | 36 | 0 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 |
| Avena barbata | 36 | 0 | 0.03 | 0.03 | 0.17 | 0 | 0 | 0 | 0 | 1 |
| Bromus diandrus | 36 | 0 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 |
| Bromus hordeaceus | 36 | 0 | 0.14 | 0.11 | 0.68 | 0 | 0 | 0 | 0 | 4 |
| Bromus madritensis ssp. rubens | 36 | 0 | 4.86 | 0.79 | 4.76 | 2 | 5 | 5 | 0 | 20 |
| Bromus tectorum | 36 | 0 | 1.25 | 0.33 | 2.01 | 0 | 0.5 | 2 | 0 | 10 |
| Total Non-Native Annual Grasses | 36 | 0 | 6.28 | 0.92 | 5.53 | 2.25 | 5 | 7 | 1 | 22 |
| Total Forbs | 36 | 0 | 27.78 | 1.62 | 9.74 | 20 | 27.5 | 35 | 10 | 50 |
| Total Bare Soil | 36 | 0 | 32.64 | 2.06 | 12.33 | 25 | 35 | 40 | 5 | 50 |

**RIDGE TOP**

| Species | N | N* | Mean | SE Mean | St Dev | Q1 | Med | Q3 | Min | Max |
|---|---|---|---|---|---|---|---|---|---|---|
| Acnatherum speciosum | 56 | 0 | 1.63 | 0.60 | 4.45 | 0 | 0 | 0 | 0 | 20 |
| Elymus mutisetus | 56 | 0 | 0.96 | 0.30 | 2.22 | 0 | 0 | 1 | 0 | 10 |
| Nasella cernua | 56 | 0 | 17.71 | 0.97 | 7.24 | 10 | 20 | 25 | 0 | 30 |
| Poa secunda ssp. secunda | 56 | 0 | 12.02 | 1.01 | 7.60 | 5 | 10 | 18.75 | 0 | 35 |
| Total Perennial Bunch Grasses | 56 | 0 | 32.32 | 1.20 | 8.99 | 30 | 34.5 | 40 | 1 | 45 |
| Leymus triticoides | 56 | 0 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 |
| Vulpia bromoides | 56 | 0 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 |
| Vulpia microstachys var. microstachys | 56 | 0 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 |
| Vulpia myuros var. myuros | 56 | 0 | 0.02 | 0.02 | 0.13 | 0 | 0 | 0 | 0 | 1 |
| Avena barbata | 56 | 0 | 0.13 | 0.10 | 0.72 | 0 | 0 | 0 | 0 | 5 |
| Bromus diandrus | 56 | 0 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 |
| Bromus hordeaceus | 56 | 0 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 |
| Bromus madritensis ssp. rubens | 56 | 0 | 3.30 | 0.50 | 3.74 | 1 | 2 | 5 | 0 | 20 |
| Bromus tectorum | 56 | 0 | 0.63 | 0.37 | 2.75 | 0 | 0 | 0 | 0 | 20 |
| Total Non-Native Annual Grasses | 56 | 0 | 4.07 | 0.69 | 5.14 | 1 | 3 | 5 | 0 | 30 |
| Total Forbs | 56 | 0 | 22.68 | 1.22 | 9.14 | 15 | 25 | 30 | 0 | 40 |
| Total Bare Soil | 56 | 0 | 40.63 | 1.73 | 12.97 | 30 | 40 | 50 | 0 | 70 |

**SOUTH SLOPES, UPPER, CONVEX**

| Species | N | N* | Mean | SE Mean | St Dev | Q1 | Med | Q3 | Min | Max |
|---|---|---|---|---|---|---|---|---|---|---|
| Acnatherum speciosum | 33 | 0 | 0.03 | 0.03 | 0.17 | 0 | 0 | 0 | 0 | 1 |
| Elymus mutisetus | 33 | 0 | 0.18 | 0.15 | 0.88 | 0 | 0 | 0 | 0 | 5 |
| Nasella cernua | 33 | 0 | 16.97 | 1.34 | 7.67 | 12.5 | 15 | 20 | 0 | 35 |
| Poa secunda ssp. secunda | 33 | 0 | 3.73 | 0.99 | 5.69 | 0 | 2 | 5 | 0 | 25 |
| Total Perennial Bunch Grasses | 33 | 0 | 20.91 | 1.82 | 10.46 | 13.5 | 20 | 27 | 5 | 45 |
| Leymus triticoides | 33 | 0 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 |
| Vulpia bromoides | 33 | 0 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 |
| Vulpia microstachys var. microstachys | 33 | 0 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 |
| Vulpia myuros var. myuros | 33 | 0 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 |
| Avena barbata | 33 | 0 | 1.00 | 0.63 | 3.63 | 0 | 0 | 0 | 0 | 20 |
| Bromus diandrus | 33 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Bromus hordeaceus | 33 | 0 | 0.06 | 0.06 | 0.35 | 0 | 0 | 0 | 0 | 2 |
| Bromus madritensis ssp. rubens | 33 | 0 | 10.97 | 2.04 | 11.70 | 5 | 5 | 15 | 1 | 60 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Acnatherum speciosum | 31 | 0 | 0.03 | 0.03 | 0.18 | 0 | 0 | 0 | 0 | 1 |
| Elymus mutisetus | 16 | 0 | 0.81 | 0.48 | 1.94 | 0 | 0 | 0 | 0 | 7 |
| Elymus mutisetus | 31 | 0 | 0.03 | 0.03 | 0.18 | 0 | 0 | 0 | 0 | 1 |
| Nasella cernua | 31 | 0 | 4.19 | 1.03 | 5.74 | 0 | 1 | 5 | 0 | 20 |
| Poa secunda ssp. secunda | 31 | 0 | 0.71 | 0.38 | 2.13 | 0 | 0 | 0 | 0 | 10 |
| Total Perennial Bunch Grasses | 31 | 0 | 4.97 | 1.13 | 6.30 | 0 | 1 | 8 | 0 | 20 |
| Leymus triticoides | 31 | 0 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 |
| Vulpia bromoides | 31 | 0 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 |
| Vulpia microstachys var. microstachys | 31 | 0 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 |
| Vulpia myuros var. myuros | 31 | 0 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 |
| Avena barbata | 31 | 0 | 2.26 | 1.07 | 5.98 | 0 | 0 | 1 | 0 | 30 |
| Bromus diandrus | 31 | 0 | 0.32 | 0.32 | 1.80 | 0 | 0 | 0 | 0 | 10 |
| Bromus hordeaceus | 31 | 0 | 0.55 | 0.49 | 2.71 | 0 | 0 | 0 | 0 | 15 |
| Bromus madritensis ssp. rubens | 31 | 0 | 17.97 | 2.77 | 15.44 | 8 | 15 | 25 | 1 | 70 |
| Bromus tectorum | 31 | 0 | 10.06 | 2.32 | 12.91 | 0 | 3 | 20 | 0 | 50 |
| Total Non-Native Annual Grasses | 31 | 0 | 31.16 | 3.99 | 22.24 | 13 | 25 | 45 | 2 | 85 |
| Total Forbs | 31 | 0 | 39.84 | 3.09 | 17.20 | 25 | 40 | 50 | 10 | 70 |
| Total Bare Soil | 31 | 0 | 22.32 | 1.98 | 11.04 | 15 | 20 | 30 | 2 | 45 |

**Table 5.18 Descriptive statistics for relative plant cover and bare soil, by plant species (spring 2004 field data). Perennial Bunchgrass Plant Community Study, Centennial Specific Plan Project Site, Los Angeles County, California.**

I. Annual Grasses

| Slender oat grass (*Avena barbata*) | N | N* | Mean | SE Mean | St Dev | Q1 | Med | Q3 | Min | Max |
|---|---|---|---|---|---|---|---|---|---|---|
| Floodplain | 20 | 0 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 |
| North-facing Lower Concave Slope | 26 | 0 | 0.08 | 0.08 | 0.39 | 0 | 0 | 0 | 0 | 2 |
| North-facing Lower Convex Slope | 19 | 0 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 |
| North-facing Upper Concave Slope | 23 | 0 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 |
| North-facing Upper Convex Slope | 36 | 0 | 0.03 | 0.03 | 0.17 | 0 | 0 | 0 | 0 | 1 |
| Ridge top | 56 | 0 | 0.13 | 0.10 | 0.72 | 0 | 0 | 0 | 0 | 5 |
| South-facing Upper Convex Slope | 33 | 0 | 1.00 | 0.63 | 3.63 | 0 | 0 | 0 | 0 | 20 |
| South-facing Upper Concave Slope | 18 | 0 | 3.28 | 1.75 | 7.43 | 0 | 0 | 2 | 0 | 25 |
| South-facing Lower Convex Slope | 16 | 0 | 3.44 | 1.42 | 5.69 | 0 | 0 | 5 | 0 | 20 |
| South-facing Lower Concave Slope | 31 | 0 | 2.26 | 1.07 | 5.98 | 0 | 0 | 1 | 0 | 30 |
| **Ripgut brome (*Bromus diandrus*)** | N | N* | Mean | SE Mean | St Dev | Q1 | Med | Q3 | Min | Max |
| Floodplain | 20 | 0 | 7.40 | 4.39 | 19.65 | 0 | 0 | 1.75 | 0 | 80 |
| North-facing Lower Concave Slope | 26 | 0 | 0.58 | 0.58 | 2.94 | 0 | 0 | 0 | 0 | 15 |
| North-facing Lower Convext Slope | 19 | 0 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 |
| North-facing Upper Concave Slope | 23 | 0 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 |
| North-facing Upper Convex Slope | 36 | 0 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 |
| Ridge top | 56 | 0 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 |
| South-facing Upper Convex Slope | 33 | 0 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 |
| South-facing Upper Concave Slope | 18 | 0 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 |
| South-facing Lower Convex Slope | 16 | 0 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 |
| South-facing Lower Concave Slope | 31 | 0 | 0.32 | 0.32 | 1.80 | 0 | 0 | 0 | 0 | 10 |
| **Soft chess (*Bromus hordeaceus*)** | N | N* | Mean | SE Mean | St Dev | Q1 | Med | Q3 | Min | Max |
| Floodplain | 20 | 0 | 1.30 | 1.02 | 4.54 | 0 | 0 | 0 | 0 | 20 |
| North-facing Lower Concave Slope | 26 | 0 | 0.62 | 0.58 | 2.94 | 0 | 0 | 0 | 0 | 15 |
| North-facing Lower Convext Slope | 19 | 0 | 0.58 | 0.53 | 2.29 | 0 | 0 | 0 | 0 | 10 |
| North-facing Upper Concave Slope | 23 | 0 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 |
| North-facing Upper Convex Slope | 36 | 0 | 0.14 | 0.11 | 0.68 | 0 | 0 | 0 | 0 | 4 |
| Ridge top | 56 | 0 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 |
| South-facing Upper Convex Slope | 33 | 0 | 0.06 | 0.06 | 0.35 | 0 | 0 | 0 | 0 | 2 |
| South-facing Upper Concave Slope | 18 | 0 | 0.39 | 0.29 | 1.24 | 0 | 0 | 0 | 0 | 5 |
| South-facing Lower Convex Slope | 16 | 0 | 0.31 | 0.22 | 0.87 | 0 | 0 | 0 | 0 | 3 |
| South-facing Lower Concave Slope | 31 | 0 | 0.55 | 0.49 | 2.71 | 0 | 0 | 0 | 0 | 15 |
| **Red brome (*Bromus madritensis* ssp. *rubens*)** | N | N* | Mean | SE Mean | St Dev | Q1 | Med | Q3 | Min | Max |
| Floodplain | 20 | 0 | 8.35 | 2.20 | 9.84 | 2.75 | 5 | 10 | 0 | 40 |
| North-facing Lower Concave Slope | 26 | 0 | 10.54 | 2.84 | 14.49 | 2.75 | 5 | 11.3 | 2 | 70 |
| North-facing Lower Convex Slope | 19 | 0 | 8.53 | 2.76 | 12.01 | 2 | 5 | 10 | 0 | 50 |
| North-facing Upper Concave Slope | 23 | 0 | 4.83 | 1.01 | 4.86 | 1 | 5 | 5 | 0 | 20 |
| North-facing Upper Convex Slope | 36 | 0 | 4.86 | 0.79 | 4.76 | 2 | 5 | 5 | 0 | 20 |
| Ridge top | 56 | 0 | 3.30 | 0.50 | 3.74 | 1 | 2 | 5 | 0 | 20 |
| South-facing Upper Convex Slope | 33 | 0 | 10.97 | 2.04 | 11.70 | 5 | 5 | 15 | 1 | 60 |
| South-facing Upper Concave Slope | 18 | 0 | 21.17 | 4.18 | 17.73 | 6.5 | 15 | 31.3 | 2 | 60 |
| South-facing Lower Convex Slope | 16 | 0 | 21.81 | 5.83 | 23.32 | 3.5 | 15 | 36.3 | 2 | 70 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| South-facing Lower Concave Slope | 31 | 0 | 17.97 | 2.77 | 15.44 | 8 | 15 | 25 | 1 | 70 |
| Cheat grass *(Bromus tectorum)* | N | N* | Mean | SE Mean | St Dev | Q1 | Med | Q3 | Min | Max |
| Floodplain | 20 | 0 | 15.15 | 3.63 | 16.22 | 3.5 | 10 | 23.8 | 1 | 65 |
| North-facing Lower Concave Slope | 26 | 0 | 11.73 | 2.47 | 12.60 | 1.75 | 10 | 20 | 0 | 50 |
| North-facing Lower Convext Slope | 19 | 0 | 6.63 | 2.41 | 10.52 | 0 | 1 | 10 | 0 | 40 |
| North-facing Upper Concave Slope | 23 | 0 | 5.52 | 3.09 | 14.84 | 0 | 1 | 2 | 0 | 70 |
| North-facing Upper Convex Slope | 36 | 0 | 1.25 | 0.33 | 2.01 | 0 | 0.5 | 2 | 0 | 10 |
| Ridge top | 56 | 0 | 0.63 | 0.37 | 2.75 | 0 | 0 | 0 | 0 | 20 |
| South-facing Upper Convex Slope | 33 | 0 | 0.30 | 0.12 | 0.68 | 0 | 0 | 0 | 0 | 2 |
| South-facing Upper Concave Slope | 18 | 0 | 2.72 | 1.40 | 5.94 | 0 | 0 | 2 | 0 | 20 |
| South-facing Lower Convex Slope | 16 | 0 | 8.19 | 2.67 | 10.69 | 0 | 2 | 15 | 0 | 30 |
| South-facing Lower Concave Slope | 31 | 0 | 10.06 | 2.32 | 12.91 | 0 | 3 | 20 | 0 | 50 |
| **Six-weeks fescue (*Vulpia bromoides*)** | N | N* | Mean | SE Mean | St Dev | Q1 | Med | Q3 | Min | Max |
| Floodplain | 20 | 0.00 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 |
| North-facing Lower Concave Slope | 26 | 0.00 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 |
| North-facing Lower Convext Slope | 19 | 0.00 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 |
| North-facing Upper Concave Slope | 23 | 0.00 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 |
| North-facing Upper Convex Slope | 36 | 0.00 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 |
| Ridge top | 56 | 0.00 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 |
| South-facing Upper Convex Slope | 33 | 0.00 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 |
| South-facing Upper Concave Slope | 18 | 0.00 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 |
| South-facing Lower Convex Slope | 16 | 0.00 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 |
| South-facing Lower Concave Slope | 31 | 0.00 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 |
| **Small-flowered fescue (*Vulpia microstachys* var. *microstachys*)** | N | N* | Mean | SE Mean | St Dev | Q1 | Med | Q3 | Min | Max |
| Floodplain | 20 | 0.00 | 0.25 | 0.25 | 1.12 | 0 | 0 | 0 | 0 | 5 |
| North-facing Lower Concave Slope | 26 | 0.00 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 |
| North-facing Lower Convext Slope | 19 | 0.00 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 |
| North-facing Upper Concave Slope | 23 | 0.00 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 |
| North-facing Upper Convex Slope | 36 | 0.00 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 |
| Ridge top | 56 | 0.00 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 |
| South-facing Upper Convex Slope | 33 | 0.00 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 |
| South-facing Upper Concave Slope | 18 | 0.00 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 |
| South-facing Lower Convex Slope | 16 | 0.00 | 0.13 | 0.13 | 0.50 | 0 | 0 | 0 | 0 | 2 |
| South-facing Lower Concave Slope | 31 | 0.00 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 |
| **Rat-tail fescue (*Vulpia myuros* var. *myuros*)** | N | N* | Mean | SE Mean | St Dev | Q1 | Med | Q3 | Min | Max |
| Floodplain | 20 | 0.00 | 0.25 | 0.25 | 1.12 | 0 | 0 | 0 | 0 | 5 |
| North-facing Lower Concave Slope | 26 | 0.00 | 0.19 | 0.19 | 0.98 | 0 | 0 | 0 | 0 | 5 |
| North-facing Lower Convext Slope | 19 | 0.00 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 |
| North-facing Upper Concave Slope | 23 | 0.00 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 |
| North-facing Upper Convex Slope | 36 | 0.00 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 |
| Ridge top | 56 | 0.00 | 0.02 | 0.02 | 0.13 | 0 | 0 | 0 | 0 | 1 |
| South-facing Upper Convex Slope | 33 | 0.00 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 |
| South-facing Upper Concave Slope | 18 | 0.00 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 |
| South-facing Lower Convex Slope | 16 | 0.00 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 |
| South-facing Lower Concave Slope | 31 | 0.00 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 |
| **Total Annual Grasses** | N | N* | Mean | SE Mean | St Dev | Q1 | Med | Q3 | Min | Max |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Floodplain | 20 | 0.00 | 32.70 | 5.80 | 25.95 | 13.3 | 25.5 | 40 | 1 | 90 |
| North-facing Lower Concave Slope | 26 | 0.00 | 23.73 | 4.14 | 21.09 | 7.5 | 15 | 32.8 | 2 | 80 |
| North-facing Lower Convext Slope | 19 | 0.00 | 15.74 | 3.58 | 15.58 | 3 | 10 | 20 | 0 | 50 |
| North-facing Upper Concave Slope | 23 | 0.00 | 10.35 | 3.26 | 15.64 | 2 | 5 | 12 | 0 | 72 |
| North-facing Upper Convex Slope | 36 | 0.00 | 6.28 | 0.92 | 5.53 | 2.25 | 5 | 7 | 1 | 22 |
| Ridge top | 56 | 0.00 | 4.07 | 0.69 | 5.14 | 1 | 3 | 5 | 0 | 30 |
| South-facing Upper Convex Slope | 33 | 0.00 | 12.33 | 2.26 | 12.96 | 5 | 7 | 17.5 | 1 | 65 |
| South-facing Upper Concave Slope | 18 | 0.00 | 27.56 | 5.63 | 23.89 | 9.75 | 18.5 | 50 | 2 | 85 |
| South-facing Lower Convex Slpes | 16 | 0 | 33.75 | 6.60 | 26.42 | 10.5 | 31.5 | 63.75 | 2 | 77 |
| South-facing LowerConcave Sloes | 31 | 0 | 31.16 | 3.99 | 22.24 | 13 | 25 | 45 | 2 | 85 |

**II. Native Perennial Bunchgrasses**

| **Desert Needlegrass (*Acnatherum speciosum)*** | N | N* | Mean | SE Mean | St Dev | Q1 | Med | Q3 | Min | Max |
|---|---|---|---|---|---|---|---|---|---|---|
| Floodplain | 20 | 0 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 |
| North-facing Lower Concave Slope | 26 | 0 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 |
| North-facing Lower Convex Slope | 19 | 0 | 0.53 | 0.36 | 1.58 | 0 | 0 | 0 | 0 | 5 |
| North-facing Upper Concave Slope | 23 | 0 | 0.57 | 0.40 | 1.93 | 0 | 0 | 0 | 0 | 8 |
| North-facing Upper Convex Slope | 36 | 0 | 2.36 | 1.24 | 7.41 | 0 | 0 | 0 | 0 | 40 |
| Ridge top | 56 | 0 | 1.63 | 0.60 | 4.45 | 0 | 0 | 0 | 0 | 20 |
| South-facing Upper Convex Slope | 33 | 0 | 0.03 | 0.03 | 0.17 | 0 | 0 | 0 | 0 | 1 |
| South-facing Upper Concave Slope | 18 | 0 | 0.06 | 0.06 | 0.24 | 0 | 0 | 0 | 0 | 1 |
| South-facing Lower Convex Slope | 16 | 0 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 |
| South-facing Lower Concave Slope | 31 | 0 | 0.03 | 0.03 | 0.18 | 0 | 0 | 0 | 0 | 1 |

| **Big squirreltail (*Elymus mutisetus)*** | N | N* | Mean | SE Mean | St Dev | Q1 | Med | Q3 | Min | Max |
|---|---|---|---|---|---|---|---|---|---|---|
| Floodplain | 20 | 0 | 0.10 | 0.10 | 0.45 | 0 | 0 | 0 | 0 | 2 |
| North-facing Lower Concave Slope | 26 | 0 | 0.15 | 0.09 | 0.46 | 0 | 0 | 0 | 0 | 2 |
| North-facing Lower Convext Slope | 19 | 0 | 2.21 | 0.93 | 4.04 | 0 | 0 | 2 | 0 | 15 |
| North-facing Upper Concave Slope | 23 | 0 | 3.00 | 0.87 | 4.18 | 0 | 1 | 5 | 0 | 15 |
| North-facing Upper Convex Slope | 36 | 0 | 2.33 | 0.52 | 3.12 | 0 | 1 | 4.5 | 0 | 10 |
| Ridge top | 56 | 0 | 0.96 | 0.30 | 2.22 | 0 | 0 | 1 | 0 | 10 |
| South-facing Upper Convex Slope | 33 | 0 | 0.18 | 0.15 | 0.88 | 0 | 0 | 0 | 0 | 5 |
| South-facing Upper Concave Slope | 18 | 0 | 0.11 | 0.11 | 0.47 | 0 | 0 | 0 | 0 | 2 |
| South-facing Lower Convex Slope | 16 | 0 | 0.81 | 0.48 | 1.94 | 0 | 0 | 0 | 0 | 7 |
| South-facing Lower Concave Slope | 16 | 0 | 0.81 | 0.48 | 1.94 | 0 | 0 | 0 | 0 | 7 |

| **Nodding Needlegrass (*Nasella cernua*)** | N | N* | Mean | SE Mean | St Dev | Q1 | Med | Q3 | Min | Max |
|---|---|---|---|---|---|---|---|---|---|---|
| Floodplain | 20 | 0 | 0.10 | 0.10 | 0.45 | 0 | 0 | 0 | 0 | 2 |
| North-facing Lower Concave Slope | 26 | 0 | 1.35 | 0.55 | 2.80 | 0 | 0 | 2 | 0 | 10 |
| North-facing Lower Convext Slope | 19 | 0 | 2.37 | 0.86 | 3.74 | 0 | 0 | 5 | 0 | 10 |
| North-facing Upper Concave Slope | 23 | 0 | 4.00 | 1.07 | 5.13 | 0 | 2 | 5 | 0 | 20 |
| North-facing Upper Convex Slope | 36 | 0 | 5.64 | 0.91 | 5.43 | 1.25 | 5 | 9.25 | 0 | 20 |
| Ridge top | 56 | 0 | 17.71 | 0.97 | 7.24 | 10 | 20 | 25 | 0 | 30 |
| South-facing Upper Convex Slope | 33 | 0 | 16.97 | 1.34 | 7.67 | 12.5 | 15 | 20 | 0 | 35 |
| South-facing Upper Concave Slope | 18 | 0 | 8.11 | 1.58 | 6.69 | 1.75 | 6.5 | 15 | 0 | 20 |
| South-facing Lower Convex Slope | 16 | 0 | 6.56 | 2.38 | 9.50 | 0 | 2 | 13.8 | 0 | 30 |
| South-facing Lower Concave Slope | 31 | 0 | 4.19 | 1.03 | 5.74 | 0 | 1 | 5 | 0 | 20 |

| One-sided bluegrass (*Poa secunda* ssp. *secunda*) | N | N* | Mean | SE Mean | St Dev | Q1 | Med | Q3 | Min | Max |
|---|---|---|---|---|---|---|---|---|---|---|
| Floodplain | 20 | 0 | 2.25 | 1.26 | 5.66 | 0 | 0 | 2 | 0 | 25 |
| North-facing Lower Concave Slope | 26 | 0 | 17.62 | 2.31 | 11.80 | 5 | 20 | 30 | 0 | 35 |
| North-facing Lower Convext Slope | 19 | 0 | 17.89 | 2.40 | 10.45 | 10 | 20 | 30 | 0 | 35 |
| North-facing Upper Concave Slope | 23 | 0 | 21.74 | 1.95 | 9.37 | 20 | 25 | 30 | 0 | 35 |
| North-facing Upper Convex Slope | 36 | 0 | 22.97 | 1.51 | 9.07 | 16.3 | 25 | 30 | 2 | 40 |
| Ridge top | 56 | 0 | 12.02 | 1.01 | 7.60 | 5 | 10 | 18.8 | 0 | 35 |
| South-facing Upper Convex Slope | 33 | 0 | 3.73 | 0.99 | 5.69 | 0 | 2 | 5 | 0 | 25 |
| South-facing Upper Concave Slope | 18 | 0 | 1.39 | 0.66 | 2.79 | 0 | 0 | 2 | 0 | 10 |
| South-facing Lower Convex Slope | 16 | 0 | 0.44 | 0.33 | 1.32 | 0 | 0 | 0 | 0 | 5 |
| South-facing Lower Concave Slope | 31 | 0 | 0.71 | 0.38 | 2.13 | 0 | 0 | 0 | 0 | 10 |
| **Total Perennial Bunchgrasses** | N | N* | Mean | SE Mean | St Dev | Q1 | Med | Q3 | Min | Max |
| Floodplain | 20 | 0 | 2.45 | 1.29 | 5.79 | 0 | 0 | 2 | 0 | 25 |
| North-facing Lower Concave Slope | 26 | 0 | 19.08 | 2.35 | 11.98 | 5.75 | 20 | 30 | 0 | 37 |
| North-facing Lower Convext Slope | 19 | 0 | 23.00 | 2.77 | 12.08 | 10 | 30 | 32 | 6 | 40 |
| North-facing Upper Concave Slope | 23 | 0 | 29.30 | 2.33 | 11.19 | 28 | 32 | 35 | 0 | 45 |
| North-facing Upper Convex Slope | 36 | 0 | 33.31 | 1.29 | 7.75 | 30 | 35 | 40 | 8 | 45 |
| Ridge top | 56 | 0 | 32.32 | 1.20 | 8.99 | 30 | 34.5 | 40 | 1 | 45 |
| South-facing Upper Convex Slope | 33 | 0 | 20.91 | 1.82 | 10.46 | 13.5 | 20 | 27 | 5 | 45 |
| South-facing Upper Concave Slope | 18 | 0 | 9.67 | 1.75 | 7.41 | 4.75 | 9 | 15.5 | 0 | 25 |
| South-facing Lower Convex Slope | 16 | 0 | 7.81 | 2.66 | 10.65 | 1 | 2 | 13.75 | 0 | 38 |
| South-facing Lower Concave Slope | 31 | 0 | 4.97 | 1.13 | 6.30 | 0 | 1 | 8 | 0 | 20 |

**III. Native Sod Grasses**

| Alkali rye-grass ( *Leymus triticoides*) | N | N* | Mean | SE Mean | St Dev | Q1 | Med | Q3 | Min | Max |
|---|---|---|---|---|---|---|---|---|---|---|
| Floodplain | 20 | 0 | 6.55 | 2.15 | 9.63 | 0 | 2 | 8.75 | 0 | 30 |
| North-facing Lower Concave Slope | 26 | 0 | 5.08 | 1.70 | 8.65 | 0 | 0 | 10 | 0 | 30 |
| North-facing Lower Convext Slope | 19 | 0 | 2.11 | 0.96 | 4.19 | 0 | 0 | 5 | 0 | 15 |
| North-facing Upper Concave Slope | 23 | 0 | 1.30 | 0.65 | 3.10 | 0 | 0 | 0 | 0 | 10 |
| North-facing Upper Convex Slope | 36 | 0 | 0.97 | 0.52 | 3.14 | 0 | 0 | 0 | 0 | 15 |
| Ridge top | 56 | 0 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 |
| South-facing Upper Convex Slope | 33 | 0 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 |
| South-facing Upper Concave Slope | 18 | 0 | 0.28 | 0.28 | 1.18 | 0 | 0 | 0 | 0 | 5 |
| South-facing Lower Convex Slope | 16 | 0 | 0.19 | 0.14 | 0.54 | 0 | 0 | 0 | 0 | 2 |
| South-facing Lower Concave Slope | 31 | 0 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 | 0 | 0 |

## IV. Bare Soil

| Bare Soil | N | N* | Mean | SE Mean | St Dev | Q1 | Med | Q3 | Min | Max |
|---|---|---|---|---|---|---|---|---|---|---|
| Floodplain | 20 | 0 | 20.20 | 3.52 | 15.72 | 11.3 | 15 | 30 | 2 | 65 |
| North-facing Lower Concave Slope | 26 | 0 | 20.00 | 1.88 | 9.59 | 13.8 | 20 | 26.3 | 5 | 40 |
| North-facing Lower Convext Slope | 19 | 0 | 28.42 | 2.10 | 9.14 | 20 | 30 | 35 | 10 | 45 |
| North-facing Upper Concave Slope | 23 | 0 | 30.48 | 2.33 | 11.16 | 25 | 35 | 40 | 2 | 45 |
| North-facing Upper Convex Slope | 36 | 0 | 32.64 | 2.06 | 12.33 | 25 | 35 | 40 | 5 | 50 |
| Ridge top | 56 | 0 | 40.63 | 1.73 | 12.97 | 30 | 40 | 50 | 0 | 70 |
| South-facing Upper Convex Slope | 33 | 0 | 33.64 | 1.93 | 11.06 | 27.5 | 30 | 40 | 10 | 60 |
| South-facing Upper Concave Slope | 18 | 0 | 25.83 | 3.58 | 15.17 | 13.8 | 25 | 36.3 | 5 | 50 |
| South-facing Lower Convex Slope | 16 | 0 | 20.13 | 2.16 | 8.66 | 15 | 20 | 25 | 2 | 35 |
| South-facing Lower Concave Slope | 31 | 0 | 22.32 | 1.98 | 11.04 | 15 | 20 | 30 | 2 | 45 |

## V. Total Forbs

| Total Forbs | N | N* | Mean | SE Mean | St Dev | Q1 | Med | Q3 | Min | Max |
|---|---|---|---|---|---|---|---|---|---|---|
| Floodplain | 20 | 0.00 | 37.25 | 4.27 | 19.09 | 15 | 42.5 | 50 | 5 | 60 |
| North-facing Lower Concave Slope | 26 | 0.00 | 32.12 | 2.06 | 10.50 | 28.8 | 30 | 40 | 5 | 50 |
| North-facing Lower Convext Slope | 19 | 0.00 | 30.79 | 2.40 | 10.44 | 25 | 30 | 40 | 15 | 50 |
| North-facing Upper Concave Slope | 23 | 0.00 | 28.26 | 1.82 | 8.74 | 25 | 25 | 30 | 15 | 55 |
| North-facing Upper Convex Slope | 36 | 0.00 | 27.78 | 1.62 | 9.74 | 20 | 27.5 | 35 | 10 | 50 |
| Ridge top | 56 | 0.00 | 22.68 | 1.22 | 9.14 | 15 | 25 | 30 | 0 | 40 |
| South-facing Upper Convex Slope | 33 | 0.00 | 32.42 | 1.94 | 11.12 | 25 | 35 | 40 | 10 | 50 |
| South-facing Upper Concave Slope | 18 | 0.00 | 37.22 | 3.16 | 13.42 | 30 | 35 | 45 | 10 | 65 |
| South-facing Lower Convex Slope | 16 | 0.00 | 37.81 | 4.42 | 17.70 | 22.5 | 37.5 | 48.8 | 10 | 75 |
| South-facing Lower Concave Slope | 31 | 0.00 | 39.84 | 3.09 | 17.20 | 25 | 40 | 50 | 10 | 70 |

**Table 5.19 Mann-Whitney test of relative cover of individual perennial bunchgrass species, combined non-native annual grass species, combined forb species, and bare ground, across landscape positions (2004 field data). Perennial Bunchgrass Plant Community Study, Centennial Specific Plan Project Site, Los Angeles County, California. [Bold = significant difference at 0.05 confidence level]**

*Acnatherum speciosum*

| | FP | NFLCC | NFLCV | NFUCC | NFUCV | RT | SFUCV | SFUCC | SFLCV | SFLCC |
|---|---|---|---|---|---|---|---|---|---|---|
| FP | | 0.875 | 0.504 | 0.619 | 0.185 | 0.143 | 0.739 | 0.970 | 0.904 | 0.774 |
| NFLCC | | | 0.366 | 0.470 | 0.105 | 0.075 | 0.884 | 0.817 | 0.752 | 0.920 |
| NFLCV | | | | 0.901 | 0.497 | 0.439 | 0.259 | 0.563 | 0.633 | 0.285 |
| NFUCC | | | | | 0.374 | 0.304 | 0.348 | 0.684 | 0.757 | 0.378 |
| NFUCV | | | | | | 0.957 | 0.056 | 0.226 | 0.277 | 0.066 |
| RT | | | | | | | 0.036 | 0.179 | 0.226 | **0.044** |
| SFUCV | | | | | | | | 0.682 | 0.619 | 0.982 |
| SFUCC | | | | | | | | | 0.966 | 0.717 |
| SFLCV | | | | | | | | | | 0.653 |
| SFLCC | | | | | | | | | | |

*Elymus multisetus*

| | FP | NFLCC | NFLCV | NFUCC | NFUCV | RT | SFUCV | SFUCC | SFLCV | SFLCC |
|---|---|---|---|---|---|---|---|---|---|---|
| FP | | 0.482 | **0.0032** | **0.0008** | **0.0002** | **0.044** | 0.891 | 0.970 | 0.180 | 0.752 |
| NFLCC | | | **0.0052** | **0.0008** | **0.0001** | 0.103 | 0.487 | 0.550 | 0.419 | 0.225 |
| NFLCV | | | | 0.516 | 0.461 | 0.086 | **0.0005** | **0.0054** | 0.122 | **0.0001** |
| NFUCC | | | | | 0.877 | **0.0127** | **0.0001** | **0.0015** | **0.0398** | **0.0000** |
| NFUCV | | | | | | **0.0020** | **0.0000** | **0.0004** | **0.0232** | **0.0000** |
| RT | | | | | | | **0.0170** | 0.062 | 0.599 | **0.0063** |
| SFUCV | | | | | | | | 0.962 | 0.168 | 0.595 |
| SFUCC | | | | | | | | | 0.218 | 0.694 |
| SFLCV | | | | | | | | | | 0.067 |
| SFLCC | | | | | | | | | | |

*Nasella cernua*

| | FP | NFLCC | NFLCV | NFUCC | NFUCV | RT | SFUCV | SFUCC | SFLCV | SFLCC |
|---|---|---|---|---|---|---|---|---|---|---|
| FP | | 0.0179 | **0.0061** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0001** | **0.0002** |
| NFLCC | | | 0.459 | **0.0050** | **0.0001** | **0.0000** | **0.0000** | **0.0001** | **0.0196** | **0.0378** |
| NFLCV | | | | 0.106 | **0.0084** | **0.0000** | **0.0000** | **0.0035** | 0.128 | 0.273 |
| NFUCC | | | | | 0.173 | **0.0000** | **0.0000** | **0.0434** | 0.988 | 0.627 |
| NFUCV | | | | | | **0.0000** | **0.0000** | 0.220 | 0.428 | 0.926 |
| RT | | | | | | | 0.519 | **0.0000** | **0.0001** | **0.0000** |
| SFUCV | | | | | | | | **0.0003** | **0.0006** | **0.0000** |
| SFUCC | | | | | | | | | 0.249 | **0.025** |
| SFLCV | | | | | | | | | | 0.509 |
| SFLCC | | | | | | | | | | |

*Poa secunda ssp. secunda*

| | FP | NFLCC | NFLCV | NFUCC | NFUCV | RT | SFUCV | SFUCC | SFLCV | SFLCC |
|---|---|---|---|---|---|---|---|---|---|---|
| FP | | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** | 0.687 | 0.890 | 0.131 | 0.122 |
| NFLCC | | | 0.954 | 0.248 | 0.091 | **0.0439** | **0.0000** | **0.0000** | **0.0000** | **0.0000** |
| NFLCV | | | | 0.223 | 0.095 | **0.0274** | **0.0000** | **0.0000** | **0.0000** | **0.0000** |
| NFUCC | | | | | 0.662 | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** |
| | FP | NFLCC | NFLCV | NFUCC | NFUCV | RT | SFUCV | SFUCC | SFLCV | SFLCC |
| NFUCV | | | | | | **0.0000** | **0.0000** | **0.0000** | **0.0000** | **0.0000** |
| RT | | | | | | | **0.0000** | **0.0000** | **0.0000** | **0.0000** |
| SFUCV | | | | | | | | **0.0446** | **0.0016** | **0.0001** |
| SFUCC | | | | | | | | | 0.171 | 0.173 |
| SFLCV | | | | | | | | | | 0.758 |
| SFLCC | | | | | | | | | | |

**Combined Non-Native Annual Grasses**

| | FP | NFLCC | NFLCV | NFUCC | NFUCV | RT | SFUCV | SFUCC | SFLCV | SFLCC |
|---|---|---|---|---|---|---|---|---|---|---|
| FP | | 0.253 | 0.188 | **0.003** | **0.0000** | **0.0000** | **0.0007** | 0.464 | 0.911 | 1.000 |
| NFLCC | | | 0.163 | **0.0022** | **0.0000** | **0.0000** | **0.0195** | 0.667 | 0.2559 | 0.114 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| NFLCV | | | | 0.196 | **0.0437** | **0.0006** | 0.675 | 0.103 | **0.0337** | **0.0071** |
| NFUCC | | | | | 0.760 | **0.0126** | 0.113 | **0.0024** | **0.0016** | **0.0000** |
| NFUCV | | | | | | **0.031** | **0.0113** | **0.0001** | **0.0001** | **0.0000** |
| RT | | | | | | | **0.0000** | **0.0000** | **0.0000** | **0.0000** |
| SFUCV | | | | | | | | **0.0117** | **0.0044** | **0.0000** |
| SFUCC | | | | | | | | | 0.490 | 0.480 |
| SFLCV | | | | | | | | | | 0.955 |
| SFLCC | | | | | | | | | | |

**Combined Forb Species**

| | FP | NFLCC | NFLCV | NFUCC | NFUCV | RT | SFUCV | SFUCC | SFLCV | SFLCC |
|---|---|---|---|---|---|---|---|---|---|---|
| FP | | 0.102 | 0.140 | 0.062 | **0.248** | **0.0018** | 0.120 | 0.546 | 0.797 | 0.831 |
| NFLCC | | | 0.498 | 0.058 | 0.071 | **0.0002** | 0.859 | 0.230 | 0.306 | 0.059 |
| NFLCV | | | | 0.388 | 0.366 | **0.0089** | 0.526 | 0.111 | 0.217 | 0.059 |
| NFUCC | | | | | 0.969 | **0.0480** | 0.092 | **0.0081** | 0.067 | **0.0107** |
| NFUCV | | | | | | **0.0266** | 0.062 | **0.0082** | **0.0432** | **0.0023** |
| RT | | | | | | | **0.0001** | **0.0000** | **0.0011** | **0.0000** |
| SFUCV | | | | | | | | 0.283 | 0.318 | 0.067 |
| SFUCC | | | | | | | | | 0.958 | 0.492 |
| SFLCV | | | | | | | | | | 0.628 |
| SFLCC | | | | | | | | | | |

**Bareground**

| | FP | NFLCC | NFLCV | NFUCC | NFUCV | RT | SFUCV | SFUCC | SFLCV | SFLCC |
|---|---|---|---|---|---|---|---|---|---|---|
| FP | | 0.459 | **0.0083** | **0.0038** | **0.009** | **0.0000** | **0.0002** | 0.157 | 0.518 | 0.219 |
| NFLCC | | | **0.0071** | **0.0006** | **0.0001** | **0.0000** | **0.0000** | 0.227 | 0.958 | 0.445 |
| NFLCV | | | | 0.305 | 0.150 | **0.0002** | 0.117 | 0.462 | **0.0137** | **0.0458** |
| NFUCC | | | | | 0.485 | **0.0019** | 0.566 | 0.213 | **0.0018** | **0.0053** |
| NFUCV | | | | | | **0.0085** | 0.961 | 0.089 | **0.0008** | **0.0010** |
| RT | | | | | | | **0.0078** | **0.0006** | **0.0000** | **0.0000** |
| SFUCV | | | | | | | | **0.0479** | **0.0001** | **0.0002** |
| SFUCC | | | | | | | | | 0.304 | 0.490 |
| SFLCV | | | | | | | | | | 0.525 |
| SFLCC | | | | | | | | | | |

**Table 5.20 Descriptive statistics for soil pH, cation exchange capacity (CEC), and percent organic matter by landscape position (spring 2004 field data). Perennial Bunchgrass Plant Community Study, Centennial Specific Plan Project, Los Angeles County, California.**

| Soil pH | N | N* | Mean | SE Mean | StDev | Q1 | Med | Q3 | Min | Max |
|---|---|---|---|---|---|---|---|---|---|---|
| Floodplains | 5 | 0 | 7.42 | 0.11 | 0.25 | 7.20 | 7.40 | 7.65 | 7.20 | 7.80 |
| North-facing Lower Concave Slopes | 6 | 0 | 7.57 | 0.09 | 0.23 | 7.35 | 7.65 | 7.73 | 7.20 | 7.80 |
| North-facing Lower Convex Slopes | 3 | 0 | 7.57 | 0.09 | 0.15 | 7.40 | 7.60 | 7.70 | 7.40 | 7.70 |
| North-facing Upper Concave Slopes | 4 | 0 | 7.48 | 0.11 | 0.22 | 7.25 | 7.50 | 7.68 | 7.20 | 7.70 |
| North-facing Upper Convex Slopes | 5 | 0 | 7.48 | 0.12 | 0.28 | 7.20 | 7.60 | 7.70 | 7.10 | 7.80 |
| Ridge tops | 5 | 0 | 7.62 | 0.10 | 0.23 | 7.40 | 7.60 | 7.85 | 7.40 | 7.90 |
| South-facing Upper Convex Slopes | 5 | 0 | 7.48 | 0.12 | 0.28 | 7.20 | 7.60 | 7.70 | 7.10 | 7.80 |
| South-facing Upper Concave Slopes | 5 | 0 | 7.46 | 0.09 | 0.19 | 7.30 | 7.40 | 7.65 | 7.20 | 7.70 |
| South-facing Lower Convex Slopes | 3 | 0 | 7.50 | 0.06 | 0.10 | 7.40 | 7.50 | 7.60 | 7.40 | 7.60 |
| South-facing Lower Concave Slopes | 5 | 0 | 7.60 | 0.08 | 0.19 | 7.40 | 7.70 | 7.75 | 7.40 | 7.80 |

| Soil CEC | N | N* | Mean | SE Mean | StDev | Q1 | Med | Q3 | Min | Max |
|---|---|---|---|---|---|---|---|---|---|---|
| Floodplains | 5 | 0 | 9.72 | 0.77 | 1.71 | 8.30 | 8.90 | 11.55 | 8.00 | 11.80 |
| North-facing Lower Concave Slopes | 6 | 0 | 9.78 | 1.04 | 2.54 | 7.90 | 9.05 | 11.80 | 7.30 | 14.20 |
| North-facing Lower Convex Slopes | 3 | 0 | 8.97 | 1.31 | 2.27 | 6.90 | 8.60 | 11.40 | 6.90 | 11.40 |
| North-facing Upper Concave Slopes | 4 | 0 | 5.55 | 0.76 | 1.53 | 4.13 | 5.55 | 6.98 | 4.00 | 7.10 |
| North-facing Upper Convex Slopes | 5 | 0 | 7.44 | 0.21 | 0.47 | 7.05 | 7.50 | 7.80 | 6.70 | 8.00 |
| Ridge tops | 5 | 0 | 10.44 | 0.96 | 2.15 | 8.60 | 10.40 | 12.30 | 7.40 | 13.30 |
| South-facing Upper Convex Slopes | 5 | 0 | 7.62 | 1.05 | 2.35 | 5.55 | 7.70 | 9.65 | 4.30 | 10.70 |
| South-facing Upper Concave Slopes | 5 | 0 | 8.16 | 0.91 | 2.03 | 6.55 | 7.80 | 9.95 | 6.00 | 11.40 |
| South-facing Lower Convex Slopes | 3 | 0 | 8.87 | 1.22 | 2.11 | 7.10 | 8.30 | 11.20 | 7.10 | 11.20 |
| South-facing Lower Concave Slopes | 5 | 0 | 9.64 | 0.61 | 1.37 | 8.65 | 9.40 | 10.75 | 8.20 | 11.90 |

| Soil Percent Organic Matter | N | N* | Mean | SE Mean | StDev | Q1 | Med | Q3 | Min | Max |
|---|---|---|---|---|---|---|---|---|---|---|
| Floodplains | 5 | 0 | 2.90 | 0.76 | 1.71 | 1.60 | 2.40 | 4.45 | 1.40 | 5.70 |
| North-facing Lower Concave Slopes | 6 | 0 | 2.58 | 0.32 | 0.79 | 1.78 | 2.80 | 3.20 | 1.40 | 3.50 |
| North-facing Lower Convex Slopes | 3 | 0 | 2.77 | 0.12 | 0.21 | 2.60 | 2.70 | 3.00 | 2.60 | 3.00 |
| North-facing Upper Concave Slopes | 4 | 0 | 1.90 | 0.17 | 0.34 | 1.70 | 1.75 | 2.25 | 1.70 | 2.40 |
| North-facing Upper Convex Slopes | 5 | 0 | 1.98 | 0.29 | 0.65 | 1.35 | 2.10 | 2.55 | 1.00 | 2.60 |
| Ridge tops | 5 | 0 | 2.12 | 0.18 | 0.41 | 1.70 | 2.20 | 2.50 | 1.70 | 2.60 |
| South-facing Upper Convex Slopes | 5 | 0 | 2.14 | 0.29 | 0.66 | 1.75 | 1.90 | 2.65 | 1.70 | 3.30 |
| South-facing Upper Concave Slopes | 5 | 0 | 2.54 | 0.38 | 0.85 | 1.75 | 2.40 | 3.40 | 1.50 | 3.50 |
| South-facing Lower Convex Slopes | 3 | 0 | 2.30 | 0.21 | 0.36 | 2.00 | 2.20 | 2.70 | 2.00 | 2.70 |
| South-facing Lower Concave Slopes | 5 | 0 | 2.22 | 0.19 | 0.41 | 1.85 | 2.20 | 2.60 | 1.70 | 2.80 |

February 10, 2019 (5:00 P.M.)

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**Comments on the Draft Antelope Valley Regional Conservation Investment Strategy**

To Involved RCIS Planning Entities:

Defenders of Wildlife (Defenders) is pleased to provide comments on the Public Draft Antelope Valley - Regional Conservation Investment Strategy prepared by ICF (October 2019) for the Desert and Mountains Conservation Authority (DMCA), and Antelope Valley Regional Conservation Investment Strategy (RCIS) Steering Committee.

Defenders has 1.8 million members nationally, including more than 270,000 members in California, and we are dedicated to protecting wild animals and plants in their natural communities. To accomplish this, Defenders employs science, public education, legislative advocacy, litigation, and proactive on-the-ground solutions to impede the loss of biological diversity and ongoing habitat degradation.

14-1 Defenders has participated in the Antelope Valley RCIS planning effort since its inception and is of the understanding that this effort is intended to identify high value regional conservation opportunities within the subject planning area and to form the basis for development of a thoughtful mitigation credit agreement program that can subsequently be used in county, state and private land development and planning processes. Finally, the strategies outlined therein will also serve to promote the development of climate change adaptation efforts within the rapidly developing Antelope Valley.

Defenders has previously submitted extensive comments in the development of this RCIS and look forward to seeing these comments integrated into the final planning document to the degree they bolster using a science-based approach to identify conservation and enhancement opportunities that, if implemented, would help California's declining and vulnerable species by protecting, creating, restoring, and reconnecting habitat; as well as contribute to species recovery and adaptation to climate change and resiliency. Our comments on the current Draft Antelope Valley RCIS are outlined below, by section.

**2.2.4 Protected Areas**

- Federally owned land, including U.S. Forest Service, Bureau of Land Management (BLM), and United States Military.
- Local or regional parks.
- Developed neighborhood parks.

14-2 **Comment:** The assumption that federal lands (i.e., public lands administered by the BLM, national forest lands managed by the United States Forest Service [USFS] and Department of Defense [DOD]) are truly protected relative to long-term conservation needs further evaluation.

Public lands with a multiple use and sustained yield mandate administered by the BLM which lack specific administrative or legal protection (i.e., Areas of Critical Environmental Concern, California Desert National Conservation Lands, Natural National Landmarks, Wild & Scenic Rivers); national forest lands and even designated wilderness, are at risk from human use impacts associated with authorized concurrent multiple use activities, periodic administrative emphasis adjustments that result in protected area reductions, a shrinking emphasis on management emphasis on the ground, habitat loss and fragmentation over time.

In addition, such lands that lack protection may be subject to disposal through agency administrative action under one administration or complete reversal of former land management prescriptions, as we have witnessed with the current Administration.

Military training lands similarly have no guaranteed protection for natural resources and ecological function because they are first and foremost subject to uses in support of the DOD mission. However, some DOD lands administratively protected through Integrated Natural Resources Management Plans, such as Edwards Air Force Base, may be acceptable additions to the protected lands inventory within the RCIS area, as depicted below:

**DOD lands (Edwards Air Force Base; EAFB): 53,704 acres**

**Public lands administered by BLM adjacent to EAFB: 43,627 acres**

**Private lands: 12,697 acres** (Transition Habitat Conservancy: 6,978 acres; Tejon Ranch Company 1,489 acres; Peterson Ranch 4,000 acres (Leona Valley) and the 300+ acre Elizabeth Lake site within the Congressional boundaries of the Angeles National Forest).

14-3 Local, regional and state parks, as well as wildlife sanctuaries, and formal habitat management plan (HMPs) areas within the immediate and adjacent planning vicinity need to be further evaluated to determine their effectiveness in sustaining natural communities. Local parks, due to their generally small size and developed recreation facilities, may not provide sufficient ecosystem protection to warrant inclusion in the protected area inventory. The role that Los Angeles County's Significant Ecological Area (SEA) Program lands play in this inventory should also be described, as well as county wildlife sanctuaries and state parks.

14-4 It would also be helpful to describe how this conservation planning effort differs from existing local, state and federal conservation programs in the immediate region; how it augments current regional conservation planning; and how it directly links to subsequent conservation land management implementation.

**2.3 Pressures and Stressors on Focal Species and other Conservation Elements**

14-5 Section 1852(c)(5) of the California Fish and Game Code (CFGC) requires that an RCIS include a summary of historic, current, and projected future stressors and pressures in the RCIS area, including climate change vulnerability, on the focal species, habitat, and other natural resources; as identified in the best available scientific information. This specifically includes pressures upon ecological conditions, prescribed actions and recommended measures as described in California's current State Wildlife Action Plan (SWAP); which is insufficiently described in the Draft.

The SWAP (California Department of Fish and Wildlife 2015) defines pressures as an anthropogenic (human-induced) or natural driver that could result in changes to the ecological conditions of a target. Pressures can be positive or negative depending on intensity, timing, and duration. SWAP defines stress as the degraded ecological condition of a target that resulted directly or indirectly from negative impacts of pressures. The Antelope Valley RCIS identifies eight primary pressures on focal species, their habitat, and other natural resources. The description of these pressures is based on that described for the SWAP's Desert Province:

- Climate change
- Groundwater pumping
- Fire and fire suppression
- Housing and urban areas; roads and railroads
- Invasive plants and animals
- Farming and livestock grazing
- Recreational activities
- Renewable energy

**Please add the following threats as indicated to the Draft**:

14-6 Alkali mariposa lily: livestock grazing and ranching, invasive grasses (see: https://www.blm.gov/ca/pdfs/cdd_pdfs/alklily1.PDF)

http://www.drecp.org/documents/docs/baseline_biology_report/10_Appendix_B_Species_Profiles/10e_Plant/Alkali%20mariposa-lily.pdf

"**2.3.1.3 Wildfire Risk**

Fire is a natural component of many ecosystems and natural communities within the RCIS area, including grasslands, juniper pinyon & Joshua tree woodlands, and desert dunes."

**Comment:** Descriptions in the final RCIS document should be specific and fully inform the narrative about the planning area. Native perennial bunchgrass grasslands and California poppy fields within the western Mojave Desert, likely were supported and maintained to some extent historically by large ungulate foraging and natural-source wildfire. However, native grasslands here have been replaced almost entirely through agricultural production, habitat type conversion, and non-native grass replacement, with few perennial bunchgrass grasslands remaining; and California poppy fields are currently maintained by periodic livestock grazing and both managed, as well as wild, fire. When these non-native grasslands and agricultural areas burn, associated non-native plant communities often respond quickly/robustly, often spreading to adjacent lands.

Creosote bush scrub, bunchgrass steppe, and Joshua tree woodland in the western Mojave Desert are occupied by a variety of arid lands-adapted shrubs (i.e., *Ambrosia* spp., *Lycium* spp.,
14-7 *Larrea tridentata* and *Atriplex* spp.) and small trees (e.g., *Joshua brevifolia, Acacia greggii*) which are not fire-dependent natural plant communities; and which respond negatively and only very slowly to wildfire impacts.

Most also suspect that desert dune, moving sand-flow within washes and stabilized sand-field plant communities are not fire-tolerant or adapted plant communities. Desert wash system plant communities and Fremont cottonwood-Gooding's black willow plant assemblages are also not fire dependent, and they recover only very slowly from wildfire impacts.

Lightning -caused wildfire is not uncommon in the planning area. Fire also commonly escapes from vehicle use on major and minor roadways; from campfires; on vacant lands which are used for unlawful dumping of household waste – commonly adjacent to managed conservation areas; as well as from maintenance work on utility lines and substations; and on lands adjacent to residential areas in the planning area.

Fire is also used by many agricultural interests in the planning area to maintain existing croplands or to eliminate tree wind-rows adjacent to croplands which are no longer watered. Some wildfire escape onto adjacent lands occasionally occurs; with attendant natural community impacts.

14-7 cont. **“2.3.6 Farming and Livestock Grazing**

Conversely, properly managed grazing can be a valuable tool to manage vegetation conditions in grassland communities of the RCIS, where vegetation is adapted to grazing from large ungulates. Refer to Figure 2-10 for a map of rangeland in the RCIS area.”

14-8 **Comment:** This statement is quite dubious as written, and unless sufficiently supported by multiple peer-reviewed journal articles unknown by Defenders, it should be modified to reflect the place and time which this livestock grazing has, and/or would, occur.

Desert grasslands are relatively unproductive and any disruption of the soil surface by livestock promotes occupation by non-native grasses and a variety of Mediterranean/Middle Eastern origin forbs, which are now abundant in the Antelope Valley even though native grasslands once occupied a significant percentage of the planning area.

This statement about [presumed livestock] grazing being a valuable tool to manage vegetation is akin to the argument that livestock grazing can be used to remove “fine fuels” and contribute to the protection of Agassiz’s desert tortoise – it is a fallacious argument that has no basis in real world application benefitting wildlands conservation.

14-9 A more ecologically correct tool, which certainly is a far more valuable in managing vegetation within Antelope Valley’s non-native grasslands, large agricultural fields, mixed woody steppe and California poppy fields would be to return American pronghorn to the Antelope Valley in numbers resembling what once occurred prior to the species being extirpated in the 1940s.

While the California Department of Fish and Wildlife did transplant a small number of American pronghorns from Modoc Valley in the past, which forms the basis for the small antelope herds which occur here now, the Valley could support many more. This suggestion also bolsters our previous recommendation to include Pronghorn antelope as a focal species in this planning effort for both historic and ecological reasons.

“**2.3.7 Recreational Activities**

The number of OHV registrations in California has more than doubled since 1980, and the rapid growth of the numbers of OHV recreationists continues. In addition to resident recreationists, the Mojave Desert attracts millions of OHV visitors annually. While the vast majority of motorcyclists and all-terrain vehicle riders are responsibly recreating at designated OHV parks or on designated trails and roads on public lands, many others are carving new trails across threatened desert tortoise and Mohave ground squirrel habitat, **often across sensitive habitats in closed portions of designated areas of critical environmental concern. For example, BLM closed the 18,000-acre West Rand Area of Critical Environmental Concern to OHV use in 2002 because of extensive damage to critical habitat for the desert tortoise. However, OHV users have routinely violated the closure (Desert Managers Group 2002).**

While desert planning efforts attempt to minimize OHV damage to natural resources by **designating open, limited use, and closed areas, damage to natural resources continues**. The lack of public education regarding the rules and road networks, lack of adequate enforcement staff, and outright defiance by a small segment of the OHV community have thwarted efforts to protect wildlife and vegetation, including areas around desert springs and other sensitive sites.

The number of **BLM rangers relative to BLM acreage is small,** so the risk of receiving a citation for riding in restricted areas is very small. Agencies have posted signs indicating where vehicles are prohibited, but in many areas this is futile. BLM concluded in the June 2003 Decision Record for the Western Mojave Desert Off-Road Vehicle Designation Project: "The least effective short-term action taken in the Ord Mountains was signing the closed route network. Not only did this effort consume a great deal of staff time; in addition, signs were removed almost as quickly as they were put up. The need to resign routes placed additional demands on scarce staff time and material." The Decision Record also revealed that **BLM was unable to keep OHVs out of sensitive areas**. The frequent destruction of signs led BLM to sign the open route network and to cease signing the closed areas, reasoning that people are less likely to destroy "open area" signs than "closed area" signs. While this saves signs, this policy makes it difficult to inform recreationists where OHV activities are prohibited, providing less protection for important habitats."

14-10 **Comment**: The first portion of the above narrative certainly captures the recreational vehicle use management impacts and challenges common within the planning area and adjacent public lands within the western Mojave Desert, documented in the past several decades. It also underscores issues which should be addressed in all conservation land management planning for Antelope Valley. However, this quotation pertains to public lands administered by the BLM outside the RCIS planning area (except for checkerboard pattern lands on the desert slope of the Tehachapi Mountains west of Mojave and consolidated public lands between the El Mirage Open Area and EAFB) and so are not as relevant as desired for this planning effort.

Further, the signing ineffectiveness mentioned in the above BLM (2003, 2005) quotation was not based on any specific collected data and was used as a sole rationale to expand the BLM's vehicle route network in 2003 and 2005, but this rationale was later successfully challenged in court - with a final recreational vehicle route network meeting court mandates released by BLM in 2019. The best available science indicates that signing both closed routes which have been regularly used in the past and designating/signing an open route network are effective where maintained regularly; unauthorized vehicle use halted quickly; routinely patrolled by BLM or similar entity; and where appropriate impact restitution is required where violations occur.

So in contrast to the above quotation, BLM has bolstered both its open and closed route signing efforts in the years 2005-2020, as a result of court mandates, agency direction and land planning updates; in addition to physically rehabilitating several closed routes with techniques such as "vertical mulching" and native plant community revegetation.

14-11 The Draft's RCIS narrative should focus on current and past levels of off-road vehicle (ORV) and off-highway vehicle OHV) use on private, county, protected (conservation), state and federal lands and utility rights-of-way within the planning area used by recreational vehicle users as well as destinations; current levels of natural resource damage and resulting habitat discontinuity; recreational vehicle use trends; and measures which can be used to address recreational vehicle use and habitat connectivity protection in the planning area.

The examination of aerial photography and Google Earth imagery can be used to determine past and current level of recreational vehicle use and damage, as well as associated patterns of use over time. Defenders has noted that many areas affected by recreational vehicle use are evident in the planning area based on a random search on Google Earth imagery; and this should be described in the final RCIS document.

"**3.4.2 Conservation Actions and Priorities**

The *conservation actions* and *conservation priorities* of this Antelope Valley RCIS are the strategies that will be applied to accomplish the conservation goals and objectives. **Conservation actions are defined by the Program Guidelines as "actions that would preserve or restore ecological resources, including habitat, natural communities, ecological processes, and wildlife corridors, to protect those resources permanently, and would provide for their perpetual management.**"

14-12 **Comment**: Defenders notes, as it has previously, that natural resource inventory and condition monitoring **are not conservation actions**. Further, the development of site management plans may not truly meet the definition of a conservation action either.

14-13 State program guidelines recommend that conservation objectives be achievable within the 10-year lifespan of the initial approval of an RCIS. The conservation objectives identified in the Draft RCIS, however, do not have a deadline because of the uncertainty in the considered pace of future implementation. This simple facet should be highlighted in the final RCIS document. Further, these conservation actions and priorities, if multiple, should be ranked in priority.

"**3.4.3.1 Alkali Mariposa-Lily**

Conservation Goals and Objectives:

**Table 3-10. Conservation Actions for Alkali Mariposa-lily**

**AMLI-1 1.1, 1.2** Fund surveys of alkali mariposa-lily potential habitat during suitable flower periods to identify populations in the RCIS area."

14-14 **Comment**: Funding surveys to identify special status species in the RCIS planning area will not directly conserve species or habitat; nor meet the definition of conservation action as described in this strategy. Survey work is an inventory function; not conservation. While such survey work may indeed be needed to augment our knowledge base, RCIS documents and planning as approved by the California legislature were intended to be based on best available science.

14-15 Considerable survey information is already available relative to identified focal species within the planning area, and up-to-date survey information associated with projects routinely authorized by city, state and federal entities augments this database regularly. Further, survey information on virtually all species could be updated annually with no appreciable amount of actual on-the-ground conservation and/or habitat connectivity protection accrued.

14-16 Consequently, such survey funding should be placed in a lower priority that will not reduce funding for real, on-the-ground, direct conservation through special status species' habitat acquisition, habitat protection betterment actions, removal of livestock grazing and reduction of groundwater depletion. It is also highly recommended that this inventory action be postponed until high-value suitable/occupied habitat acquisitions are completed.

"**3.4.3.2 California Juniper**

**Conservation Goals and Objectives**

**Table 3-11. Conservation Actions for California Juniper**

CAJU-2 2.2 Conduct studies of California juniper stands in the study area to understand the impact of climate change effects to these populations."

14-17 **Comment**: These studies will not contribute to the conservation of this focal native plant community and should be postponed until acquisition of target habitat is completed. The United States Geological Survey (USGS) and others are currently studying climate change impacts in the western Mojave Desert. The results of this information-gathering and climate change modelling will be available to the public shortly as this research is ongoing and has been a priority for several years. These studies will inform habitat acquisition priorities to include those geographic areas where the species occurs that are projected to remain stable over time as climate change weather patterns advance.

"**3.4.3.3 Joshua Tree**

**Conservation Goals and Objectives**

**Table 3-3-12. Conservation Actions for Joshua Tree**

JOTR-4 3.3 Conduct monitoring and research of Joshua tree populations— including but not limited to flowering timing and frequency, seed germination, sprout dispersal, and Yucca moth activity—to better understand effects of climate change on these populations and identify actions to facilitate adaptation to these effects."

14-18 **Comment:** We recommend removal of this action because it is not a true conservation action; does not meet the definition of conservation action as defined in the strategy; and will not directly support conservation of the Joshua tree plant community. Although of interest from an academic perspective, such ecological study emphasis should be funded by other research efforts; as is currently being done by the U.S. Park Service at Joshua Tree National Park.

"**3.4.3.4 Spreading Navarretia**

**Conservation Goals and Objectives**

**Table 3-3-13. Conservation Actions for Spreading Navarretia**

SPNA-2 4.1, 4.3 Conduct surveys for spreading navarretia to better determine its distribution in the RCIS area.

SPNA-3 4.2, 4.3 Conduct targeted studies to determine the species management and micro-site needs."

14-19 **Comment**: Again, survey work is an inventory function; not conservation. While such survey work may indeed be needed to augment our knowledge base, RCIS documents and planning as approved by the California legislature were intended to be based on best available science.

14-20 Considerable survey information is already available relative to identified focal species within the planning area, and up-to-date survey information associated with projects routinely authorized by city, state and federal entities augments this database regularly.

14-21 Funding surveys to identify special status species and associated habitat in the RCIS planning area will not directly conserve species or habitat; nor meet the definition of conservation action as described in this strategy. These two actions should be postponed until all known occupied
14-22 and suitable habitat for the species is acquired and protected.

"**3.4.3.8 Desert Tortoise**

**Conservation Goals and Objectives**

**Table 3-17. Conservation Actions for Desert Tortoise**

DETO-2 8.2 Control nonnative invasive annual grasses."

**Comment:** There is no practical method to control nonnative invasive annual grasses as we have repeatedly informed the planning team and indicated in our previous comments. Nonnative invasive annual grasses in the planning area are widespread and established; with no effective means of eradication, fully controlling, or even minimizing the spread of these species; or to reduce extant population growth. Some of these species are even eaten by Agassiz's desert tortoise on occasion.

The RCIS needs to be real, with direct, on-the-ground applicability and not simply wishful thinking, or a hashed-over summary of desired research/study need, or empty narrative.

14-23 If there is a desire to address nonnative invasive annual grass control it would be far more appropriate to recommend removal of any associated livestock grazing, as well as effective control of unauthorized recreational vehicle use where implicated in nonnative plant spread; as real actions designed to reduce the spread and extent of exotic grasses.

“DETO-4 8.2 Install signage and road underpasses to reduce the potential for tortoise mortality on roads.”

14-24 **Comment:** Recent studies at Mojave National Preserve document that simple road signs are ineffective in reducing animal mortality on roads crossed by the threatened Agassiz’s desert tortoise. Previous informal studies on public lands in the western Mojave Desert, starting with the Ord Mountain Project in the late 1990s where specialty tortoise silhouette yellow diamond caution signing suggested this technique was ineffective in minimizing tortoise mortality; with over 25 signs initially installed in the Barstow Field Office jurisdiction vanadlized by shooting, run over or dragged out of the ground within a week of installation.

However, high-visibility kiosks depicting relevant interpretive panels, high-resolution maps of authorized vehicle route networks, species protection recommendations, etc. installed proximal to major open space trailheads and points of entry for recreational vehicle use or touring near protected conservation lands would be far more worthwhile where they artfully describe the consequences of public use in an adjacent area, compared to simple road caution signs.

Alternatively, it may be valuable to establish a 25-mph maximum speed limit on all unpaved roads that occur in occupied habitat for Agassiz’s desert tortoise within the planning area, and implement a regular, effective enforcement program designed to emphasize the need to reduce vehicle speed in order to save the last remaining Agassiz’s desert tortoise in the westernmost portion of this species’ range.

“DETO-5 8.3 Conduct monitoring and research to understand desert tortoise population trends and ecological effects of climate change to the species.”

14-25 **Comment:** Monitoring and research are not conservation; as we have repeatedly indicated to the planning team. The U.S. Fish and Wildlife Service (USFWS) and USGS have extensive

14-26 ongoing monitoring, research and modelling programs in place relative to this focal species and there is no need for entities associated with this RCIS to conduct such activity.

14-25 (cont.) It does not meet the definition of conservation action per State RCIS Program Guidelines and should be removed.

“**3.4.3.9 Western Pond Turtle**

**Table 3-18. Conservation Actions for Western Pond Turtle**

WPTU-1 9.1 Conduct periodic surveys of protected areas to estimate western pond turtle occupancy and/or populations in the RCIS area.”

14-27 **Comment:** Survey work is not conservation; as we have repeatedly indicated to the planning team. This action does not meet the definition of conservation under State RCIS Program Guidelines. However, this measure should be included in the monitoring and adaptive management component of this RCIS.

14-28 Considerable data has already been gathered and ongoing species’ survey work in its highly visible habitat (I.e., open water) already occurs.

"**3.4.3.10 Burrowing Owl**

**Table 3-19. Conservation Actions for Burrowing Owl**

BUOW-4 10.2 Implement an annual monitoring program for burrowing owl in coordination with location conservation groups."

**Comment:** Monitoring and research are not conservation; as we have repeatedly indicated to the planning team. Nor does it meet the definition of conservation action per State RCIS Program Guidelines. It should be moved to the monitoring and adaptive management
14-29 component of the RCIS. Further, the specific purpose of this proposed monitoring should be identified with supporting rationale, including a description of involved methods and what this monitoring will accomplish.

"BUOW-5 10.3 Continue or introduce livestock grazing that will maintain grass heights to encourage ground squirrel colonization, to help support burrowing owl colonies."

**Comment:** Defenders does not believe such livestock grazing practices are necessary, or effective, in the Mojave Desert environment; nor that there is any supporting best available
14-30 science relative to livestock maintaining a specific grass height in the Mojave Desert. Such practices would certainly be self-promoting for nonnative plant spread and defeating for conservation purposes; as they most certainly would contribute to the continued growth and spread of nonnative, invasive grasses and result in less native forbs and grasses occurring within wildland owl habitat.

Further, if grass height maintenance is a true concern for long-term Burrowing owl conservation, augmentation of existing American pronghorn populations (a recommended focal species for the planning area) in the Antelope Valley, would be far more effective and ecologically beneficial than livestock use in securing desired conservation outcomes.

"BUOW-6 10.3 Include species-specific measures in management plans that prohibit rodenticides and emphasize the conservation and expansion of ground squirrel colonies."

Comment: It is unclear what management plans this measure refers to or what level of rodenticide use would ever occur or be desired on conservation lands or ecological reserves in the planning area; what specific measures could be used, or how residents within and visitors to the planning area could be forced to comply, with conservation actions designed to prohibit the use of rodenticides.

14-31

While Defenders is extremely concerned with the level of wildlife poisoning by rodenticide which occurs within the planning area (and even more so relative to Los Angeles County lands to the west), the most that can realistically be expected through this planning effort are measures limiting the use of all rodenticides on dedicated conservation lands associated with the RCIS Program and perhaps placement of relevant information in regional interpretive kiosks describing rules for public use within specific conservation reserves.

14-32 Further, Defenders recommends that this RCIS adopt and incorporate all applicable conservation management practices from the CDFW's (2012) Burrowing Owl report: https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=0ahUKEwioqtehu9TUAhVD9mMKHcZWDikQFggoMAA&url=https%3A%2F%2Fnrm.dfg.ca.gov%2FFileHandler.ashx%3FDocumentID%3D83843&usg=AFQjCNGxKDV-Co8e68nibt4aen7Ml0qaxg.

"BUOW-7 10.3 Work with private landowners to develop land management strategies conducive to burrowing owl."

14-33 **Comment:** Same as above. The entity who would be responsible for developing "land management strategies conducive to burrowing owl" should be named if this measure is deemed worthwhile enough to include in the strategy. RCIS planning conducive to conservation of this focal species and to a degree, its implementation, should be based on existing or readily available information and incorporate existing best management practices for ecological reserve conservation. As CDFW (see comment above) per the SWAP already has management strategies in place for long-term Burrowing owl conservation, there is no need to reinvent the wheel.

Defenders recommends this action be re-worded in a manner that provides a means to inform the public about existing land management strategies and how they can contribute to the regional long-term conservation of this focal species as part of this program.

"**3.4.3.11 California Condor**

**Table 3-20. Conservation Actions for California Condor**

CACO-2 11.2 Work with private landowners on working lands to develop land management strategies for California condor that are designed to enhance and increase foraging habitat, including maintaining grazing."

14-34 **Comment:** Defenders does not believe livestock grazing, or a lack of livestock grazing, in the immediate Mojave Desert planning area contributes to condor recovery/conservation. Nor does Defenders believe that guaranteed maintenance of livestock grazing is a prerequisite for furthering California condor recovery, or in finalizing this RCIS. Further, there are considerable USFWS programs already in place which have previously developed viable land management strategies, designed to enhance and increase foraging habitat for this focal species. There is no need to reinvent the wheel.

Further, if grazing is desired to maintain certain grassland/shrub habitat conditions, augmentation of existing American pronghorn populations (a recommended focal species for the planning area) in the Antelope Valley, would be far more effective and ecologically beneficial than livestock use in securing desired conservation outcomes.

14-35 A legitimate conservation action benefitting California condor recovery would be to install permanent livestock exclosures in active livestock use areas, to inform such management.

14-36 As with the entire RCIS, Defenders recommends removing irrelevant, superfluous or unrealistic measures, non-conservation actions, reinventing the same old wheel, or “wishful thinking”; and to link focal species conservation goals to “SMART” objectives that are clearly spelled out in the strategy, and which should focus on a central vision for the planning area:

**Specific**: The first principle focuses on the power of a specific objective over a more general one. This means the objective is clear and unmistakable. Specific objectives answer the "five Ws": What do you want to accomplish? Why (what are the reasons and benefits)? Who is involved? Where (if location is important)? Which (requirements and constraints)?

**Measurable**: The second principle stresses the need for objectives to be quantifiable. If an objective cannot be measured, how will you know if you're making progress? How will you know if you've achieved it?

**Attainable**: The third principle focuses on the importance of designing objectives that are realistic and achievable. The idea is that unattainable objectives -- objectives that everyone agrees are clearly out of reach -- are highly demotivating.

**Relevant**: The fourth principle focuses on setting objectives that **matter**. Only those objectives that are in alignment with the developed strategy -- would be considered relevant.

**Time-bound**: The fifth principle focuses on the power of setting a due date for a accomplishing an identified objective – ideally individual conservation action implementation timelines, rather than by simply stating an entire RCIS should be completed within 10 years. Committing to a deadline for individual conservation actions creates a sense of urgency and prevents objectives from being designed that are too far-fetched, irrelevant, or which are identified solely for the purposes of writing a plan narrative. Use of this principle adds value to conservation planning by allowing for the prioritization of conservation action implementation.

“CACO-3 11.4 Fund California condor monitoring programs increasing understanding of breeding, roosting, and foraging behavior in the RCIS area.”

14-37 **Comment:** Again, this is not a conservation action but, rather, part of a monitoring and adaptive management component of the RCIS.

“CACO-4 11.3 Reduce mortality risk associated with exposure to lead by (a) implementing a lead reduction program within the RCIS area and (b) maintaining and enforcing a permanent ban of the use of lead ammunition per the Ridley-Tree Condor Preservation Act in appropriate portions of the RCIS area (primarily deer hunt zones D-9 and 10).”

14-38 **Comment:** It is unclear who would (a) implement this lead reduction program and (b) maintain and enforce a permanent ban on the use of lead ammunition per the Ridley-Tree Condor Preservation Act; and whether this conservation action would be undertaken on dedicated conservation lands only; or elsewhere as well.

A preferable conservation action would be designing and implementing an education program
14-39 to be used in describing the California condor mortality risk associated with continuing to
unlawfully use lead ammunition in Deer Hunt Zones D-9 & 10 (i.e., use of presentations, videos
etc. at select locales) in order to adequately inform the public within the RCIS planning area.

**"3.4.3.12 Golden Eagle**

**Table 3-21. Conservation Actions for Golden Eagle**

GOEA-3 12.3 Fund golden eagle monitoring programs increasing understanding of breeding, roosting, and foraging behavior in the RCIS area."

14-40 **Comment:** Monitoring wildlife resource condition within the planning area is not a conservation
action, but rather a necessary component of the adaptive management functions of the RCIS
relative to gauging the progress of conservation action implementation. Further, a wealth of
14-41 information is already known relative to the limited Golden eagle breeding, and more extensive
Golden eagle roosting and foraging that currently occurs within the planning area. There really
is no need to fund such monitoring work as it is largely accomplished by other entities.

"GOEA-4 12.4 Reduce mortality risk associated with exposure to lead by (a) implementing a lead reduction program within the RCIS area and (b) maintaining and enforcing a permanent ban of the use of lead ammunition per the Ridley-Tree Condor Preservation Act in appropriate portions of the RCIS area (primarily deer hunt zones D-9 and 10)."

**Comment:** It is unclear who would (a) implement this lead reduction program and (b) maintain
and enforce a permanent ban on the use of lead ammunition per the Ridley-Tree Condor
14-42 Preservation Act; and whether this conservation action would be undertaken on dedicated
conservation lands only; or elsewhere as well. This action could be strengthened by prohibiting
the use of lead ammunition within occupied golden eagle habitat throughout the plan area.

A preferable conservation action would be designing and implementing an education program
14-43 to be used in describing the California condor mortality risk associated with continuing to
unlawfully use lead ammunition in Deer Hunt Zones D-9 & 10 (i.e., use of presentations, videos
etc. at select locales) in order to adequately inform the public within the RCIS planning area.

**"3.4.3.13 Le Conte's Thrasher**

**Table 3-22. Conservation Actions for Le Conte's Thrasher**

LECT-2 13.2 Treat invasive species for removal in Le Conte's thrasher potential habitat."

**Comment:** Since there is no practical method to remove nonnative) invasive plant species on a
landscape scale, this prescribed conservation action should be replaced with best management
14-44 practices which reduce the spread of nonnative invasive plant species by removing livestock
grazing and controlling unauthorized vehicle use within LeConte's thrasher habitat – ephemeral
streambeds/the lower slopes of the Transverse Mountan Ranges bordering the planning area.

This is particularly important relative to this ephemeral wash ecosystem health indicator species, as recreational vehicle users commonly utilize ephemeral streambeds and washes for vehicle travel purposes.

**“3.4.3.14 Least Bell’s Vireo**

**Table 3-23. Least Bell’s Vireo Conservation Actions**

LBVI-3 14.2, 14.3 Reduce the numerical abundance of non-native biological stressors (both plants and Bell’s vireo nest parasites) in all potential least Bell’s vireo habitat in the RCIS area.”

**Comment:** Please clarify that this conservation action would include removal of non-native
14-45 Giant reed (*Arundo donax*), Saltcedar (*Tamarix ramosissima*), and Pepperweed (*Lepidium
*latifolium*) from suitable Least Bell’s vireo habitat; and removal (by trapping) of brown-headed
cowbird (*Molothrus ater*) where necessary to secure successful breeding outcomes in these
habitats, within the planning area. Please also note that suitable habitat within the planning
14-46 area may very well serve as more important to species conservation relative to Spring/Fall
migratory flight use, rather than as breeding habitat (though this use is also known to occur).

Conservation actions should also include removing livestock grazing where applicable,
14-47 recreational vehicle use, homeless encampments, litter, high camping/swimming use and water
diversions affecting riparian habitat utilized by the species. Designing site-specific invasive plant
control and wildfire suppression/post-fire reclamation plans as well as implementing the latter,
14-48 should also be considered as conservation actions benefiting this species and the habitat it
shares with so many migratory bird species.

“LBVI-4 14.3 Reduce the individual and collective ability of nonnative biological stressors to outcompete native riparian trees and shrubs in all potential least Bell’s vireo breeding habitat in the Plan Area.”

**Comment:** This prescribed conservation action is closely related to LBV1, so not sure what
14-49 difference is with this particular action except perhaps to implement it on a continuing basis if
adaptive management monitoring shows nonnative vegetation and cowbirds are present.

“**3.4.3.15 Loggerhead Shrike**

**Table 3-24. Conservation Priorities for Loggerhead Shrike**

LGHS-5 15.3 Based on site-specific conditions and best available science, conduct prescribed burning, mowing, and or grazing in grassland habitat to maintain grassland habitat for loggerhead shrikes.”

**Comment:** There is no supporting documentation indicating that prescribed burning, mowing
14-50 and/or livestock grazing would maintain grassland habitat in a manner that would be beneficial
to the long-term conservation of loggerhead shrike; who regularly use other habitats.

Nor is there any supporting documentation indicating that such vegetation manipulation is necessary to conserve this widespread and highly adaptive species over the long term. Further, there is no supporting documentation that prescribed burning, mowing, and or grazing in grassland habitat within the planning area could be accomplished on such a large scale relative to practicality.

14-51 Prescribed fire may produce habitat conditions that are temporally beneficial to this focal species, but which also bring an entirely separate set of constraints and risks associated with its use. Livestock grazing in general is seldom appropriate ecologically in an arid desert grassland environment. However, a conservation action which designs and implements a limited, highly-controlled and short-term livestock (cattle sheep, goats) grazing program may have some utility in areas which are in need of invasive plant control and/or where maintenance of the subject habitat has been determined beneficial to an involved focal species.

"LGHS-6 15.4 Fund surveys of potentially suitable loggerhead shrike habitat to better understand distribution and breeding activity in the RCIS area."

14-52 **Comment:** Again, survey funding is not a conservation action, nor does it meet the definition of a conservation action as defined in this RCIS. Further, with over 200,000 acres of high conservation value habitat for this species known to occur in the planning area, there is little to no need to fund this action currently. Survey funding, where it was determined necessary, could be addressed within the RCIS as an additional data gathering need.

"**3.4.3.16 Long-Billed Curlew**

**Table 3-25. Conservation Priorities for Long-Billed Curlew**

LBCU-2 16.2, 16.3 Implement an annual monitoring program for long-billed curlew in coordination with local conservation groups."

14-53 **Comment:** Monitoring resource condition is not a conservation action; nor does this measure meet the definition established for a conservation action in this RCIS or per California Program Guidelines. The intent of this proposed action (i.e., planning area monitoring of Long-billed curlew presence/use) should, however, be incorporated into the RCIS section developed on monitoring and adaptive management.

14-54 This focal species is also monitored quite extensively by local birding individuals, including by those involved with North American Breeding Bird Survey pursuits. It should also be noted that few environmental organizations occur in the immediate planning area vicinity with which to coordinate annual avian monitoring.

"LBCU-3 16.4 Work with private landowners on agricultural lands (e.g., alfalfa, pastureland, rice crops) to help them identify whether long-billed curlew are using their fields during breeding season and develop land management strategies that are designed to enhance and increase overwintering and/or breeding habitat."

14-55 **Comment:** Defenders is not aware of any irrigated rice crops in the planning area. Further, determining if this focal species is using irrigated pastures would be achieved under LBCU-2. Under this scenario, what specific farming/irrigation practices would, or could, be employed to enhance and sustain suitable habitat for this avian species?

"**3.4.3.17 Mountain Plover**

**Table 3-26. Conservation Priorities for Mountain Plover**

MOPL-2 17.1, 17.2 Implement an annual monitoring program for mountain plover in coordination with local conservation groups."

14-56 **Comment:** Resource condition monitoring is not a conservation action and this measure does not meet the definition in this RCIS for a conservation action. The intent of this measure, however, should be incorporated into the monitoring and adaptive management section of this RCIS.

"MOPL-3 17.3 Work with private landowners on agricultural lands (e.g., grazed pastures, alfalfa fields, fields that have been burned or tilled post-harvest) to help them identify whether mountain plover are using their fields during the winter and to develop land management strategies for mountain plover designed to enhance and increase wintering habitat."

14-57 **Comment:** Habitat suitable for wintering use by this focal species within the planning area should be identified, along with habitat management practices that will enhance and increase wintering habitat for this focal species, in the final RCIS document. The extent of such use by this species would be documented through monitoring as described in MOPL-2.

"MOPL-4 17.3 Work with private landowners to avoid range management or agricultural practices that are detrimental to mountain plover habitat suitability."

14-58 **Comment:** Detrimental agricultural use practices should be identified and included in the final RCIS document relative to this focal species.

"MOPL-5 17.2 Protect and conserve fossorial mammal populations on suitable mountain plover habitat that is not agricultural."

14-59 **Comment:** How does this prescribed conservation action relate to Mountain plover conservation; how would it be realistically implemented; and by who, when?

**"3.4.3.18 Northern Harrier**

**Table 3-27. Conservation Priorities for Northern Harrier**

NOHA-1 18.1 Conduct surveys for northern harriers, including nest sites, in potential habitat."

14-60 **Comment:** This is an identified planning need for additional inventory, not a direct conservation action.

14-60, cont. Further, it is not clear how the prescribed effort would benefit long-term Norther harrier conservation, as all wetlands supporting emergent vegetation, along with virtually all creosote bush scrub, is potentially suitable late spring breeding habitat in the former case; and wintering foraging habitat, in the latter case.

"NOHA-2 18.1 Monitor nest sites and protect them from human disturbance."

**Comment:** Monitoring resource condition is not a conservation action, nor does it meet the definition of a conservation action as described in this RCIS. The intent of this prescribed measure, however, should be incorporated into the monitoring and adaptive management section of the RCIS.

14-61 It is unclear who is going to monitor what kind of actions according to what types of human disturbance, and how these sites could and/or would, be protected from human disturbance, based on what set of monitoring criteria.

"NOHA-3 18.1, 18.2 Work with private landowners on working lands, including rangelands and agricultural fields to implement practices conducive to maintaining northern harrier nesting and foraging habitat."

14-62 **Comment:** The land use practices that maintain nesting and foraging habitat for Northern harriers within the planning area; as well as adverse land use practices, should be described in the final RCIS document. Implementing desirable land use practices benefitting this focal species through conservation agreements and/or easements with wiling, individual landowners, would be an example of an appropriate conservation action, minus "SMART" refinement accoutrements.

"**3.4.3.19 Prairie Falcon**

**Table 3-28. Conservation Priorities for Prairie Falcon**

PRFA-1 19.1 Conduct surveys for prairie falcons, including nest sites, in potential habitat."

14-63 **Comment:** This is an inventory action, rather than a conservation action. It should be moved from the Conservation Action section of the RCIS to a section outlining additional inventory needs if determined a necessary addition to the RCIS.

14-64 Prairie falcon nesting sites have already been documented well within the planning area, such that the need for additional inventory is questionable.

14-65 More appropriate conservation actions benefitting his focal species would include installation of protective vehicle parking barriers at the base of documented nesting sites; signing such locales informing the public about the risk of close human presence, vehicle staging/camping and/or rock climbing in immediate Prairie falcon nesting locales, relative to potential young falcon nestling and/or nest site abandonment.

"PRFA-2 191 Monitor nest sites and protect them from human disturbance."

14-66 **Comment:** This is not a conservation action and should be moved to the monitoring and adaptive management section of this RCIS. The who, how, when and why of such monitoring, as well as action prescriptions linked to monitoring outcomes, should be thoroughly described in this section and augmented as needed with document appendices.

"PRFA-3 19.1, 19.3 Work with private landowners in grazed lands and agricultural fields to implement practices conducive to maintaining prairie falcon foraging habitat."

14-67 **Comment:** Agricultural practices that maintain Prairie falcon foraging habitat should be identified in the final RCIS document; as well as those known practices which are detrimental to maintaining Prairie falcon foraging habitat. 14-68 Application of this conservation action within the planning area could subsequently be implemented through the mitigation credit agreement portion of the RCIS Program, and/or through other conservation agreements with willing landowners.

"**3.4.3.20 Swainson's Hawk**

**Table 3-29. Conservation Actions for Swainson's Hawk**

SWHA-1 20.1 Conduct surveys of historically documented nesting sites and potential new nesting sites to understand breeding activity in the RCIS area."

14-69 **Comment:** This is a pseudo-inventory, as well as monitoring and adaptive management action, not directly related to conservation. This prescribed measure does not meet the definition of a conservation action as described in this RCIS and it should be moved to the appropriate section of the plan – Monitoring and Adaptive Management or Additional Data Needs. The who, what, why and when specifics of such survey work are additionally not defined, as they should be.

14-70 Considerable inventory and suitable habitat mapping work for Swainson's hawk has already been completed within the planning area. Ten nesting pairs of Swainson's hawk are currently suspected to form the Antelope Valley distinct population segment; though not all these pairs nest every year. The foremost authority on Swainson's hawk, Dr. Pete Bloom, has been monitoring this unique sub-population for several years and is continuing to do so in 2020.

There is also a better than good chance that specific Swainson's hawk nesting habitat and 2020 nesting success study will be completed through authorized project mitigation or voluntary conservation venues; such that survey work additional to that outlined above is questionable.

"SWHA-4 20.3 Work with private landowners on working lands to develop land management strategies for Swainson's hawk that are designed to enhance and increase foraging and nesting habitat on patches greater than 20 acres within 1 mile of known nest trees, including cropping patterns beneficial to Swainson's hawks (e.g., alfalfa)."

14-71 **Comment:** Develop best management practices for nesting sites, supporting water and crop rotation needs, needed to sustain Swainson's hawks in the planning area as a distinct population segment.

14-72 Implement necessary habitat acquisition and management measures through conservation/mitigation agreements, easements or direct sale to willing landowners.

"**3.4.3.21 Tricolored Blackbird**

**Table 3-30. Conservation Actions for Tricolored Blackbird**

TRIB-3 21.1 Implement an annual monitoring program in coordination with local conservation groups for tricolored blackbird nesting colonies in modeled breeding habitat in the RCIS area."

14-73 **Comment:** Again, natural resource condition monitoring is not a conservation action. This prescription is more appropriate for the monitoring and adaptive management section of the final RCIS document.

14-74 **Comment:** Known Tricolored blackbird colony sites, such as at Myrick Canyon and other potential nesting locales in the Fairmont Reservoir vicinity, should be characterized, monitored and associated habitat acquired for long-term protection of this endangered species; or alternatively identified for conservation easement.

14-75 Given the history of certain regulatory agencies maintenance activities at Fairmont Reservoir and lack of appropriate environmental documentation practices, landowners should be apprised of properties which support endangered Tricolored colony habitat (e.g., suitable habitat at reservoirs, lakes and ponds) so that no inadvertent impacts associated with simple maintenance activities adversely affect this critical habitat.

14-76 RCIS planning should incorporate relevant information provided by the CDFW's Tricolored Blackbird Working Group.

**"3.4.3.22 Willow Flycatcher**

**Table 3-31. Conservation Actions for Willow Flycatcher"**

14-77 **Comment:** The removal of livestock grazing, recreational vehicle use and camping within and adjacent to suitable breeding and foraging habitat for this guild of bird species (i.e., Willow flycatcher, Southwestern willow flycatcher, Little willow flycatcher) should be considered as a primary conservation action benefitting the species.

14-78 Riparian habitat fencing; nonnative, invasive plant control; and native plant restoration, as well as revegetation, should similarly be considered as primary conservation actions benefitting this suite of avian species and many other migratory species.

"WIFL-4 22.4 Conduct surveys, studies, and research programs to better understand species abundance in the RCIS area to better inform management actions."

14-79 **Comment:** Again, this is an inventory, monitoring and adaptive management action that should be moved to that section of the plan, if determined necessary in the final RCIS document, as it is not a conservation action.

14-80 It should also be noted that there is specific information available relative to where these birds occur and what drainages they utilize in their migrator travels within the planning area.

**"3.4.3.23 American Badger**

**Table 3-32. Conservation Actions for Desert Kit Fox"**

14-81 **Comment:** Desert kit fox (as opposed to San Juaquin kit fox) conservation actions are included under the American badger section of the Draft and need to be moved to the appropriate species section.

"AMBA-2 23.1 Conduct movement corridor studies of small to large mammals to identify targeted acquisition areas needed to improve connectivity."

14-82 **Comment:** This is a monitoring and adaptive management action, and not a conservation action, that should be moved to the appropriate section of the RCIS. Further, the who, what, why and when of this prescribed action are not defined. Considerable movement corridor study has already been completed relative to the planning area and there is also a high likelihood that wildlife movement corridor study in portions of the planning area will be completed by the California Department of Transportation (Caltrans) such that additional study along these lines might be redundant and unnecessary.

"AMBA-5 23.3 Continue or introduce livestock grazing that will maintain grass heights, slow woodland encroachment, and contribute to and encourage ground squirrel colonization."

14-83 **Comment:** This action needs to be verified through peer-reviewed literature review to determine if livestock grazing in the last remaining Mojave Desert grassland plant communities, California poppy or other wildflower fields of the planning area is needed to encourage use by ground squirrels. Best available science must be used to support actions recommended in a RCIS.

Further, it does not appear evident that habitat suitable for use by ground squirrel is lacking in any manner within Antelope Valley, where most wildlands have been type-converted to nonnative agricultural fields, mixed nonnative invasive grasslands and native wildflower grasslands, wind and solar farms.

"AMBA-6 23.2 Monitor American badger roadway mortality to identify areas to construct safe roadway passages or other roadway management practices to discourage use by badgers and other fossorial mammals."

14-84 **Comment:** This is a monitoring and adaptive management action that needs to be moved to that section of the plan, as it is not a conservation action.

14-85 This is also a monitoring function of Caltrans and other entities which track wildlife movement across our highways and other similar infrastructure; such that it may not be necessary to include it as monitoring task in this RCIS. Habitat modelling conducted during this planning effort additionally has already identified high-value wildlife crossing locales where animal movement can be facilitated through the incorporation of suitable wildlife crossing structures; such that additional study is not necessary.

"AMBA-8 23.3 Work with private landowners in areas likely to support American badger to develop land management strategies conducive to the species."

14-86 **Comment:** Best management practices that promote use of habitat by badgers should be included in the final RCIS document.

**"3.4.3.24 Desert Kit Fox**

**Table 3-33. Conservation Actions for Desert Kit Fox**

DEKF-2 24.2 Conduct movement corridor studies of small to large mammals to identify targeted acquisition areas needed to improve connectivity."

14-87 **Comment:** This is a monitoring and adaptive management action that should be moved to that section of the plan. Further, as previously indicated, this is also a monitoring function of Caltrans and other entities which track wildlife movement across our highways and other similar infrastructure; such that it may not be necessary to include it as monitoring task in development of this RCIS.

14-88 Habitat modelling conducted during this planning effort additionally has already identified high-value wildlife crossing locales where animal movement can be facilitated through the incorporation of suitable wildlife crossing structures; such that additional study is not necessary. 14-89 An appropriate conservation action based on SMART objective planning would be to install x number of appropriately-suite culverts and/or other wildlife crossing structures, and monitor the successfulness of these structures, at x approved locales in a specific timeframe.

"DEKF-3 24.2 Enhance existing linkages for Desert kit fox and other medium-sized and large mammals in movement/foraging habitat in the RCIS area."

14-90 **Comment:** The final RCIS document should identify practices, which have supporting documentation as to relevance and effectiveness, in enhancing habitat benefitting Desert kit fox in identified habitat patch linkages.

"DEKF-4 24.2 Create new crossings for wildlife at key locations across SR 138 and at other roads crossing wildlife movement corridors and enhance existing crossings throughout the RCIS area using directional fencing or other wildlife crossing management strategies."

14-91 **Comment:** Determining <u>if</u> new road crossings are needed in an area for wildlife; or have previously been planned for wildlife travel study or infrastructure improvement, by Caltrans (as is the case relative to State Route 138) should be identified as an additional planning data need.

14-92 Along these lines though, are new crossings needed over the California Aqueduct to restore movement corridors for terrestrial species over the open eater canal?

"DEKF-5 24.3 Continue or introduce livestock grazing that will maintain grass heights and encourage ground squirrel colonization."

14-93 **Comment:** Why? This prescribed action needs to be verified through peer-reviewed literature review to determine if livestock grazing is beneficial to the long-term ecological health of affected Mojave Desert grasslands, shrub communities and woodlands; and whether it is needed to encourage use by ground squirrels; which is unlikely.

"DEKF-7 24.3 Work with private landowners in areas likely to support desert kit fox to develop land management strategies conducive to desert kit fox."

14-94 **Comment:** Land use practices that maintain and enhance habitat for Desert kit fox should be included in the final RCIS document and implemented through conservation agreements or easements with private landowners.

"**3.4.3.25 Mohave Ground Squirrel**

**Table 3-34. Conservation Actions for Mohave Ground Squirrel**

MGSQ-3 25.4 Fund surveys to determine the current distribution of the species in the RCIS area."

14-95 **Comment:** Survey, inventory and monitoring are not conservation actions. This prescribed measure isn't a conservation action and should be moved to the final RCIS document section on additional information needs. 14-96 However, such study may not be necessary based on a review of current MGS occurrence data and the fact that any future development within the species range will require protocol small-mammal trapping surveys by a select group of authorized biologists. Further, there is an extensive database and annual trapping effort that has provided past results indicative of where the last remaining Mohave ground squirrel populations occur.

"MGSQ-4 25.5 Conduct studies of Mohave ground squirrel populations in the study area to understand the impact of climate change could have on suitable habitat and future range of the species."

14-97 **Comment:** This is a monitoring and adaptive management that should be moved to that section of the RCIS. 14-98 Also, note that the California Energy Commission (CEC) published a study of the modeled effects of climate change on MGS distribution in support of the 2016 Desert Renewable Energy Conservation Plan (DRECP) addressing public lands in the California Desert.

14-99 Further, USGS (i.e., Dr. Todd Esque et al.) has recently completed several climate change and plant community modelling efforts to the east of the planning area within the western Mojave Desert, specific to Mohave ground squirrel. This modelling discusses how best to ensure recovery of this threatened species through smart project siting and existing land management plan revision (DRECP, Western Mojave [WEMO] route network designation) to emphasize the needs faced by this threatened squirrel species during climate change.

14-100 It should be noted that the BLM's 2016 DRECP is currently being revisited by the originating agency, with direct ramifications expected in upcoming DRECP revision reducing and eliminating conservation lands previously designated for at-risk wildlife species, as well eliminating other protections designed to further natural resource conservation on our public lands administered by the BLM; including those specific to Mohave ground squirrel conservation. A Mohave Ground Squirrel Conservation Strategy was also prepared by CDFW in 2019 and should be incorporated into the final RCIS document relative to this species.

"MGSQ-5 25.1 Work with Edwards Air Force Base to permanently protect habitat adjacent to Base property to provide buffers and allow for range shifts."

14-101 **Comment:** The specific areas adjacent to EAFB identified for long-term Mohave ground squirrel conservation and size of associated public/private land buffers to ensure Mohave ground squirrel habitat protection, should be included in the final RCIS document. Also, note that one such key area is in the vicinity of the Rio Tinto Borax Mine and rapidly expanding Kramer Junction adjacent to the northeast corner of EAFB – where additional mine expansion, highway expansion, and solar farm expansion are planned which will likely eliminate habitat linkages to the north in the remainder of this species' range.

"MGSQ-6 25.2 Conduct research and studies to update general knowledge on life history of the species and work with land managers and private landowners to improve management actions, including grazing management techniques, and decisions based on results."

14-102 **Comment:** There is adequate information on the life history of MGS and no additional effort should be required under the RCIS – the recently released Mohave Ground Squirrel Conservation Strategy should, however, be incorporated into the final RCIS document.

14-103 Land use and management practices that promote the conservation of MGS should be included in the final RCIS document. Those practices that are detrimental to recovery of this threatened species should similarly be included. Livestock grazing, particularly domestic sheep grazing, is a land use that results in competition for key forage with MGS, and promotes the establishment and spread of invasive, nonnative plants at the expense of native plants that are used by MGS for survival, growth and reproduction. Such nonnative plants increase wildland fire fuels and climate change is expected to result in both temperature changes and a significant shift in the distribution of certain perennial shrubs that are crucial for MGS survival, growth and reproduction during droughts; which are predicted to increase in time.

Defenders recommends livestock grazing within MGS habitat be curtailed until such a time as
14-103 cont. research demonstrates this wildlands practice is consistent with long-term the conservation of
this threatened species.

**"3.4.3.26 Mountain Lion**

**Table 3-35. Conservation Actions Mountain Lion**

MOLI-5 26.4 Conduct targeted studies to track mountain lion migration patterns and habitat use in the RCIS area, particularly around movement pinch points, to determine whether genetic exchange is occurring through animal movement."

14-104 **Comment:** Why? Sounds like a nice-to-do task but is it really needed to further mountain lion
ecological knowledge, determine where the species occurs within the planning area, or to
ensure long-term conservation of the species within the planning area? Further, this is a
14-105 monitoring and adaptive management action that should be moved to that section of the final
RCIS document, as it is not a conservation action.

Other entities, such as the CDFW and students at several California colleges are tracking
14-106 whether genetic exchange is occurring through mountain lion movement and this species is in
the planning area are probably video monitored more than any other mountain lion population
in the country. There really is no need to study pinch-point locales, as these are already known.

An appropriate conservation action would be to develop region-specific interpretive
information and associated signing for conservation and open space lands informing the public
14-107 about the presence of mountain lions within the planning area; appropriate
livestock/pet/human protection measures; and how the RCIS planning effort is helping to
conserve this iconic California species over the long term.

Another appropriate conservation management action that should be added to the final RCIS
document are all habitat management actions designed to enhance Mule deer populations
14-108 within the planning area, a primary prey species of mountain lions. Legal and unlawful hunting
of Mule deer within designated conservation areas should also be addressed in the final RCIS
document

**"3.4.3.27 Tehachapi Pocket Mouse**

**Table 3-36. Conservation Actions for Tehachapi Pocket Mouse"**

14-109 **Comment:** TEMO-2 is a conservation action pertaining to the burrowing owl. Change species
to specific Tehachapi pocket mouse, if applicable.

"TEMO-1 27.1 Fund surveys of potentially suitable Tehachapi pocket mouse habitat to better understand distribution within the RCIS area."

14-110 **Comment:** Since little is known of the current distribution of this species in the plan area, there is a need to conduct inventories before any conservation actions can be specified. Additional inventory for the species should be included in the section of the final RCIS document that addresses additional planning data needs.

14-111 **Comment:** Migratory birds and the nesting importance of bridge infrastructure habitat for certain migratory avian species (i.e., Rough-winged swallow, Cliff swallow, Say's phoebe, etc.) and bats in the planning area should be highlighted in the final RCIS document. State Route 138 crosses Little Rock Creek, Big Rock Wash and several other large streambeds which support extensive, often unnoticed, wildlife habitat and the long-term management of this infrastructure habitat should be addressed in the final RCIS document.

### 4.1 Goals of Implementation

### 4.2 Implementation Structure

For the purposes of this Antelope Valley RCIS, the *implementation sponsor* is the entity or entities responsible for conducting periodic technical and administrative updates to this RCIS consistent with the State Program Guidelines. These guidelines state that "[a]n updated RCIS means updates to an RCIS [require the use of] best available science; it does not include updates or amendments to the geographic area, focal species, or other conservation elements." See Section 4.4, *Amending the RCIS,* for the definition of an RCIS amendment and the RCIS amendment process.

The applicant and implementation sponsor for this RCIS is the Desert and Mountains Conservation Authority (DMCA). The responsibilities of the implementation sponsor and its partners are described in the following subsections.

### 4.2.2 Implementation Committee

DMCA may choose to partner with other public agencies, organizations, or collaborators to form an RCIS implementation committee to help guide implementation and updates of the Antelope Valley RCIS, particularly in instances where implementation of this RCIS would support the missions of these other organizations. Potential implementation committee members may include representatives from the following organizations:

- Antelope Valley Audubon Society
- Antelope Valley Conservancy
- Association of Rural Town Councils
- Audubon California
- California State Parks
- California Native Plant Society

- Defenders of Wildlife
- Edwards Air Force Base
- Los Angeles County Department of Regional Planning
- Los Angeles County Department of Parks and Recreation
- Lake Los Angeles Rural Town Council
- Land Veritas
- Sierra Club
- The Nature Conservancy
- Transition Habitat Conservancy
- Other interested organizations, cities, or jurisdictions.

The role of the implementation committee will be to periodically assess the utility and effectiveness of this Antelope Valley RCIS in informing conservation or mitigation investments.

The implementation committee may also choose to help inform and educate potential RCIS users of its uses and benefits. The implementation committee will not arbitrate or negotiate mitigation on behalf of project proponents. Such responsibility will remain with the entity pursuing the mitigation and the regulatory agencies.

In summary, the following are potential roles for the implementation committee (this list is not exhaustive):

- Publicize this Antelope Valley RCIS and its successful implementation to participating agencies and other entities that may use this RCIS to inform conservation actions in the RCIS area.
- Answer questions from users and potential users of this RCIS.
- Develop guidance, as needed, to clarify and refine components of this RCIS.
- Support DMCA in undertaking periodic updates of this RCIS (at least every 10 years) based on significant new information on the focal species and their conservation.

The implementation committee will meet at least annually to review how the Antelope Valley RCIS is being utilized, and to help DMCA assess whether information updates or an amendment is needed.

**4.3 Mitigation Credit Agreements**

For an RCIS to support a Mitigation Credit Agreement (MCA), the CFGC 1856(b) states the following:

(b) For a conservation action identified in a regional conservation investment strategy to be used to create mitigation credits pursuant to this section, the regional conservation investment strategy shall include, in addition to the requirements of Section 1852, all of the following:

(1) An adaptive management and monitoring strategy for conserved habitat and other conserved natural resources.

(2) A process for updating the scientific information used in the strategy, and for tracking the progress of, and evaluating the effectiveness of, conservation actions identified in the strategy, in offsetting identified threats to focal species and in achieving the strategy's biological goals and objectives, at least once every 10 years, until all mitigation credits are used.

(3) Identification of a public or private entity that will be responsible for the updates and evaluation required pursuant to paragraph (2).

An MCA identifies the type and number of credits a person or entity proposes to create by implementing one or more conservation actions, as well as the terms and conditions under which those credits may be used. Typically, credits are used to meet compensatory mitigation obligations for impacts on aquatic resources or special-status species.

An MCA can provide the following benefits:

 The MCA applicant can set aside or purchase lands when doing so is most cost effective, knowing those lands will provide useful mitigation values in the future.

 Mitigation credits can be pooled across large sites or multiple sites, providing economies of scale to deliver mitigation more efficiently across many projects.

 An MCA provides certainty and predictability to the MCA sponsor for the future costs of project mitigation under state laws.

 An MCA gives CDFW and other resources agencies some assurance that proposed mitigation fits within a larger conservation framework (the RCIS) and that investments in resource protection, restoration, and enhancement collectively contribute to meeting regional conservation goals and objectives.

A person or entity, including a state or local agency, with mitigation needs may choose to enter into an MCA with CDFW for a single, large mitigation site with multiple phases, a suite of mitigation sites, or even a specific region (e.g., watershed boundary or municipality) within the RCIS area. MCAs will facilitate permitting under the California Endangered Species Act for RCIS focal species that are state listed. The MCA can also be designed to satisfy a range of other state wildlife laws and regulations, including the California Environmental Quality Act (CEQA), and Lake or Streambed Alteration requirements of the CFGC. An MCA can also be used to meet the requirements of other state and federal environmental laws and regulations with the approval of applicable state or federal regulatory agencies.

### 4.3.1 Developing Mitigation Credit Agreements

Defenders understands that typically, mitigation credits relative to the RCIS Program will be established for the following types of conservation actions.

 Permanent acquisition of land development rights (purchase in fee title, purchase, and/or placement of a conservation easement, establishment of a deed restriction).

 Restoration of resources that creates new and/or increases existing habitat function for a focal species or species whose conservation need is analyzed or otherwise provided for in the Antelope Valley RCIS.

 Enhancement of focal species or other species whose conservation need is analyzed or otherwise provided for in this RCIS, habitat conditions, or habitat connectivity.

### 4.3.2 Conservation or Mitigation Banks

A conservation or mitigation bank is privately or publicly owned land that is managed for its natural resource values, with an emphasis on the targeted resource (species or aquatic resources, respectively). Mitigation banks typically include the restoration or creation of aquatic resources, while conservation banks may include restoration projects, but they are more heavily focused on the protection and management of existing occupied habitats of the target species.

In exchange for permanently protecting and managing the land—and in the case of mitigation banks, restoring or creating aquatic resources—the bank operator is allowed to sell credits to project proponents who need to satisfy legal requirements for compensating environmental impacts of development projects (Appendix A, *Glossary*).

Defenders understands the only mitigation bank in the RCIS area, and indeed in the northern Los Angeles County vicinity, is the Petersen Ranch Conservation Bank. This entity provides mitigation credits for aquatic resources as well as mitigation credits for specific at-risk wildlife species. It is possible that additional mitigation banks will become established soon which address impacts to the other focal species outlined in this RCIS.

Defenders believes RCIS planning is a valuable tool in conservation planning benefitting the southern Antelope Valley and the State's wildlife resources. Thank you for this opportunity to provide comments on this very important draft RCIS plan. We look forward to working closely with Desert and Mountain Conservation Authority Representatives, ICF and the California Department of Fish and Wildlife in finalizing the Antelope Valley RCIS.

Yours truly,


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LAND VERITAS

February 10, 2020

Desert and Mountains Conservation Authority
c/o Diane Sacks
1700 9th Street, 2nd Floor
Sacramento, CA 95811-6423

Re: Antelope Valley RCIS Comments

Dear Ms. Osborn,

Thank you for the opportunity to comment on the Draft Antelope Valley Regional Conservation Investment Strategy (AV-RCIS). Land Veritas is the Bank Sponsor of the Petersen Ranch Mitigation Bank (Bank), located within the boundary of the proposed AV-RCIS. We are pleased to see the Bank identified as an *"important protected area and mitigation bank in the RCIS area"* in Section 1.4.4.

15-1 We appreciate your responses to our comment letter dated March 24, 2017, including your characterization of the Bank as an important protected area. We also support the language in Section 4.4.1 that states, "*if available bank credits will not be purchased or used an MCA must explain why".* If the RCIS included a requirement into the MCA process to first use mitigation from approved mitigation banks prior to other mitigation options, this goal would be accomplished. This process would also be consistent with the hierarchical preference given to banks in federal and state mitigation policies.

15-2 Further, Section 2.2.4.3 includes a description of the Bank and the key biological resources observed onsite, as well as the frequent use and/or occupancy by several focal species of the AV-RCIS. We request that the following animal species, which have been observed at the Bank and reported to our Interagency Review Team (IRT), be added to this description:

- Coast horned lizard (*Athene cunicularia*)
- Burrowing owl (*Phrynosoma blainvillii*)
- Mountain lion (*Puma concolor*)
- Northern harrier (*Circus hudsonius*)

15-3 In addition, this section notes that the Bank *"provides CEQA mitigation for renewable energy projects…. as well as Regional Water Quality Control Board and U.S. Army Corps of Engineers mitigation for impacts to wetlands/waters…".* Please add language clarifying that the Bank provides CEQA mitigation for any type of project, including but not limited to renewable energy projects, and that it also provides CDFW mitigation for impacts to stream, lake and riparian habitat. These clarifications will more accurately reflect the range of mitigation that the Bank has been approved to provide.

15-4 Entitling the Bank took over five years of coordination with CDFW, USACE, and RWQCB. For approval, the Bank had to demonstrate that the proposed restoration design, performance monitoring, funding, interim/long-term management, and reporting procedures were stringently

LAND VERITAS

15-4, cont. planned and funded. Because of the combination of this highly codified mitigation bank approval process and the lack of temporal loss, banks are considered ecologically preferable to other mitigation options. Therefore, we respectfully request that the AV-RCIS specify that any new Mitigation Credit Agreements (MCA) covering resources for which the Bank has existing credits require the depletion of the Bank's credits prior to releasing new MCA credits for sale.

Thank you for your consideration. We look forward to working with the AV-RCIS moving forward.

Sincerely,

Land Veritas Corp

H. Tracey Brownfield, President

SOUTHERN CALIFORNIA
EDISON
An EDISON INTERNATIONAL℠ Company

**Michelle Nuttall**
Sr. Project Manager
Environmental Affairs & Sustainability
W: 626-302-1677
michelle.nuttall@sce.com

February 10, 2020

**Electronic Submittal of Public Comments**

California Department of Fish and Wildlife
rcis@wildlife.ca.gov

Desert and Mountain Conservation Authority
diane.sacks@mrca.ca.gov

**Subject: Comments on the Draft Antelope Valley Regional Conservation Investment Strategy**

Southern California Edison (SCE) appreciates the opportunity to submit comments on the draft Antelope Valley Regional Conservation Investment Strategy (RCIS).

After reviewing the document's references to electric utility transmission lines, we have the following two comments.

First, SCE does not own and operate all gas and electric transmission lines within the RCIS boundary.
SCE is an electric-only utility. Therefore, all gas transmission lines would either be owned and operated
by SoCalGas or by another third party pipeline operator. With respect to electric transmission lines, even
16-1 though the RCIS area falls within SCE's service territory, lines owned by other owner-operators also
traverse this area. For example, several transmission lines belonging to the Los Angeles Department of
Water and Power (LADWP) are present in the RCIS footprint, as are interconnecting transmission lines
belonging to multiple third party power producers. Finally, although SCE may own and maintain certain
lines, all SCE transmission lines are operated by the California Independent System Operator (CAISO).

Second, when the phrase "utility and service lines" is used, the term typically refers to all relevant utility
and service lines in the area including electric (transmission, subtransmission, and distribution), natural
16-2 gas, telecom, water, sewage, petroleum, and similar lines. At no point in the RCIS is it made clear what
types of lines you are referring to by this phrase. By context, it appears that the phrase solely refers to
electric transmission lines, some of which are not owned by utilities. Please be more specific in the RCIS
about exactly which lines are being discussed.

We have attached a matrix of suggested edits that will address our comments. If you have questions or need additional information, please feel free to contact me.

Best regards,

Michelle Nuttall

Michelle Nuttall
Sr. Project Manager
Environmental Affairs & Sustainability

| Section number | Section title | Page | Comment | Suggested Edit |
|---|---|---|---|---|
| 2.2.2.3 | Electric and Gas Transmission | 2-81 | SCE does not own or operate gas lines. SCE does not own all electric transmission lines in the RCIS area. Some lines are owned by the Los Angeles Department of Water and Power or by generation interconnection customers. The transmission system is operated by the California Independent System Operator. | "Transmission lines in the RCIS area include those supporting distribution of natural gas and electricity. Figure 2-17 shows transmission facilities in the RCIS area including major electric transmission lines (greater than 230 kilovolts) and natural gas pipelines. Southern California Edison (SCE) owns ~~and operates all of the gas and~~ the majority of the electric transmission (>200 kV) lines in the RCIS area. The California Independent System Operator (CAISO) operates these lines. The Los Angeles Department of Water and Power (LADWP) also owns and operates a few of the transmission lines in the RCIS area as do several generator interconnection customers. Natural gas pipelines are owned and operated by [insert owners here].<br><br>SCE ~~The company~~ delivers power to 15 million people in 50,000 square miles across central, coastal, and Southern California. The most recent major transmission project conducted by SCE in this area is the Tehachapi Renewable Transmission Project (TRTP).<br><br>The TRTP is a series of new and upgraded high-voltage electric transmission lines and substations capable of carrying 4,500 megawatts of electricity (enough energy to supply 3 million homes) from renewable and other generators in Kern County south through the RCIS area to San Bernardino County. The project is designed to provide added capacity to strengthen SCE's electrical system and deliver clean, renewable energy to the region to help meet California's renewable energy goals. SCE completed construction of the 173-mile TRTP electric transmission line and energized the line in the fourth quarter of 2016." |
| 2.3.15 | Utility and Service Lines | 2-112 | The description of "utility and service lines" appears to only describe electric transmission lines. However, this term is usually used to refer to all utility and service lines including electric (transmission, subtransmission, and distribution), natural gas, telecom, water, sewage, petroleum, and so on. This phrase should be clarified so that the reader understands what exactly is being referenced.<br><br>If you are only referring to electric transmission lines we recommend deleting the term "service line". Since not all electric transmission lines in this area are owned by the utility, the term "utility" should also be deleted. Finally, there is no term "electric transfer station." These stations are referred to as substations.<br><br>The suggested edits assume only electric transmission lines are being referenced. If you are also referencing natural gas transmission lines, which are generally not associated with renewable energy facilities, please specify. | Title: ~~Utility and Service~~ Electric Transmission Lines<br><br>"~~U~~Electric ~~utility and service~~ transmission lines are required to connect energy facilities such as power plants and solar fields to ~~transfer~~ utility substations and the communities that they serve. They are often installed in remote landscapes, and require periodic vegetation control to mitigate the fire risk that they pose. They can cause changes in the sediment erosion and deposition regime, the spatial distribution of habitat types, natural community structures and composition, ecosystem development and succession processes, biotic interactions, and habitat fragmentation.<br><br>~~U~~Electric ~~utility and service~~ transmission lines in the RCIS area generally follow two main corridors: from the solar fields located along the northern edge of the RCIS to Palmdale and then south, and from Palmdale east to the San Bernardino County line." |

| Section number | Section title | Page | Comment | Suggested Edit |
|---|---|---|---|---|
| 2.3.15.1 | Effects on Focal Species and Habitats | 2-112 | Same as above. It doesn't appear that subtransmission or distribution line corridors were reviewed. Do the geographic areas and species referenced also include the underground gas line corridors? If so, you should clearly break those out because the reference to bird strikes would not be applicable to those corridors. | "~~U~~Electric ~~utility and service~~ transmission lines have the potential to affect focal plants in their path, as well as fauna that migrate through these corridors. These corridors overlay California grassland and meadow and Sonoran and Chihuahuan semi-desert scrub and grassland areas. ~~U~~Electric ~~utility and service~~ transmission corridors within the RCIS area overlap with the Munz Ranch Road, Portal Ridge, and the Big Rock Creek Wash habitat core areas and the Portal Ridge Poppy Preserve, Barrel Springs, Little Rock Wash, Big Rock Wash, and Mescal Creek landscape linkages. Additionally, avian focal species may face increased injury and mortality caused by bird strikes to power lines.<br><br>Designated electric ~~utility and service line~~ transmission corridors within the RCIS area overlap with areas of high conservation value for American badger, burrowing owl, California condor, coast horned lizard, desert kit fox, golden eagle, Joshua tree, Le Conte's thrasher, loggerhead shrike, long-billed curlew, mountain lion, mountain plover, prairie falcon, short-joint beavertail, Swainson's hawk, and tricolored blackbird." |
| 2.3.15.2 | Effects on Other Conservation Elements | 2-113 | Same as above. | "~~U~~Electric ~~utility and service~~ transmission lines have the potential to affect natural communities of conservation importance, key aquatic habitats, and habitat connectivity. Construction and maintenance of electric ~~utility and service~~ transmission lines cause disturbance and impacts on natural communities, increasing the potential for competition from invasive species and erosion where vegetation is removed. These impacts disrupt the natural communities and can also affect the species that rely on intact natural habitat to traverse multiple habitat patches or migrate through their entire range. The electric ~~utility~~ transmission corridors in the RCIS area cross the Populus fremontii, Purshia tridentata, and Lepidospartum squamatum natural communities of conservation concern; key aquatic habitats such as Big Rock Creek and Little Rock Creek; and modeled wildlife corridors for both small and large species. ~~U~~Electric ~~utility and service line~~ transmission corridors within the RCIS area overlap, and have the potential to affect, the Portal Ridge Poppy Preserve, Barrel Springs, Little Rock Wash, Big Rock Wash, and Mescal Creek landscape linkages." |

CALCIMA

California Construction and
Industrial Materials Association

February 10, 2020

California Department of Fish and Wildlife
Habitat Conservation Planning Branch
ATTENTION: Antelope Valley RCIS Comments
1010 Riverside Parkway
West Sacramento, CA 95605
rcis@wildlife.ca.gov

Desert & Mountain Conservation Authority
ATTENTION: Diane Sacks
44811 N Date Avenue, Suite G
Lancaster, CA 93534
diane.sacks@mrca.ca.gov

**Re: Antelope Valley Regional Conservation Investment Strategy – October 2019 Draft**

Dear California Department of Fish and Wildlife / Desert & Mountain Conservation Authority:

California Construction and Industrial Materials (CalCIMA) appreciates this opportunity to comment on the draft 'Antelope Valley Regional Conservation Investment Strategy (Antelope Valley RCIS)'.

CalCIMA is a statewide trade association representing construction and industrial material producers in California. Our members supply mineral resources such as construction aggregate inclusive of sand, gravel, crushed stone, slag, and recycled concrete that build our state's infrastructure, including public roads, rail, and water projects; help build our homes, schools and hospitals; assist in growing crops and feeding livestock; and play a key role in manufacturing wallboard, roofing shingles, paint, low energy light bulbs, and battery technology for electric cars and windmills.

We understand that AB 2087 (2016), the 'Regional Conservation Investment Strategies (RCIS),' is a conservation planning and advance mitigation approach designed to allow local public agencies to identify conservation priorities and deliver more flexible mitigation options for development impacts. A primary function of the approach is to streamline development approval processes through establishing a regional, science-based strategy for the conservation of focal species and their habitat.

17-1 In order for this approach to be effective, balance among environment, economic, and community interests needs to be achieved while aligning with regional municipal initiatives and values that are outlined within documents inclusive of by not limited to the County of Los Angeles' 'General Plan' and Southern California Association of Governments' 'Regional Transportation Plan' and 'Sustainable Communities Strategy' as they relate to addressing regional mineral resources. The draft Antelope Valley RCIS does not provide for these elements that support an effective or practical approach.

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3890 Orange Street, #167
Riverside, CA 92501-9998
Phone: 951 941-7981

Additional CalCIMA comments regarding the draft Antelope Valley RCIS are as follows:

17-2 Lacking Discussion and Consideration for Existing Mineral Resource Facilities
The draft Antelope Valley RCIS does not clarify how the document impacts existing mineral resource facilities in relation to mapping boundaries although they are directly impacted by the intent of this approach. Accordingly, CalCIMA recommends that existing mineral resource facilities be clearly addressed within the draft Antelope Valley RCIS.

17-3 Unequitable Representation of Regional Stakeholders on the Advisory and Steering Committees
The participants listed within the draft Antelope Valley RCIS for the Advisory and Steering Committees do not equitably represent regional stakeholders. Although the draft Antelope Valley RCIS document states that businesses are represented in the Advisory and Steering Committees, the list of participants for these groups does not reflect this.

A participatory and inclusive process between the impacted community and other stakeholders that lead to consensus-based approach is a deficiency within the draft Antelope Valley RCIS and should be corrected. CalCIMA recommends that a fair representation of regional stakeholders be included pursuant to the development of this approach.

17-4 Partial and Biased Discussion Related to Regional Mineral Resource Zones
CalCIMA recommends that the draft Antelope Valley RCIS include both impartial and unbiased information to accurately educate decision makers and the public regarding this approach. Specifically, current and future extraction of diverse mineral resources present within the County of Los Angeles is important to the region's economy, implementation of successful regional projects, and to reduce environmental impacts from aggregate use in the region. Therefore, protecting access to areas that contain valuable mineral resources is critical to the County of Los Angeles. This information is referenced accordingly within the County of Los Angeles' 'General Plan' and Southern California Association of Governments' 'Regional Transportation Plan' and 'Sustainable Communities Strategy' as they relate to addressing regional mineral resources. Long-term preservation of valuable mineral resources in the region supports development that is sustainable.

17-5 Additionally, the draft Antelope Valley RCIS should clearly recognize that because aggregate is a low unit-value, high bulk weight commodity, it must be obtained from nearby sources to minimize economic and environmental costs associated with transportation. If nearby sources do not exist, then transportation costs can quickly exceed the value of the aggregate. Transporting aggregate from distant sources results in increased construction costs, fuel consumption, greenhouse gas emissions, air pollution, traffic congestion, and road maintenance.

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CALCIMA
California Construction and
Industrial Materials Association

CalCIMA appreciates your consideration of these comments and would look forward to working with the developers of the draft Antelope Valley RCIS to achieve an approach that would create a reasonable path to participation among regional stakeholders. If you have any questions regarding this letter, please contact me at (951) 941-7981 or at sseivright@calcima.org.

Sincerely,

Suzanne Seivright
Director of Local Government Affairs

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Association of Rural TownCouncils
Susan Zahnter, Director
C/O Three Points Town Council
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Lake Hughes, CA 93532
ourartc@gmail.com
661.724.2043

SENT VIA EMAIL

4 February 2020

Mr. Ron Unger
California Department of Fish and Wildlife
Habitat Conservation Planning Branch
P.O. Box 944209
Sacramento, CA 94244-2090
(916) 653-3779
rcis@wildlife.ca.gov

Ms. Diane Sacks
The Desert &Mountains Conservation Authority
C/O Antelope Valley Resource Conservation District
44811 N. Date Ave., Suite G
Lancaster, CA 93534
(661) 305-3405
diane.sacks@mrca.ca.gov

Dear Mr. Unger and Ms. Sacks,

RE: Antelope Valley Regional Conservation Investment Strategy

18-1 The Association of Rural Town Councils was represented at Antelope Valley Regional Conservation Investment Strategy (AV RCIS) Steering Committee meetings, providing input for rural communities across the Antelope Valley. Many councils anticipate future developments and large infrastructure projects that not only affect their rural residents, but natural areas supporting wildlife within and surrounding their homes and communities, and which contribute to enjoyment of their rural lifestyle through preservation of environmental resources—quickly disappearing in Los Angeles County.

Ironically, Los Angeles County's Antelope Valley Area Plan (AVAP), approved in 2015, aimed a large portion of its policies and goals toward "Rural Preservation Strategy, while at the same time creating high density residential and "Economic Opportunity" zones (several in rural areas)," which not only allow even higher density development, but then necessitate expansion of highways infrastructure in "remote" (AVAP description of the Northwest Antelope Valley) areas. Moreover, the AVAP directs residential and commercial development to rural town areas possessing little infrastructure or services to support such development, further impacting natural areas that mark rural communities.

18-2 Within the AV RCIS boundary area the High Desert Corridor (if built) will bring semi-truck traffic with its inland truck port connecting the Interstate 15 to the Interstate 5 to the northwest, as well as rail

18-2 cont. service to other desert communities and Las Vegas, essentially creating an impassable north/south barrier to wildlife, and in particular, the endangered Agassiz's desert tortoise. Thousands of acres of currently unaltered habitat, which includes Joshua tree woodland, will be lost to this infrastructure project; undeveloped rural lands along this proposed freeway will attract sprawl—antithetical to rural lifestyles dependent on low density development and preservation of natural areas for enjoyment of not only residents, but visitors alike.

18-3 The Northwestern Highway 138 Improvement Project will consume 4,536 acres and destroy more than 650 Joshua trees, and uncounted numbers of juniper trees along its path in already fragmented Joshua Juniper Woodland SEAs. Caltrans' own Natural Environment Study (2016) admits, in opposition to its Draft EIR, that the project will create growth inducement, increased human disturbance—off-highway vehicle use, littering, vagrancy, pollution, introduction of pet species, and edge effect to adjacent habitat. In addition, Caltrans' Botanical Management Area along Hwy. 138 near the State of California Poppy Reserve will be destroyed. Furthermore, the Project's wildlife crossing study documents were incomplete, but identified several important crossing areas from Antelope Acres to the Interstate 5, that might not be included in crucial wildlife corridor identification. The AV RCIS boundaries are excluded from this important area to the northwest, and should recognize the crucial connection from the Transverse, San Gabriel, Tehachapi, and Sierra mountain ranges, which are described in the important “Biodiversity Hot Spots” identified in the USGS article “Are hotspots of evolutionary potential adequately protected in southern California?” (Vandergast, et. al., 2008). In fact, AVAP identifies this area of the San Andreas SEA by stating “The several ranges that meet at the western end of the SEA provide a valuable link for gene flow between divergent subspecies, varieties, and populations of many species” (Antelope Valley Area Plan, Appendix A). If the AV RCIS is non-regulatory, then its identification of this area should not be of import to county planners, private landholders, or US Forest Service, despite claims of existing open space conservation and management in a *portion* of the Northwestern AV. Private and public entities should find value in the AV RCIS, as being able to provide additional information to not only local, but also regional conservation and important valuable habitat preservation strategies.

The State of California High Speed Rail, whose EIR for segments affecting the AV, has not been released, but in addition to the projects listed above, also has the potential to create crossing barriers for wildlife, create noise and vibration impacts, and create light pollution.

18-4 Looking to the Los Angeles County planning policies for protection of important wildlife areas will not protect the Antelope Valley, despite the General Plan's Land Use Policy 2.1, identified in the AV RCIS, which states “Limit the amount of potential development in Significant Ecological Areas (SEA), including Joshua Tree Woodlands, wildlife corridors, and other sensitive habitat areas, through appropriate land use designations with very low residential densities, as indicated in the Land Use Policy Map (Map 2.1) of this Area Plan.” All development in county SEAs, *except in the Antelope Valley*, are guided by the SEA Ordinance and Implementation Guide. In the Antelope Valley (AV), single family residences and agricultural clearing are *exempt* from the ordinance (only commercial development must comply). This has the potential to impact many of the important habitat areas that support the AV RCIS' focal species. However, directing conservation efforts to SEAs is an important consideration

18-5 To the Antelope Valley's misfortune, it has been identified in the Desert Renewable Energy Conservation Plan (DRECP) as a “Development Focus Area.” Contributors to the DRECP failed to

18-5 cont. identify the recovering agricultural fields and grasslands as worthy of preservation and exclusion, despite a large portion of the valley consisting of what Audubon Society has termed a “Globally Important Bird Area.” Tens of thousands of acres of utility-scale solar and wind turbine projects, both in the Los Angeles County and Southeastern Kern portion of the Antelope Valley, have destroyed grassland habitat and raptor foraging areas, in addition to creating dangerous air space for avian wildlife. (One solar project proponent bulldozed Joshua tree woodland surreptitiously.) Grading or even clearing portions of project lands have created air quality problems for local residents, and proved dangerous to not only their health, but that of wildlife, and non-native and natural vegetation as well. Prevailing high winds that power wind turbines also cause soil erosion, and entrain particulates that cause respiratory illness in humans, livestock, and wildlife; seriously affecting quality of life for all mentioned.

Renewable energy development has the potential to cause accelerated climate change across our valley, with the desert becoming even warmer. The Los Angeles County Sustainability Plan (OurCounty 2019) maps identify the Northern Antelope Valley as becoming warmer than predicted, and “according to the projections, the northern reaches of the county will experience the largest area of highest temperatures. . . with more than 100 days of > 95o F temperatures (2040-2060).” This consists of large areas targeted for solar energy production due to their proximity to the Tehachapi Renewable Transmission Project; the L.A. Department of Water and Power's Barren Ridge Transmission Project; their designation as a Desert Renewable Energy Conservation Plan Development Focus Area; solar project areas supported by City of Lancaster's Net Zero Policy, and embraced by the joint powers authority—Clean Power Alliance. This red area also encompasses rural communities and town council areas like Antelope Acres, whose environment and resident wildlife have been transformed by the industrialization of agricultural lands, which will become warmer and suffer the results of so-called “green” energy that will help carry the urban unincorporated areas to a “fossil-fuel free” future.

18-6 “Solar Heat Island Effect” should be a consideration, and discussed in the AV RCIS, and what the term portends for the future of the AV. This is described by environmental journalist Chris Clarke who writes, “At issue is the so-called "urban heat island" effect, in which human-made structures that absorb solar energy can significantly raise nearby temperatures. The effect holds true even when the setting isn't urban, as is the case with large remote desert solar installations. After all, the purpose of solar panels is to absorb as much solar energy as they can. About a fifth of that energy is turned into electricity under optimum conditions: the rest is released into the surrounding environment as heat, [and might make deserts too hot for tortoises] (www.kcet.org/redefine/solar-plants-may-make-deserts-too-hot-for-tortoises). Moreover, a study published in the scientific journal article “The Photovoltaic Heat Island Effect: Larger solar power plants increase local temperatures,” by Greg A. Baron-Gafford, et. al., found temperatures over a [Photovoltaic] plant were regularly 3–4 °C warmer than wildlands at night, which is in direct contrast to other studies based on apparently unproven models that suggested that PV systems should decrease ambient temperatures(www.nature.com/scientificreports).

18-7 All of the large infrastructure projects that residents and natural communities/wildlife face in the future, here in the Antelope Valley, will impose serious impacts that have the possibility and probability to change our environment permanently. The ARTC expresses its support for the AV RCIS, in that it can inform us to areas of great importance to our valley's natural heritage, and provide and inform possibilities for improving conservation efforts, as well as providing an overarching view of the

18-7 cont. importance of our regional wildlife and ultimately, connectivity to other natural areas. This will only improve biodiversity—that it is passed on to future generations; provides information for reduction of fragmentation, maximizing preservation, maximizing connectivity and functionality of ecosystems identified in the AV RCIS in the face of great change in the AV.

Sincerely,

Susan Zahnter
Director

February 5, 2020

California Department of Fish and Wildlife
Habitat Conservation Planning Branch
ATTENTION: Antelope Valley RCIS Comments
P.O. Box 944209
Sacramento, California 94244-2090

Dear Mr. Unger:

On behalf of the Building Industry Association - Los Angeles/Ventura Chapter, we would like to express our concerns about the proposed Antelope Valley Regional Conservation Investment Strategy (AVRCIS) document. The BIA is the voice of building and development in Los Angeles and Ventura counties, as well as a job creator,
economic engine, industry resource, and supporter of housing for all. The proposed AVRCIS is a document that
19-1 will be used to regulate land use, challenge and/or stop housing projects, and become an economic downfall for
the Antelope Valley. This has already been demonstrated by an environmental group submitting a draft version
of the AVRCIS into a LA County land use hearing to try and stop the project.

19-2 The proposed AVRICS is not consistent with the recently adopted LA County General Plan and the Antelope Valley Area Plan (AVAP) which were approved by the LA County Board of Supervisors. In fact, that General Plan specifically downzoned areas to protect against sprawl, designated over 350,000 acres of Significant Ecological Areas (SEA) and identify three Economic Opportunity Areas (EOAs) that should facilitate the housing and job growth.

19-3 Over four years of work between the County, cities, business owners and local residents helped the EOA's to be identified as areas for significant growth. With the AVRCIS identifying the EOA's as high conservation priorities, it will make it significantly more challenging to create housing in the region. Without housing, these areas will fail to grow, which will cause for jobs to relocate or shut down. Local workers will be forced to move out of the area or commute to their jobs. The Economic Opportunity Areas must be removed within the AVRCIS boundaries.

19-4 We ask the CDFW reject this AVRCIS in its current state and work with local jurisdictions, including the County of Los Angeles, to ensure that existing local land planning and designations, including the EOA's become an integral part of the final document.

Thank you for your consideration.

Sincerely,

Tim Piasky
CEO, Building Industry Association - Los Angeles/Ventura

CC: Hon. Scott Wilk, California State Senator
Hon. Tom Lackey, California Assembly Member
Hon. Kathryn Barger, Chair, Board of Supervisors, County of Los Angeles
Los Angeles County Department of Regional Planning

lancaster ca
it's positively clear

R. Rex Parris Mayor
Marvin E. Crist Vice Mayor
Ken Mann Council Member
Raj Malhi Council Member
Darrell Dorris Council Member

Jason Caudle City Manager

February 3, 2020

California Department of Fish and Wildlife
Habitat Conservation Planning Branch
Attention: Antelope Valley RCIS Comments
P.O. Box 944209
Sacramento, CA 94244-2090

Dear Mr. Unger:

20-1 The City of Lancaster was disappointed to hear about the draft AVRCIS for the first time so late in the process. The concept behind the RCIS program was created with good intentions, but unfortunately key stakeholders, including our city, were not asked to participate in the creation of this document. Lancaster has always been supportive of conservation and good environmental practices. In fact, our city is at the forefront of clean energy, electric buses and GHG reduction, but Lancaster is also very interested in housing and economic growth. 20-2 A good plan would balance all the needs of a region, but unfortunately, this draft RCIS is not well balanced and does not consider critical needs for our valley's future.

20-3 How this draft RCIS was released without more input from key stakeholders is even more alarming to us. We now understand that because the AVRCIS was started before the AB 2087 went into effect on January 1, 2017 and was therefore "grandfathered" into the process without the need to adhere to the guidelines set forth by your agency. These guidelines specifically speak to the fact that the project proponent (Desert and Mountain Conservation Authority (DMCA) in this case) are required to include all stakeholders in the creation of the RCIS, but since the Antelope Valley one was exempt, they chose not to. We are quite concerned that our valley was not given the same courtesy that other state RCISs were/will be given.

20-4 We ask that CDFW reject this draft in its current condition and that DMCA restart the steering committee process with a much broader group to weigh in on this very important program. Please consider the following:

- 20-5 The removal of any AVRIC designations in our city's boundaries or our sphere of influence;
- 20-6 Make clear that the AVRCIS is not allowed to stop or challenge any current or future infrastructure, housing or economic growth projects that could be crucial to the Antelope Valley;
- 20-7 Do not exempt the AVRCIS from guidelines that were approved by your own agency.

Thank you for your consideration.

Sincerely,

Jason Caudle, City Manager
City of Lancaster

cc: Hon. Scott Wilk, California State Senator
Hon. Tom Lackey, California Assemblyman
Hon. Kathryn Barger, Chair, Board of Supervisors, County of Los Angeles
Los Angeles County Department of Regional Planning

CALIFORNIANS FOR HOMEOWNERSHIP

MATTHEW GELFAND, COUNSEL
MATT@CAFORHOMES.ORG
TEL: (213) 739-8206

February 8, 2020

**VIA EMAIL**

California Department of Fish and Wildlife
Habitat Conservation Planning Branch
1010 Riverside Parkway
West Sacramento, CA 95605
Email: rcis@wildlife.ca.gov

RE: Antelope Valley Regional Conservation Investment Strategy

To the California Department of Fish and Wildlife:

Californians for Homeownership is a 501(c)(3) organization devoted to using legal tools to address California's housing crisis. We appreciate the opportunity to provide comments regarding the Antelope Valley Regional Conservation Investment Strategy (RCIS).

For several decades, California has experienced a significant housing access and affordability crisis. In recent years, this crisis has reached historic proportions. As a result of the crisis, younger Californians are being denied the opportunities for homeownership and housing security that were afforded to previous generations. Many middle and lower income families devote more than half of their take-home pay to rent, leaving little money to pay for transportation, food, healthcare, and other necessities. Unable to set aside money for savings, these families are denied the opportunity to become homeowners, and are at grave risk of losing their housing in the event of a medical issue, car trouble, or other personal emergency. Indeed, housing insecurity in California has led to a mounting homelessness crisis. And the crisis has had a disproportionately harmful effect on historically disadvantaged communities, including individuals with physical and developmental disabilities and communities of color.

At the core of California's housing crisis is its failure to build enough new housing to meet the needs of its growing population. The Legislative Analyst's Office estimates that, from 1980 to 2010, the state should have been building approximately 210,000 units a year in major metropolitan areas to meet housing demand. Instead, it built approximately 120,000 units per year. Today, California ranks 49th out of the 50 states in existing housing units per capita.

The Legislature has recognized that the housing crisis is an emergency that requires proactive solutions: "The consequences of failing to effectively and aggressively confront this crisis are hurting millions of Californians, robbing future generations of the chance to call California home, stifling economic opportunities for workers and businesses, worsening poverty and homelessness, and undermining the state's environmental and climate objectives." Gov. Code § 65589.5(a)(2)(A).

California law requires an RCIS to include a discussion of reasonably foreseeable housing
projects in the area covered by the RCIS. F.G.C. § 1852(e)(3). The draft Antelope Valley RCIS
21-1 does not contain an adequate discussion of future housing development. More specifically, it does
not adequately consider California's extraordinary housing access and affordability crisis and the
vital need for large quantities of housing to be developed—and quickly—to address that crisis.
The RCIS also does not adequately consider the important equity implications of placing limits on
housing development in areas where new housing, including ownership housing, can be more
affordably developed. The state must ensure that its environmental regulations and strategies
21-2 benefit all Californians, including lower-income individuals, racial and ethnic minorities, and
individuals with physical and developmental disabilities. The RCIS contains precious little
discussion of these important environmental justice issues.

Finally, we note that an RCIS has no impact on land use rules that enable the development
of housing within the strategy area. *See* F.G.C. § 1850(e). Because it does not regulate land use,
21-3 an RCIS does not contain any consideration of the Legislature's major reforms intended to address
the state's housing crisis, including the Regional Housing Needs Allocation system, the Housing
Element requirements, the Housing Accountability Act, the Permit Streamlining Act, or the
Housing Crisis Act of 2019. If any party, public or private, attempts to use the RCIS to interfere
with the rights of any landowner or developer to develop housing within the strategy area, we may
21-4 seek to intervene on behalf of the important public interest in the development of housing in the
region, including affordable ownership housing.

Sincerely,

Matthew Gelfand

cc: Desert and Mountain Conservation Authority
By email to: diane.sacks@mrca.ca.gov

Greater Antelope Valley Association of REALTORS®

1112 West Avenue M-4 • Palmdale, CA 93551 • 661.726.9175 • Fax: 661.726.9199 www.gavar.org

February 5, 2020

California Department of Fish and Wildlife
Habitat Conservation Planning Branch
ATTENTION: Antelope Valley RCIS Comments
P.O. Box 944209
Sacramento, California 94244-2090

Dear Mr. Unger:

22-1 On behalf of the Greater Antelope Valley Association of Realtors (GAVAR), I am greatly troubled to just now learn about the draft Antelope Valley Regional Conservation Investment Strategy (AVRCIS) out for public review. As one of the largest organizations in the Antelope Valley, with over 2,700 members, we were never made aware of this document and our input was not taken. GAVAR is heavily involved with all plans, legislation, ordinances and governmental activities within the Antelope Valley and unfortunately, had no warning of the AVRCIS process or that a "public" committee was formed to collectively release a good plan.

22-2 If we had been involved, we could have very early on worked with the Desert Mountain Conservation Authority (DMCA) to help them understand that the adopted Antelope Valley Area Plan (AVAP) that the Los Angeles Board of Supervisors approved in 2016 represents what the residents of the Antelope Valley want. For four years a Blue Ribbon Committee worked with environmental organizations, town councils, businesses, cities and the County of Los Angeles to identify valuable environmental resources, designated growth areas and a complete plan that represents all residents.

Instead, this draft AVRCIS is at complete odds with the AVAP and designates growth areas as potential high resources that are available for mitigation. How could this draft released for public comment ignore the identified Economic Opportunity Areas that were designated for growth for our valley when they are clearly not available for mitigation?

22-3 The County has already expanded the Significant Ecological Areas by hundreds of thousands of acres with the approved General Plan and this AVRCIS should be consistent with that designation and focus mitigation to these areas.

22-4 Furthermore, we have learned that CDFW passed guidelines to help regulate Statewide RCIS's and that somehow the Antelope Valley version was exempt from these. This cannot be allowed to happen. Our business and residents deserve the same rights as others within the State.

There is a way to fix this. We ask that you consider the following:

22-5

1. Hold all state RCIS's to the same standards and do not allow the AVRCIS to be approved under an exemption. Restart the AVRCIS process to include ALL major stakeholders of the valley and not just the environmental organizations.

22-6 2. Ensure the AVRCIS is consistent with the adopted Los Angeles County General Plan and AVAP, which already identifies Significant Ecological Areas and Economic Opportunity Areas. Please remove the AVRCIS boundary from the EOAs entirely. This is not consistent with the vision for the Antelope Valley as already decided by the Board of Supervisors and local residents.

Thank you for your consideration.

Sincerely,

Pablo Meza
President, Greater Antelope Valley Association of REALTORS®

CC: Hon. Scott Wilk, California State Senator
Hon. Tom Lackey, California Assembly Member
Hon. Kathryn Barger, Chair, Board of Supervisors, County of Los Angeles
Los Angeles County Department of Regional Planning

GRANITE™

**Antelope Valley Office**
213 East Avenue M
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Phone: 661.726.4447
Main Fax: 661.726.4460

www.graniteconstruction.com

February 7, 2020

*Via Certified Mail & Electronic Mail*
*(diane.sacks@mrca.ca.gov)*
Desert & Mountain Conservation Authority Attn.:
Diane Sacks
44811 N. Date Ave. Suite G
Lancaster, CA 93534

*Via Certified Mail & Electronic Mail*
*(rcis@wildlife.ca.gov)*
California Department of Fish and Wildlife
Habitat Conservation Planning Branch
Attn.: Antelope Valley RCIS Comments
1010 Riverside Parkway
West Sacramento, CA 95605

**RE: ANTELOPE VALLEY REGIONAL CONSERVATION INVESTMENT STRATEGY OCTOBER 2019 PUBLIC DRAFT**

Granite Construction Company (Granite) is submitting comments pertaining to the October 2019 Public Draft Antelope Valley Regional Conservation Investment Strategy ("AVRCIS"). Granite looks forward to working with the California Department of Fish and Wildlife and the Desert and Mountain Conservation Authority to discuss our concerns. Granite has reviewed the draft AVRCIS and Assembly Bill 2087 which created the Regional Conservation Investment Strategy program. Granite is concerned that the draft AVRCIS violates both the letter and the spirit of a consensus-based approach envisioned by the statute and therefore we oppose the current version of the AVRCIS for the following reasons:

23-1
- The AVRCIS was drafted without proper consultation with large regional landowners, regional employers a necessary precursor to building consensus around this plan.

23-2
- The AVRCIS was prepared without consultation with impacted local governments, which is mandated under the authorizing statute.
- The AVRCIS fails to protect, and provide access to, designated Mineral Resource Zones that are afforded statutory protection.

For the RCIS program to succeed, there needs to be robust dialogue and engagement and recognition of resources that are afforded protection under state law. Granite is happy to partner with the California Department of Fish and Wildlife in such an effort. It is in this spirit that Granite requests that the AVRCIS pause to comply with the guidelines and provisions RCIS statute and properly consider the potential impact on lands protected by Mineral Resource Zones from the program.

23-3

**THE PROPOSED AVRCIS IGNORES MINERAL RESOURCE ZONES AS EXISTING DESIGNATED AREAS OF STATE-WIDE SIGNIFICANCE**

The State Mining and Geology Board (SMGB) maintain a formal classification for significant aggregate resources within the State. This process designates Mineral Resource Zones (MRZ) as resources of regional significance by the State *and requires planning agencies to recognize these significant resources during planning processes*.

This information is publicly available to promote sustainable planning practices, such a locally sourced materials, and prevent subsequent conflicting planning and regulatory designations. As stated in Public

Resource Code Division 2 Chapter 9 Section 2711(d-f), the State of California encourages locally sourced aggregate:

> *(d) The Legislature further finds that the production and development of local mineral resources that help maintain a strong economy and that are necessary to build the state's infrastructure are vital to reducing transportation emissions that result from the distribution of hundreds of millions of tons of construction aggregates that are used annually in building and maintaining the state.*
>
> *(e) The Legislature further finds and recognizes the need of the state to provide local governments, metropolitan planning organizations, and other relevant planning agencies with the information necessary to identify and protect mineral resources within general plans.*
>
> *(f) The Legislature further finds that the state's mineral resources are vital, finite, and important natural resources and the responsible protection and development of these mineral resources is vital to a sustainable California.*

23-3, cont.

The AVRCIS claims to be "developed in concert with other key planning efforts that overlap in the RCIS area." However, the AVRCIS inappropriately ignores some existing designations of Statewide significance such as designated MRZs, while selectively addressing others of interest to the drafters.

As a contractor and materials provider of major public infrastructure of the ACRCIS area, LA County and greater area, Granite has a unique perspective on how this draft AVRCIS contradicts current planning and resource tools critical to the construction and maintenance the roads, highways and other public infrastructure.

The State has already designated MRZ resources as significant and adopted PRC Division 2, Chapter 9 Sections 2710-2796.5 as the governing law for management of mineral resources. Granite wishes to reiterate that any lands with mineral resource deposits classified as MRZ-2, or other mineral resources designated as regionally significant should be removed from the AVRCIS's scientific modeling and program.

Unfortunately, the AVRCIS ignores MRZ resources. This could have been remedied had the Desert and Mountains Conservation Authority or CDFW chosen to collaborate in development of the plan before its release. We request that the AVRCIS's modeling be revised to entirely exclude all MRZ zones given the protection afforded them and nature of this voluntary program.

**THOSE PREPARING THE AVRCIS HAVE NOT COMPLIED WITH PROVISIONS OF THE RCIS STATUTE MEANT TO ENSURE PUBLIC PARTICIPATION.**

The AVRCIS drafting process has not been inclusive. The Steering Committee lacks participation from regional stakeholders and local governments.

23-4

Without following a public process of disclosure and local government involvement, the AVRCIS drafting process lacked transparency, accountability and the real opportunity for the public, property owners and other stakeholders to have input. Not only is this contrary to the intent of the RCIS Statute, the AVRCIS cannot be reasonably adopted without it. Such action not only contradicts the RCIS Statute but undermines the public's confidence and reliance on basic principles of governmental transparency, open record keeping, prevention of conflicts of interest and due process that apply to public agency operations.

Granite appreciates the opportunity to review and comment on the draft AVRCIS. Please feel free to contact me should you have any questions or comments regarding Granite's comment letter. We look forward to working with you to resolve these concerns.

Sincerely,

Scott McArthur
VP Northern Los Angeles Region
Granite Construction Company

CC: Dr. Charles Bonham, Director, California Department of Fish and Wildlife
The Honorable Senator Wilk
The Honorable Assembly Member Lackey
The Honorable Kathryn Barger, LA County Supervisor

# PALMDALE

*a place to call home*

February 4, 2020

STEVEN D. HOFBAUER
*Mayor*

RICHARD J. LOA
*Mayor Pro Tem*

LAURA BETTENCOURT
*Councilmember*

AUSTIN BISHOP
*Councilmember*

JUAN CARRILLO
*Councilmember*

38300 Sierra Highway

Palmdale, CA 93550-4798

Tel: 661/267-5100

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Auxiliary aids provided for communication accessibility upon 72 hours notice and request.

California Department of Fish and Wildlife
Habitat Conservation Planning Branch
ATTENTION: Antelope Valley RCIS Comments
P.O. Box 944209
Sacramento, California 94244-2090

Dear Mr. Unger:

24-1 On behalf of the City of Palmdale, I am writing to express our concerns with the draft Antelope Valley Regional Conservation Investment Strategy (AVRCIS). As a key stakeholder representing over a third of the residents and businesses in the area, we were not made aware of this document and our input was not taken.

24-2 The concept behind the RCIS program was created with good intentions, but unfortunately, it lacks transparency in the drafting of the document. The purpose of the program is described as a voluntary, non-regulatory regional planning process; however, some environmental organizations are looking to improperly use the document as a backdoor to limit our local land use authority.

24-3 The boundaries of the AVRCIS is within the County of Los Angeles, however the document shows major inconsistencies with the County's General Plan. The General Plan identifies Economic Opportunity Areas (EOAs), which are designated for growth, but the AVRCIS designates them as high conservation priorities. This negatively impacts the City's efforts to promote housing and stimulate economic growth.

24-4 The inconsistencies and negative impacts of the AVRCIS noted above are apparent within our City's boundaries and sphere of influence. The City is two years into a four year process of updating our General Plan. The City is engaging the community, various groups, and leaders in a transparent process. It is a process that is planning for a future that includes growth. Without transparent engagement by the DMC, the City of Palmdale and its residents have no input, and fear that inconsistencies between the AVRICS and our General Plan could be misused by potential project proponents.

24-5 Furthermore, the California Legislature AB 2087, established guidelines to help implement each plan, but it seems to be that the AVRCIS was exempt from these guidelines. The draft AVRCIS should be held to the same guidelines as other RCIS documents, but most importantly, the involvement of affected stakeholders.

Surrounding areas in the Antelope Valley are already subject to conservation
24-6 priorities and this conservation plans will harm everything we are trying to
accomplish in the Antelope Valley.

We ask that CDFW reject this AVRCIS in its current state and further ask that the
24-7 preparers consult with the City and any other stakeholders that were not
conferred with prior to this draft document's release. The City opposes this
document and should not be adopted until key stakeholder groups are included.

Thank you for your consideration.

Sincerely,

Steven D. Hofbauer
Mayor

c: Palmdale City Council
Hon. Scott Wilk, California State Senator
Hon. Tom Lackey, California Assembly Member
Hon. Kathryn Barger, Chair, Board of Supervisors, County of Los Angeles
Los Angeles County Department of Regional Planning
JJ Murphy, City Manager, City of Palmdale

Rudy J. Ortega, Jr.
*Tribal President*

*Tribal Historic & Cultural Preservation Committee*
Lucia Alfaro
Chairperson

Fernandeño Tataviam Band of Mission Indians
# Tribal Historic & Cultural Preservation Department

June 22, 2020

Scott A. Fleury
Principal - Biodiversity Conservation Planning
ICF
525 B Street, Suite 1700
San Diego CA, 92101

*Sent via email to Scott.Fleury@icfi.com*

**Re: Fernandeño Tataviam Band of Mission Indians Comments and Recommendations for the Antelope Valley Regional Conservation Investment Strategy Project**

Dear Mr. Fleury,

On behalf of the Tribal Historic and Cultural Preservation (THCP) Department of the Fernandeño Tataviam Band of Mission Indians (FTBMI), thank you for the opportunity to comment on the Antelope Valley Regional Conservation Investment Strategy (AVRCIS).

25-1 The THCP Department understands that the AVRCIS is intended to provide guidance on the conservation of sensitive species habitats and other natural resources within the northeastern portion of Los Angeles County. However, the AVRCIS boundary encompasses a cultural landscape with a variety of Tribal Cultural Resources (TCR) that are significant to the FTBMI. For the purpose of this letter, TCRs are defined as sites, features, places, cultural landscapes, sacred places, and objects, including historical resources, unique archaeological resources, or non-unique archaeological resources with cultural value to a Native American Tribe. It is important that Native American tribes have the opportunity to consult on land conservation projects to provide guidance on the treatment of TCRs which have the potential to be impacted under this plan.

Below are comments and recommendations by the THCP Department for Chapter 1 and Chapter 4 of the AVRCIS for your consideration:

25-2 Chapter 1: Introduction

- Comment: Chapter 1 should acknowledge that the project encompasses a tribal cultural landscape and provide some basic information on natural and cultural resources important to Native American Tribes within the project area. This can include a discussion of the cultural use of plants and animals, geographic areas such as water sources and geological formations with significance to Tribes, and archaeological or TCR sites.

- Comment: There is no mention of collaborating with Tribes in the protection and conservation of habitats which exhibit biological, geological, and cultural resources that hold value for Native Americans.
    - 25-3 Recommendation: Incorporate language that outlines efforts by the AVRCIS to work with Tribes, including the FTBMI, to assess and mitigate potential impacts to culturally important resources. This can be included in Section *1.4.1 Building Blocks for Conservation planning*. TCRs should also be acknowledged as a conservation priority during planning stages and considered in Section *1.4.1.1 Primary Steps to Determine Conservation Priorities*.

Chapter 4: Implementation Strategy

- 25-4 Comment: All land conservation projects, and projects requiring ground disturbing activities (i.e., trails/paths) in particular, should be assessed for impacts to TCRs. Projects which encompass TCRs should be notified to Tribes, including the FTBMI, to assure that TCRs within the proposed conservation area are identified and potential impacts mitigated.
- 25-5 The FTBMI request to be included as one of the organizations in the Implementation Committee described in Section 4.3.2.2.
- 25-6 Recommendation: The Desert Mountain Conservation Authority (DMCA) is not required to consult with any public agencies, organizations, or collaborators. However, the THCP Department would like to emphasize the importance of collaborating with Tribes in good faith to mitigate impacts to TCRs.

The THCP Department request to continue discussions with DMCA, ICF, and neighboring Tribe to ensure the AVRCIS addresses the concerns of the FTBMI. Should you have any questions in regards to this letter, please feel free to contact me by phone or email. I can be reached at (818) 837-0794 or at jairo.avila@tataviam-nsn.us. Thank you.

Sincerely,

Jairo Avila

Jairo Avila, M.A., RPA
Tribal Historic and Cultural Preservation officer
Fernandeño Tataviam Band of Mission Indians

CC:

Rudy Ortega Jr., Tribal President – Fernandeño Tataviam Band of Mission Indians
Kimia Fatehi, Chief of Staff – Fernandeño Tataviam Band of Mission Indians

1019 Second Street, Suite 1 | San Fernando | California, 91340 | (818) 837-0794 | Fax (818) 837-0796 | thcp@tataviam-nsn.us

Appendix D

# Letters of Support

SANTA MONICA MOUNTAINS CONSERVANCY
RAMIREZ CANYON PARK
5750 RAMIREZ CANYON ROAD
MALIBU, CALIFORNIA 90265
PHONE (310) 589-3200
FAX (310) 589-3207
WWW.SMMC.CA.GOV

February 25, 2019

Charlton H. Bonham, Director
California Department of Fish and Wildlife
1416 Ninth Street
Sacramento, California 95814

**Antelope Valley Regional Conservation Investment Strategy**

Dear Mr. Bonham:

The Santa Monica Mountains Conservancy (Conservancy) is writing as the prospective state agency sponsor to request, in accordance with California Fish and Game Code Section 1852(a), that the California Department of Fish and Wildlife (CDFW) approve the Antelope Valley Regional Conservation Investment Strategy (AV RCIS). The 707,076-acre AV RCIS area is of statewide importance for conservation as it supports numerous rare, endangered and desert endemic species in the largest remaining undisturbed natural and rural lands left in Los Angeles County; contains important habitat within the Pacific Flyway for tens of thousands of migratory birds during spring and fall migratory seasons; and features critical areas for wildlife connectivity including the nexus between the South Coast Wildlands identified Tehachapi Connection and Sierra Madre-Castaic Connection and a desert floor connection through the Los Angeles County designated Antelope Valley Significant Ecological Area.

The AV RCIS would facilitate current efforts to safeguard these and other conservation values by contributing to smart growth principles including informed planning for conservation, urbanization, and public infrastructure that are important to the Conservancy. The AV RCIS will also help target acquisition, restoration, or enhancement where it will have the largest benefit for focal species and other conservation elements.

The AV RCIS was developed by ICF in coordination with the Desert and Mountains Conservation Authority, Conservation Strategy Group, Los Angeles County Planning Department, California Energy Commission, SoCal Edison, Los Angeles County Metropolitan Transportation Authority, Transition Habitat Conservancy, Sierra Club, and

The Nature Conservancy with an additional 30-plus member active Advisory Committee. The AV RCIS area encompasses unincorporated Los Angeles County within the Desert Renewable Energy Conservation Plan (DRECP). As such, the AV RCIS was prepared consistent with Section 1852(c)(6) and (10).

The AV RCIS is based on the collaborative, science-based approach of the DRECP, Los Angeles County's Antelope Valley Area Plan and public stakeholder meetings to identify areas of high conservation value in the region.

The Conservancy expects several transportation and infrastructure projects will be designed and proposed for construction in the next three to ten years within the AV RCIS area. The AV RCIS will inform the mitigation needs of other projects occurring in the AV RCIS area including ongoing development in the western portion near Gorman, the north-south State Route 14 corridor, the east-west State Route 138 corridor, and other sensitive areas within the AV RCIS.

Thus, the Conservancy endorses the Antelope Valley Regional Conservation Investment Strategy and requests CDFW approve the AV RCIS to help agencies avoid and minimize project impacts and identify priority conservation actions for compensatory mitigation. The AV RCIS will provide a powerful science-based tool to expand the quality and quantity of biological mitigation to protect one of the most unique ecosystems in California.

Thank you for your consideration. Should you have any questions, please contact me at (310) 589-3200 ext. 128, edelman@smmc.ca.gov, or at the above letterhead address.

Sincerely,

PAUL EDELMAN
Deputy Director
Natural Resources and Planning

**DEPARTMENT OF TRANSPORTATION**
DISTRICT 7
100 S. Main Street, MS-16A
LOS ANGELES, CA 90012-3606
PHONE (213) 897-3656
FAX (213) 897-0685
TTY711
www.dot.ca.gov

*Making Conservation*
*a California Way of Life.*

March 10, 2021

Mr. Charlton H. Bonham
Director
California Department of Fish and Wildlife
1416 Ninth Street
Sacramento, CA 95814

Dear Mr. Bonham:

The California Department of Transportation (Caltrans) requests that the California Department of Fish and Wildlife (CDFW) approve the Antelope Valley Resource Conservation Strategy (RCIS) prepared by ICF Consultants.

The proposed RCIS contains information that may guide Caltrans' planning for avoidance and minimization of environmental impacts during transportation project delivery. Further, the proposed RCIS contains information to aid advance mitigation project development under Article 2.5(b) of Chapter 4 of Division 1 of the Streets and Highway Code, by laying the natural-resource related groundwork for CDFW to enter into Mitigation Credit Agreement(s) (MCAs) with Caltrans and/or others. Compensatory mitigation credits developed in accordance with an MCA tiered off of the Antelope Valley RCIS may be usable by, and hence increase the delivery efficiency of, Caltrans' future transportation projects. Thus, because the RCIS will support both avoidance and minimization, as well as MCA development, Caltrans expects the Antelope Valley RCIS to support the State of California's goals for both (1) conservation and (2) public infrastructure, specifically the State Highway System.

The basis for Caltrans' request is five-fold.

- Caltrans anticipates future transportation project permit conditions for the regulated natural resources addressed by the RCIS, including the wildlife, riparian, wetland, essential sensitive desert habitats, and aquatic resources.
- Caltrans' environmental impact modeling based on long-term transportation planning predicts that Caltrans will need more than *de minimis* compensatory mitigation in the RCIS area.
- Caltrans anticipates future permits may require compensatory mitigation and, at this time, the available supply of compensatory mitigation credits to address potential anticipated future permit requirements are limited.
- Resource-related information presented in the RCIS is provided in a manner that would facilitate Caltrans engagement with other environmental agencies, whose jurisdiction overlaps with CDFW's and with whom Caltrans will also seek mitigation agreements.

- The RCIS anticipates Caltrans' requirements for MCAs. Specifically, there are actions proposed in the RCIS that, if performed, can reasonably be expected to yield compensatory mitigation credits both usable by Caltrans and acceptable to CDFW, in the future.

This letter in no way obligates Caltrans to enter into a specific MCA. Caltrans retains sole discretion for its own future purchase and use of mitigation credits. Caltrans will not be responsible for updating or amending the RCIS. All applicable environmental compliance (including California Environmental Quality Act review) will be conducted by the lead agency.

Sincerely,

Ron Kosinski

Ron Kosinski,
Deputy Director, Environmental Planning
District 7, Caltrans

cc: Chad Dibble, Chief Deputy Director, CDFW
Jeff Drongesen, Habitat Conservation Planning Branch Chief, CDFW

Appendix E

# Focal Species Assessment

| Taxa | Common Name | Scientific Name | Federal Status | State Statue | Other Status | Global / State Ranking | Vulnerability Status: Listed, Candidate, or Potential for Listing? | Status: Planning Species? | Occurrence: Known to Occur in Mojave Basin and Range Ecoregion? | Data: Enough existing data in study area to propose viable conservation actions. | Status: Listed or likelihood of listing within 5 years? | Importance of study area: Portion of range, critical habitat, or core habitat in study area? | Benefit/Cost: Overlap in habitat or management w/ other potential focal species? | Alignment with other conservation goals: Addressed in state/regional strategy or covered by local HCP? | Filtering Decision | Rationale/Comments | Sophie Parker (TNC) | Becky Mandich (Southern California Edison0 | Other AC/SC Member Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Plant [1] | alkali mariposa-lily | *Calochortus striatus* | None | None | CNPS 1B.2 | G2S2 | Yes | No | Yes | Yes | High Likely | High | High | High | Focal Species | Covered by DRECP. | Yes - Definitely | Yes - Definitely | Tom Egan (Defenders of Wildlfie): Recommended Focal, Area Dependent or Umbrella Species. |
| Plant [1] | Spreading navarretia | *Navarretia fossalis* | FT | None | CNPS 1B.1 | G2 S2 | Yes | No | Yes | No | Listed - T | Moderate | *Moderate* | Low | Focal Species | Maybe single occurrence in study area? Cirtical habitat designated far south of study area. Associated with vernal pools and ephemeral wetlands. Some ephemeral wetlands mapped in study area for High Speed Rail. Species likely undersurveyed in study area. | Yes - Maybe | | Sophie Parker (TNC): Appears to be found within the study area, rare, and associated with vernal pools/wetlands.<br>Suba (CNPS): Why wouldn't this be on the list. Occurs in vernal pools. There is vernal pool habitat in western antelope valley that has been undersurveyed. However, vernal pools in AV have been sited in NW AV. |
| Plant 1 | short-joint beavertail | *Opuntia basilaris var. brachyclada* | None | None | CNPS List 1B.2 | G553/S3 | *Yes* | No | Yes | Yes | Low Likely | High | Moderate | Low | Focal Species | Recommended by Steering Committee. | | | Tom Egan (Defenders of Wildlfie): Recommended Focal, Area Dependent or Umbrella Species.<br>Greg Suba (CNPS): Recommended focal species for foothills. |
| Plant [1] | California juniper | *Juniperus californica* | None | None | | G5S5 | No | Umbrella | Yes | Yes | No | Low | High | Low | Focal Species | Included as focal species as an umbrella species for foothills. | | | |
| Plant 1 | Joshua tree | *Yucca brevifolia* | None | None | | G4G5 SNR | No | Umbrella | Yes | Yes | Low Likely | High | High | *Moderate* | Focal Species | Umbrella planning species. | Yes - Definitely | Yes - Definitely | Sophie Parker (TNC):It is a good idea to include both widespread and narrow-range species on ths list of focal species.<br>Suba: Yes recommended |
| Reptile/Amphibian [1] | coast horned lizard | *Phrynosoma coronatum blainvillei* | FC/FS/BCC/BLM | CSC | | G3G4 S3S4 | Yes | No | Yes | Yes | High Likely | High | High | High | Focal Species | Covered by DRECP. | Yes - Definitely | Yes - Definitely | Tom Egan (Defenders of Wildlfie): Recommended Focal, Area Dependent or Umbrella Species. |
| Reptile/Amphibian [1] | Desert horned lizard | *Phrynosoma platyrhinos calidiarum* | None | None | | | No | Indicator | Yes | Yes | Low Likely | Moderate | High | Moderate | Focal Species | Documented at Portal Ridge Wildlife Preserve. | Yes - Definitely | Yes - Definitely | |
| Reptile/Amphibian [1] | desert tortoise | *Gopherus agassizii* | FT | ST | None | G4S2 | Yes | No | Yes | Yes | Listed - T | High | High | High | Focal Species | Covered by DRECP. | Yes - Definitely | Yes - Definitely | Tom Egan (Defenders of Wildlfie): Recommended Focal, Area Dependent or Umbrella Species. |
| Reptile/Amphibian [1] | Western pond turtle | *Emys marmorata* | BLM | CSC | IUCN:VU | G3G4 S3 | Yes | No | Yes | Yes | Low Likely | Low | High | Moderate | Focal Species | Occurrences documented in the Plan Area. Indicator of aquatic habitat quality. DRECP species of interest. | Yes - Definitely | Yes - Definitely | Tom Egan (Defenders of Wildlfie): Recommended Focal, Area Dependent or Umbrella Species. |
| Bird [1] | burrowing owl | *Athene cunicularia* | BLM/BCC | CSC | None | G4S2 | Yes | No | Yes | Yes | Low Likely | Moderate | High | High | Focal Species | Covered by DRECP. | Yes - Definitely | Yes - Definitely | Tom Egan (Defenders of Wildlfie): Recommended Focal, Area Dependent or Umbrella Species. |
| Bird [1] | California condor | *Gymnogyps californianus* | FE | SE/FP/CDF | None | G1S1 | Yes | No | Yes | Yes | Listed - E | Low | Low | *High* | Focal Species | Little overlap with occurrence data in study area. Based on telemetry occurrence data, appear to occur just west of the study area, but little activity within study area. No nesting habitat in study area. However, high-profile species covered by DRECP so should be considered in RCF where appropriate. | | Yes - Definitely | Becky Mandich (SCE): May consider making California Condor a focal species due to range expansion. They are currently in the Techachapi area and in the ANF and may move into |
| Bird [1] | golden eagle | *Aquila chrysaetos* | BLM/BCC | FP/CDF | Bald and Golden Eagle Protection Act | G5S3 | Yes | No | Yes | Yes | Low Likely | Low | High | Moderate | Focal Species | Covered by DRECP. | Yes - Definitely | Yes - Definitely | Tom Egan (Defenders of Wildlfie): Recommended Focal, Area Dependent or Umbrella Species. |
| Bird [1] | Le Conte's thrasher | *Toxostoma lecontei* | BLM | CSC | BCC | G3 S3 | Yes | No | Yes | Yes | Low Likely | Moderate | High | Moderate | Focal Species | Many documented occurrences in the Plan Area. DRECP species of interest. | | Yes - Definitely | Tom Egan (Defenders of Wildlfie): Recommended Focal, Area Dependent or Umbrella Species. |
| Bird [1] | least Bell's vireo | *Vireo bellii pusillus* | FE/BCC | SE | None | G5T2S2 | Yes | No | Yes | Yes | Listed - E | Moderate | High | High | Focal Species | Covered by DRECP. | | Yes - Definitely | Jill Bays (Transition Habitat Conservancy): Cooper's hawk, Loggerhead shrike, Northern harrier, Prairie falcon American badger all definitely Yes (6/14/16) |
| Bird [1] | Loggerhead shrike | *Lanius ludovicianus* | BCC | CSC | | G4 S4 | No | Indicator | Yes | Yes | Low Likely | Low | High | *Moderate* | Focal Species | Indicator planning species. California population declining and considered vulnerable. | Yes - Definitely | | Tom Egan (Defenders of Wildlfie): Recommended Focal, Area Dependent or Umbrella Species. |
| Bird [1] | mountain plover | *Charadrius montanus* | BLM/BCC | CSC | None | G2S2? | Yes | No | Yes | Yes | Low Likely | High | High | High | Focal Species | Ground nesting, grassland habitat. | | | Tom Egan (Defenders of Wildlfie): Recommended Focal, Area Dependent or Umbrella Species. |
| Bird [1] | Northern harrier | *Circus cyaneus* | None | CSC | IUCN:LC | G5 S3 | No | Indicator | Yes | Yes | Low Likely | Low | High | Low | Focal Species | Grassland /wetland/marsh foraging habitat. Ground nesting. Indicator planning species. California population declining and vulnerable. | Yes - Definitely | | Jill Bays (Transition Habitat Conservancy): Cooper's hawk, Loggerhead shrike, Northern harrier, Prairie falcon American badger all definitely Yes (6/14/16).<br>Tom Egan (Defenders of Wildlfie): Recommended Focal, Area Dependent or Umbrella Species. |
| Bird [1] | Prairie falcon | *Falco mexicanus* | BCC | WL | IUCN:LC | G5 S3 | No | Area-dependent | Yes | Yes | Low Likely | Low | High | Low | Focal Species | Grassland foraging habitat. Cliff nesting. Enough habitat overlap with Swainson's hawk and golden eagle to remove from focal species? | Yes - Definitely | | Jill Bays (Transition Habitat Conservancy): Cooper's hawk, Loggerhead shrike, Northern harrier, Prairie falcon American badger all definitely Yes (6/14/16)<br><br>Tom Egan (Defenders of Wildlfie): Recommended Focal, Area Dependent or Umbrella Species. |
| Bird [1] | Swainson's hawk | *Buteo swainsoni* | FS/BCC/BLM | ST | ABC | G5S2 | Yes | No | Yes | Yes | Low Likely | Moderate | Moderate | *Moderate* | Focal Species | Covered by DRECP. | Yes - Definitely | Yes - Definitely | Sophie Parker (TNC): There are a lot of birds included on the list of focal species. I would challenge the group to demonstrate that these species are sufficiently different in their habitat needs, range, and other factors to warrant all of them being included.<br>Tom Egan (Defenders of Wildlfie): Recommended Focal, Area Dependent or Umbrella Species. |

| Taxa | Common Name | Scientific Name | Federal Status | State Statue | Other Status | Global / State Ranking | Vulnerability Status: Listed, Candidate, or Potential for Listing? | Status: Planning Species? | Occurrence: Known to Occur in Mojave Basin and Range Ecoregion? | Data: Enough existing data in study area to propose viable conservation actions. | Status: Listed or likelihood of listing within 5 years? | Importance of study area: Portion of range, critical habitat, or core habitat in study area? | Benefit/Cost: Overlap in habitat or management w/ other potential focal species? | Alignment with other conservation goals: Addressed in state/regional strategy or covered by local HCP? | Filtering Decision | Rationale/Comments | Sophie Parker (TNC) | Becky Mandich (Southern California Edison0 | Other AC/SC Member Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bird [1] | Tricolored blackbird | *Agelaius tricolor* | BCC/BLM | CSC | IUCN:EN, ABC:WLBCC | G2G3 S2 | Yes | No | Yes | Yes | Low Likely | Moderate | Low | High | Focal Species | Covered by DRECP. | Yes - Definitely | Yes - Definitely | Tom Egan (Defenders of Wildlfie): Recommended Focal, Area Dependent or Umbrella Species. |
| Bird [1] | willow flycatcher | *Empidonax traillii* | FS | SE | ABC | G5S1S2 | Yes | No | Yes | Yes | Low Likely | Low | Low | *Low* | Focal Species | State listed endangered. | | | |
| Bird [1] | Long-billed curlew | Numenius americanus | BCC | WL | ABC:WLBCC | G5 S2 | Yes | No | Yes | Yes | Low Likely | Moderate | Low | Moderate | Focal Species | Focal species of SWAP. Climate vulnerable and dependent on water/agriculture. | | | Tom Egan (Defenders of Wildlfie): Recommended Focal, Area Dependent or Umbrella Species. |
| Mammal [1] | American badger | *Taxidea taxus* | None | CSC | IUCN:LC | G5 S4 | Yes | No | Yes | Yes | Low Likely | Low | High | Moderate | Focal Species | Documented occurrence in the Plan Area. DRECP species of interest. | Yes - Definitely | Yes - Definitely | Tom Egan (Defenders of Wildlfie): Recommended Focal, Area Dependent or Umbrella Species. |
| Mammal [1] | desert kit fox | *Vulpes macrotis arsipus* | None | None | IUCN:LC | G4 S3S4 | No | Area-dependent | Yes | Yes | Low Likely | Low | High | High | Focal Species | Area-dependent planning species | Yes - Definitely | Yes - Definitely | Tom Egan (Defenders of Wildlfie): Recommended Focal, Area Dependent or Umbrella Species. |
| Mammal [1] | Mohave ground squirrel | *Spermophilus [Xerospermophilus] mohavensis* | BLM | ST | None | G2G3S2S3 | Yes | No | Yes | Yes | Listed - T | High | High | High | Focal Species | Covered by DRECP. | Yes - Definitely | Yes - Definitely | Tom Egan (Defenders of Wildlfie): Recommended Focal, Area Dependent or Umbrella Species. |
| Mammal [1] | Tehachapi pocket mouse | *Perognathus alticolus inexpectatus* | BLM/FS | CSC | IUCN:EN | G1G2T1T2 S1S2 | Yes | No | Yes | Yes | High Likely | High | Moderate | Low | Focal Species | Documented occurrence in the Plan Area. DRECP species of interest. | Yes - Definitely | | |
| Mammal [1] | Mountain lion | *Puma concolor* | None | None | IUCN:NT | G5 S5 | *No* | Umbrella | Yes | Yes | Low Likely | Low | High | *Low* | Focal Species | Recommended as umbrella focal species as an apex predator and for landscape connectivity considerrations. | | | Tom Egan (Defenders of Wildlfie): Recommended Focal, Area Dependent or Umbrella Species. |
| Plant [2] | desert cymopterus | *Cymopterus deserticola* | BLM | None | CNPS List 1B.2 | G3S3.2 | Yes | No | Yes | No | Low Likely | Low | Moderate | High | Non-Focal Potentially Benefitting | | Yes - Definitely | | |
| Plant [2] | Arrowweed | *Pluchea sericea* | None | None | | G4G5 SNR | No | No | Yes | *Yes* | Low Likely | Low | High | *Low* | Non-Focal Potentially Benefitting | Consider as natural community conservation target. | No | No | Sophie Parker (TNC): if we include wetlands and riparian corridors in the planning process as community-level targets, then we don't need to call this species out individually |
| Plant [2] | Big galleta grass | *Hilaria rigida* | None | None | | G5 SNR | No | Umbrella | Yes | *Yes* | Low Likely | Low | High | *Low* | Non-Focal Potentially Benefitting | Consider as natural community conservation target. | No | | Sophie Parker (TNC): The updated scientific name is "*Hilaria rigida*" |
| Plant [2] | Blackbrush | *Coleogyne ramosissima* | None | None | | G5 SNR | No | Umbrella | Yes | *Yes* | Low Likely | Low | High | *Low* | Non-Focal Potentially Benefitting | Consider as natural community conservation target. | No | | Sophie Parker (TNC):The common name is "Blackbrush" with an "R". Check to make sure this species is found in Los Angeles county. |
| Plant [2] | Cat claw acacia | *Senegalia greggii* | None | None | | G5 SNR | No | Umbrella | Yes | *Yes* | Low Likely | Low | High | *Low* | Non-Focal Potentially Benefitting | Consider as natural community conservation target. | No | | Sophie Parker (TNC):The updated scientific name is "*Senegalia greggii";* appears to be more common further east |
| Plant [2] | Desert willow | *Chilopsis linearis* | None | None | | G5 SNR | No | Umbrella | Yes | *Yes* | Low Likely | Low | High | *Low* | Non-Focal Potentially Benefitting | Consider as natural community conservation target. | No | | Sophie Parker (TNC):Check to make sure this species is found in Los Angeles county-- it appears to be limited to the more eastern portions of the CA Mojave Desert. |
| Plant [2] | Honey mesquite | *Prosopis glandulosa* | None | None | | G5? SNR | No | Umbrella | Yes | Yes | Low Likely | Low | *High* | Low | Non-Focal Potentially Benefitting | Only a single occurrence in study area on CalFlora. Does this pass data criteria? Recommend capturing this species as a rare natural community. | Yes - Maybe | | Sophie Parker (TNC): This species is commonly known as "honey mesquite". Given its limited range in the desert portion of Los Angeles County, its importance for supporting wildlife, and its ability to act as an indicator species for groundwater conditions, I would lean towards including this species. Is there enough of it to consider it as a "community" target?<br><br>Suba: Consider as rare community? Could be suitable. Occurrences in study area are western most in range. Should be well represented in DRECP veg data. Mesquite stands to the east of AV are dying. |
| Plant [2] | Mojave tarplant | *Deinandra mohavensis* | BLM | SE | CNPS List 1B.3 | G2S2.3 | Yes | No | Yes | No | | | | | Non-Focal Potentially Benefitting | Very uncertain if the species occurs in plana area. Only a single documented occurrence in the study area on CalFlora. DRECP model does not cover study area. No CNPS records in study area. May occur, but doesn't meet data criteria. | Yes - Maybe | | Betty Courtney (CDFW): You may want to consider Mojave Tarplant – we have heard rumor of two possible location (Alpine Butte Wildlife Sanctuary and Redman)<br><br>Sophie Parker (TNC): Calflora shows a record for this species in the study area (LA County): http://www.calflora.org/cgi-bin/species_query.cgi?where-taxon=Deinandra+mohavensis<br><br>Suba: haven't been able to find records in study area. |
| Plant [2] | Paperbag bush | *Scutellaria mexicana* | None | None | | G5 SNR | No | Umbrella | Yes | Yes | Low Likely | Low | *High* | Low | Non-Focal Potentially Benefitting | Appears that its habitat overlaps with joshua tree woodland. If so, that species would cover this species. | Yes - Maybe | | Sophie Parker (TNC):The updated scientific name is "Scutellaria mexicana". This species has many records for the study area (LA County). I would consider including it.<br><br>Suba: Ubiquitous, but doesn't know if it overlaps study area.<br><br>Sarah Friedman (verbal during 6/12/16 SC mtg): Does not make for a good indicator or planning species. |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Plant [2] | Peirson's morning glory | *Calystegia peirsonii* | None | None | CNPS List 4.2 | G4 S4 | No | Umbrella | Yes | *Yes* | Low Likely | High | High | *Low* | Non-Focal Potentially Benefitting | Documented at Portal Ridge Wildlife Preserve. Narrow range, much of which is in study area. Calflora lists habitats as Shadscale Scrub, Chaparral, Foothill Woodland, Coastal Sage Scrub, Yellow Pine Forest. Could make for a plant species of narrow range with high conservation benefit. | Yes - Maybe | | Sophie Parker (TNC):Appears to be widespread in the focal area, but with a limited distribution overall.<br><br>Suba: Sure, as umbrella species.<br><br>Tom Egan (Defenders of Wildlife): Not a suitable planning species. Not umbrella, area-dependent, indicator, or climate change. |
| Plant [2] | round-leaved filaree | *California macrophylla* | None | None | CNPS List 1B.2 | G3? S3? | Yes | No | Yes | Yes | Low Likely | Low | *Moderate* | Moderate | Non-Focal Potentially Benefitting | Documented at Portal Ridge Wildlife Preserve. CalFlora lists community as Valley Grassland, Foothill Woodland. Core range is east of study area, where numbers increasing. Only marginal range/habitat extends into study area. | No | | Sophie Parker (TNC):appears to be more of a cismontane species than a transmontane species.<br>Max Thelander (LA County): I discussed it with our County Biologist, Joe Decruyenaere, and he suggested that round-leaved filaree should be one of the 25 focal species.<br><br>Suba: Documented number increasing overall. Well represented outside of study area. Low priority. |
| Plant [2] | Golden goodmania | Goodmania luteola | None | None | CNPS 4.2 | G3S3 | No | Indicator | Yes | Yes | Low Likely | Moderate | Moderate | Low | Non-Focal Potentially Benefitting | Planning species associated with ephemeral wetlands and vernal pools. CNPS Fairly endangered in California. Well documented throughout study area. | | | |
| Invert - Lepidoptera [2] | Bernardino dotted blue | *Euphilotes bernardino* | None | None | | G3G4 SNR | No | No | Yes | *No* | | | | | Non-Focal Potentially Benefitting | | | | |
| Invert - Lepidoptera [2] | Ford's swallowtail | *Papilo indra fordi* | None | None | | G5 SNR | No | No | Yes | *No* | | | | | Non-Focal Potentially Benefitting | | | | |
| Invert - Lepidoptera [2] | Yucca moth | *Tegeticula synthetica* | None | None | | G4G5 | No | Indicator | Yes | *Yes* | Low Likely | Low | Moderate | *Low* | Non-Focal Potentially Benefitting | | | | |
| Reptile/Amphibian [2] | Chuckwalla | *Sauromalus ater* | None | None | | G5 S4 | No | No | Yes | *No* | | | | | Non-Focal Potentially Benefitting | | | | Sophie Parker (TNC): The commonly-recognized scientific name is "Sauromalus ater". |
| Reptile/Amphibian [2] | Coachwhip | *Masticophis flagellum* | None | None | | G5 S5 | No | No | Yes | No | | | | | Non-Focal Potentially Benefitting | | | | |
| Reptile/Amphibian [2] | Collared lizard | *Crotaphytus bicinctores* | None | None | | G5 S5 | No | No | Yes | *No* | | | | | Non-Focal Potentially Benefitting | | | | |
| Reptile/Amphibian [2] | Desert night lizard | *Xantusia vigilis* | None | None | | G5 S4 | *No* | No | Yes | Yes | | | | | Non-Focal Potentially Benefitting | | | | Tom Egan (Defenders of Wildlfie): Recommended Focal, Area Dependent or Umbrella Species. |
| Reptile/Amphibian [2] | Mojave rattlesnake | *Crotalus scutulatus* | None | None | | G5 S4 | No | No | Yes | *No* | | | | | Non-Focal Potentially Benefitting | | | | |
| Reptile/Amphibian [2] | Northern California legless lizard | *Anniella pulchra* | None | CSC | FS | G3 S3 | Yes | No | Yes | *No* | | | | | Non-Focal Potentially Benefitting | Cal Herps on Habitat: Occurs in moist warm loose soil with plant cover. Moisture is essential. Occurs in sparsely vegetated areas of beach dunes, chaparral, pine-oak woodlands, desert scrub, sandy washes, and stream terraces with sycamores, cottonwoods, or oaks. Leaf litter under trees and bushes in sunny areas and dunes stabilized with bush lupine and mock heather often indicate suitable habitat. Often can be found under surface objects such as rocks, boards, driftwood, and logs. Can also be found by gently raking leaf litter under bushes and trees.<br><br>Not covered by DRECP, nor a species of interest. Listing unlikely. | | | |
| Reptile/Amphibian [2] | Northern three-lined boa | *Lichanura orcutti* | None | None | | | No | No | Yes | *No* | | | | | Non-Focal Potentially Benefitting | Recently identified species, separate from Rosy Boa. | | | |
| Reptile/Amphibian [2] | Regal ring-necked snake | *Diadophis punctatus regalis* | None | None | | G5 SNR | No | No | Yes | *No* | | | | | Non-Focal Potentially Benefitting | | | | |
| Reptile/Amphibian [2] | Southern Western pond turtle | *Emys marmorata pallida* | BLM | CSC | IUCN:VU | G3G4 S3 | Yes | No | *Yes* | No | | | | | Non-Focal Potentially Benefitting | Southern Western pond turtle not recognized by CDFW. Refer to Western pond turtle. | No | | |
| Reptile/Amphibian [2] | Speckled rattlesnake | *Crotalus mitchellii* | None | None | | G5 S4 | No | No | Yes | *No* | | | | | Non-Focal Potentially Benefitting | | | | |
| Reptile/Amphibian [2] | Western patch-nosed snake | *Salvadora hexalepis* | None | None | | G5 S4 | *No* | No | Yes | No | | | | | Non-Focal Potentially Benefitting | | | | |
| Reptile/Amphibian [2] | Western skink | *Eumeces skiltonianus* | None | None | | G5T5 | No | No | *Yes* | No | | | | | Non-Focal Potentially Benefitting | | | | |
| Reptile/Amphibian [2] | California whipsnake | Coluber lateralis lateralis | None | None | | | No | Yes | Yes | Yes | Low Likely | Low | Low | Low | Non-Focal Potentially Benefitting | Not addressed in State Wildlife Action plan for Desert Province. Chaparral will be considered as a natural community conservation target. Low priority as a focal species. | | | Tom Egan (Defenders of Wildlfie): Recommended Focal, Area Dependent or Umbrella Species. |
| Reptile/Amphibian [2] | Mojave fringe-toed lizard | *Uma scoparia* | BLM | CSC | IUCN:LC | G3G4 S3S4 | Yes | No | Yes | Yes | Low Likely | Low | Low | High | Non-Focal Potentially Benefitting | | | | |
| Bird [2] | southwestern willow flycatcher | *Empidonax traillii extimus* | FE | SE | ABC | G5T1T2S1 | Yes | No | Yes | Yes | Listed - E | Low | Low | *High* | Non-Focal Potentially Benefitting | No CNDDB Occurrence data in study area or study area. Small amount of WHR in study area; none in study area. Unlikely that the species breeds in the study area. | | | Tom Egan (Defenders of Wildlfie): Recommended Focal, Area Dependent or Umbrella Species. |
| Bird [2] | Ash-throated flycatcher | *Myiarchus cinerascens* | None | None | IUCN:LC | G5 S5 | *No* | No | Yes | Yes | | | | | Non-Focal Potentially Benefitting | cavity nesting | | | |
| Bird [2] | bald eagle | *Haliaeetus leucocephalus* | FD/BCC/BLM/FP | SE/FP/CDF | | G5S2 | Yes | No | Yes | Yes | Low Likely | Low | Low | Low | Non-Focal Potentially Benefitting | Occurrence at Piute Ponds and Lake Elizabeth. Nesting? | | | |
| Bird [2] | Bell's sage sparrow | *Amphispiza belli belli* | BCC | WL | ABC | G5T2T4 S2? | Yes | No | Yes | Yes | Low Likely | Moderate | *Moderate* | Low | Non-Focal Potentially Benefitting | Lots of sightings in study area (eBird). Shrub nesting. Recently Bell's Sparrow and Sagebrush Sparrow split into two species that are very difficult to tell apart in the field. All sightings are "Sabrush/Bell's Sparrow (Sage Sparrow). Given this ambiguity, devising a conservation strategy could be fruaght with uncertainty. | | | |
| Bird [2] | Black-chinned sparrow | *Spizella atrogularis* | BCC | None | ABC:WLBCC | G5 S3 | *No* | No | Yes | Yes | | | | | Non-Focal Potentially Benefitting | | | | |
| Bird [2] | Black-tailed Gnatcatcher | *Polioptila melanura* | None | None | IUCN:LC | G5 S4 | *No* | No | Yes | Yes | | | | | Non-Focal Potentially Benefitting | shrub nesting | | | |
| Bird [2] | Black-throated Sparrow | *Amphispiza bilineata* | None | None | IUCN:LC | G5 SNRB, SNRN | No | No | Yes | *Yes* | | | | | Non-Focal Potentially Benefitting | | | | |
| Bird [2] | Brown-crested flycatcher | *Myiarchus tyrannulus* | None | WL | IUCN:LC | G5 S2S3 | *Yes* | No | Yes | No | | | | | Non-Focal Potentially Benefitting | | | | |
| Bird [2] | California horned lark | *Eremophila alpestris actia* | None | None | CDFW:WL IUCN:LC | G5T3Q S3 | Yes | No | Yes | *Yes* | Low Likely | Low | Moderate | *Low* | Non-Focal Potentially Benefitting | Documented at Portal Ridge Wildlife Preserve. | | | |
| Bird [2] | Common yellowthroat | *Geothlypis trichas* | None | None | IUCN:LC | G5 S3 | No | No | Yes | Yes | | | | | Non-Focal Potentially Benefitting | | | | |
| Bird [2] | Cooper's hawk | *Accipiter cooperii* | None | None | WL | G5 S4 | No | No | Yes | *Yes* | | | | | Non-Focal Potentially Benefitting | | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bird [2] | Ferruginous hawk | *Buteo regalis* | BLM | WL | | G4 S3S4 | No | Area-dependent | Yes | Yes | Low Likely | Moderate | *Moderate* | Moderate | Non-Focal Potentially Benefitting | | | | Tom Egan (Defenders of Wildlfie): Recommended Focal, Area Dependent or Umbrella Species. |
| Bird [2] | Grasshopper sparrow | *Ammodramus savannarum* | None | CSC | IUCN:LC | G5 S2 | *Yes* | No | Yes | No | | | | | Non-Focal Potentially Benefitting | No eBird sightings in study area. | | | |
| Bird [2] | Gray vireo | *Vireo vicinior* | BLM, BCC | CSC | | G4 S2 | Yes | No | Yes | Yes | Low Likely | Low | *Moderate* | Low | Non-Focal Potentially Benefitting | Only 2 ebird occurences in study area. | | | |
| Bird [2] | Greater roadrunner | *Geococcyx californianus* | None | None | IUCN:LC | G5 SNR | *No* | Area-dependent | Yes | Yes | Low Likely | Low | High | *Low* | Non-Focal Potentially Benefitting | | | | Tom Egan (Defenders of Wildlfie): Recommended Focal, Area Dependent or Umbrella Species. |
| Bird [2] | Juniper Titmouse | *Baeolophus griseus* | None | None | IUCN:LC | G5 SNRN | *No* | No | Yes | Yes | | | | | Non-Focal Potentially Benefitting | | | | |
| Bird [2] | Ladder-backed woodpecker | *Picoides scalaris* | None | None | IUCN:LC | G5 S4 | No | Keystone | Yes | Yes | Low Likely | Low | Low | Low | Non-Focal Potentially Benefitting | Considered as planning species as a cavity nester. Ultimately removed with preference to more vulnerable species. | | | Tom Egan (Defenders of Wildlfie): Recommended Focal, Area Dependent or Umbrella Species. |
| Bird [2] | Lawrence's goldfinch | *Spinus lawrencei* | BCC | None | ABC:WLBCC | G3G4 S3 | *No* | No | Yes | Yes | | | | | Non-Focal Potentially Benefitting | | | | |
| Bird [2] | Long-eared owl | *Asio otus* | BLM | CSC | IUCN:LC | G5 S3 | Yes | No | Yes | Yes | Low Likely | Moderate | *Low* | Moderate | Non-Focal Potentially Benefitting | Focal species of State Wildlife Action plan Desert Province. Comparatvely low conservation risk compared to other focal species. | | | Tom Egan (Defenders of Wildlfie): Recommended Focal, Area Dependent or Umbrella Species. |
| Bird [2] | Lucy's warbler | *Oreothlypis luciae* | BCC | CSC | | G5 S2S3 | *Yes* | No | Yes | Yes | Low Likely | Low | Low | *Low* | Non-Focal Potentially Benefitting | | | | |
| Bird [2] | Merlin | *Falco columbarius* | None | None | CDFW:WL IUCN:LC | G5 S3S4 | Yes | No | Yes | *Yes* | Low Likely | Low | Moderate | *Low* | Non-Focal Potentially Benefitting | Documented at Portal Ridge Wildlife Preserve. | | | |
| Bird [2] | northern goshawk | *Accipiter gentilis* | BLM/FS | CSC | | G5 S3 | *No* | No | Yes | No | | | | | Non-Focal Potentially Benefitting | | | | |
| Bird [2] | Nuttall's woodpecker | *Picoides nuttallii* | BCC | None | ABC:WLBCC | G5 SNR | *No* | No | Yes | No | | | | | Non-Focal Potentially Benefitting | | | | |
| Bird [2] | oak titmouse | *Baeolophus inornatus* | BCC | None | ABC:WLBCC | G5 S3? | *No* | No | Yes | No | | | | | Non-Focal Potentially Benefitting | | | | |
| Bird [2] | olive-sided flycatcher | *Contopus cooperi* | BCC | CSC | ABC:WLBCC | G4 S4 | *No* | No | Yes | No | | | | | Non-Focal Potentially Benefitting | | | | |
| Bird [2] | Osprey | *Pandion haliaetus* | None | None | CDFW:WL IUCN:LC | G5 S4 | No | No | Yes | *Yes* | Low Likely | Low | Moderate | *Low* | Non-Focal Potentially Benefitting | Documented at Portal Ridge Wildlife Preserve. | | | |
| Bird [2] | Phainopepla | *Phainopepla nitens* | None | None | IUCN:LC | G5 S4S5 | *No* | No | Yes | Yes | | | | | Non-Focal Potentially Benefitting | | | | |
| Bird [2] | Pinyon Jay | *Gymnorhinus cyanocephalus* | None | None | IUCN:VU | G5 S5 | No | Indicator | Yes | *Yes* | Low Likely | Low | High | *Low* | Non-Focal Potentially Benefitting | | | | |
| Bird [2] | Purple martin | *Progne subis* | None | CSC | IUCN:LC | G5 S3 | *Yes* | No | Yes | No | | | | | Non-Focal Potentially Benefitting | | No | | |
| Bird [2] | red-breasted sapsucker | *Sphyrapicus ruber* | None | None | | G5 SNR | *No* | No | Yes | No | | | | | Non-Focal Potentially Benefitting | | | | |
| Bird [2] | rufous hummingbird | *Selasphorus rufus* | BCC | None | IUCN:LC | G5 S1S2 | *No* | No | Yes | No | | | | | Non-Focal Potentially Benefitting | | | | |
| Bird [2] | Rufous-crowned sparrow | *Aimophila ruficeps* | None | None | None | G5 SNR | No | No | Yes | Yes | | | | | Non-Focal Potentially Benefitting | | | | |
| Bird [2] | Sage sparrow | *Amphispiza belli* | None | None | None | G5 SNRB, SNRN | Yes | No | Yes | No | | | | | Non-Focal Potentially Benefitting | | | | |
| Bird [2] | Scott's Oriole | *Icterus parisorum* | None | None | IUCN:LC | G5 SNRB | No | No | Yes | *Yes* | | | | | Non-Focal Potentially Benefitting | | | | |
| Bird [2] | Scrub Jay | *Aphelocoma californica* | None | None | IUCN:LC | G5 SN4 | No | Indicator | Yes | *Yes* | Low Likely | Low | High | *Low* | Non-Focal Potentially Benefitting | | | | |
| Bird [2] | sharp-shinned hawk | *Accipiter striatus* | None | WL | | G5 S3 | *No* | No | Yes | No | | | | | Non-Focal Potentially Benefitting | | | | |
| Bird [2] | Short-eared Owl | *Asio flammeus* | None | CSC | ABC:WLBCC | G5 S3 | *No* | No | Yes | Yes | | | | | Non-Focal Potentially Benefitting | | | | |
| Bird [2] | Southern California rufous-crowned sparrow | *Aimophila ruficeps canescens* | None | WL | | G5T2T4 S2S3 | Yes | No | Yes | Yes | Low Likely | Low | *Low* | Low | Non-Focal Potentially Benefitting | | | | |
| Bird [2] | Summer tanager | *Piranga rubra* | None | CSC | IUCN:LC | G5 S2 | *No* | No | Yes | No | | | | | Non-Focal Potentially Benefitting | | | | Tom Egan (Defenders of Wildlfie): Recommended Focal, Area Dependent or Umbrella Species. |
| Bird [2] | Verdin | *Auriparus flaviceps* | None | None | IUCN:LC | G5 S5 | *No* | No | Yes | Yes | | | | | Non-Focal Potentially Benefitting | | | | |
| Bird [2] | Vermilion flycatcher | *Pyrocephalus rubinus* | None | CSC | IUCN:LC | G5 S2S3 | *No* | No | Yes | No | | | | | Non-Focal Potentially Benefitting | | | | |
| Bird [2] | western yellow-billed cuckoo | *Coccyzus americanus occidentalis* | FT/FS/BCC/BLM | SE | None | G5T2QS1 | Yes | No | Yes | No | | | | | Non-Focal Potentially Benefitting | DRECP model does not extend into study area. Only singe eBird occurrence in study area at Piute Ponds, more recent record from 2007. No critical habitat proposed in study area. | | | |
| Bird [2] | white-tailed kite | *Elanus leucurus* | None | FP | IUCN:LC | G5 S3 | Yes | No | Yes | No | | | | | Non-Focal Potentially Benefitting | Spotty occurrences in study area, except for at Piute Ponds. Fully protected in CA, but unlikely to be listed. | | | |
| Bird [2] | Yellow warbler | *Dendroica petechia brewsteri* | BCC | CSC | | G5T3? S2 | *No* | No | Yes | No | | | | | Non-Focal Potentially Benefitting | | | | |
| Bird [2] | Yellow-breasted chat | *Icteria virens* | None | CSC | IUCN:LC | G5 S3 | *Yes* | No | Yes | No | | | | | Non-Focal Potentially Benefitting | | | | |
| Bird [2] | Yellow-headed blackbird | *Xanthocephalus xanthocephalus* | None | CSC | IUCN:LC | G5 S3S4 | *No* | No | Yes | Yes | | | | | Non-Focal Potentially Benefitting | | | | |
| Bird [2] | Great-horned owl | Bubo virginianus) | None | None | | | No | No | Yes | Yes | | | | | Non-Focal Potentially Benefitting | | | | Tom Egan (Defenders of Wildlfie): Recommended Focal, Area Dependent or Umbrella Species. |
| Bird [2] | Wrentit | Chamaea fasciata | None | None | | | No | No | Yes | Yes | | | | | Non-Focal Potentially Benefitting | | | | |
| Mammal [2] | Mule deer | *Odocoileus hemionus* | None | None | IUCN:LC | G5 S5 | No | Area-dependent | Yes | Yes | Low Likely | Low | High | *Low* | Non-Focal Potentially Benefitting | Focal species of State Wildlife Action plan Desert Province. Ultimately through stakeholder input, mountain lion was chosen to represent the area-dependent umbrella species. | | | |
| Mammal [2] | American beaver | *Castor canadensis* | None | None | | | No | No | Yes | *Yes* | | | | | Non-Focal Potentially Benefitting | | | | |
| Mammal [2] | big brown bat | *Eptesicus fuscus* | None | None | G5 SNR | | No | No | Yes | *No* | | | | | Non-Focal Potentially Benefitting | Documented at Portal Ridge Wildlife Preserve. | | | |
| Mammal [2] | California pocket mouse | *Chaetodipus californicus* | None | None | IUCN:LC | G5 S5 | No | No | Yes | No | | | | | Non-Focal Potentially Benefitting | | | | |
| Mammal [2] | Desert pocket mouse | *Chaetodipus penicillatus* | None | None | IUCN:LC | G5 S4 | No | No | Yes | *Yes* | | | | | Non-Focal Potentially Benefitting | | | | |
| Mammal [2] | Desert woodrat | *Neotoma lepida* | None | None | IUCN:LC | G5 S5 | No | No | Yes | No | | | | | Non-Focal Potentially Benefitting | | | | |
| Mammal [2] | Fringed myotis | *Myotis thysanodes* | BLM | None | WBWG:H | G4G5 S4 | No | No | Yes | No | | | | | Non-Focal Potentially Benefitting | | | | |
| Mammal [2] | Hoary bat | *Lasiurus cinereus* | None | None | WBWG:M | G5 S4? | No | No | Yes | *No* | | | | | Non-Focal Potentially Benefitting | Documented at Portal Ridge Wildlife Preserve. | | | |
| Mammal [2] | little brown bat | *Myotis lucifugus* | None | None | WBWG:M | G5 S2S3 | *Yes* | No | Yes | No | | | | | Non-Focal Potentially Benefitting | | | | |
| Mammal [2] | Little pocket mouse | *Perognathus longimembris* | None | None | IUCN:LC | G5 S5 | No | No | Yes | No | | | | | Non-Focal Potentially Benefitting | | | | |
| Mammal [2] | Long-eared myotis | *Myotis evotis* | BLM | None | WBWG:M | G5 S4? | No | No | Yes | No | | | | | Non-Focal Potentially Benefitting | | | | |

| Taxa | Common Name | Scientific Name | Federal Status | State Statue | Other Status | Global / State Ranking | Vulnerability Status: Listed, Candidate, or Potential for Listing? | Status: Planning Species? | Occurrence: Known to Occur in Mojave Basin and Range Ecoregion? | Data: Enough existing data in study area to propose viable conservation actions. | Status: Listed or likelihood of listing within 5 years? | Importance of study area: Portion of range, critical habitat, or core habitat in study area? | Benefit/Cost: Overlap in habitat or management w/ other potential focal species? | Alignment with other conservation goals: Addressed in state/regional strategy or covered by local HCP? | Filtering Decision | Rationale/Comments | Sophie Parker (TNC) | Becky Mandich (Southern California Edison0 | Other AC/SC Member Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mammal [2] | Merriam's kangaroo rat | *Dipodomys merriami* | None | None | IUCN:LC | G5 S5 | No | No | Yes | No | | | | | Non-Focal Potentially Benefitting | | | | |
| Mammal [2] | Mexican free-tailed bat | *Tadarida brasiliensis* | None | None | G5 SNR | | No | No | Yes | *No* | | | | | Non-Focal Potentially Benefitting | Documented at Portal Ridge Wildlife Preserve. | | | |
| Mammal [2] | Pallid bat | *Antrozous pallidus* | BLM/FS | CSC | IUCN:LC | G5 S3 | Yes | No | Yes | No | | | | | Non-Focal Potentially Benefitting | | | | |
| Mammal [2] | Round-tailed ground squirrel | *Spermophilus tereticaudus* | None | None | | G5 S4 | *No* | No | Yes | No | | | | | Non-Focal Potentially Benefitting | | | | |
| Mammal [2] | southern grasshopper mouse | *Onychomys torridus* | None | CSC | | G5T3 S3 | No | No | Yes | Yes | Low Likely | Moderate | Moderate | *Low* | Non-Focal Potentially Benefitting | | | | |
| Mammal [2] | Spotted bat | *Euderma maculatum* | BLM | CSC | WBWG:H | G2 S2S3 | *Yes* | No | Yes | No | | | | | Non-Focal Potentially Benefitting | | | | |
| Mammal [2] | Townsend's big -eared bat | *Corynorhinus townsendii* | BLM/FS | CSC | IUCN:LC | G4 S2S3 | Yes | No | Yes | No | Low Likely | | *Low* | Moderate | Non-Focal Potentially Benefitting | | | | |
| Mammal [2] | Western mastiff bat | *Eumops perotis* | BLM | CSC | WBWG:H | G5T4 S3? | *Yes* | No | Yes | No | | | | | Non-Focal Potentially Benefitting | | | | |
| Mammal [2] | Western red bat | *Lasiurus blossevillii* | BLM, FS | CSC | WBWG:H | G5 S3? | *Yes* | No | Yes | No | | | | | Non-Focal Potentially Benefitting | | | | |
| Mammal [2] | Western small-footed myotis | *Myotis ciliolabrum* | BLM | None | WBWG:M | G5 S2S3 | *Yes* | No | Yes | No | | | | | Non-Focal Potentially Benefitting | | | | |
| Mammal [2] | Yellow-eared pocket mouse | *Perognathus xanthonotus* | BLM | None | | G5T2T3 S1S2 | Yes | No | Yes | No | | | | | Non-Focal Potentially Benefitting | Only single CNDDB record in study area. No WHR habitat in study area or study area. | | | |
| Mammal [2] | Ringtail | *Bassariscus astutus raptor* | None | None | FP | G5 S3S4 | No | No | Yes | Yes | | | | | Non-Focal Potentially Benefitting | | | | Tom Egan (Defenders of Wildlfie): Recommended Focal, Area Dependent or Umbrella Species. |
| Plant [3] | Barstow woolly sunflower | *Eriophyllum mohavense* | BLM | None | CNPS List 1B.2 | G2S2.2 | Yes | No | Yes | No | Low Likely | Moderate | *Low* | High | Range unlikely in study area | Most of intact habitat is outside of study area. Only very small patches of habitat and potential distribution in study area and no documented occurrences. | Yes - Maybe | | Sophie Parker (TNC): Might want to check with botanical experts, as "Many of the occurrence points are relatively old and need to be updated" according to the DRECP. Suba: As far as I know, doesn't occur in study area. |
| Plant [3] | Charlotte's phacelia | *Phacelia nashiana* | None | None | CNPS 1B.2 | G3S3 | Yes | No | Yes | No | | | | | Range unlikely in study area | NO documented occurrences in study area. Doesn't pass data criteria. Would Parish's phacelia provide conservation benefit in terms of potential habitat? | Yes - Maybe | | Sophie Parker (TNC): we might want to give this one a second look--while there are no records for it in the study area, given its habitat requriments, there is a likelihood that it could be found there. Suba: Kern county. Double check sci name. |
| Plant [3] | Cushenbury milk-vetch | *Astragalus albens* | FE | None | CNPS List 1B.1 | G1S1.1 | Yes | No | Yes | No | | | | | Range unlikely in study area | NO occurrences in vicinity of study area. Only documented to southeast. | No | | Sophie Parker (TNC):not within the study area-- this is an edaphic endemic species |
| Plant [3] | Kelso Creek monkeyflower | *Mimulus shevockii* | None | None | CNPS 1B.2 | G2S2 | Yes | No | Yes | No | | | | | Range unlikely in study area | | No | | |
| Plant [3] | Kern buckwheat | *Eriogonum kennedyi var. pinicola* | None | None | CNPS 1B.1 | G4T1 S1.1 | Yes | No | Yes | No | | | | | Range unlikely in study area | | No | | |
| Plant [3] | Mojave yucca | *Yucca schidigera* | None | None | | G4G5 SNR | No | Umbrella | Yes | *No* | Low Likely | Low | High | *Low* | Range unlikely in study area | | No | | Sophie Parker (TNC):appears to be limited to the more eastern portions of the CA Mojave Desert |
| Plant [3] | Parish's daisy | *Erigeron parishii* | FT | None | CNPS List 1B.1 | G2S2.1 | Yes | No | Yes | **No** | | | | | Range unlikely in study area | | No | | Sophie Parker (TNC):appears to be limited to the more eastern portions of the CA Mojave Desert |
| Plant [3] | Parish's phacelia | *Phacelia parishii* | None | None | CNPS 1B.1 | G2G3 S1.1 | Yes | No | Yes | No | High Likely | Moderate | Moderate | High | Range unlikely in study area | | Yes - Definitely | | Suba: Is it in study area? I don't have records of it. |
| Plant [3] | Piute Mountains jewel-flower | *Streptanthus cordatus var. piutensis* | None | None | CNPS 1B.2 | G5T1 S1.2 | Yes | No | Yes | No | | | | | Range unlikely in study area | | No | | Sophie Parker (TNC):does not appear to occur in study area |
| Plant [3] | Red Rock poppy | *Eschscholzia minutiflora ssp. twisselmannii* | None | None | CNPS 1B.2 | G5T2 S2.2 | Yes | No | Yes | No | High Likely | High | Moderate | *Moderate* | Range unlikely in study area | CNPS records on Edwards Airforce Base, but all other records to the north. No records within study area. | No | | Sophie Parker (TNC):does not appear to occur in study area |
| Plant [3] | Red Rock tarplant | *Deinandra arida* | None | SR | CNPS List 1B.2 | G1S1.2 | Yes | No | Yes | No | | | | | Range unlikely in study area | | No | | Sophie Parker (TNC):does not appear to occur in study area |
| Plant [3] | Spanish Needle onion | *Allium shevockii* | None | None | CNPS 1B.3 | G1 S1.3 | Yes | No | Yes | No | | | | | Range unlikely in study area | | No | | Sophie Parker (TNC):does not appear to occur in study area |
| Plant [3] | triple-ribbed milk-vetch | *Astragalus tricarinatus* | FE | None | CNPS List 1B.2 | G1S1.2 | Yes | | Yes | No | Listed - E | Low | Low | *Moderate* | Range unlikely in study area | | No | | Sophie Parker (TNC): Note for all plants: I would potentially like to see more plants included on the list of focal species..especially some plants that represent matrix community types for the study area. |
| Plant [3] | Bakersfield cactus | *Opuntia basilaris var. treleasei* | FE | SE | CNPS List 1B.1 | G5T2/S2.1 | *Yes* | No | Yes | No | Listed - E | Low | Low | *High* | Range unlikely in Study Area | Uncertain if range exttends into study area, although habitat mapped there for HSR. No occurrence data in study area so not a suitable focal species. | No | Yes - Maybe | Sophie Parker (TNC): probably doesn't occur as far south as the study area Becky Mandich (SCE): Suggest moving Bakersfield cactus to focal species list if it is present in framework area. |
| Fish [3] | Mohave tui chub | *Gila bicolor mohavensis* | FE | SE/FP | AFS:EN | G4T1S1 | | | No | | | | | | Range unlikely in study area | Included as Focal Species in memo, but does not occur in study area. | | | |
| Reptile/Amphibian [3] | arroyo toad | *Anaxyrus (Bufo) californicus* | FE | CSC | None | G2G3 S2S3 | Yes | | No | *No* | Listed - E | High | High | *High* | Range unlikely in study area | | | | |
| Reptile/Amphibian [3] | Mojave fringe-toed lizard | *Uma scoparia* | BLM | CSC | IUCN:LC | G3G4 S3S4 | Yes | | No | No | | | | | Range unlikely in study area | Very small patch of modeled habitat in study area, otherwise scattered patches in eastern portion of study area. | | | Tom Egan (Defenders of Wildlfie): Recommended Focal, Area Dependent or Umbrella Species. |
| Reptile/Amphibian [3] | Rosy boa | *Charina trivirgata* | BLM, FS | None | | G4G5 S3S4 | Yes | No | No | No | | | | | Range unlikely in study area | Taxonomy of this species recently revised. Recently, two species have been identified. The only way to tell them apart is by range. The Rosy Boa occurs only in extreme southwestern San Diego County. | | | |
| Reptile/Amphibian [3] | Southern California legless lizard | *Anniella stebbinsi* | None | CSC | FS | None | No | No | No | *No* | | | | | Range unlikely in study area | | | | |
| Reptile/Amphibian [3] | Southern rubber boa | *Charina umbratica* | FS | ST | | G5T2T3 S2S3 | Yes | No | Yes | No | | | | | Range unlikely in study area | | No | | |
| Reptile/Amphibian [3] | Tehachapi slender salamander | *Batrachoseps stebbinsi* | BLM/FS | ST | None | G2S2 | Yes | | Yes | No | | | | | Range unlikely in study area | | | | |
| Bird [3] | Bendire's thrasher | *Toxostoma bendirei* | BLM, BCC | CSC | ABC:WLBCC, IUCN:VU | G4G5 S3 | No | Area-dependent | Yes | No | | | | | Range unlikely in study area | | | | |
| Bird [3] | Costa's hummingbird | *Calypte costae* | None | None | ABC:WLBCC | G5 S3? | No | | Yes | No | | | | | Range unlikely in study area | | | | |
| Bird [3] | Harris's hawk | *Parabuteo unicinctus* | None | WL | IUCN:LC | G5 S1 | *Yes* | No | Yes | No | | | | | Range unlikely in study area | | | | |
| Mammal [3] | desert bighorn sheep | *Ovis canadensis nelsoni* | BLM/FS | FP | | G4T4 S3 | Yes | No | Yes | No | | | | | Range unlikely in study area | | | | |

| Taxa | Common Name | Scientific Name | Federal Status | State Statue | Other Status | Global / State Ranking | Vulnerability Status: Listed, Candidate, or Potential for Listing? | Status: Planning Species? | Occurrence: Known to Occur in Mojave Basin and Range Ecoregion? | Data: Enough existing data in study area to propose viable conservation actions. | Status: Listed or likelihood of listing within 5 years? | Importance of study area: Portion of range, critical habitat, or core habitat in study area? | Benefit/Cost: Overlap in habitat or management w/ other potential focal species? | Alignment with other conservation goals: Addressed in state/regional strategy or covered by local HCP? | Filtering Decision | Rationale/Comments | Sophie Parker (TNC) | Becky Mandich (Southern California Edison0 | Other AC/SC Member Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mammal [3] | Mojave River Vole | *Microtus californicus mohavensis* | Rank:G5T1 S1 | None | CSC | G5T1 S1 | Yes | No | Yes | No | | | | | Range unlikely in study area | | | | |
| Mammal [3] | Western yellow bat | *Lasiurus xanthinus* | None | CSC | WBWG:H | G5 S3 | Yes | No | Yes | No | | | | | Range unlikely in study area | | | | |

| Abbreabtions of Listing Codes | |
|---|---|
| AFS_TH | American Fisheries Society - Threatened |
| ABC_WLBCC | American Bird Conservancy - U. S. Watch List of Birds of Conservation Concern |
| AFS_EN | American Fisheries Society - Endangered |
| AFS_VU | American Fisheries Society - Vulnerable |
| BCC | Fish and Wildlife Service: Birds of Conservation Concern |
| BLM | Bureau of Land Management - Sensitive |
| CDF | Calif Dept of Forestry & Fire Protection - Sensitive |
| CNPS | California Native Plants Society |
| CSC | California Species of Special Concern |
| FC | Federal candidate species |
| FD | Federally delisted |
| FE | Federally listed as Endangered |
| FP | Fully Protected |
| FPD | Federally proposed for delisting |
| FPE | Federally proposed for listing as Endangered |
| FPT | Federally proposed for listing as Threatened |
| FS | USDA Forest Service - Sensitive |
| FT | Federally listed as Threatened |
| G1 | NatureServe Conservation Status: Global Ranking: Critically Imperiled |
| G2 | NatureServe Conservation Status: Global Ranking: Imperiled |
| G3 | NatureServe Conservation Status: Global Ranking: Vulnerable |
| G4 | NatureServe Conservation Status: Global Ranking: Apparently Secure |
| G5 | NatureServe Conservation Status: Global Ranking: Secure |
| FS | U. S. Forest Service - Sensitive |
| IUCN_CD | IUCN - Conservation Dependent |
| IUCN_CR | IUCN - Critically Endangered |
| IUCN_DD | IUCN - Data Deficient |
| IUCN_EN | IUCN - Endangered |
| IUCN_LC | IUCN - Least Concern |
| IUCN_NT | IUCN - Near Threatened |
| IUCN_VU | IUCN - Vulnerable |
| MMC_SSC | Marine Mammal Commission - Species of Special Concern |
| NMFS_SC | National Marine Fisheries Service - Species of Concern |
| S1 | NatureServe Conservation Status: State Ranking: Critically Imperiled |
| S2 | NatureServe Conservation Status: State Ranking: Imperiled |
| S3 | NatureServe Conservation Status: State Ranking: Vulnerable |
| S4 | NatureServe Conservation Status: State Ranking: Apparently Secure |
| S5 | NatureServe Conservation Status: State Ranking: Secure |
| SCD | State candidate for delisting |
| SCE | State candidate for listing as Endangered |
| SCT | State candidate for listing as Threatened |
| SE | State-listed as Endangered |
| SNR | NatureServe Conservation Status: |
| SR | State-listed rare |
| ST | State-listed as Threatened |
| USFWS_BCC | U. S. Fish & Wildlife Service Birds of Conservation Concern |
| USFWS: UR | U.S. Fish & Wildlife Service - Under Review |
| WBWG_H | Western Bat Working Group - High Priority |
| WBWG_LM | Western Bat Working Group - Low-Medium Priority |
| WBWG_M | Western Bat Working Group - Medium Priority |
| WBWG_MH | Western Bat Working Group - Medium-High Priority |
| WL | Calif Dept of Fish & Game - Watch List |
| XERCES_CI | Xerces Society - Critically Imperiled |
| XERCES_DD | Xerces Society - Data Deficient |
| XERCES_IM | Xerces Society - Imperiled |
| XERCES_VU | Xerces Society - Vulnerable |

| LEGEND: List Color Code |
|---|
| [1] This row provides status and decision criteria for Proposed Focal Species |
| [2] This row provides status and decision criteria for Non-Focal Species Potentially Benefitting from RCF |
| [3] This row provides status and decision criteria for species whose Range is unlikely in study area |

Appendix F

# Focal Species Habitat Models

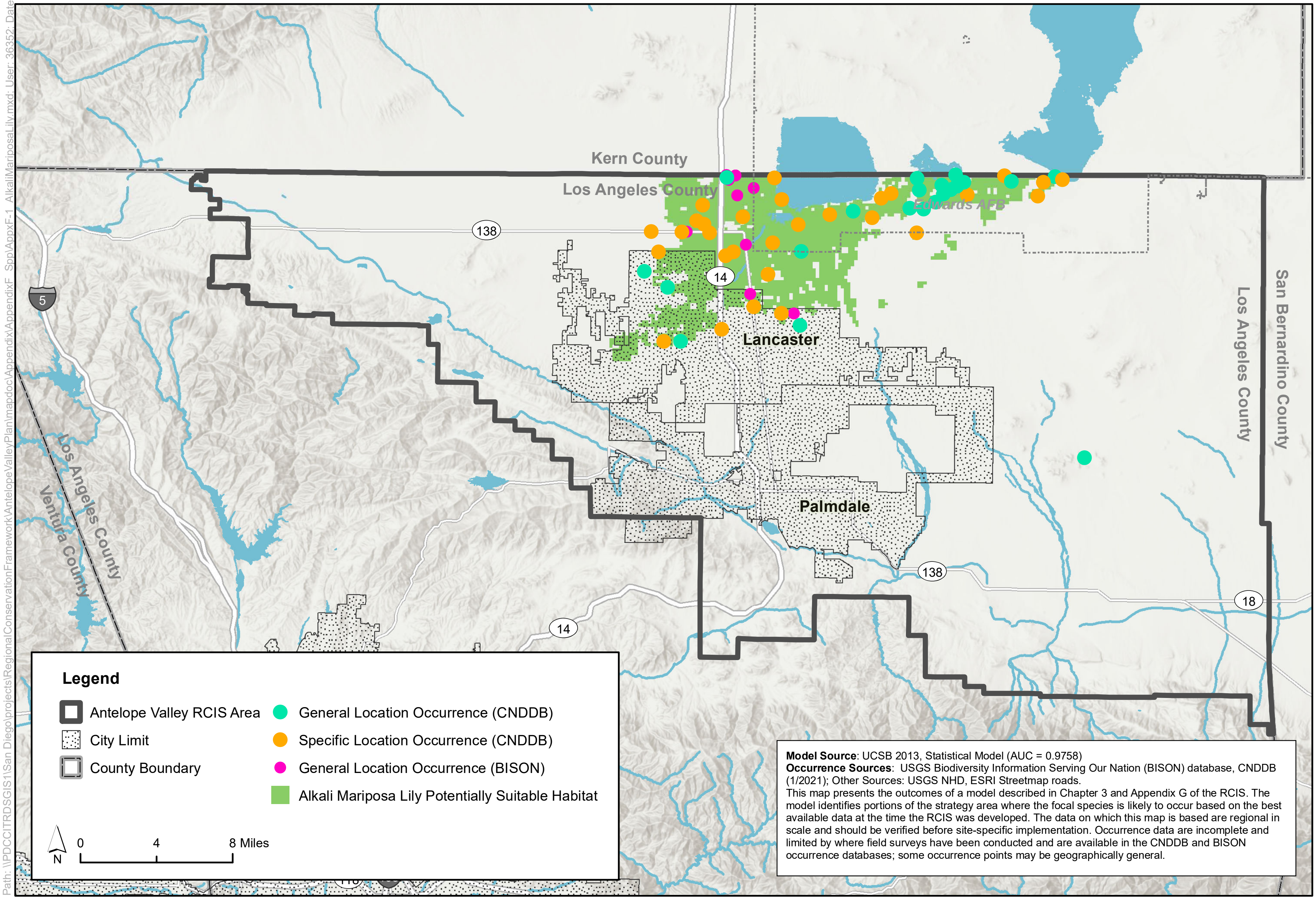




**Figure F-1**
**Alkali Mariposa-Lily Potentially Suitable Habitat in the RCIS Area**

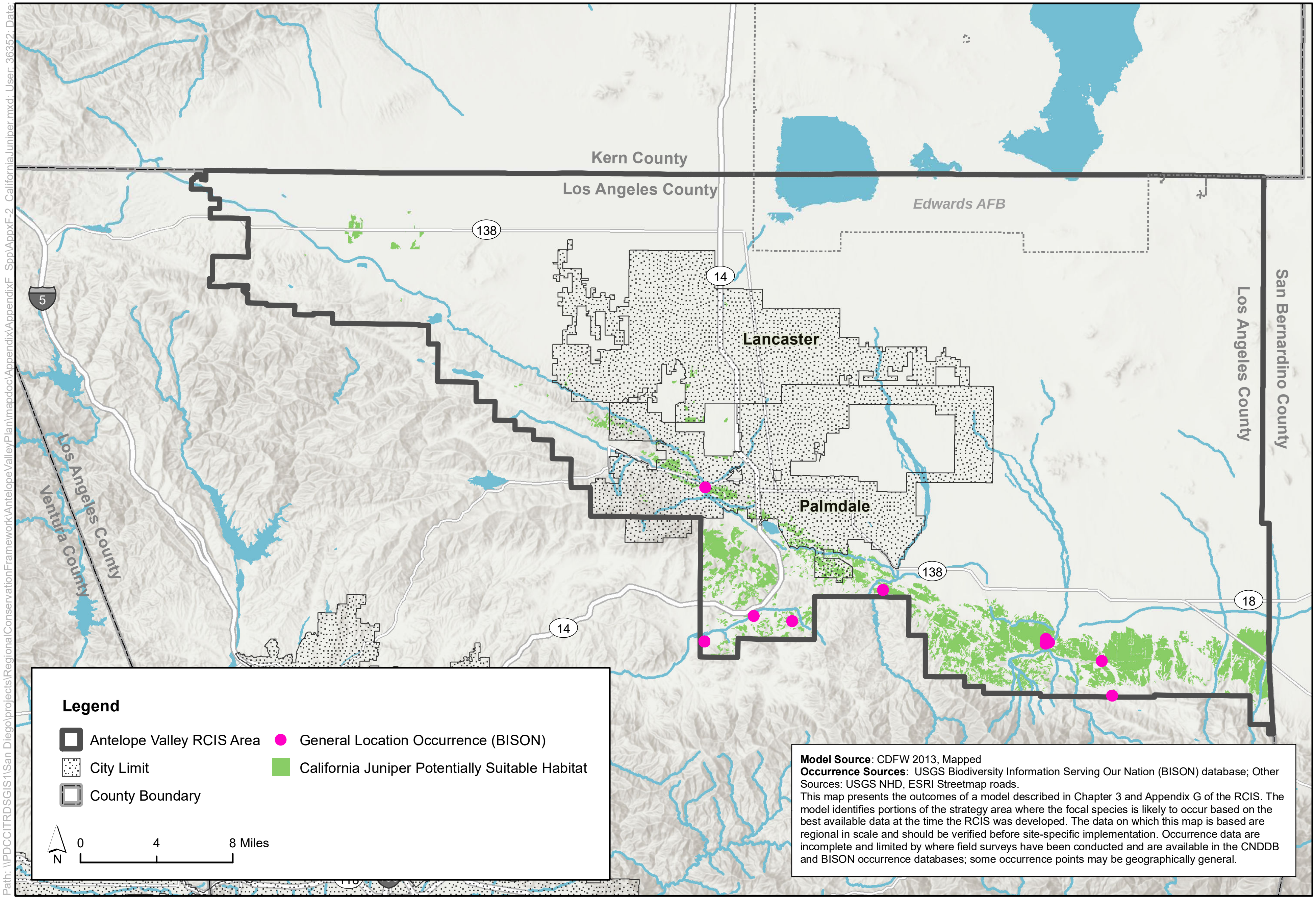


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**Figure F-2**
**California Juniper Potentially Suitable Habitat in the RCIS Area**

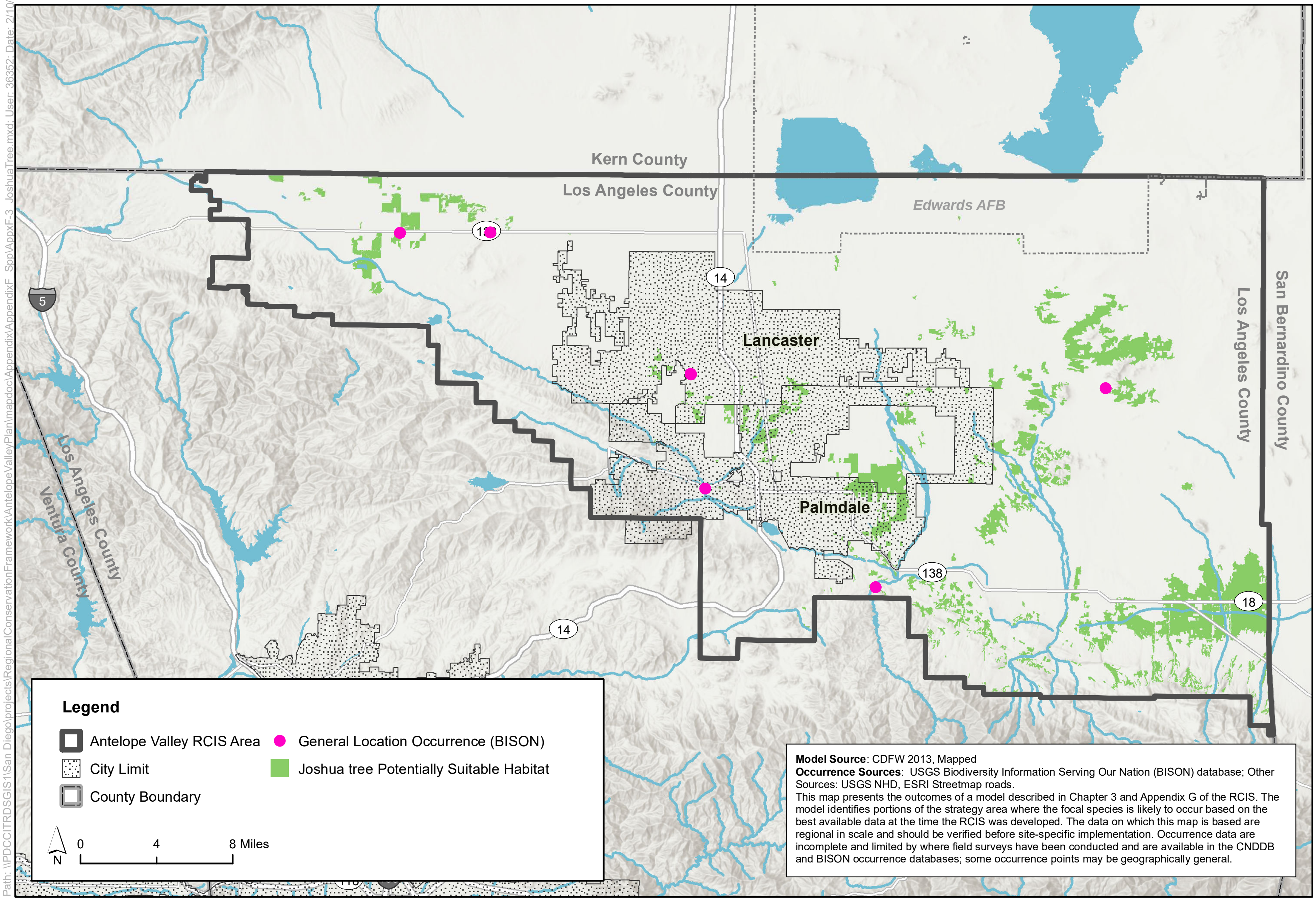
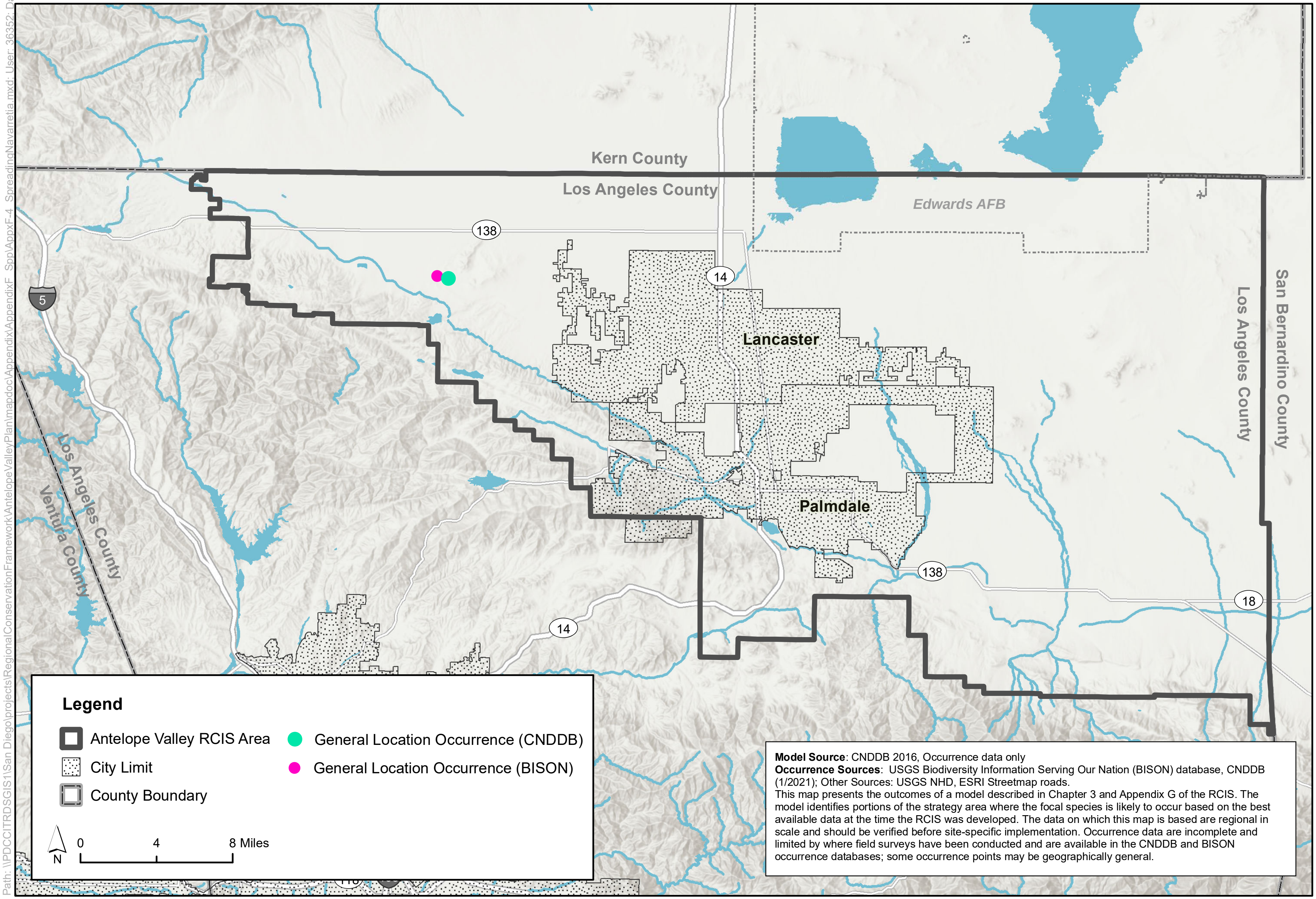





**Figure F-3**
**Joshua Tree Potentially Suitable Habitat in the RCIS Area**




**Model Source**: CNDDB 2016, Occurrence data only
**Occurrence Sources**: USGS Biodiversity Information Serving Our Nation (BISON) database, CNDDB (1/2021); Other Sources: USGS NHD, ESRI Streetmap roads.
This map presents the outcomes of a model described in Chapter 3 and Appendix G of the RCIS. The model identifies portions of the strategy area where the focal species is likely to occur based on the best available data at the time the RCIS was developed. The data on which this map is based are regional in scale and should be verified before site-specific implementation. Occurrence data are incomplete and limited by where field surveys have been conducted and are available in the CNDDB and BISON occurrence databases; some occurrence points may be geographically general.

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**Figure F-4**
**Spreading Navarretia Occurrences in the RCIS Area**

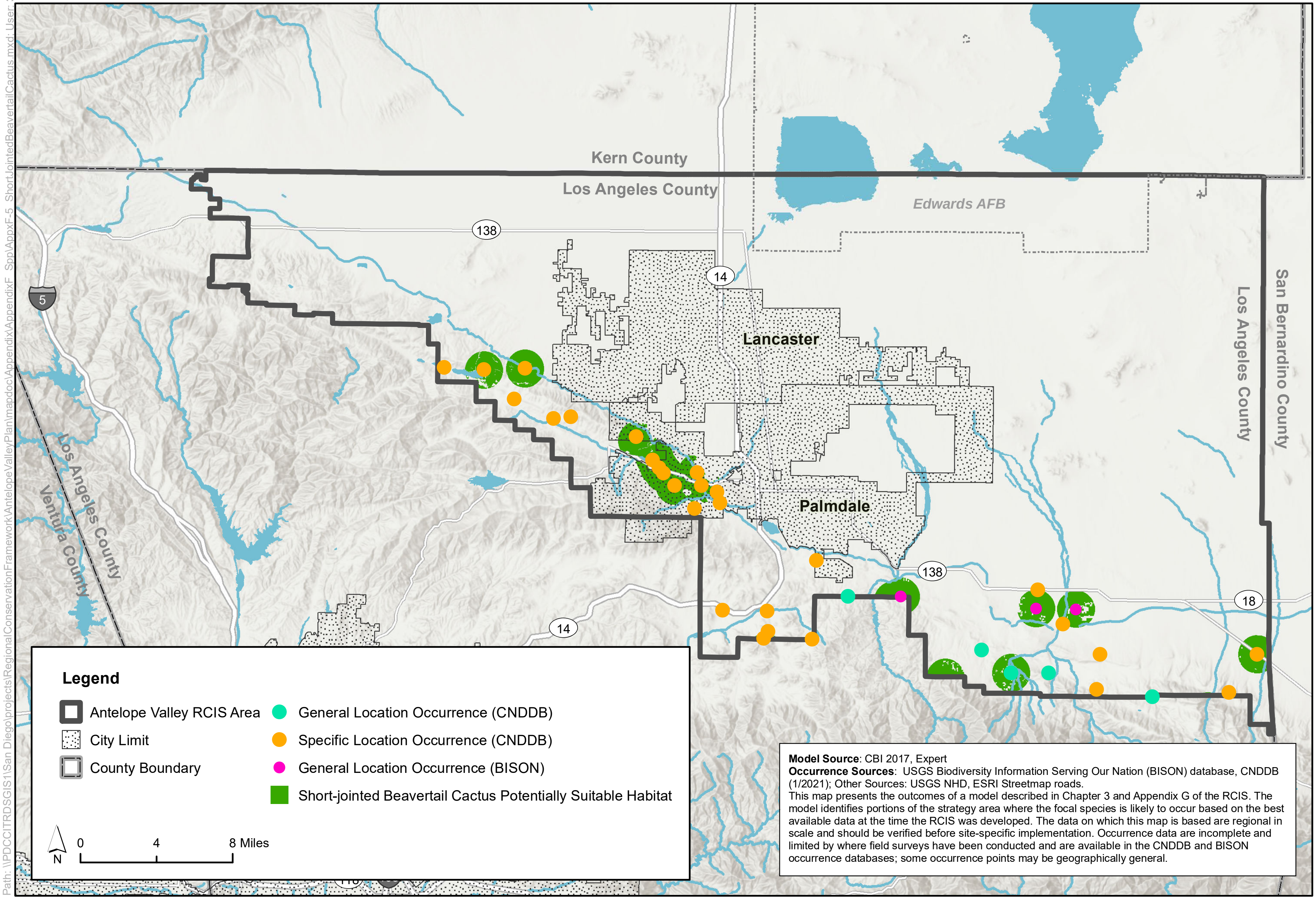


**Figure F-5**
**Short-jointed Beavertail Cactus Potentially Suitable Habitat in the RCIS Area**

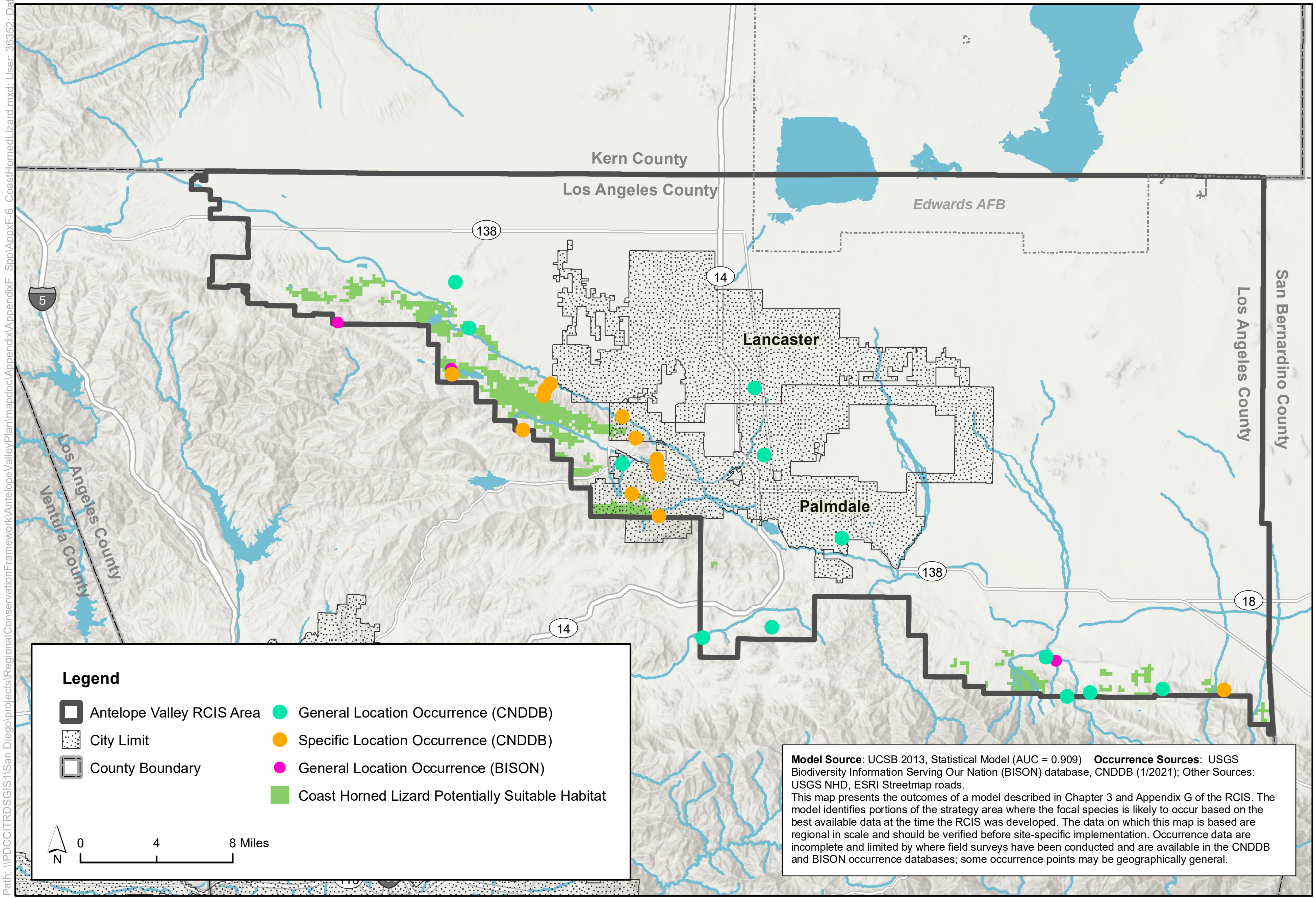


**Figure F-6**
**Coast Horned Lizard Potentially Suitable Habitat in the RCIS Area**

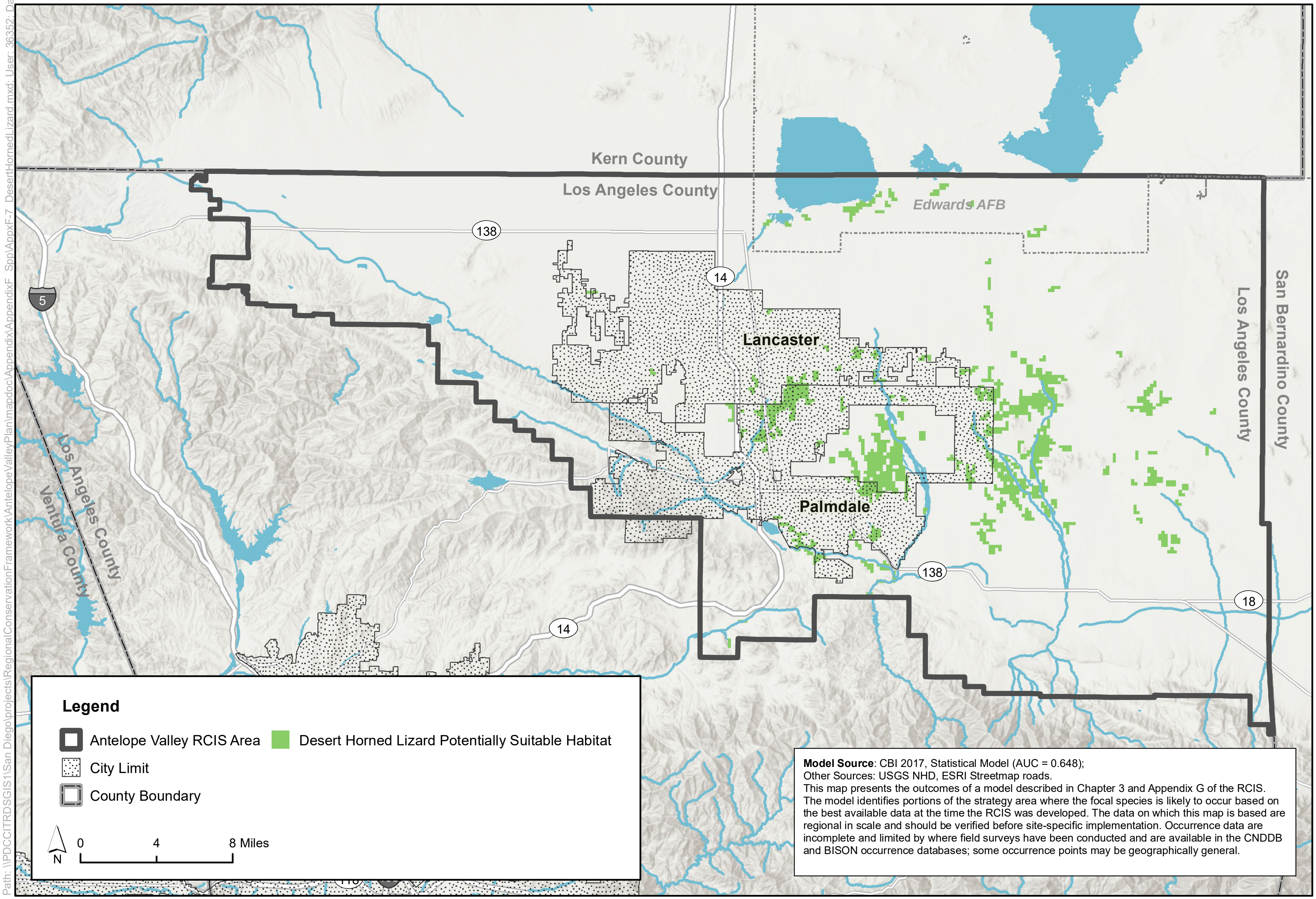


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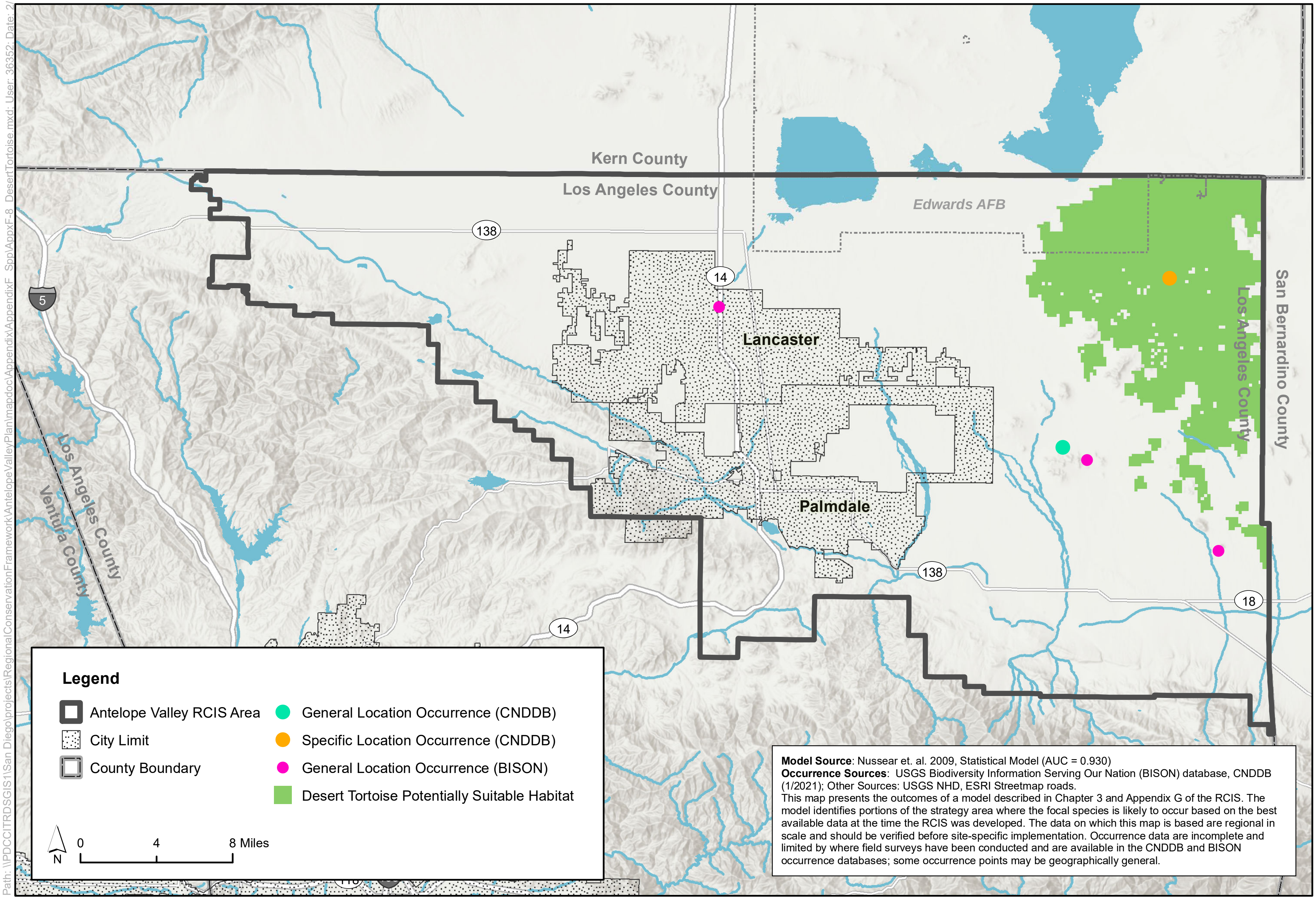
**Figure F-7**
**Desert Horned Lizard Potentially Suitable Habitat in the RCIS Area**




**Model Source**: Nussear et. al. 2009, Statistical Model (AUC = 0.930)
**Occurrence Sources**: USGS Biodiversity Information Serving Our Nation (BISON) database, CNDDB (1/2021); Other Sources: USGS NHD, ESRI Streetmap roads.
This map presents the outcomes of a model described in Chapter 3 and Appendix G of the RCIS. The model identifies portions of the strategy area where the focal species is likely to occur based on the best available data at the time the RCIS was developed. The data on which this map is based are regional in scale and should be verified before site-specific implementation. Occurrence data are incomplete and limited by where field surveys have been conducted and are available in the CNDDB and BISON occurrence databases; some occurrence points may be geographically general.

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**Figure F-8**
**Agassiz's Desert Tortoise Potentially Suitable Habitat in the RCIS Area**

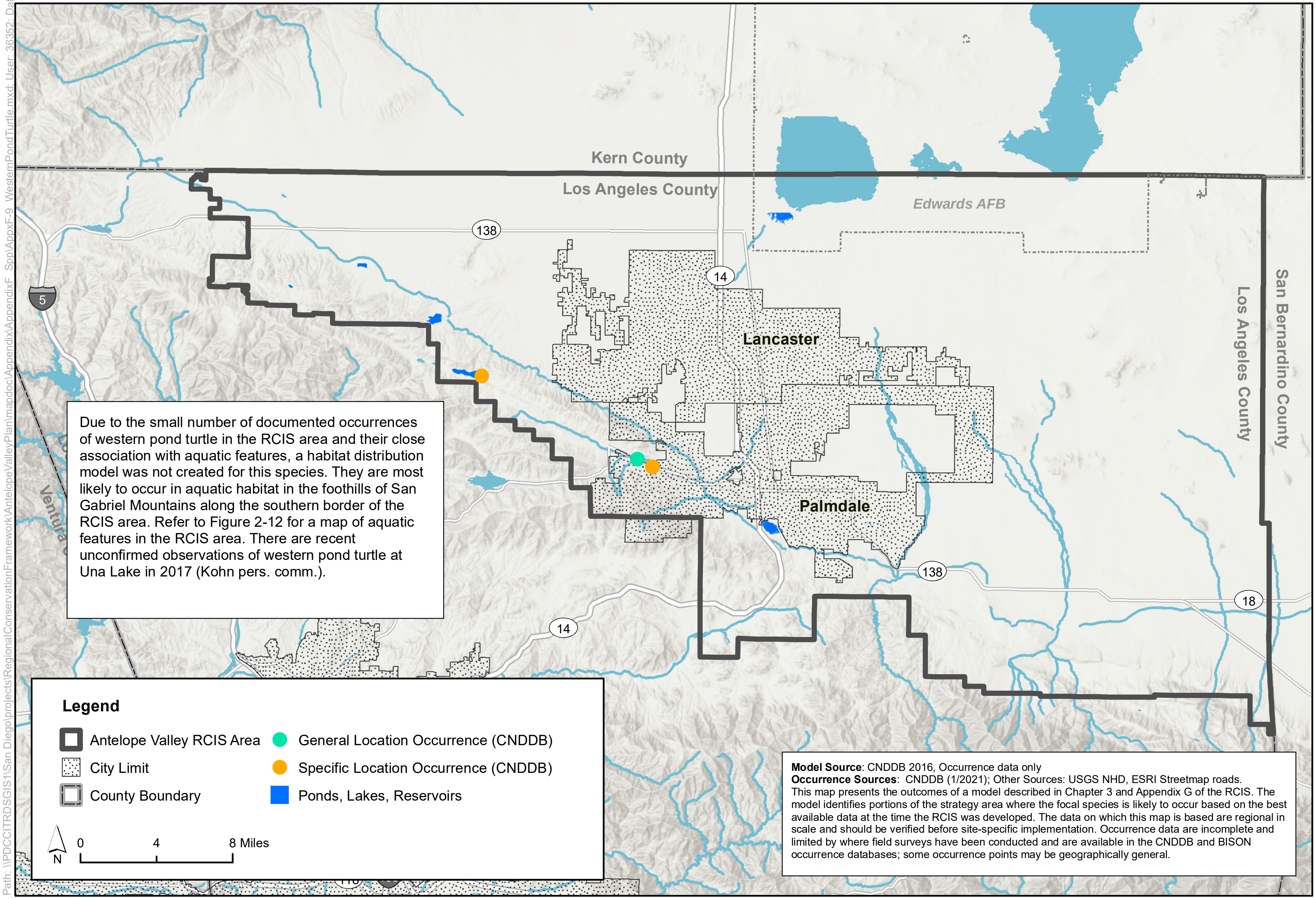


**Figure F-9**
**Western Pond Turtle Occurrences in the RCIS Area**

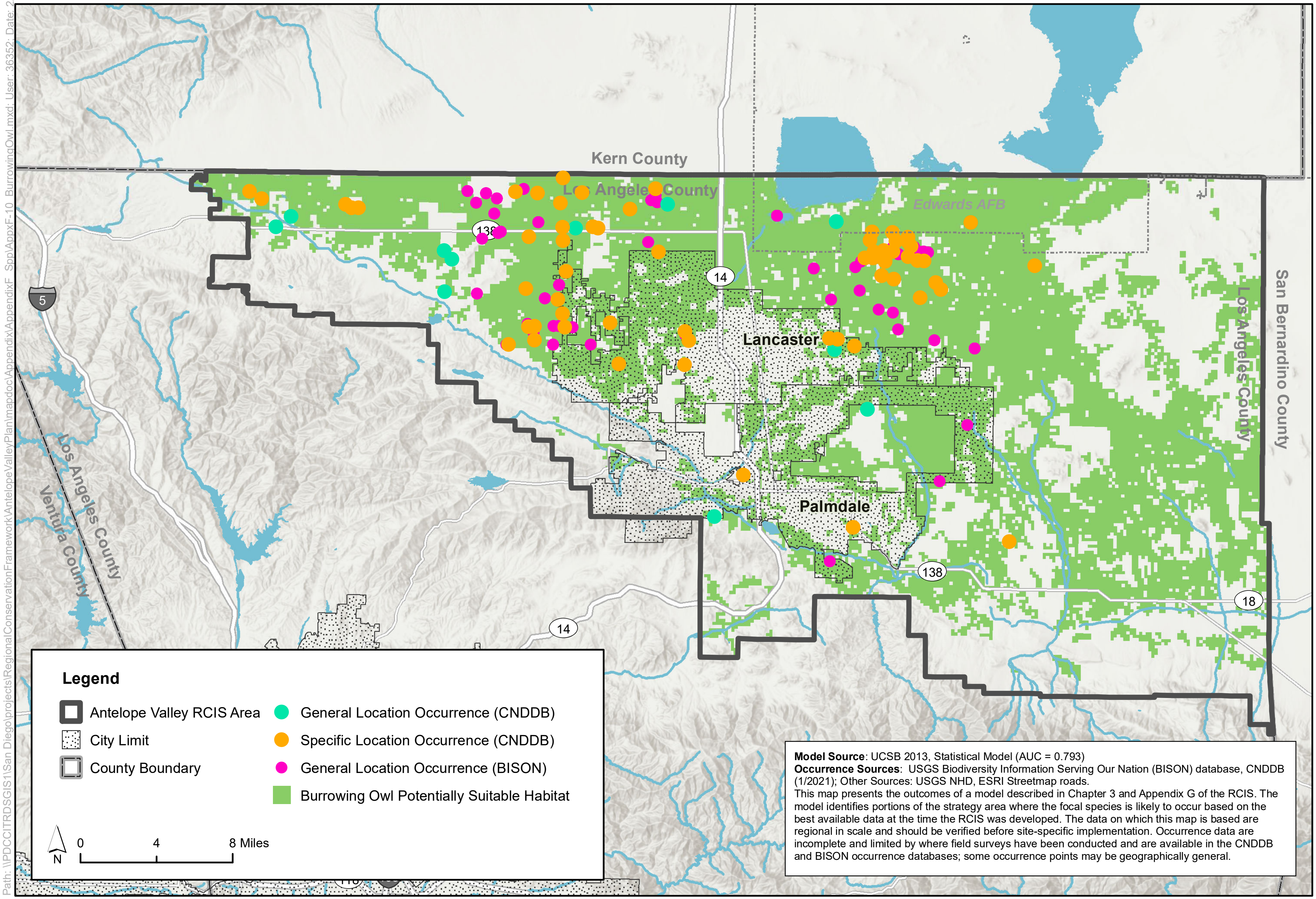


**Figure F-10**
**Burrowing Owl Potentially Suitable Habitat in the RCIS Area**

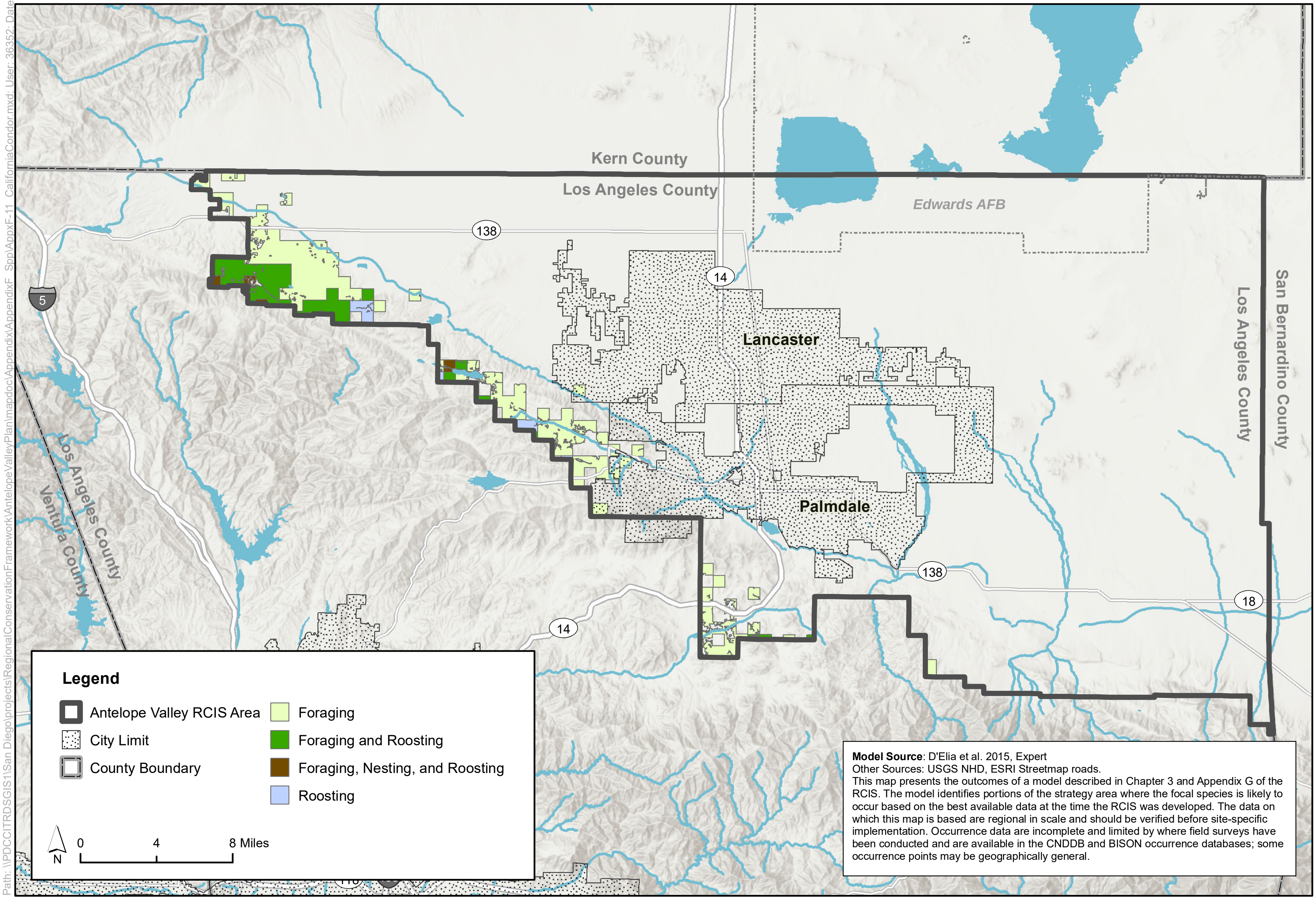


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**Figure F-11**
**California Condor Potentially Suitable Habitat in the RCIS Area**

Path: \\PDCCITRDSGIS1\San Diego\projects\RegionalConservationFramework\AntelopeValleyPlan\mapdoc\AppendixF\AppendixF_SppAppxF-12_GoldenEagle.mxd; User: 36352; Date: 2/10/2021

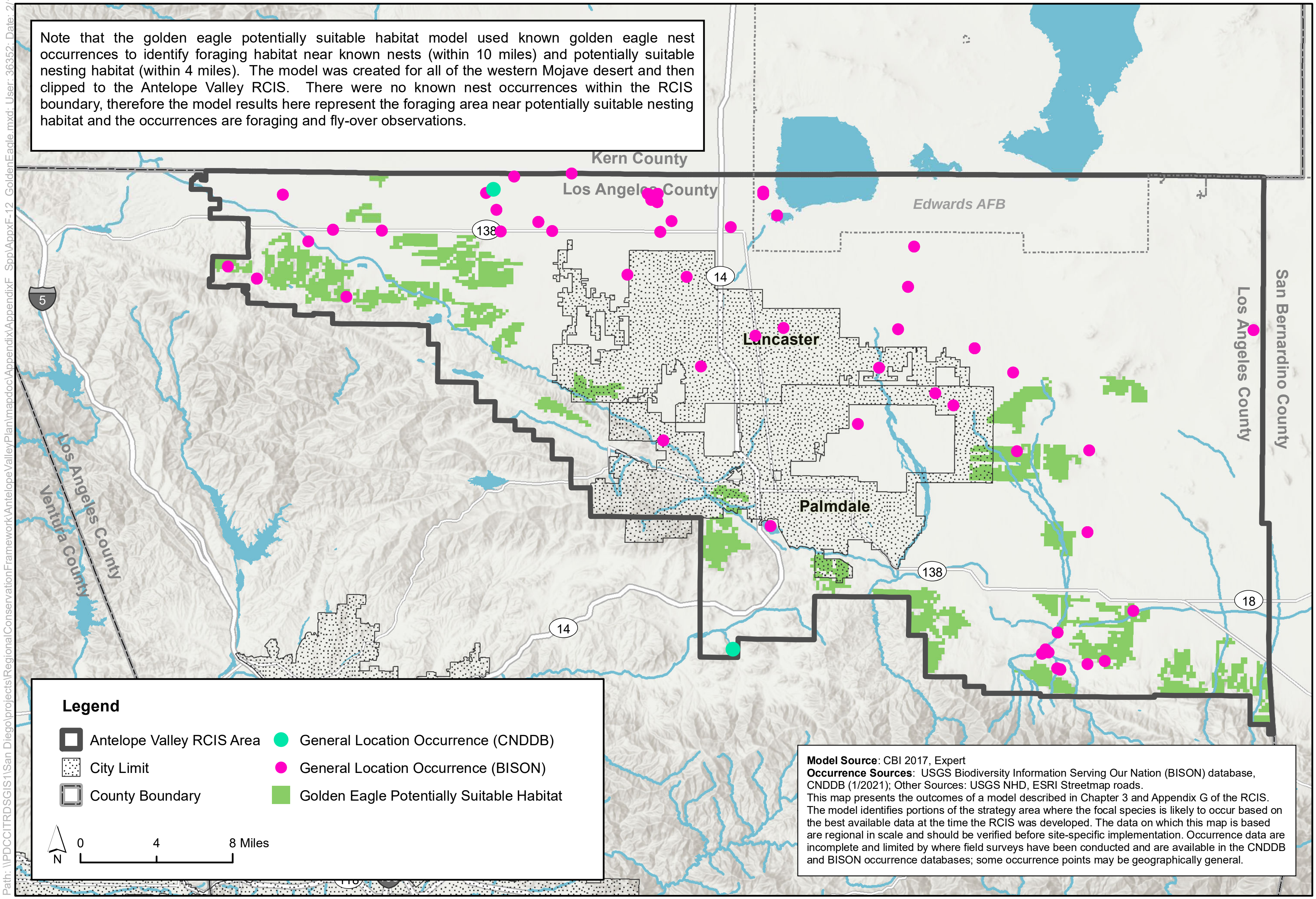


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**Figure F-12**
**Golden Eagle Potentially Suitable Habitat in the RCIS Area**

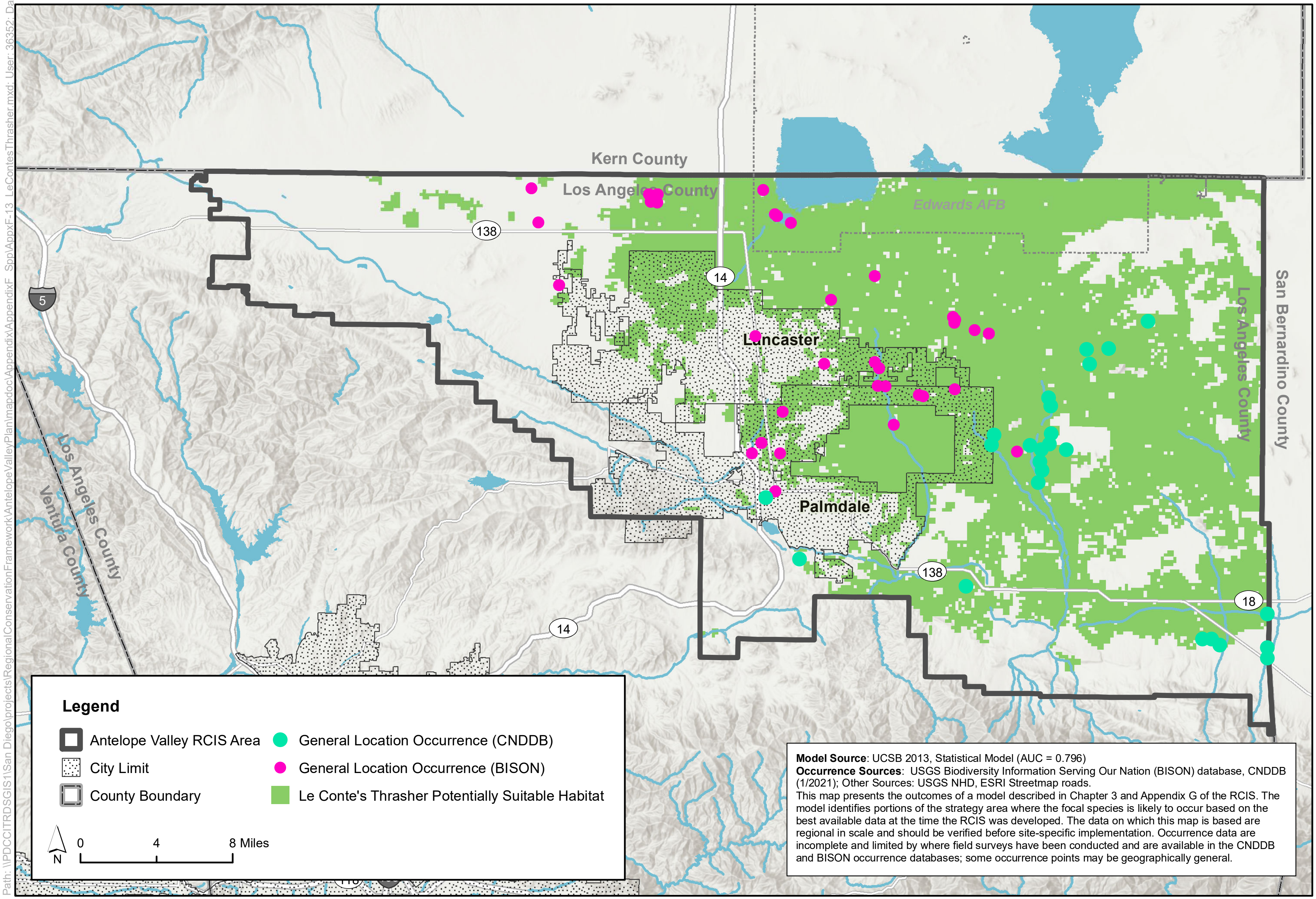
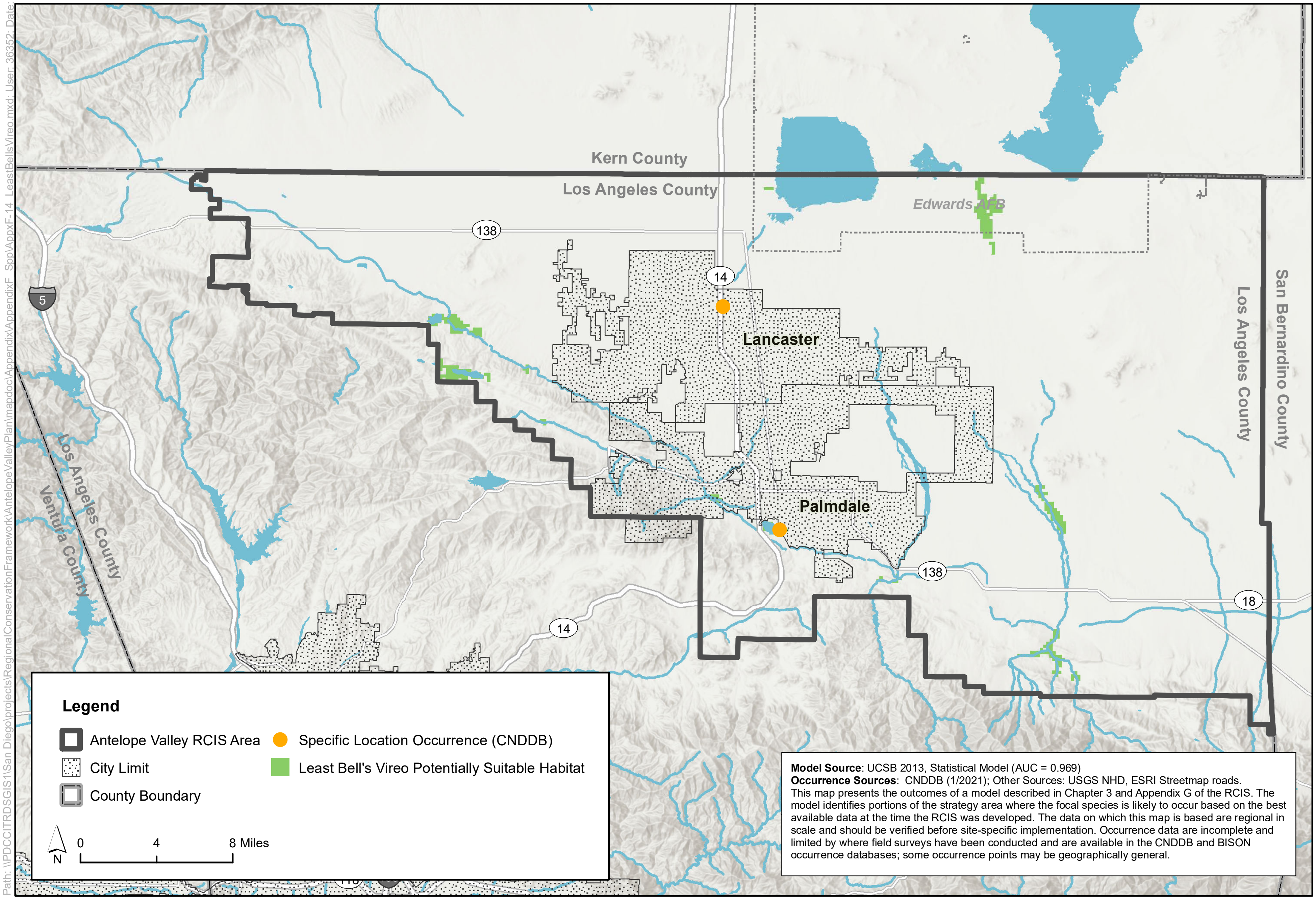



**Figure F-13**
**Le Conte's Thrasher Potentially Suitable Habitat in the RCIS Area**




**Model Source**: UCSB 2013, Statistical Model (AUC = 0.969)
**Occurrence Sources**: CNDDB (1/2021); Other Sources: USGS NHD, ESRI Streetmap roads.
This map presents the outcomes of a model described in Chapter 3 and Appendix G of the RCIS. The model identifies portions of the strategy area where the focal species is likely to occur based on the best available data at the time the RCIS was developed. The data on which this map is based are regional in scale and should be verified before site-specific implementation. Occurrence data are incomplete and limited by where field surveys have been conducted and are available in the CNDDB and BISON occurrence databases; some occurrence points may be geographically general.

**Figure F-14**
**Least Bell's Vireo Potentially Suitable Habitat in the RCIS Area**

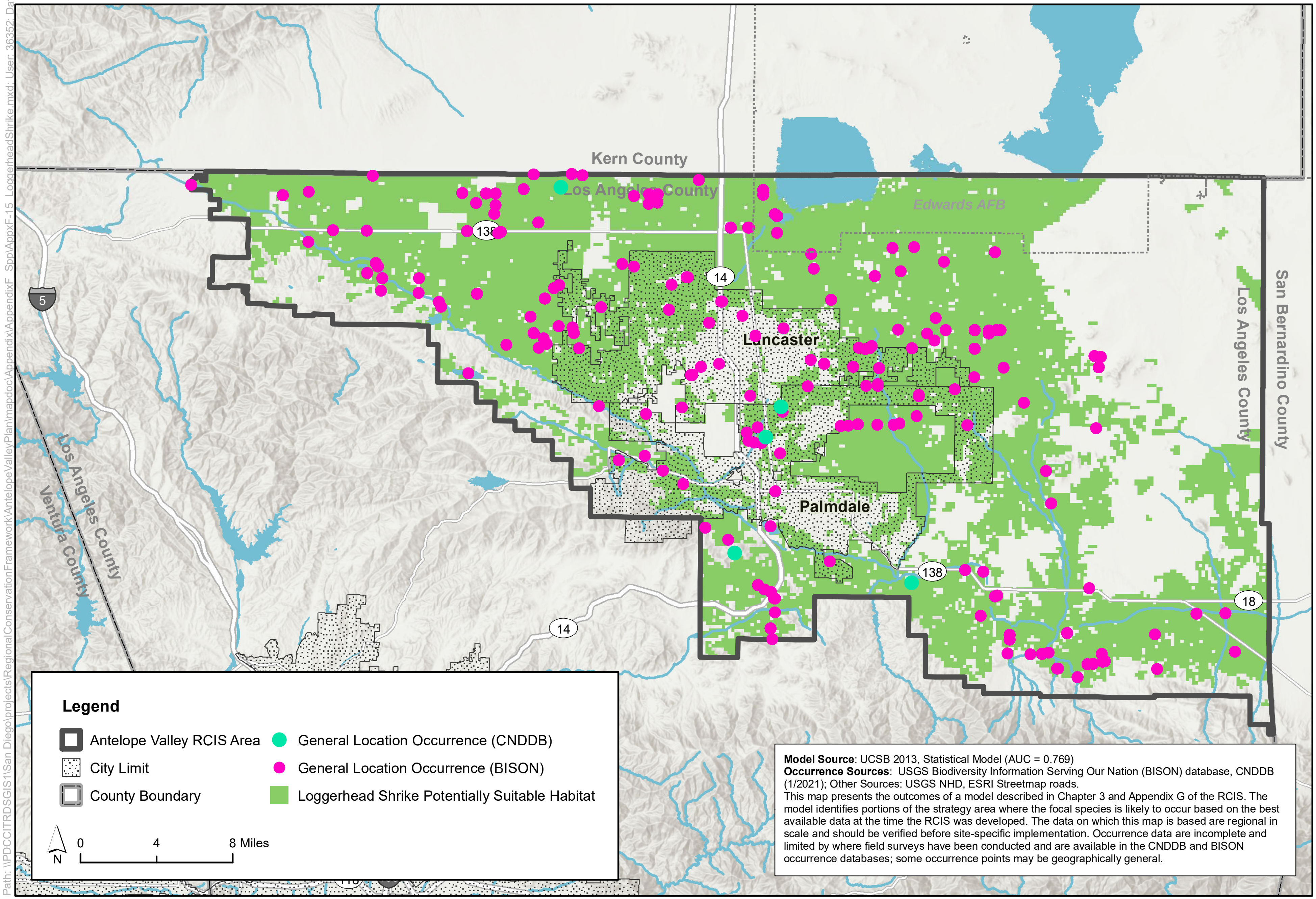



**Figure F-15**
**Loggerhead Shrike Potentially Suitable Habitat in the RCIS Area**

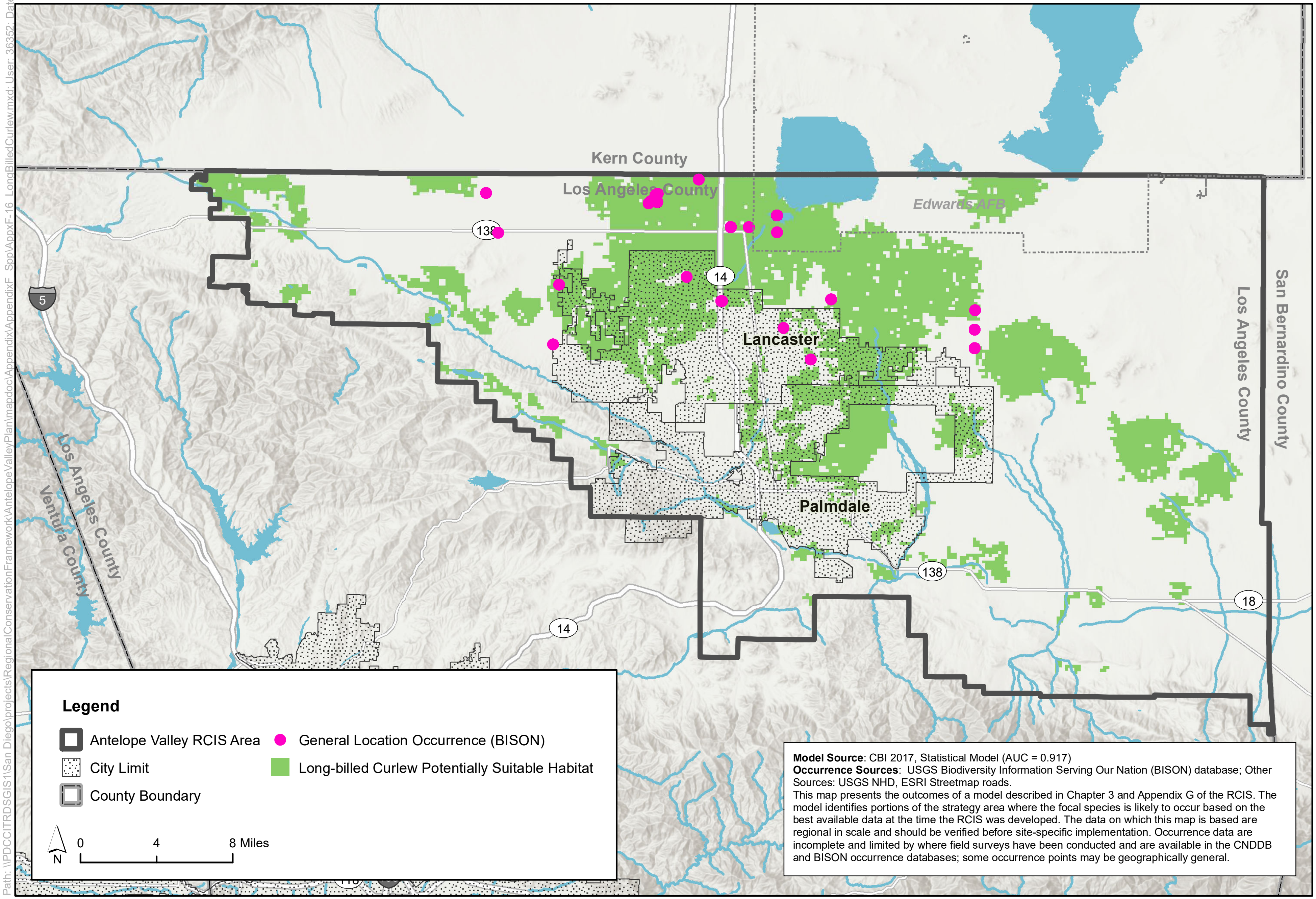



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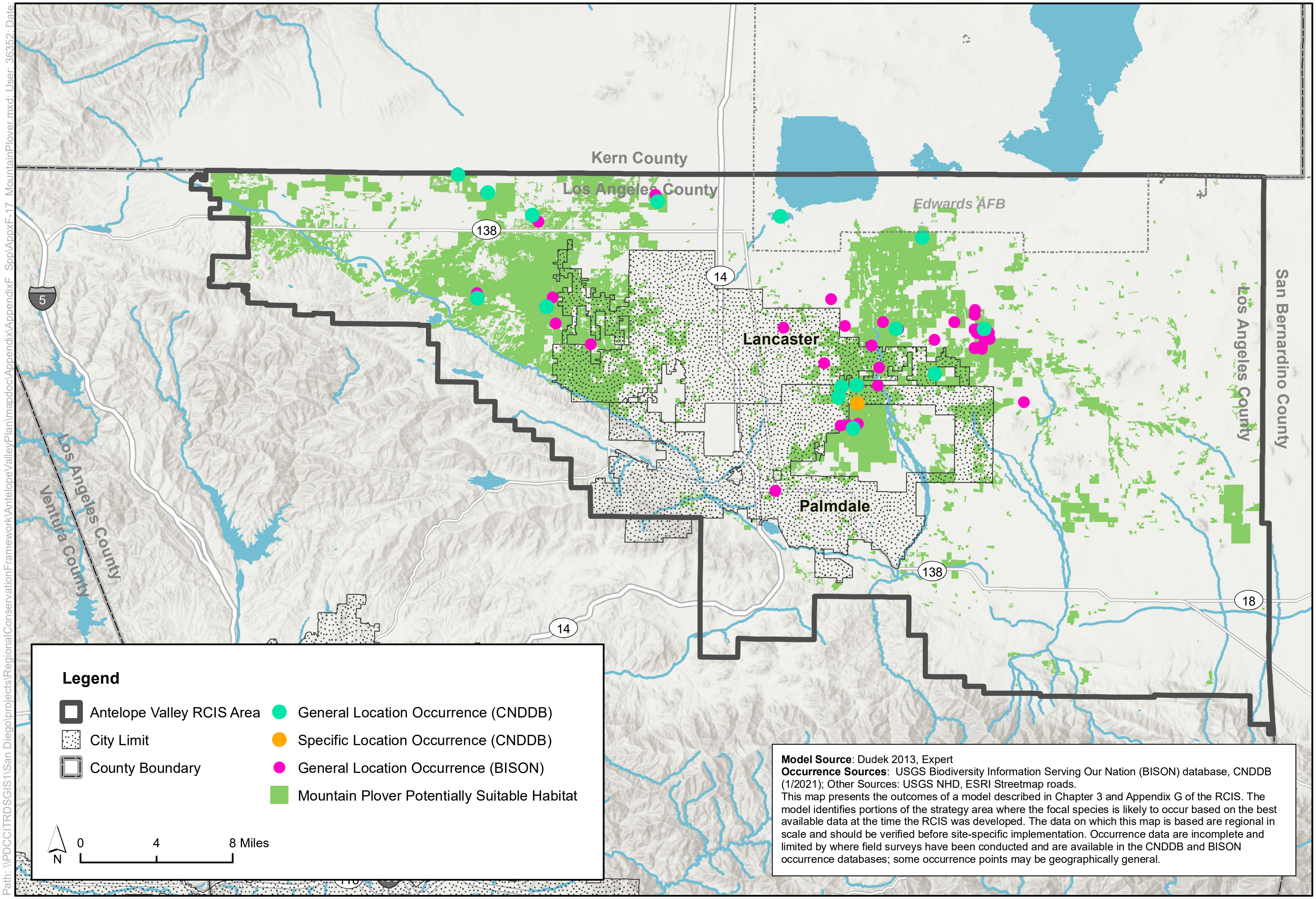
**Figure F-16**
**Long-Billed Curlew Potentially Suitable Habitat in the RCIS Area**




**Model Source**: Dudek 2013, Expert
**Occurrence Sources**: USGS Biodiversity Information Serving Our Nation (BISON) database, CNDDB (1/2021); Other Sources: USGS NHD, ESRI Streetmap roads.
This map presents the outcomes of a model described in Chapter 3 and Appendix G of the RCIS. The model identifies portions of the strategy area where the focal species is likely to occur based on the best available data at the time the RCIS was developed. The data on which this map is based are regional in scale and should be verified before site-specific implementation. Occurrence data are incomplete and limited by where field surveys have been conducted and are available in the CNDDB and BISON occurrence databases; some occurrence points may be geographically general.

**Figure F-17**
**Mountain Plover Potentially Suitable Habitat in the RCIS Area**

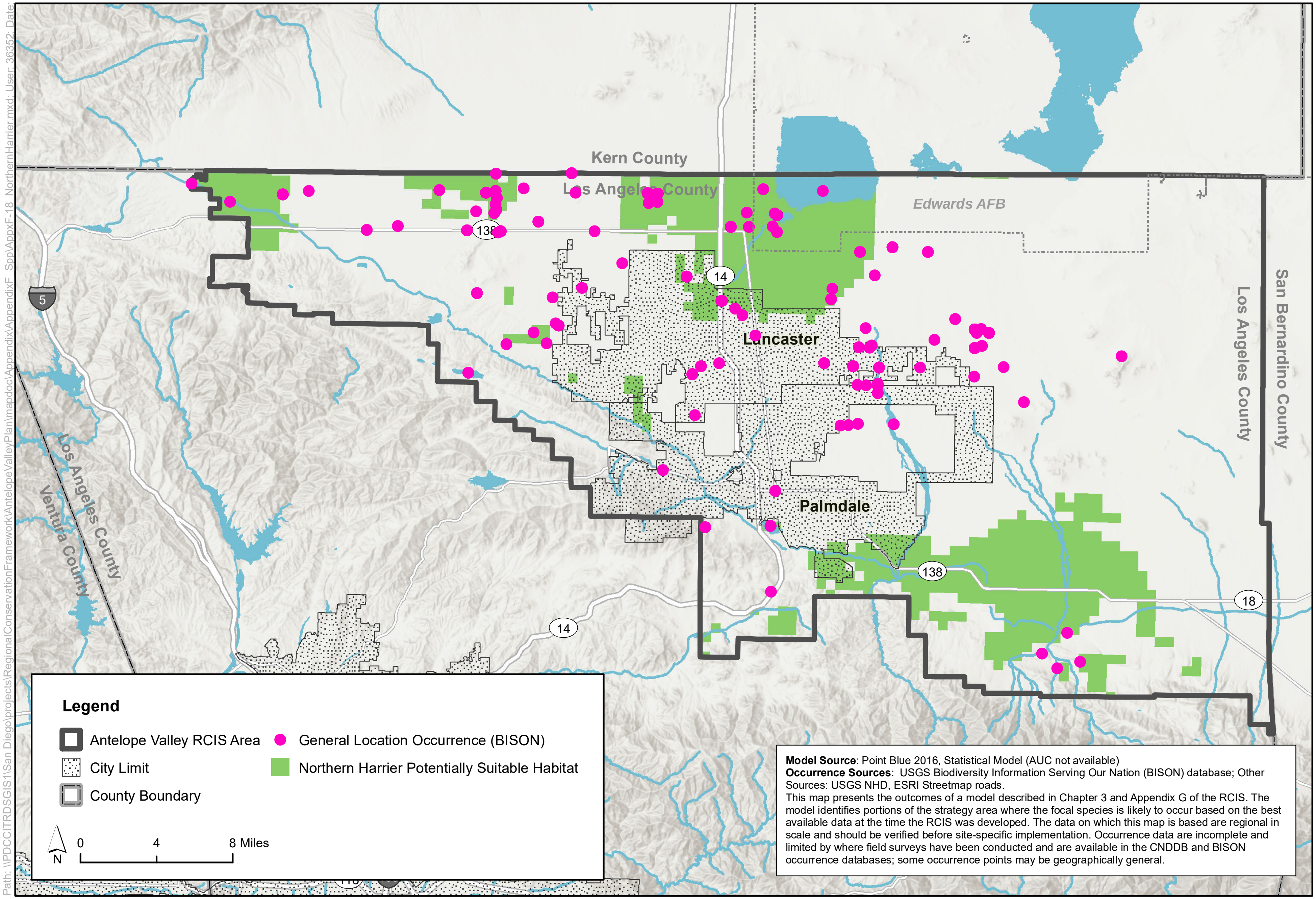



**Figure F-18**
**Northern Harrier Potentially Suitable Habitat in the RCIS Area**

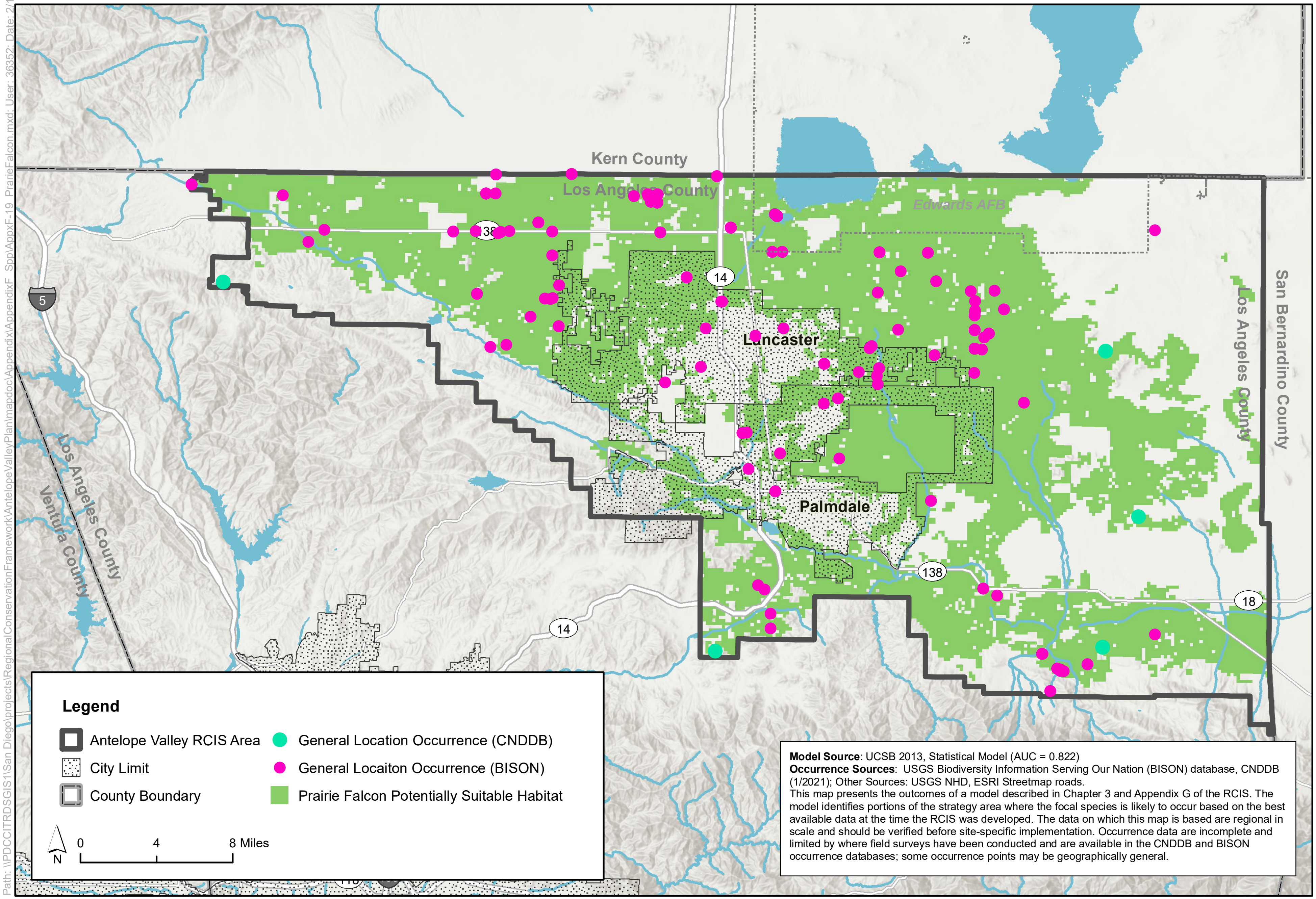



**Figure F-19**
**Prairie Falcon Potentially Suitable Habitat in the RCIS Area**

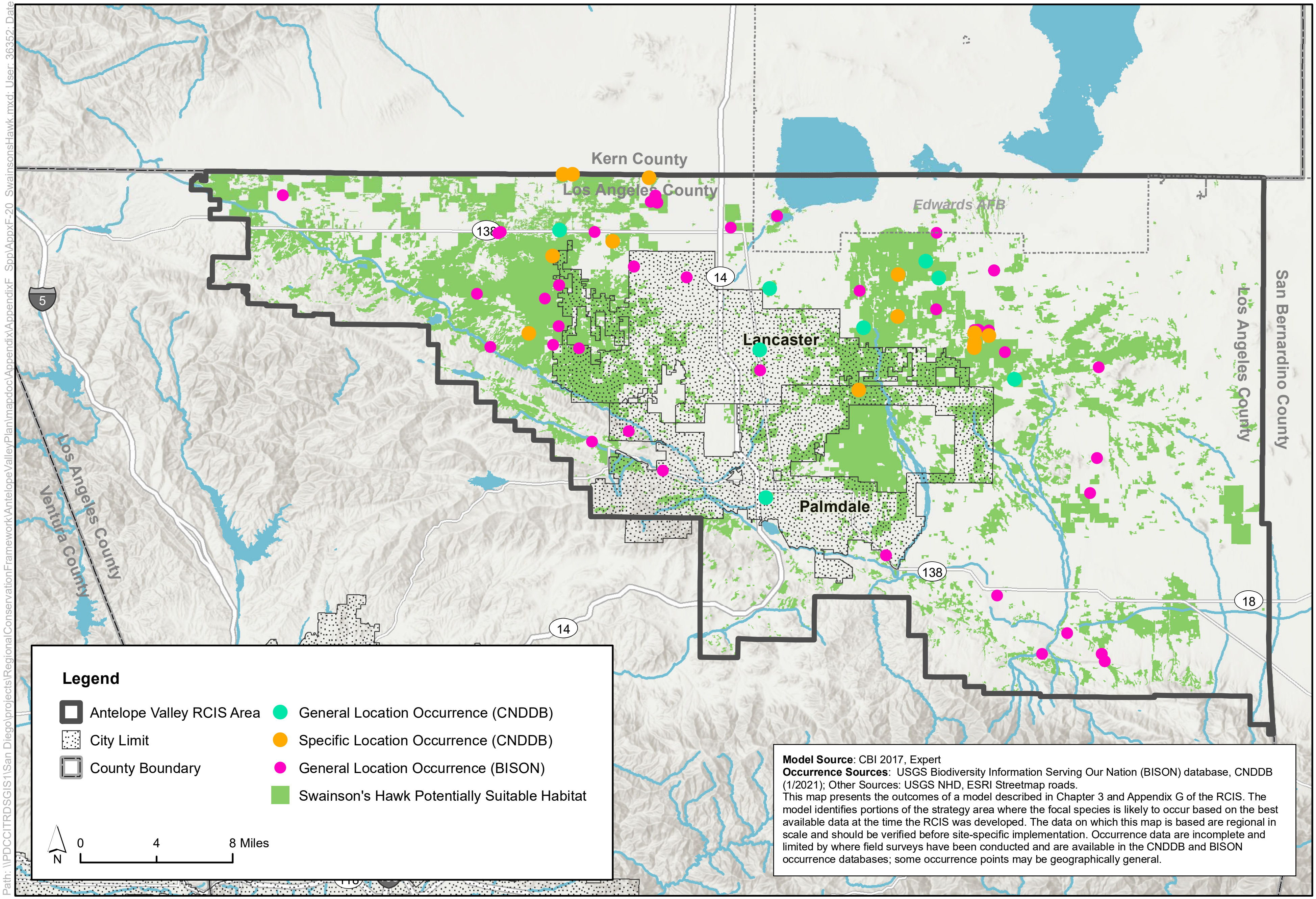



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**Figure F-20**
**Swainson's Hawk Potentially Suitable Habitat in the RCIS Area**

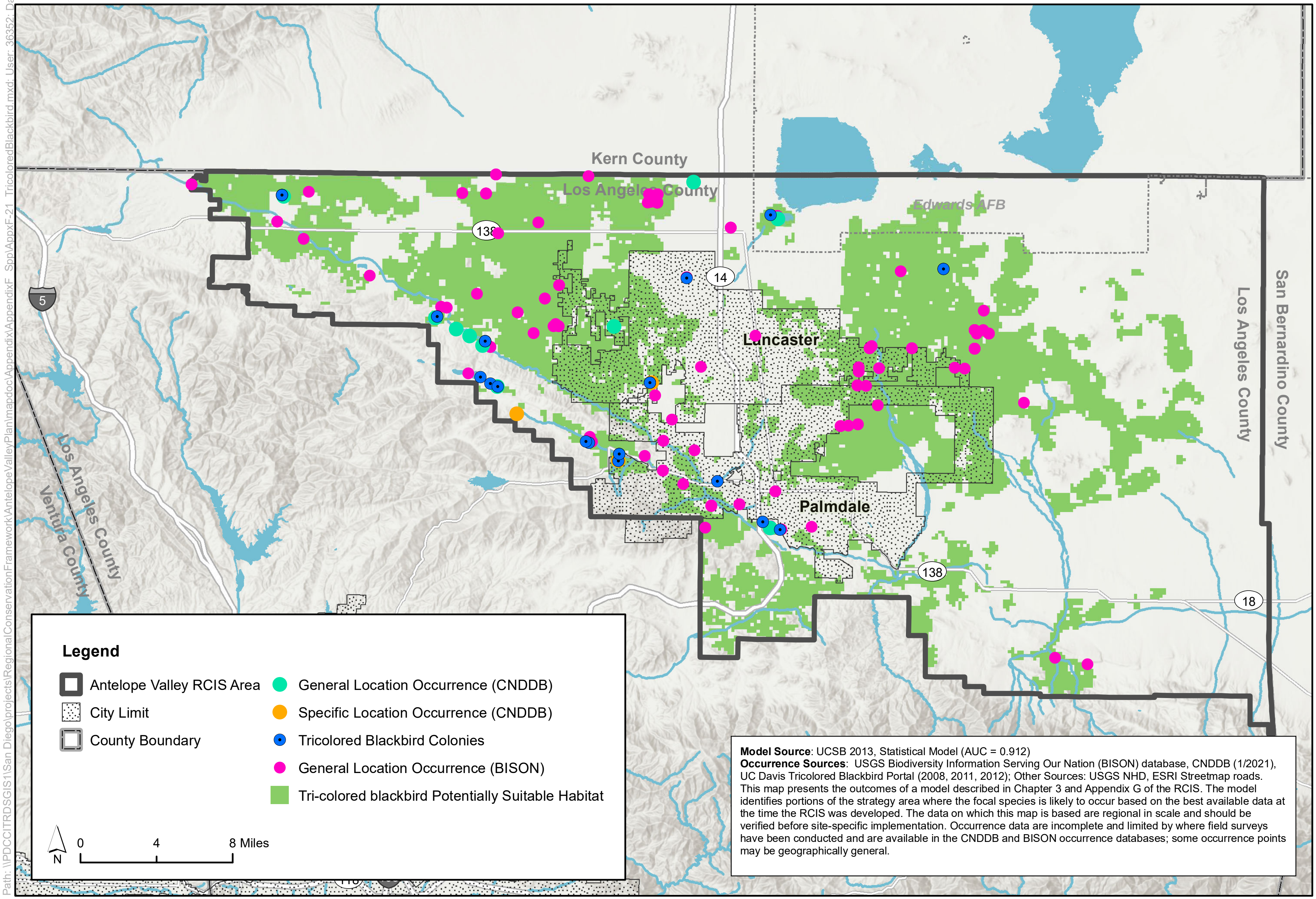




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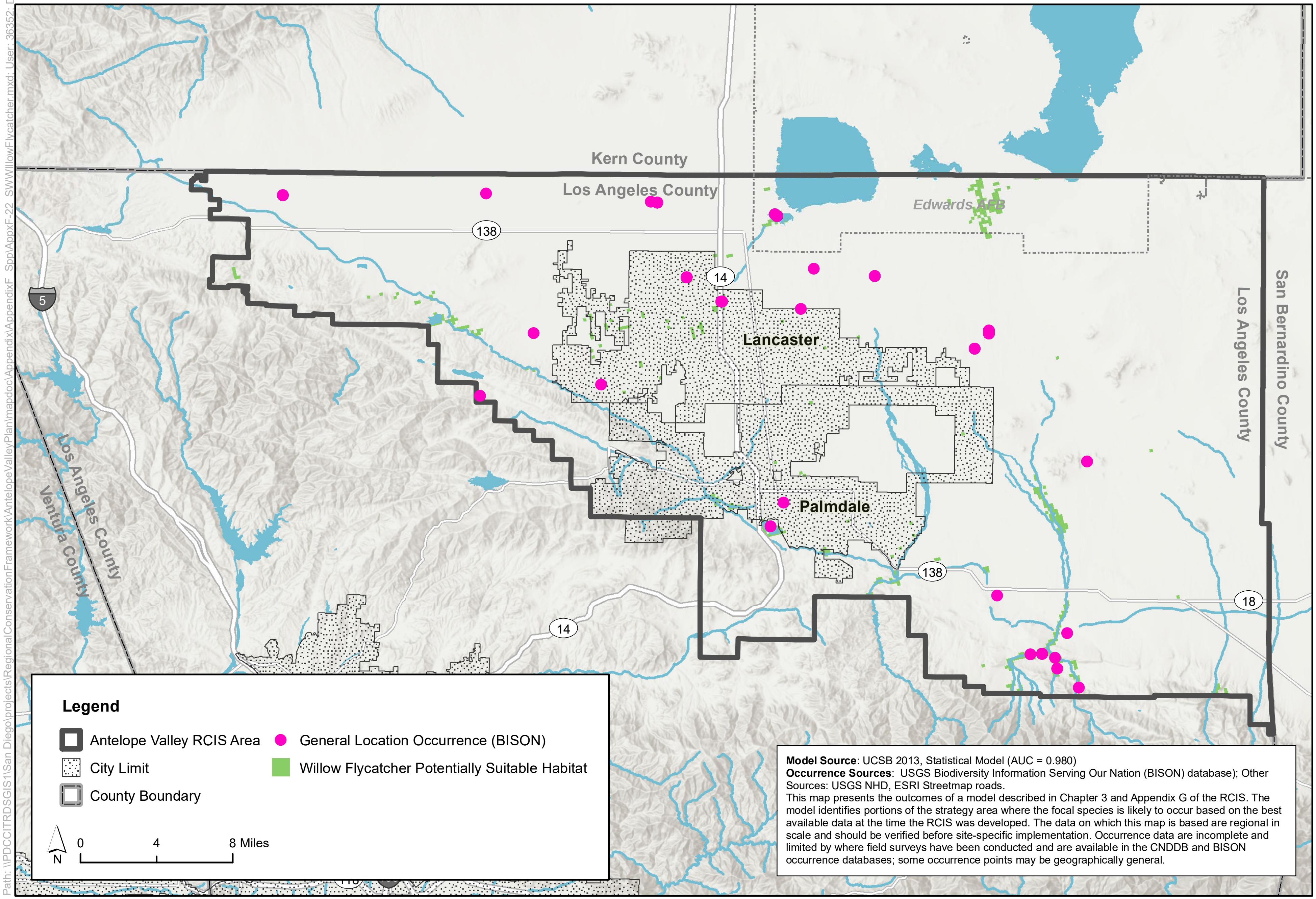
**Figure F-21**
**Tri-colored Blackbird Potentially Suitable Habitat in the RCIS Area**




**Model Source**: UCSB 2013, Statistical Model (AUC = 0.980)
**Occurrence Sources**: USGS Biodiversity Information Serving Our Nation (BISON) database); Other Sources: USGS NHD, ESRI Streetmap roads.
This map presents the outcomes of a model described in Chapter 3 and Appendix G of the RCIS. The model identifies portions of the strategy area where the focal species is likely to occur based on the best available data at the time the RCIS was developed. The data on which this map is based are regional in scale and should be verified before site-specific implementation. Occurrence data are incomplete and limited by where field surveys have been conducted and are available in the CNDDB and BISON occurrence databases; some occurrence points may be geographically general.

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**Figure F-22**
**Willow Flycatcher Potentially Suitable Habitat in the RCIS Area**

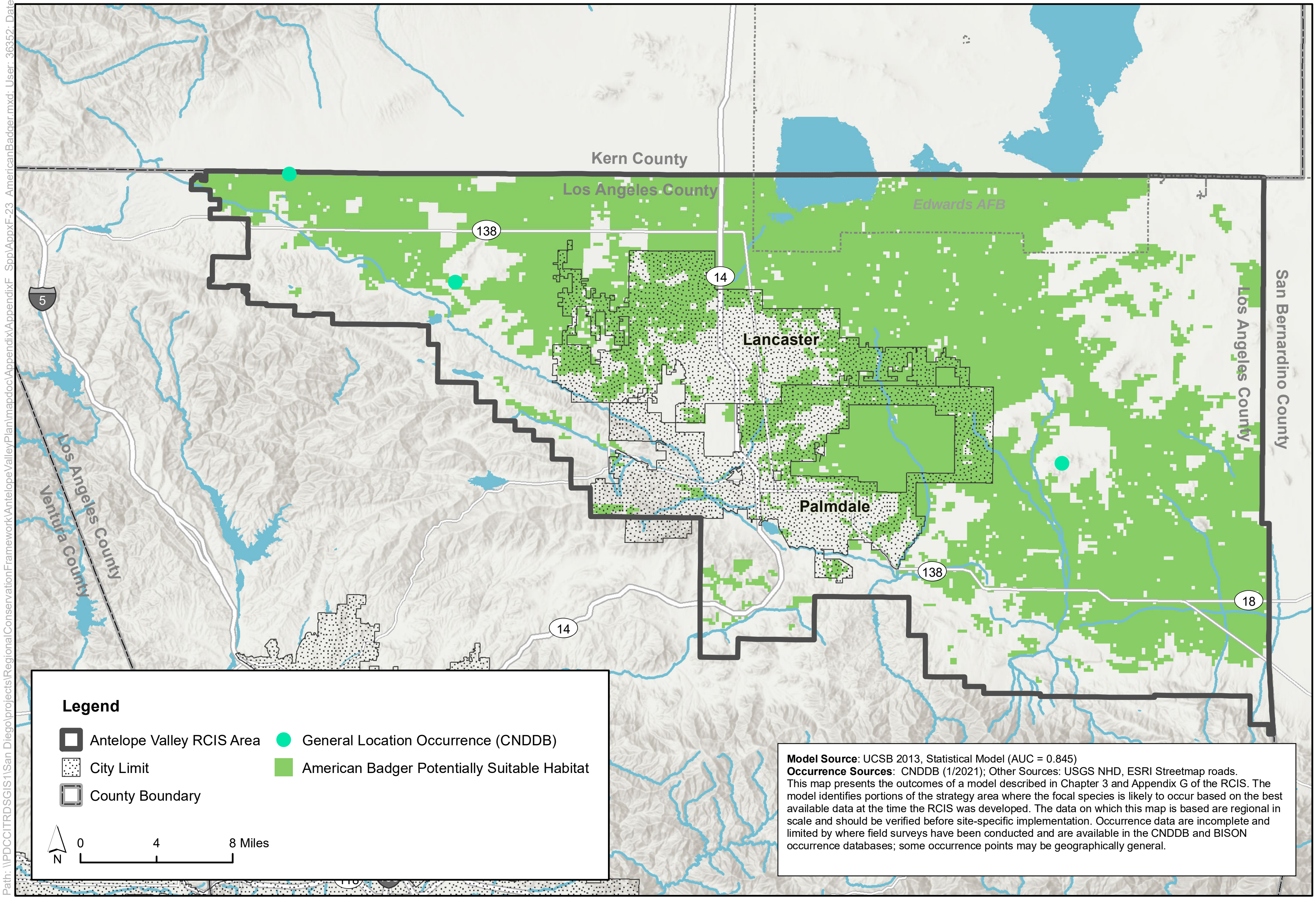



**Figure F-23**
**American Badger Potentially Suitable Habitat in the RCIS Area**

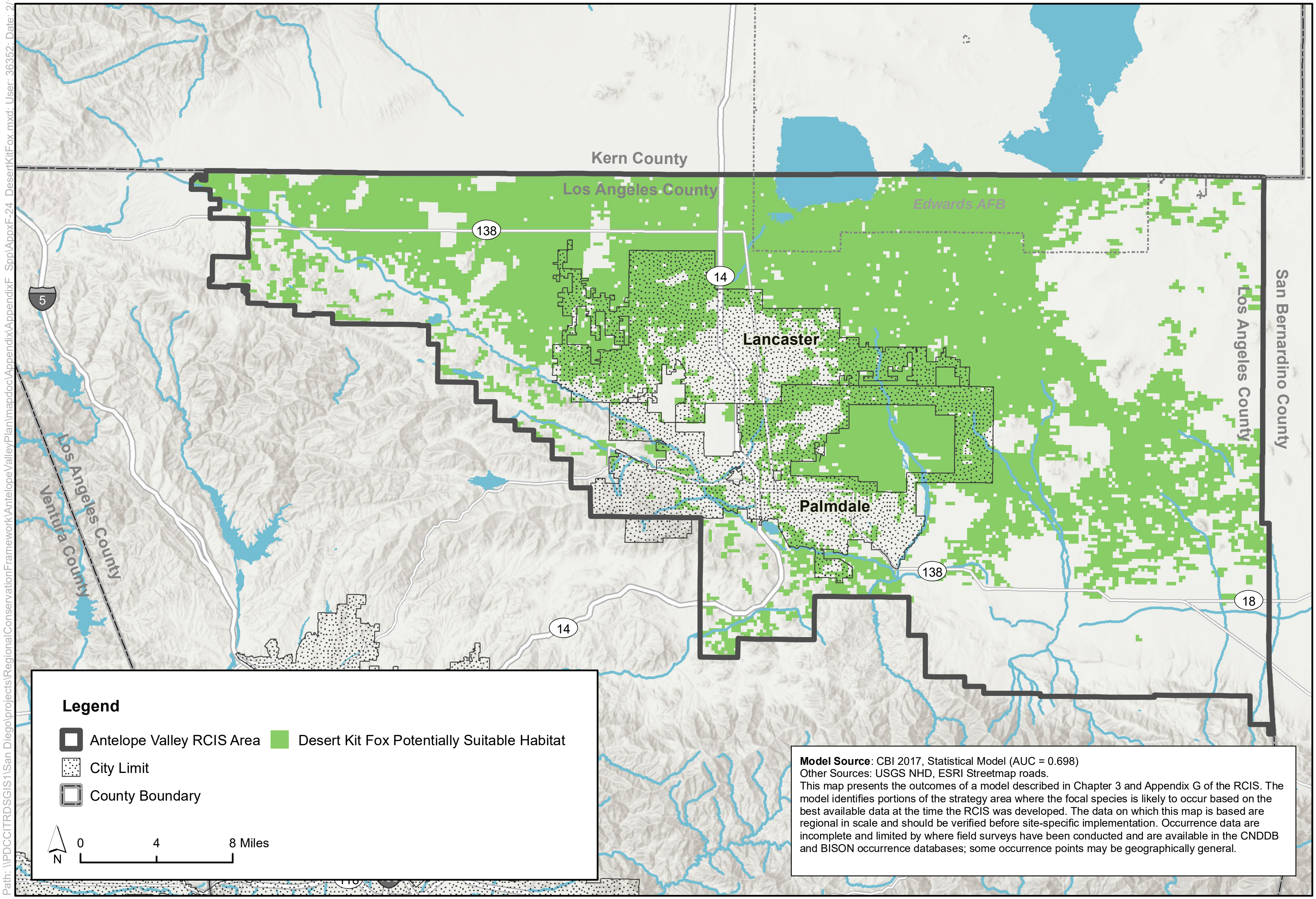
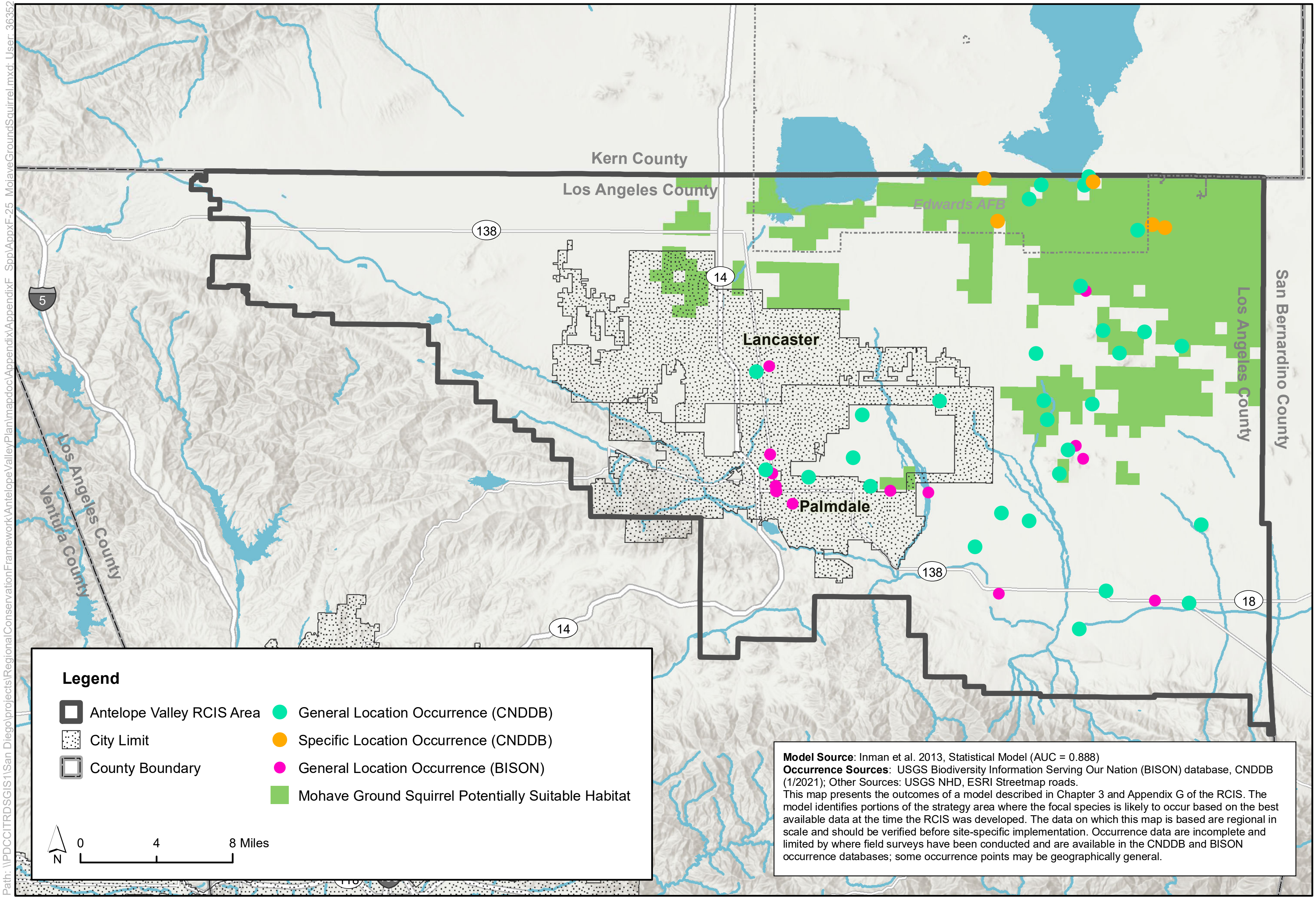



**Figure F-24**
**Desert Kit Fox Potentially Suitable Habitat in the RCIS Area**




**Model Source**: Inman et al. 2013, Statistical Model (AUC = 0.888)
**Occurrence Sources**: USGS Biodiversity Information Serving Our Nation (BISON) database, CNDDB (1/2021); Other Sources: USGS NHD, ESRI Streetmap roads.
This map presents the outcomes of a model described in Chapter 3 and Appendix G of the RCIS. The model identifies portions of the strategy area where the focal species is likely to occur based on the best available data at the time the RCIS was developed. The data on which this map is based are regional in scale and should be verified before site-specific implementation. Occurrence data are incomplete and limited by where field surveys have been conducted and are available in the CNDDB and BISON occurrence databases; some occurrence points may be geographically general.

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**Figure F-25**
**Mohave Ground Squirrel Potentially Suitable Habitat in the RCIS Area**

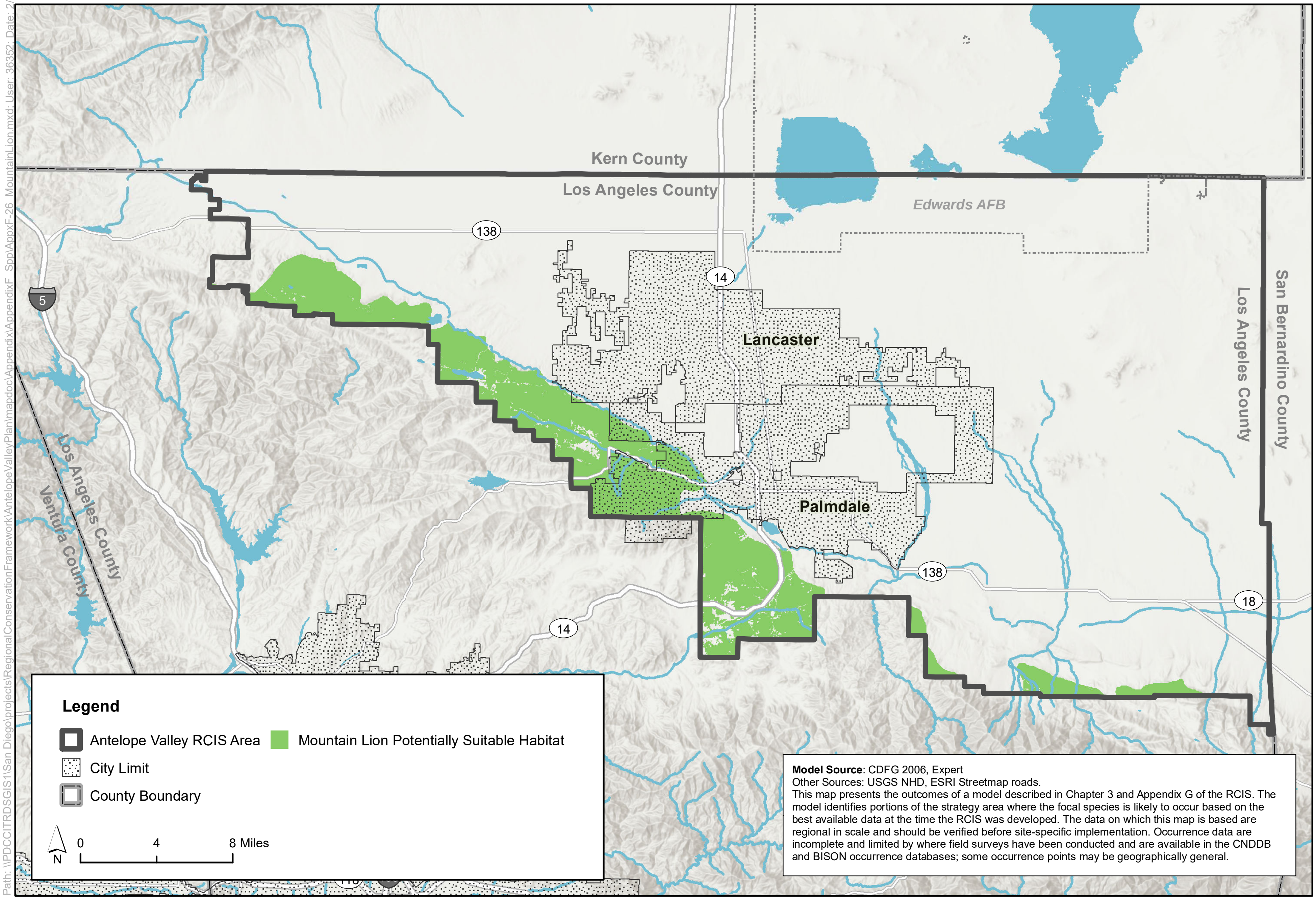




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**Figure F-26**
**Mountain Lion Potentially Suitable Habitat in the RCIS Area**

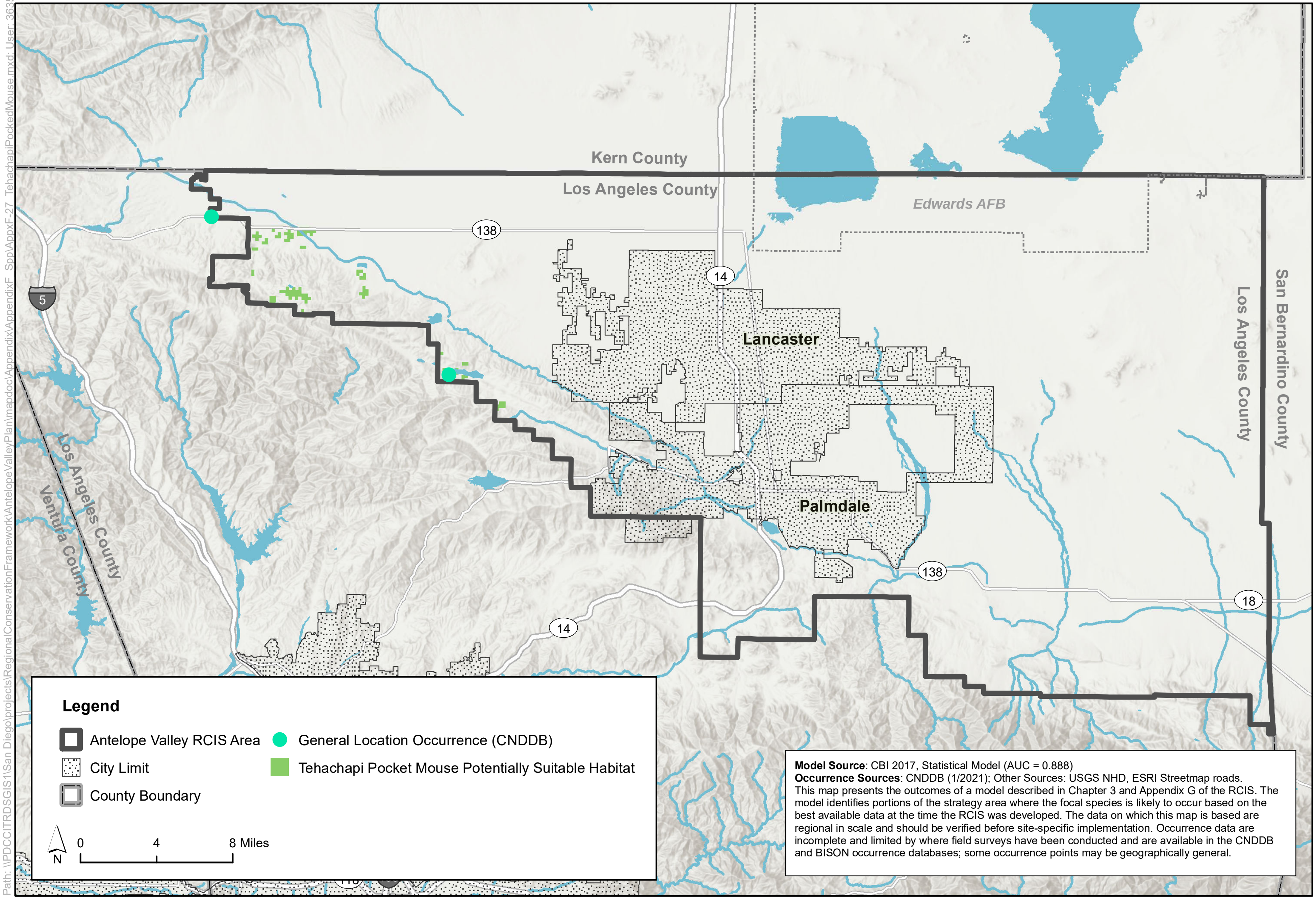




**Figure F-27**
**Tehachapi Pocket Mouse Potentially Suitable Habitat in the RCIS Area**

Appendix G

# Modeling Methodology

# Appendix G
# **Modeling Methodology**

The following sections describe the methodology of the spatial modeling conducted to inform the Antelope Valley Regional Conservation Investment Strategy (AV RCIS). This modeling is explained in the following sections:

1. Species Distribution Models
2. Environmental Evaluation Modeling System
3. Terrestrial Landscape Intactness
4. Biological Value
5. Species Distribution Models

Table G-1 provides a summary of the species distribution models used for the Antelope Valley RCIS. The table identifies source data for existing models used in the RCIS and area under the curve (AUC) values for statistical models. Models developed as part of this RCIS are described in the sections below the table.

**Table G-1. Species Distribution Models for 24 Focal Species**

| Species | Model Type (AUC) | Source |
|---|---|---|
| Alkali mariposa-lily<br>*Calochortus striatus* | Statistical (0.9758) | UCSB 2013 |
| American badger<br>*Taxidea taxus* | Statistical (0.845) | UCSB 2013 |
| Burrowing owl<br>*Athene cunicularia hypugea* | Statistical (0.793) | UCSB 2013 |
| California condor<br>*Gymnogyps californianus* | Expert | D'Elia et al. 2015 |
| California juniper<br>*Juniperus californica* | Mapped | CDFW 2013 |
| Coast horned lizard<br>*Phrynosoma blainvillii* | Statistical (0.909) | UCSB 2013 |
| Desert horned lizard<br>*Phrynosoma platyrhinos calidiarum* | Statistical (0.648) | CBI 2017 |
| Desert kit fox<br>*Vulpes macrotis arsipus* | Statistical (0.698) | CBI 2017 |
| Desert tortoise<br>*Gopherus agassizii* | Statistical (0.930) | Nussear et. al. 2009 |
| Golden eagle<br>*Aquila chrysaetos* | Expert | CBI 2017 |
| Joshua tree<br>*Yucca brevifolia* | Mapped | CDFW 2013 |
| Le Conte's thrasher<br>*Toxostoma lecontei* | Statistical (0.796) | UCSB 2013 |
| Least Bell's vireo<br>*Vireo bellii pusillus* | Statistical (0.969) | UCSB 2013 |

| Species | Model Type (AUC) | Source |
|---|---|---|
| Loggerhead shrike<br>*Lanius ludovicianus* | Statistical (0.769) | UCSB 2013 |
| Long-billed curlew<br>*Numenius americanus* | Statistical (0.917) | CBI 2017 |
| Mohave ground squirrel<br>*Xerospermophilus [Spermophilus] mohavensis* | Statistical (0.888) | Inman et al. 2013 |
| Mountain lion<br>*Felis concolor* | Expert | CDFG 2006 |
| Mountain plover<br>*Charadrius montanus* | Expert | Dudek 2013 |
| Northern harrier<br>*Circus cyaneus* | Statistical (not available) | Point Blue 2016 |
| Prairie falcon<br>*Falco mexicanus* | Statistical (0.822) | UCSB 2013 |
| Short-joint beavertail<br>*Opuntia basilaris* var. *brachycladum* | Expert | CBI 2017 |
| Spreading navarretia<br>*Navarretia fossalis* | Occurrence data only[1] | CNDDB 2016 |
| Swainson's hawk<br>*Buteo swainsoni* | Expert | CBI 2017 |
| Tehachapi pocket mouse<br>*Perognathus alticolus inexpectatus* | Statistical (0.888) | CBI 2017 |
| Tricolored blackbird<br>*Agelaius tricolor* | Statistical (0.912) | UCSB 2013 |
| Western pond turtle<br>*Actinemys marmorata* | Occurrence data only[1] | CNDDB 2016 |
| Willow flycatcher<br>*Empidonax traillii* | Statistical (0.980) | UCSB 2013 |

[1] Two focal species, western pond turtle and spreading navarretia, lacked enough occurrence data to create species distribution models; therefore, evaluation of the species in the RCIS is based on occurrence data only.

# New Expert Species Models

Expert models for golden eagle, Swainson's hawk, and short-joint beavertail cactus were created by the Conservation Biology Institute (CBI) for the RCIS as described below.

## Golden Eagle Species Distribution Model

The golden eagle expert model was created by CBI by identifying foraging vegetation near known or potential nesting sites. Foraging vegetation was included if it was within 10 miles of known nests or within 4 miles of potential nesting areas. Potential nesting areas were identified as areas with a high ruggedness value (Vector Ruggedness Measure > 0.01; neighborhood size = 270 m). Foraging vegetation within these buffer areas included the following: herbaceous cover between 30 and 100 percent; shrub cover between 10 and 50 percent; tree cover between 10 and 40 percent; herbaceous wetlands, herbaceous semi-dry lands, and herbaceous semi-wet areas, (Landfire Existing Vegetation Cover, 2008; 30m resolution). The model excludes agricultural lands, developed and disturbed areas, open water, playas, and dunes and sand flats (based on California Department of Fish and

Wildlife [CDFW] Land Cover/Natural Vegetation Communities and Sand and Dune Systems, Desert Renewable Energy Conservation Plan [DRECP]). Areas within 500 m of interstates and highways and areas within 100 meters of local/residential roads were also excluded (based on 2012 Tiger roads). The golden eagle model output was resampled from 30- to 270-m resolution and generalized using majority filter and boundary clean techniques; areas smaller than 40 pixels were removed from the final product. The model was created for all of the western Mojave desert and then clipped to the Antelope Valley RCIS. There were no known nest occurrences within the RCIS boundary; therefore, the model results here represent the foraging area near potentially suitable nesting habitat, and the occurrences within the RCIS boundary are foraging and fly-over observations.

## Swainson's Hawk Species Distribution Model

This Swainson's hawk expert model was created by CBI by identifying foraging and nesting habitats in the West Mojave. The model included the following California Wildlife Habitat Relationships (CWHR) types: Annual Grassland, Cropland, Desert Riparian, Dryland Grain Crops, Irrigated Grain Crops, Irrigated Hayfield, Irrigated Row and Field Crops, Joshua Tree, Lacustrine, Montane Riparian, Pasture, Perennial Grassland, Riverine, Saline Emergent Wetland, Valley Foothill Riparian, and Wet Meadow. A mask was applied to remove urban, playas, disturbed areas, and solar footprints. Then the model was simplified by removing polygons smaller than 72,900m$^2$.

## Short-joint Beavertail Cactus Species Distribution Model

The short-joint beavertail cactus model is a very simple model that includes all natural habitats within a 1-mile buffer of known occurrence points. The 1-mile buffer was selected as a conservative buffer distance for this species based on general knowledge of the species distribution patterns and modeling approaches used by species modeling experts at CBI. While this distance is somewhat arbitrary it is considered a conservative approach in that it indicates areas of habitat near known occurrences where future surveys should focus to identify other occupied locations.

# New Statistical Species Models

Statistical species distribution models for desert kit fox, desert horned lizard, long-billed curlew, and Tehachapi pocket mouse in the Antelope Valley/West Mojave Desert were created with methods and data consistent with those used for models created by CBI for the DRECP in 2013.

The distribution program MaxEnt (Version 3.3.3k; Phillips et al. 2006) was used to estimate the relative habitat suitability for a species as a function of environmental predictor variables and observation records at 270-meter resolution. Observation records were obtained from Biodiversity Information Serving Our Nation (BISON),[1] and thinned so that no more than one occurred per 270-meter grid cell. Environmental predictor layers were provided to CBI by Frank Davis' Biogeography Lab at UC Santa Barbara, created for the CA Energy Commission's project "Cumulative Biological Impacts Framework for Solar Energy in the CA Desert."

We selected relevant predictors for each species from the following variables:

- WHR habitat rating: focal mean (25 m grid) of arithmetic mean of WHR ratings for cover, feeding, and reproduction calculated for area approximating the minimum habitat patch, nesting home range, or activity area for the species based on DRECP species biology notes and other

[1] http://bison.usgs.ornl.gov, 2016-08-1

sources. The resulting grid to be re-aggregated to 270m based on the median of cell scores in the block.

- Integrated solar radiation (WH/m2, ESRI Spatial Analyst Area Solar Radiation). Derived from the interior of 30m NED DEM tiles buffered to 300m. Integrated from 2012-02-29 to 2012-05-30. Average integrated value in each 270m pixel.
- Topographic relief in the 270m cell estimated as the standard deviation of elevations from 30m digital elevation model.
- Soil thickness, produced by A. &. L. Flint.
- Soil water content at wilting point, produced by A. & L. Flint.
- Soil porosity, produced by A. & L. Flint.
- Soil available water storage (cm) from 0–50cm, derived from SSURGO or STATSGO where SSURGO was unavailable (The mapunit-area-weighted average of aws050wta in table muaggatt was used.)
- Soil field capacity (Mpa), produced by A. & L. Flint, derived from SSURGO or STATSGO where SSURGO was unavailable
- Soil pH (pH scale) from 0–50cm, derived from SSURGO or STATSGO where SSURGO was unavailable. The mapunit area weighted average of the soil component percent area weighted average of the soil component horizon depth weighted average of ph1to1h2o_r in table chorizon.
- Flow accumulation (ESRI Spatial Analyst Flow Accumulation), calculated from 90m HydroSHEDS flow direction rasters; 90m model data were log(x+1) transformed. We used the maximum of the transformed values in each 270m pixel.
- Perennial water features, as indicated by the USGS NHD feature codes 39004, 39009, 39010, 39011, 39012, 45800, 46006, and 46602. Categorical presence/absence, indicating the presence of any perennial water feature within each 270m pixel.
- Minimum temperature of coldest period (°C x 10)
- Maximum temperature of warmest period (°C x 10)
- Growing degree days above 5°C
- Temperature seasonality (C of V, x 100)
- Precipitation of warmest quarter (mm)
- Annual precipitation (mm)
- Aridity Index (FAO definition: annual precipitation (mm)/ potential evapotranspiration (mm/annual) x 100)

We used a step-wise variable elimination process to select the best fitting model for each species. We first removed correlated predictors, retaining the predictor with the highest mean permutation importance. We next removed any predictors with permutation importance < 1, and finally any predictors with permutation importance < 5. We selected the model with the highest cross-validated AUC (area under the curve).

MaxEnt was run using default feature types and 10-fold cross-validation. Models were calibrated within species-specific limited extents within the Mojave Desert ecoregion section, and then projected across the entire Mojave Desert ecoregion section. Areas outside the limited calibration extent should be interpreted with more caution.

Binary layers depicting predicted suitable habitat for each species were created using the MaxEnt maximum training sensitivity and specificity threshold.

The base or "current conditions" distribution model was created using climate data from 1981-2010. We also projected each species' selected model with climate futures data (Flint and Flint 2012 data used by F. Davis for DRECP). Species distributions were forecasted for the period 2040–2069 based on "business-as-usual" emission scenarios (5$^{th}$ assessment Coupled Model Intercomparison Project (CMIP5) rcp 8.5) and statistically downscaled outputs of three different global climate models: the Community Climate System Model (LBC_CCSM_binary), the Flexible Global Ocean-Atmosphere-Land System model (LBC_FGOALS_binary), and the Pierre Simon Laplace Institute (LBC_IPSL_binary). Areas with clamping values > 0 indicate areas of increased uncertainty; where variable values fall outside their training ranges and are likely to influence predicted suitability.

The desert kit fox model was calibrated within a 30 km buffer around 33 detection points from 1885 on. Historic detections intersecting currently developed land uses were removed. The final model was built with the following 4 environmental predictors in order of importance: topographic relief, precipitation of the warmest quarter, integrated solar radiation, and soil available water storage. This model had a 10-fold cross-validated test AUC score of 0.698 (standard deviation 0.119).

The desert horned lizard model was calibrated within ecoregion subsections containing 48 detection points from 1891 on. Historic detections intersecting currently developed land uses were removed. The final model was built with the following nine environmental predictors in order of importance: 1) topographic relief; 2) minimum temperature of coldest period; 3) annual precipitation; 4) distance to sand dunes; 5) soil porosity; 6) precipitation of the warmest quarter; 7) flow accumulation; 8) integrated solar radiation; and 9) soil field capacity. This model had a 10-fold cross-validated test AUC score of 0.648 (standard deviation 0.117).

The long-billed curlew model was calibrated within ecoregion subsections containing 86 detection points from 1990 on. The final model was built with the following six environmental predictors in order of importance: 1) distance to perennial water features; 2) topographic relief; 3) precipitation of the warmest quarter; 4) minimum temperature of coldest period; 5) soil field capacity; and 6) soil thickness. This model had a 10-fold cross-validated test AUC score of 0.917 (standard deviation 0.038).

# Environmental Evaluation Modeling System Logic Modeling

The Biological Values and Terrestrial Landscape Intactness Models for the AV RCIS were created using Environmental Evaluation Modeling System (EEMS) software. EEMS, which is an open-source analytical package developed by the Conservation Biology Institute, uses a logic modeling tree-based framework to address complex, mappable concepts that include disparate spatial datasets (Sheehan and Gough 2016). EEMS is an open source alternative to EMDS (Ecosystem Management Decision Support) software package (Reynolds 1999, Reynolds 2001).

With EEMS, spatial data from different sources and different numerical domains can be combined to answer complex questions concerning a landscape's conservation value, its ecological condition, or its vulnerability to climate change. Unlike conventional GIS applications that use Boolean logic (1s and 0s) or scored input layers, logic models rely on fuzzy logic. Simply put, fuzzy logic allows the user to assign shades of gray to thoughts and ideas, rather than restricting one to completely black (false) and white (true) determinations (Figure G-1). All data inputs (regardless of the type—ordinal, nominal, or continuous) are assigned relative values between -1 (false) and +1 (true) up to six decimal places.

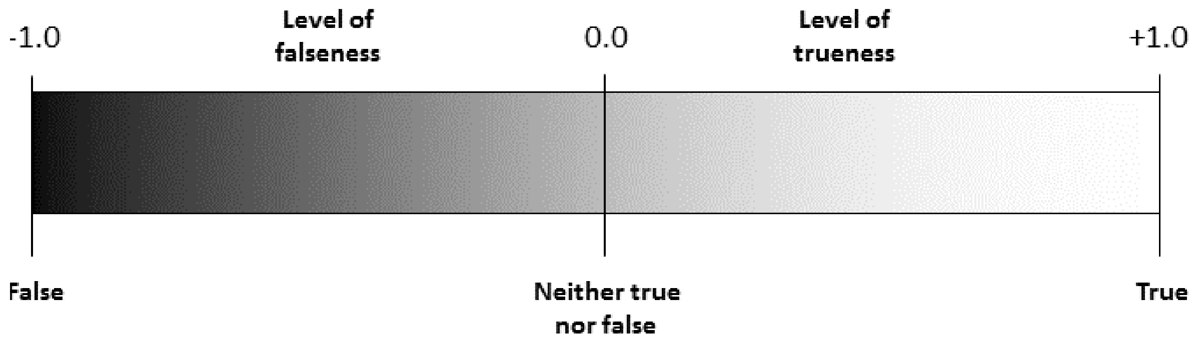


**Figure G-1. Basic Diagram Showing a Typical Fuzzy Logic Truth Continuum Used for Each Input in an EEMS Model**

The many advantages of this approach include: (1) the model is based on a normalized continuum of inputs that allows for greater realism; (2) the model is highly transparent and its process is easy to visualize; (3) the multiple map products (final and intermediate layers) generated provide greater value over single-map modeling methods; (4) the model can be easily edited to test different assumptions; (5) the model can be easily updated as new data become available; and (6) future scenarios can be tested with forecast data.

A tree-based model is constructed starting with any number of spatial data input layers that form the foundation of the model (Figure G-2). The logic of answering a question depends upon a number of design features: (1) location and arrangement of the various inputs (inputs higher up the tree diagram demonstrate greater influence on the final outcome); (2) fuzzy thresholds set for each input; (3) logic operator chosen at each node (blue dots) that directs the model how to treat the inputs below it; and (4) weighting of some inputs if desired.

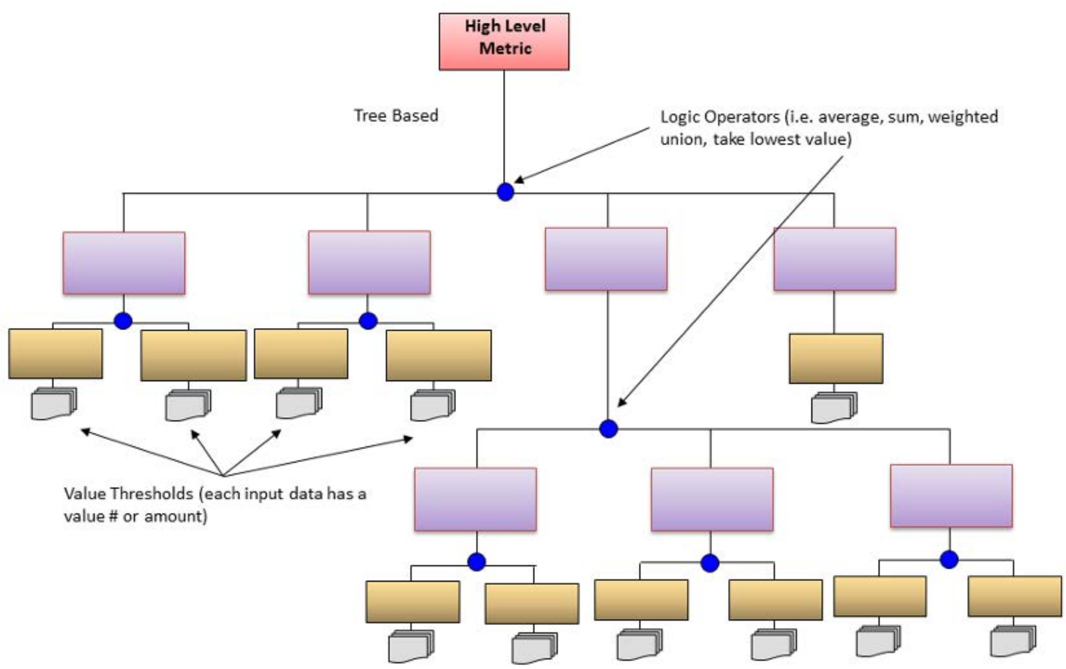


**Figure G-2. Basic EEMS Tree-based Diagram Showing the layout of the Main Question Being Addressed (red box), Intermediate Map Results (purple boxes), Normalized Inputs (gold boxes), and Raw Spatial Inputs (gray folders)**

## The Modeling Process

There were four phases to the conservation value modeling process: 1) Preprocess Data; 2) Prepare Inputs; 3) Summarize by Reporting Unit; and 4) EEMS Logic Model Execution. These phases were carried out using ArcGIS and a set of models developed in Model Builder in conjunction with custom Python scripts. Table G-2 provides an overview of the functions of each phase.

**Table G-2. Steps Used in the EEMS Modeling Process**

| Steps/Phase | Model Overview |
|---|---|
| Preprocess Data | Clips all input datasets to the study area and projects data to UTM Zone 11N NAD83. |
| Prepare Inputs | Aggregates datasets from multiple sources as needed, and select and isolate features of interest. |
| Summarize by Reporting Unit | Calculates a count or density value for all components of the EEMS model. Appends counts and values from separate datasets to the reporting unit dataset. |
| EEMS Logic Model Execution | Applies fuzzy logic based on the structure within the EEMS model framework. Calculates results based on input data, operators used, thresholds, and weightings applied. |

## Logic Modeling Thresholds and Operators

During the last phase of the modeling process, logic model performance is achieved in several ways. For each model component, the user determines how to assign the range of values along a truth continuum when converting to fuzzy space. See the details on input thresholds for the Biological Value Models and Terrestrial Landscape Intactness Model in the designated sections below.

As part of the model construction, a series of logic operators are used on the raw inputs or on the fuzzy results to control how to integrate the inputs to answer a question. The current list of possible EEMS logic operators is provided in Table G-3. These logic operators provide the necessary instructions about how to treat the various inputs as the model runs from the bottom of the tree-based design to the top.

**Table G-3. Logic Operators Available in the EEMS Software Package**

| Operator | Input Data | Description |
|---|---|---|
| AND | Fuzzy | Finds the EMDS AND value of the inputs (maximum value). The formula is min + [(mean–min) * (min + 1) / 2] |
| CONVERT TO FUZZY | Raw | Converts a field's values into fuzzy values. |
| DIFFERENCE | Raw | Computes the difference sum for each row of the inputs. |
| MAX | Raw | Finds the maximum for each row of the input fields. |
| MEAN | Raw | Finds the mean for each row of the input fields. |
| MIN | Raw | Finds the minimum for each row of the input fields. |
| NOT | Fuzzy | Reverses the sign of values of the input field. TRUEness and FALSEness are swapped. |
| OR | Fuzzy | Returns the TRUEest of the inputs. |
| ORNEG (NEGATIVE OR) | Fuzzy | Returns the FALSEest of the inputs values. |

| Operator | Input Data | Description |
|---|---|---|
| SELECTED UNION | Fuzzy | Finds the union (mean) of the specified number of TRUEest or FALSEest inputs. |
| SUM | Raw | Arithmetic addition of two or more inputs. |
| UNION | Fuzzy | Returns the mean of the inputs. |
| WEIGHTED AND | Fuzzy | Finds the weighted EMDS AND value of the inputs (maximum value). The formula is min + [(mean–min) * (min + 1) / 2] where the mean is weighted. |
| WEIGHTED MEAN | Fuzzy | Finds the weighted mean for each row of the input fields. |
| WEIGHTED SUM | Fuzzy | Finds the weighted sum for each row of the input fields. Multiplies each field by its weight before adding. Like a weighted mean without the division. |
| WEIGHTED UNION | Fuzzy | Finds the weighted union (mean) for each row of the input fields. |
| XOR | Fuzzy | Finds the fuzzy EXCLUSIVE OR value of the inputs by comparing the two truest values. If both are fully true or fully false, false is returned. Otherwise it applies the formula: (truest value–second truest value) / (full true–full false) |

## Constraining, Masking, and Adding Climate-Based Range Expansion and Stable Areas to Species Distribution Models

### Threshold Species Distribution Models

Areas of highest species' probability of occurrence (Species Distribution Models [SDM] constrained threshold) folder: https://databasin.org/groups/d922a65dec404217b356562a4a31665c/content#expand=127714%2C127969.

We used the continuous values and the Maximum Sensitivity and Specificity (MSS) value to specify the inclusion threshold for the layer showing predicted distributions. MSS has been shown to optimize discrimination between presence and absence when only presence data are available (Liu et al. 2013). MSS tends to be a "moderate" threshold. A lower threshold (minimum training presence or 10 percentile training presence for example) would capture more occurrences at the expense of likely including areas that may be unsuitable (increasing sensitivity but decreasing model specificity). MSS was modified here to be more restrictive to include the results into an EEMS model (CBI 2017) with the goal of identifying the areas of the most reliable high biological value in alignment of the purpose of the overall objectives of the conservation values modeling and mapping (i.e., emphasizing areas of highest biological and conservation value). Without some modification with this objective in mind the MSS would function as a moderate threshold and would include a much larger area of predicted distribution making it more difficult to identify those areas of highest conservation interest for the RCIS.

In preparation for inclusion in the EEMS model (which also included species occurrences, emphasized natural communities, and connectivity value inputs), we elected to further constrain the SDM MMS thresholds for the statistical model components (17 out of the 27 focal species). Map results divided the total predicted suitable habitat into two equal area classes. The higher value class, representing the top 50 percent of the predicted suitable habitat was used as input in the EEMS high biological value areas model. This resulted in providing the most reliable focal species locations for this input of the EEMS model. We also applied a mask to remove urban, playas, and other disturbed areas such as solar footprints.

## Species Focal Areas

We created an additional dataset called *species focal areas* to emphasize modeled species habitat that overlaps with known occupied habitat. Because species distribution models tend to over-predict habitat, species focal area maps provide greater certainty that the initial identification of potential priority conservation areas will include occupied habitat. Species focal areas were created for all species that used a statistical model and for three of the five species that used an expert model (i.e., those species for which sufficient point data were available: golden eagle, mountain plover, and Swainson's hawk). Species focal areas were created by buffering recent known point occurrences (since 2000) by distances that estimated the species' primary activity areas (Table 2-6). The buffer distance to identify the primary activity area was based on an estimate of foraging territory size, home range size, or nesting territory size, as identified in relevant literature. For three species a common but arbitrary buffer distance in the EEMS model was used to estimate the primary activity area (alkali mariposa lily, 500m; willow flycatcher 1km; mountain plover, 1km) (Strittholt, pers. comm.). The buffered points were then clipped to include only the modeled habitat in their most refined distribution models.

**Table G-4. Methods for Species Focal Areas: Buffer Distances Applied to Known Point Occurrences for Focal Species for which Sufficient Point Occurrence Data Were Available**

| Model | Buffer Distance | Type of Buffer | Supporting Citation |
|---|---|---|---|
| **Statistical Models** | | | |
| American badger | 1.5 km | Home range | Lindzey 1978 |
| Alkali mariposa-lily | 500 m | Occupied habitat vicinity | CBI 2017 |
| Burrowing owl | 3 km | Foraging territory | Gervais et al. 2003 |
| Coast horned lizard | 50 m | Home range | Whitford and Bryant 1979 |
| Desert horned lizard | 50 m | Home range | Whitford and Bryant 1979 |
| Desert kit fox | 3 km | Home range | Grinnell et al. 1937 |
| Agassiz's desert tortoise | 2 km | Home range | Nussear et al. 2012 |
| Least Bell's vireo | 100 m | Nesting territory | Hensley 1950 |
| Long-billed curlew | 1 km | Foraging territory | Fitzner 1978 |
| Le Conte's thrasher | 3 km | Foraging territory | Sheppard 1996 |
| Loggerhead shrike | 4 km | Foraging territory | Collister and DeSmet 1997 |
| Mohave ground squirrel | 3 km | Home range | Harris and Leitner 2005 |
| Northern harrier | 4 km | Foraging territory | Martin 1987 |
| Prairie falcon | 8 km | Foraging territory | Harmata et al. 1978 |
| Willow flycatcher | 1 km | Occupied habitat vicinity | CBI 2017 |
| Tehachapi pocket mouse | 150 m | Home range | Dudek and ICF International 2012 |
| Tricolored blackbird | 5 km | Foraging territory | Beedy and Hamilton 1997a |
| **Expert Models** | | | |
| Golden eagle | 3 km | Recommended no-disturbance buffer | Suter and Jones 1981 |
| Mountain plover | 1 km | Occupied habitat vicinity | CBI 2017 |
| Swainson's hawk | 5 km | Foraging territory | Estep 1989 |

# Antelope Valley RCIS: Terrestrial Landscape Intactness

*Intactness*, an estimate of naturalness, is based on the level of human disturbance for an area, quantified by available spatial data. Terrestrial intactness is high in places where anthropogenic impacts, such as urban development and natural resource extraction, are low, and native vegetation fragmentation is low.

The term *terrestrial intactness*, which is used as a quantifiable state descriptor, has been largely applied to forested landscapes (Lee et al. 2002; Heilman et al. 2002; Strittholt et al. 2006; Potapov et al. 2008), but many of the same principles apply to any natural landscape, including desert ecosystems. The state (or condition) of the natural ecosystem may be viewed and quantified as the ecological stage upon which the actors (species) and the play itself (ecological processes) are carried out over time. Intactness considers an assemblage of spatially explicit indicators that helps define the condition of the natural landscape. Different species may possess different tolerances to these conditions, but natural assemblages of species and natural patterns and processes are increasingly compromised as human influences intensify.

For this study, a terrestrial intactness model was created at the $1km^2$ level to use as a foundation against which the ecological condition of species' habitats and areas planned for development can be quantitatively evaluated. The Antelope Valley RCIS study area boundary was used to clip out the results for this statewide product (Figure G-3). The logic model constructed that generated the current statewide result is provided in Figure G-4.

The model contains three main components, including 1) Level of Human Development; 2) Vegetation State Condition; and 3) Natural Landscape Fragmentation. Thirty-four different spatial data layer inputs from various authoritative sources were included in the EEMS model, which are listed and described in the Data Source section below. Fuzzy logic thresholds for the main model components are provided in Table G-5. Logic operators used to manage the various inputs are indicated on the model diagram at each node. Note: Inputs for the fragmentation component were generated using FRAGSTATS (McGarigal and Marks 1995) and three outputs—1) number of patches; 2) mean nearest neighbor; and 3) percent natural core area—were included as the terrestrial landscape intactness EEMS model. This most recent version of this model (December 2016) addresses the over-estimation of fragmentation impacts that were seen in previous versions, which stemmed from the treatment of invasive vegetation and fire effects in the FRAGSTATS geoprocessing. New fragmentation metrics shift focus to anthropogenic development. Invasive vegetation is also now compartmentalized within the logic model, which influences the condition score to a lesser extent.

The input data, intermediate layers, and final results of this analysis can be explored via the EEMS Explorer of Data Basin[2], where they are accessible as online interactive maps showing the signature of human impact across the landscape.[3]

[2] http://databasin.org

[3] https://databasin.org/datasets/e3ee00e8d94a4de58082fdbc91248a65

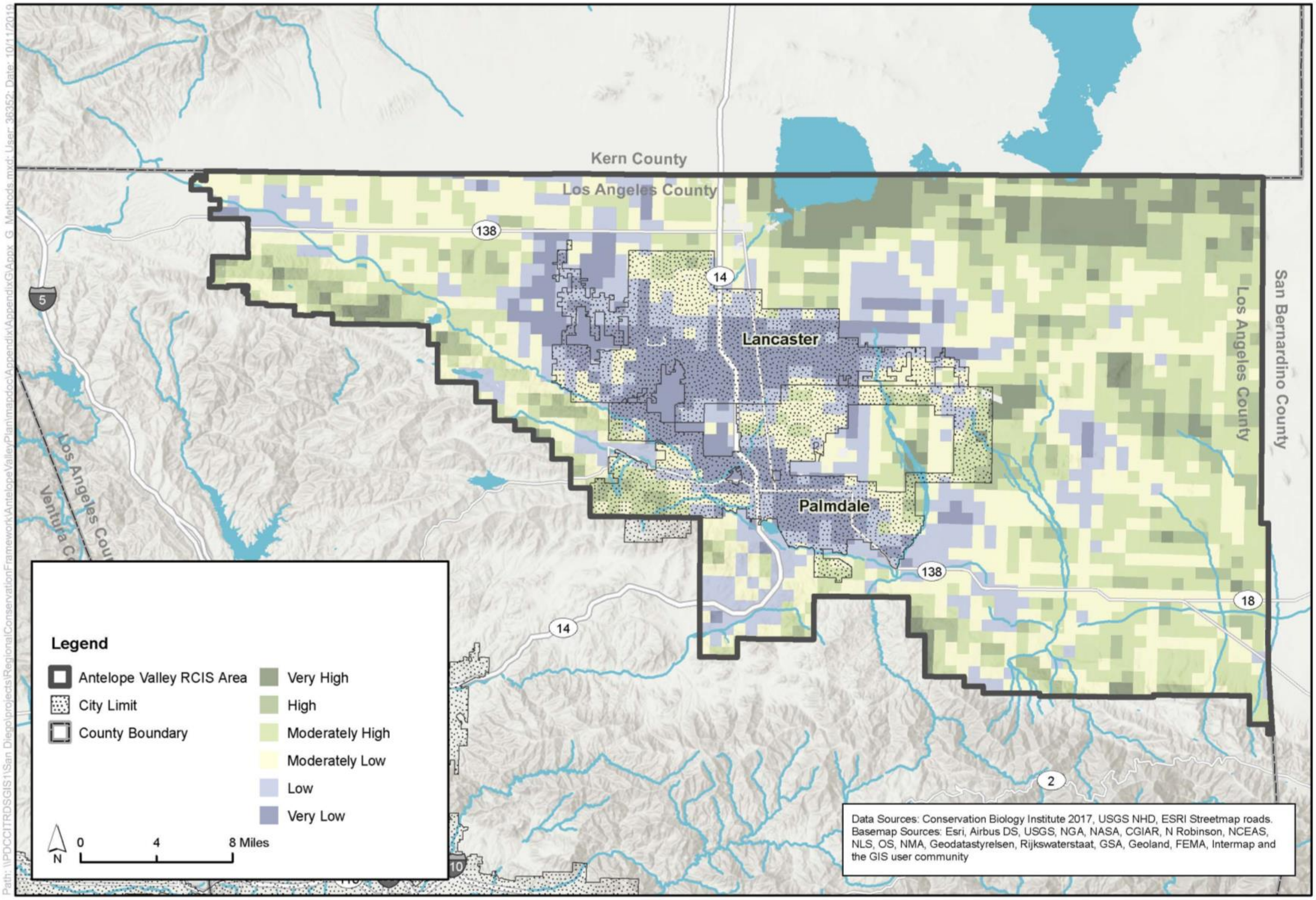


**Figure G-3. Terrestrial Landscape Intactness (Dec 2016) Results for the Antelope Valley RCIS Area**

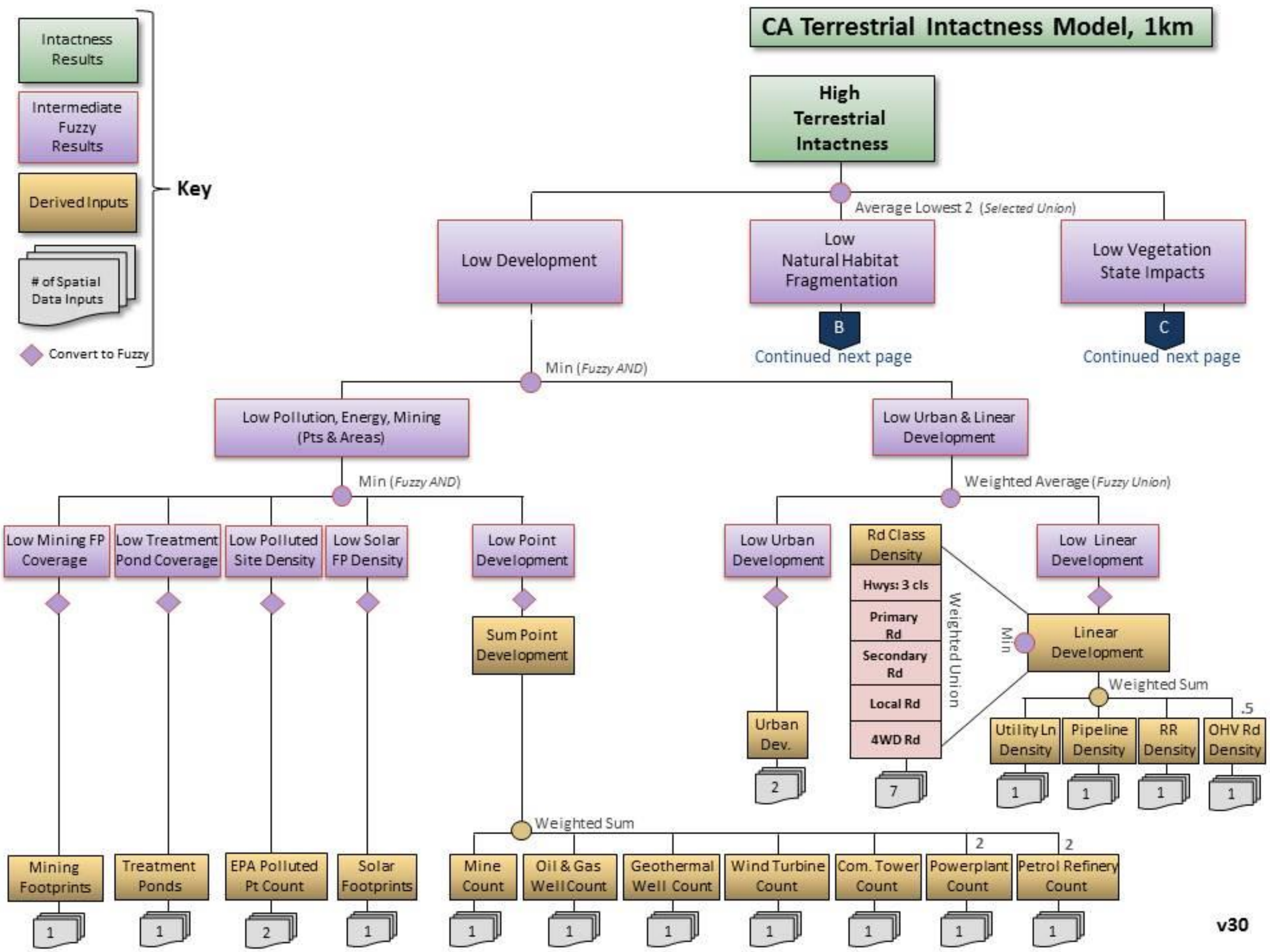


**Figure G-4. Logic Model for Terrestrial Landscape Intactness (v30) for California (page 1 of 2)**

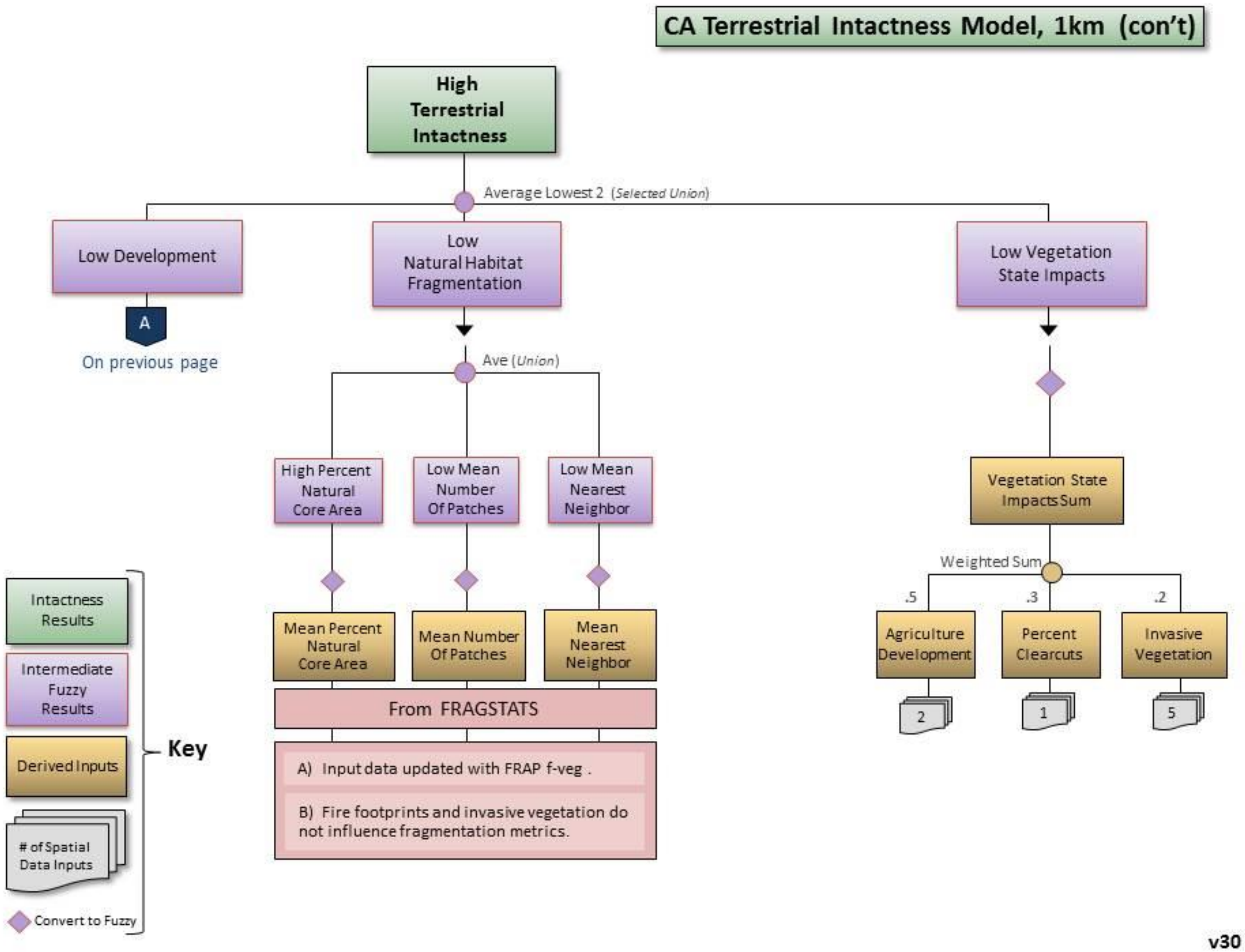


**Figure G-4. Logic Model for Terrestrial Landscape Intactness (v30) for California (page 2 of 2)**

**Table G-5. List of Fuzzy Logic Data Inputs for the California Terrestrial Landscape Intactness Model (v30), Showing Data Type, Range of Values, and True and False Modeling Thresholds for each Item at 1 $km^2$ Resolution**

| Input | Range | Mean | Standard Deviation | Data Type | 1 km True Threshold | 1 km False Threshold |
|---|---|---|---|---|---|---|
| Urban Development | 0–100 | 10.5 | 21.0 | Percent Cover | 0 | 20[2] |
| *Linear Road Class Development ($km/km^2$) | 0–724.0 | 4.5 | 10.1 | Density | 0 | 10[3,2] |
| *Other (non-Rd Class) Linear Development ($km/km^2$) | 0–42.4 | 0.3 | 0.7 | Density | 0 | 4[3,2] |
| Energy & Mining Point Development ($pts/km^2$) | 0–1,062 | 0.6 | 8.8 | Count | 0 | 12[2] |
| Polluted Sites ($pts/km^2$) | 0–72 | 0.004 | 0.2 | Count | 0 | 2[2] |
| Treatment Pond Polygons | 0–100 | 0.04 | 1.7 | Percent Cover | 0 | 80[2] |
| Large Mine Footprints | 0–100 | 0.06 | 2.0 | Percent Cover | 0 | 70[2] |
| Large Solar Footprints | 0–100 | 0.05 | 1.6 | Percent Cover | 0 | 70[2] |
| Number of Patches | 1–416 | 20.7 | 29.3 | Count | 0 | 50[2] |
| Mean Nearest Neighbor (m) | 60–3,903 | 82.6 | 116.0 | Distance | 59 | 90[2] |
| Percent Natural Core Area | 0–90 | 47.8 | 28.8 | Percent Cover | 90 | 0[2] |
| Vegetation State Impacts | 0–70 | 7.6 | 14.8 | Percent Cover | 0 | 70[1] |

1. Used full range or full range with outliers ignored
2. Expert opinion/heuristics, guided by statistical distribution of the data
3. Taken from the literature

# Terrestrial Landscape Intactness Source Data

Data used as input to the terrestrial intactness model were acquired from multiple sources. Data were downloaded directly from the source, acquired from partner agencies, or created by analysts at CBI. Table G-6 lists all the input data used in the analysis, as well as data type and originator.

It was often necessary to compare several datasets for a particular theme to determine those that were most appropriate for the modeling effort. Consequently, many more datasets were prescreened and evaluated than were actually used in the modeling. Several datasets were provided either without metadata or limited amounts of metadata. In these cases, the data were either not used or efforts were made to contact the data originators in order to obtain information about the data. In total, 34 data layers were used to generate the final results.

The input data used to create this version range in currency from 2011–2015; the majority of data portray the more recent condition of the landscape.

The model integrates agriculture development (from FRAP Vegetation FVEG and CDL Cropscape), urban development (from LANDFIRE EVT and NLCD Impervious Surfaces), polluted areas (from NHD treatment ponds and EPA Superfund and Brownfield sites), linear development (OHV routes from owlsheadgps.com, roads from TIGER (broken down by type), utility lines, railroads, and pipelines (from various state and BLM sources), point development (communication towers from the FCC), energy and mining development (from the state's Office of Mine Reclamation mine dataset, larger mine footprints, state geothermal wells, USGS wind turbines, solar footprints, renewable projects in development, oil refineries and state oil/gas wells), clear cuts (from Statewide Timber Harvest Plans), invasive vegetation (compiled from multiple sources including LANDFIRE EVT, NatureServe Landcover, and NISIMS BLM database), and measures of natural vegetation fragmentation calculated using FRAGSTATS analysis of FRAP Vegetation FVEG and built features described above (percent natural core area, number of patches, and nearest neighbor). Terrestrial landscape intactness results are dependent on the quality of available input data for a given area.

**Table G-6. Source Data Inputs for the Terrestrial Landscape Intactness Model**

| Input | Data Type | Originator |
|---|---|---|
| Cropland Data Layer (CDL), Cropscape 2014 | Raster | USDA National Agricultural Statistics Service |
| FRAP Vegetation (FVEG), 2015 | Raster | CAL FIRE |
| Impervious Surfaces, National Landcover Dataset (NLDC) 2011 | Raster | U.S. Geological Survey (USGS) |
| LANDFIRE Existing Vegetation Type (EVT) v1.3 | Raster | LANDFIRE |
| LANDFIRE Vegetation Departure (VDEP) v1.3 | Raster | LANDFIRE |
| LANDFIRE Succession Class (SCLASS) v1.2 | Raster | LANDFIRE |
| NatureServe Landcover (Terrestrial Ecological Systems) v3 | Raster | NatureServe |
| Forest Practice GIS Timber Harvest Plan Clearcuts, 2000–2016 | Polygon | California Department of Forestry and Fire Protection (CAL FIRE) |
| Modeled Tamarisk Coverage | Raster | Catherine Jarnevich et al. |
| Modeled Sahara Mustard Coverage | Raster | Conservation Biology Institute (CBI) |
| Tamarisk Lines | Line | TMAP, C. Jarnevich |
| Off-Highway Vehicle (OHV) Routes, 2015 | Line | Owlshead GPS |
| CA Solar Facility Footprints, 2015 | Polygon | Digitized from solar project maps and best available imagery by CBI |
| 2015 Tiger Roads[1] | Line | U.S. Census Bureau TIGER database |
| CA Electric Transmission Lines, 110-500 kV | Line | CEC, Scott Flint |
| CA Power Plants | Point | U.S. Energy Information Administration |
| California Rail Network | Line | CalTrans |
| CA Large Mine Footprints, 2015 | Polygon | Digitized from best available imagery by CBI |
| CA Mine Sites | Point | CA Office of Mine Reclamation |
| California Natural Gas Pipelines | Line | CEC, Scott Flint |
| CA Petroleum Refineries | Point | U.S. Energy Information Administration |

| Input | Data Type | Originator |
|---|---|---|
| California Oil and Gas Wells, 2016 | Point | CA Department of Conservation, Division of Oil, Gas and Geothermal Resources |
| FCC Communication Towers | Point | Federal Communications Commission, WFDSS |
| Onshore Industrial Wind Turbines, 2014 | Point | USGS |
| CA Geothermal Resources | Table | CA DOC, Division of Oil, Gas and Geothermal Resources |
| EPA, Brownfield Sites | Point | Environmental Protection Agency (EPA),Facility Registry System (FRS) |
| EPA, Superfund Sites | Point | Environmental Protection Agency (EPA),Facility Registry System (FRS) |
| National Hydrography Dataset, Treatment & Tailing Ponds | Polygon | USGS, High Resolution National Hydrography Dataset (NHD) |

[1.]The TIGER roads dataset was created by merging multiple county level datasets.

# Antelope Valley RCIS: Biological Value Models

Mapping High Biological Value Areas was achieved using EEMS modeling software and included four major inputs: 1) Focal Species Habitat (modeled species distributions); 2) Natural Communities; 3) Habitat Connectivity; and 4) Sensitive Species Occurrences. Separate EEMS models were constructed for each of the focal species major habitat groupings—1) foothills/riparian; 2) agriculture/grasslands; and 3) desert. Results from these models were later combined with the terrestrial landscape intactness results to determine overall conservation value and for defining conservation priority areas. The general logic model diagram for High Biological Value (Figure G-5) shows the relationship of the various inputs.

The species included in each of the three focal species models are presented in Table G-7. Note that some species were included in more than one major habitat grouping. Species distribution models for each focal species were added together (or *stacked*) before including the results into the EEMS Biological Value models (Figure G-6). These species stacks highlighted locations within the study area where higher concentrations of focal species are most likely to occur. The remaining three model components remained identical in each model.

**Table G-7. List of Focal Species Included**

| Foothills/Riparian[1] | Agriculture/Grasslands[2] | Desert[3] |
|---|---|---|
| • Beavertail cactus (short-joint)<br>• California condor<br>• California juniper<br>• Coast horned lizard<br>• Golden eagle<br>• Least Bell's vireo<br>• Mountain lion surrogate<br>• Tehachapi pocket mouse<br>• Southwestern willow flycatcher<br>• Swainson's hawk | • American badger<br>• Burrowing owl<br>• Desert kit fox<br>• Joshua tree<br>• Le Conte's thrasher<br>• Loggerhead shrike<br>• Long-billed curlew<br>• Mountain plover<br>• Northern harrier<br>• Prairie falcon<br>• Swainson's hawk<br>• Tricolored blackbird | • Alkali mariposa lily<br>• American badger<br>• Desert horned lizard<br>• Desert kit fox<br>• Desert tortoise<br>• Golden eagle<br>• Joshua tree<br>• Le Conte's thrasher<br>• Mohave ground squirrel |

https://databasin.org/datasets/721b5f19712542a192447aa9b09d12e1
https://databasin.org/datasets/d82f54b61ee446cc8a1b0d7ce5652165
https://databasin.org/datasets/07dd30314ada4478acc0767813bcb804

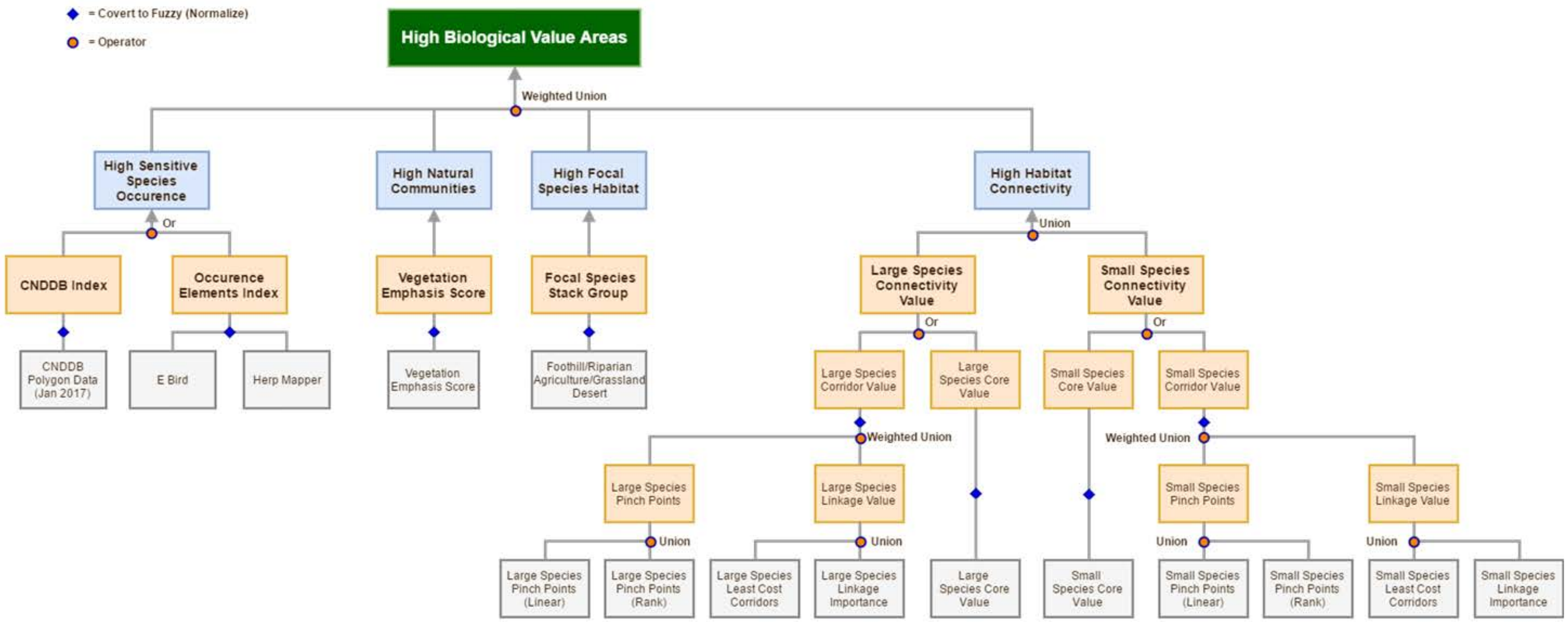


**Figure G-5. EEMS Logic Model Diagram for Biological Value for the AV RCIS. Input Spatial Data Layers in Gray Boxes; Normalized Inputs in Orange Boxes; High-level Intermediate Results in Blue Boxes; and the Biological Value Result in Green Box**

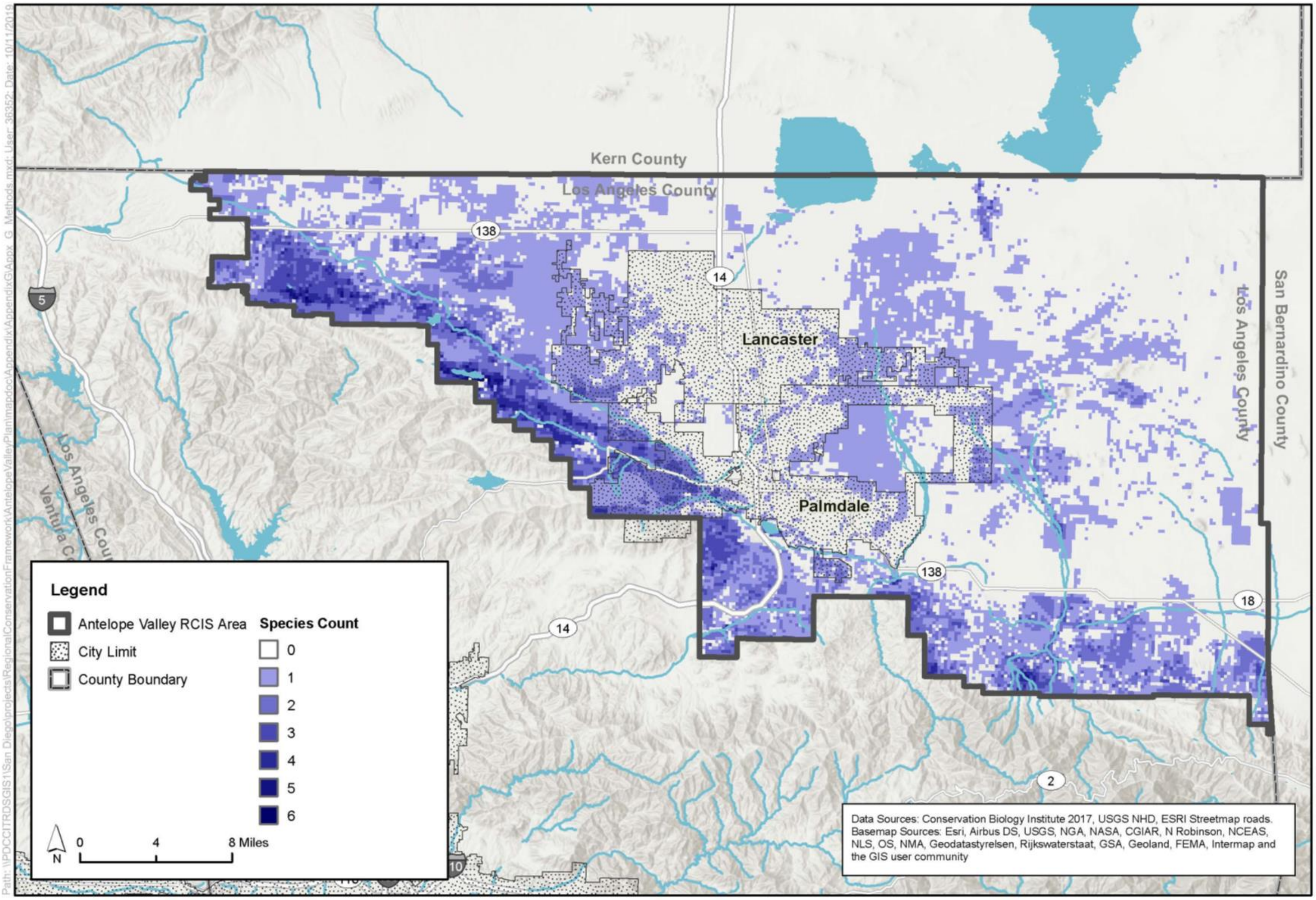


**Figure G-6a. Focal Species Stack Results for Each Major Habitat Grouping; Foothills/Riparian**

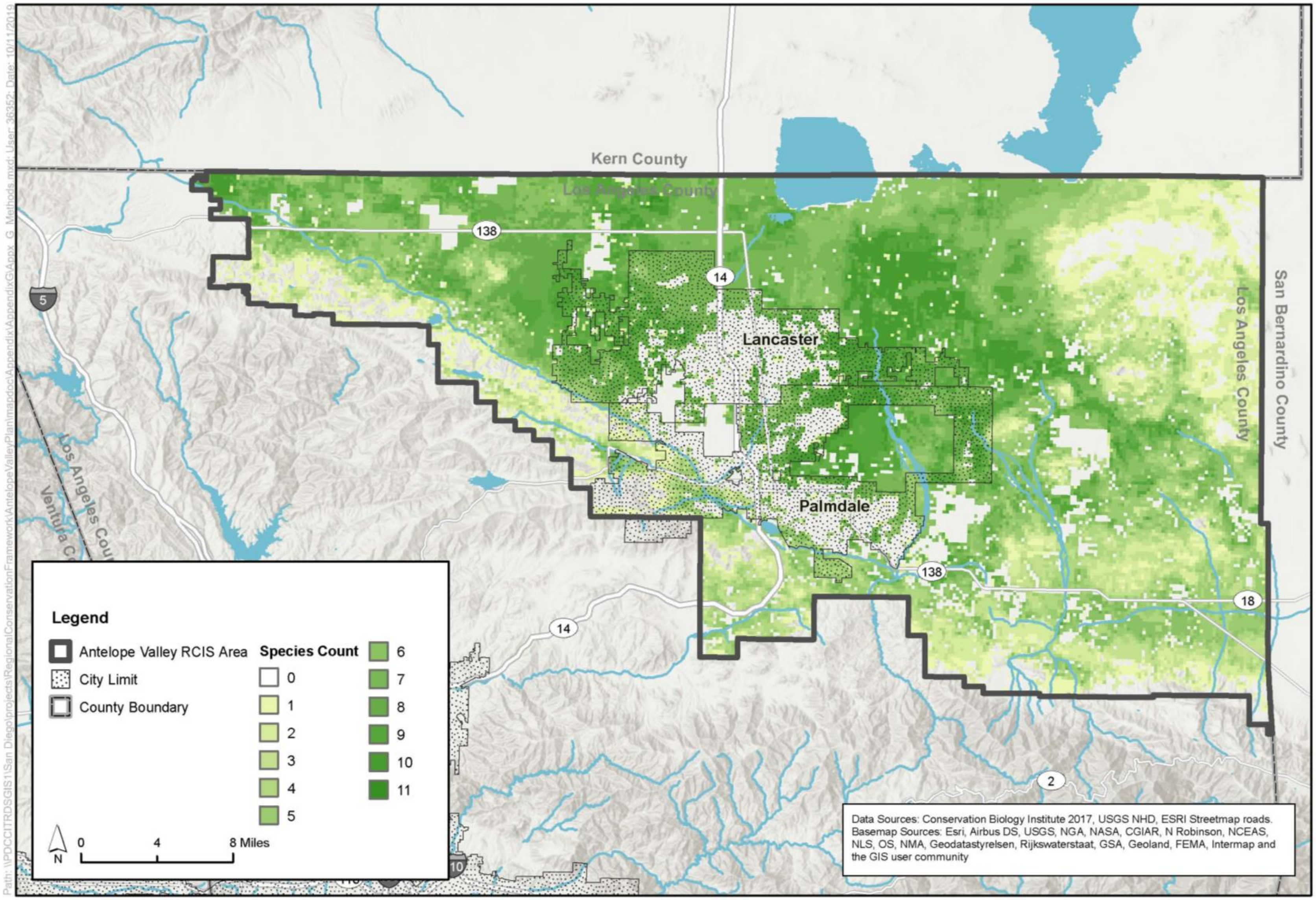


**Figure G-6b. Focal Species Stack Results for Each Major Habitat Grouping; Agriculture/Grasslands**

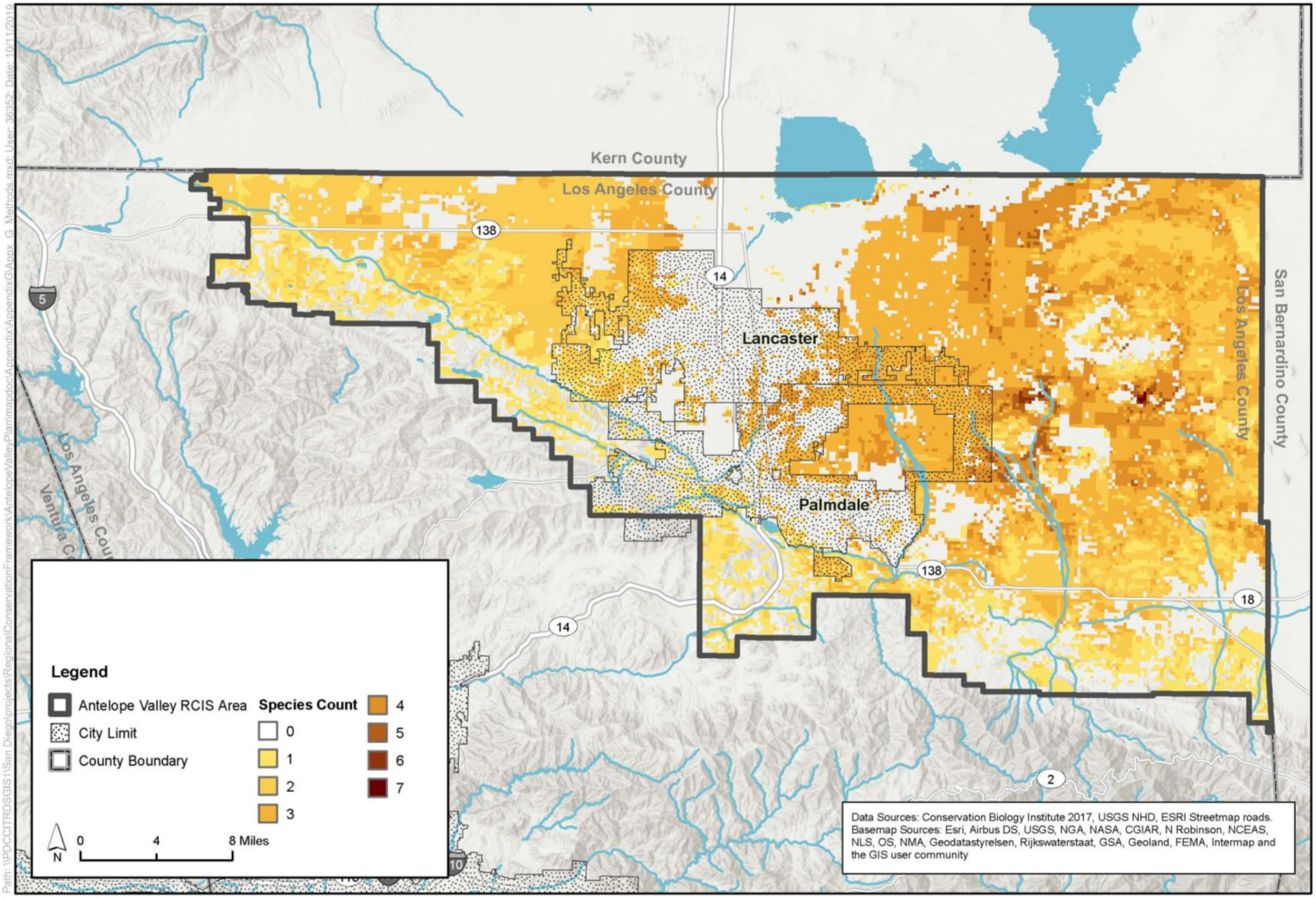


**Figure G-6. Focal Species Stack Results for Each Major Habitat Grouping; Desert. Darker Colors Denote Higher Concentrations of Focal Species**

# High Habitat Connectivity

Habitat connectivity was evaluated using a combination of least-cost corridor outputs and pinch points (Linkage Mapper), circuit theory (Circuitscape or Centrality Mapper), and a hybridized graph theory (a Linkage Mapper Priority Mapper Add-on) at 270m resolution. The methodology applied a conventional approach to mapping landscape connectivity, based on biophysical variables. This approach is further described in Gallo et al. (2019) for the connectivity analysis created for the West Mojave Desert region, and followed best practices outlined in CDFW's *Guidance Document for Fine-Scale Wildlife Connectivity Analysis* (2014) and in *Resistance-Surface-Based Wildlife Conservation Connectivity Modeling: Summary of Efforts in the United States and Guide for Practitioners* (Wade et al. 2015). The connectivity analysis created for the West Mojave Desert region was clipped to the Antelope Valley sub-region.

Figure G-7 summarizes how the data flowed through the various analysis tools (symbolized by the engine icons) and provided inputs to the EEMS Biological Value models. Two different types of model runs were performed: one from the perspective of a large species, which we assumed display greater tolerance to habitat fragmentation, and another from the perspective of smaller species, which we assumed show greater sensitivity to habitat fragmentation. In both cases, climate variables were used to generate results. As shown in the diagram, core areas, resistance surfaces, and climate variables are all major categories and fundamentally important as model inputs.

# Defining Core Areas

The large species core areas were selected from the 1km resolution Statewide Terrestrial Landscape Intactness layer. All grid cell values > 0.5 were selected and results resampled to 270m resolution. All resulting polygons > 10 sq. km were selected as potential core areas for large species. The large playas in the RCIS area possessed high intactness, but these areas do not serve many species and are often natural landscape barriers themselves; therefore, playas were erased from the core areas. For small species, the same process was followed, except the minimum patch size was lowered to 4 square km.

# Resistance Surfaces

This analysis included evaluation of the connectivity between large blocks of habitat from the perspective of a large species, which were assumed to have a greater tolerance to habitat fragmentation, and from the perspective of smaller species, which were assumed to have greater sensitivity to habitat fragmentation. Both connectivity evaluations included urban areas, roadways and the California Aqueduct as areas having a higher resistance for wildlife movement. For the large species model, we used the Human Modification dataset (Conservation Science Partners 2016) as the resistance surface modified by increasing resistance of the large playas in the region. For the smaller species model, we modified the California Statewide Intactness model by running the model at 270m, versus the original 1km resolution, removing the non-infrastructure components (e.g., invasive species) and weighting the road network by type. The Structural Resistance Surface Basemap was then modified by the playas data as described above. A comparison of the large species resistance surface and small species resistance surface inputs along with playas can be viewed in Figures G-8 and G-9, respectively.

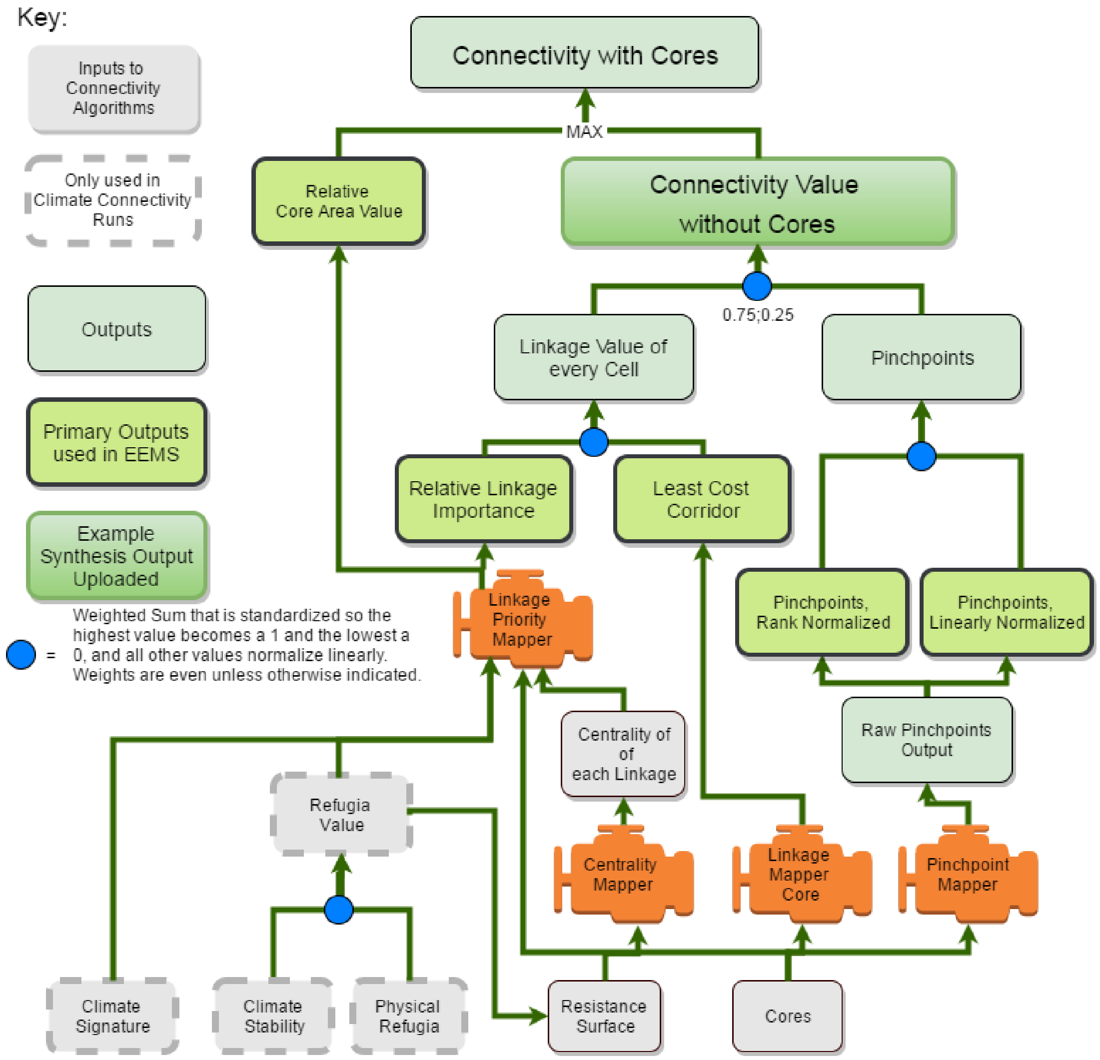


**Figure G-7. Habitat Connectivity Model Diagram; Inputs to the Biological Value Models Are Labeled as Primary Outputs used in EEMS (Medium-Green Boxes)**

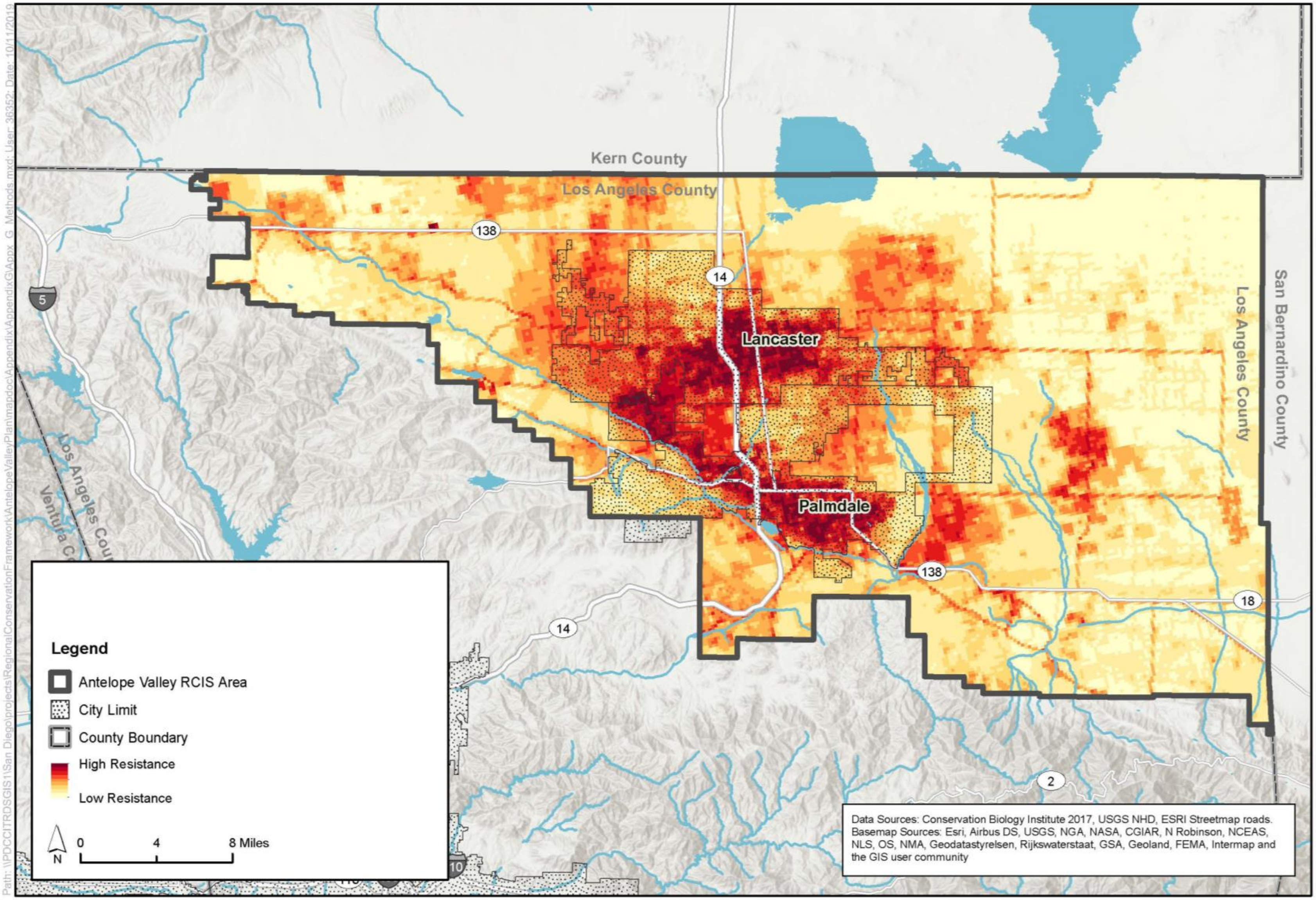


**Figure G-8. Resistance Surface for Large Species Connectivity Model for the Antelope Valley RCIS Area**

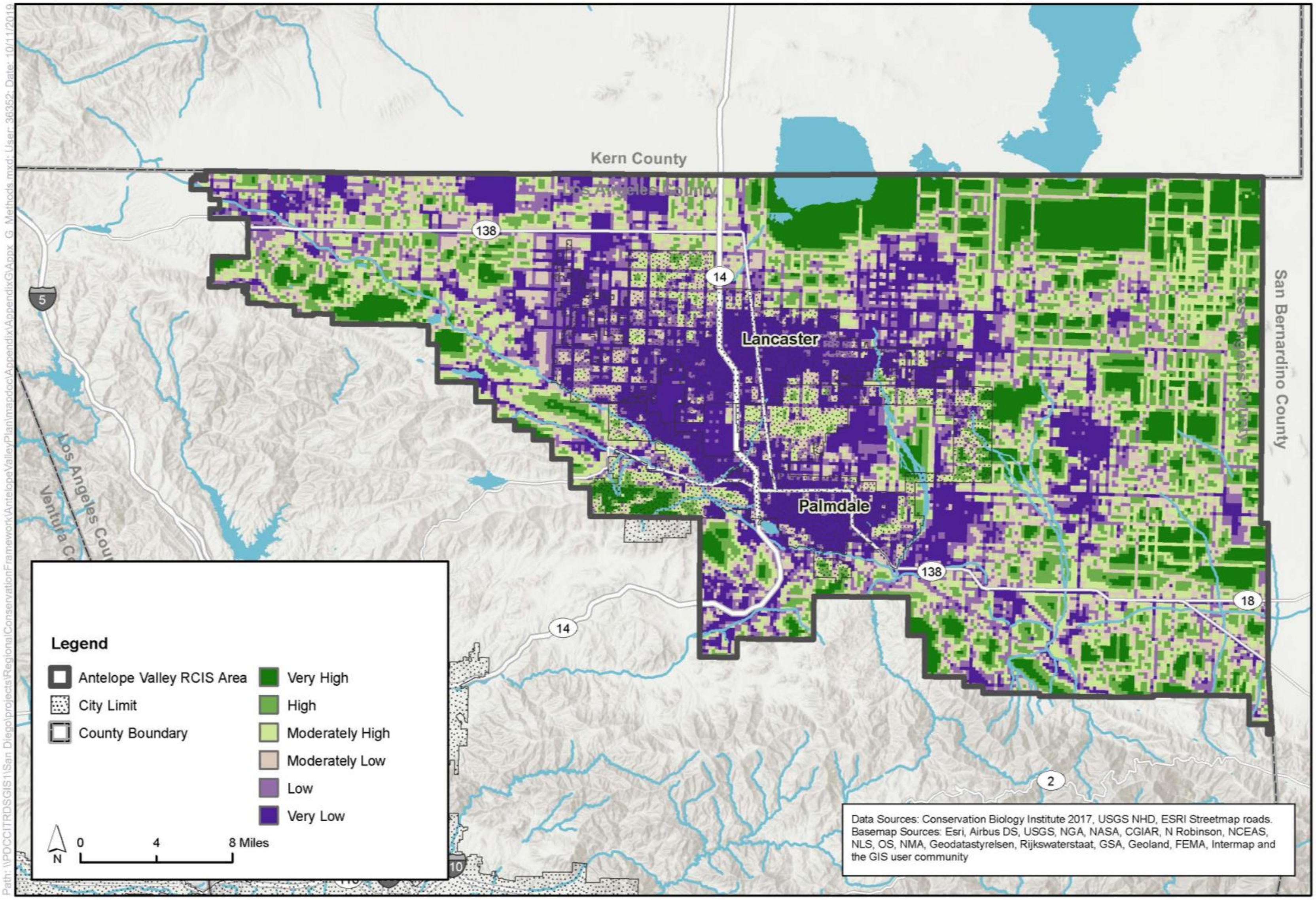


**Figure G-9. Resistance Surface for Small Species Connectivity Model for the Antelope Valley RCIS Area**

## Effects of Climate Change on Connectivity

Three major inputs were used to incorporate climate futures into the habitat connectivity models for the Antelope Valley RCIS study area.

***Climate stability*** is the first component of the climate module for the habitat connectivity models developed for both small and large species. Climate stability is essentially an inverted expression of climate exposure and summarized at 270m resolution (Figure G-10). California Climate Exposure Ensemble, 2046–2075 is an EEMS model based on aridity, maximum temperature, minimum temperature, and precipitation on a seasonal and annual basis. Change was calculated with input from three climate projections (CCSM4, CanESM2, and MIROC 5) plus the ensemble and two future time periods, 2016–2045 and 2046–2075, compared to the historical period, 1971–2000. Only the later future time period was used to derive climate stability. Temperature and precipitation differences were normalized using the standard deviation over the historical period via the following formula:

$$d = \frac{x_f - x_h}{\sigma_{x_h}}$$

where d is the difference, $x_f$ is the mean of the variable in the future period, $x_h$ is the mean of the variable in the historical period, and $\sigma_{xh}$ is standard deviation of the variable in the historical period. Change in aridity was calculated as the percent change from the historical period. Projected future change is very high for temperatures and aridity. The EEMS logic model used to generate the climate exposure dataset shows the integration of the various climate components (Figure G-11).

A ***physical refugia*** dataset was another major input to the climate change module for the habitat connectivity models (Figure G-12). This is also an EEMS generated model created at 270m resolution and attempts to assemble those landscape features that can serve to buffer climate impacts that operate more generally over landscapes. Physical refugia model inputs included: terrain ruggedness, solar radiation, riparian vegetation, water bodies, distance to water, and spring locations.

The final input to the climate module for the habitat connectivity models was ***climatic water deficit*** (also referred to as *climate signature*) using a California Basin Characterization Model (BCM) (Flint and Flint 2012). Climatic water deficit is one of several parameters generated from the BCM approach and calculated as potential evapotranspiration (PET) minus actual evapotranspiration (AET).

## Biological Value Models Thresholds and Source Data

Thresholds for each of the primary inputs into the Biological Value EEMS models are provided in Table G-8 and list of data sources provided in Table G-9.

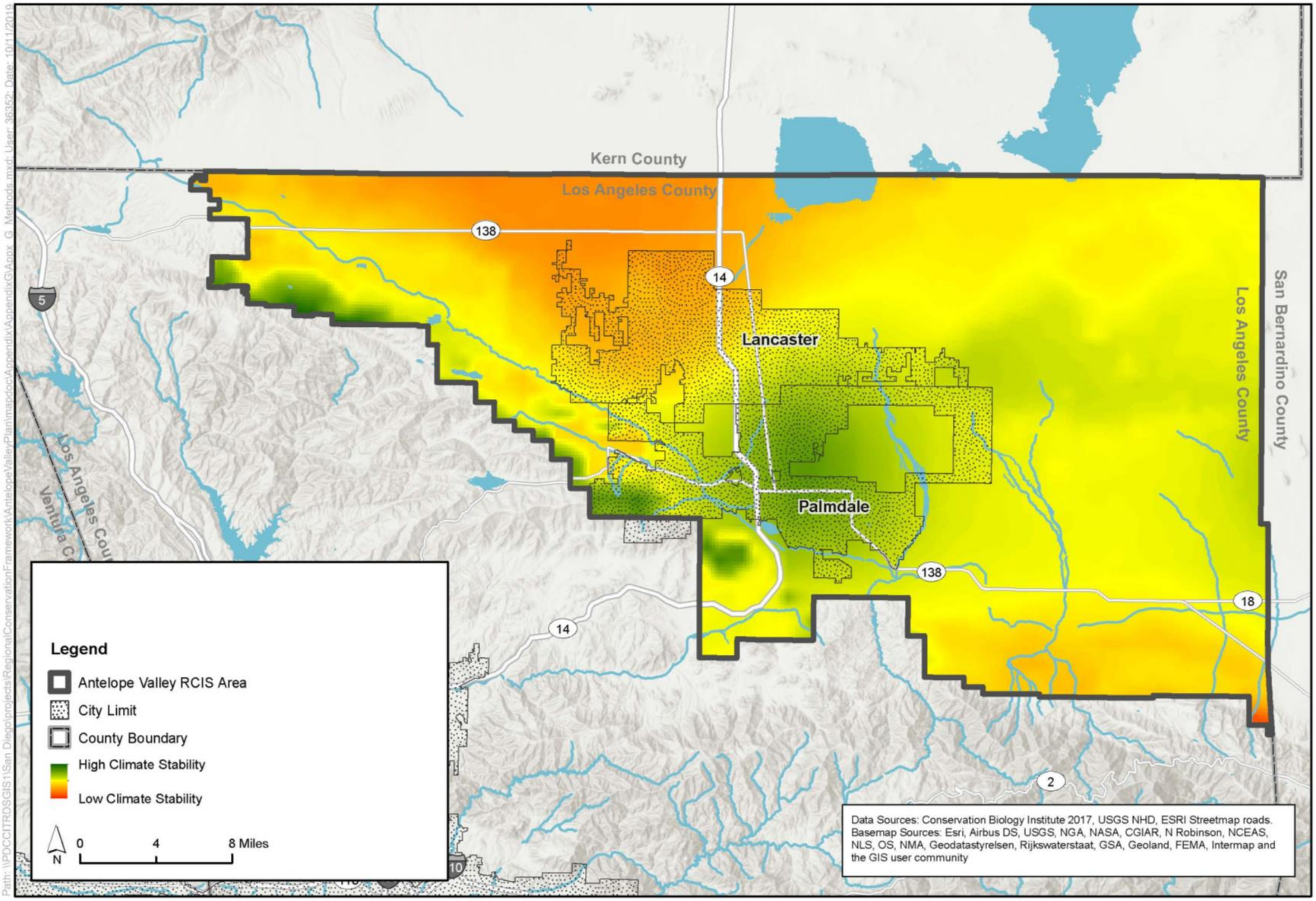


**Figure G-10. Climate Stability for the Antelope Valley RCIS Study Area**


**Figure G-11. EEMS Logic Model Diagram for California Climate Exposure Ensemble (2046–2079)**

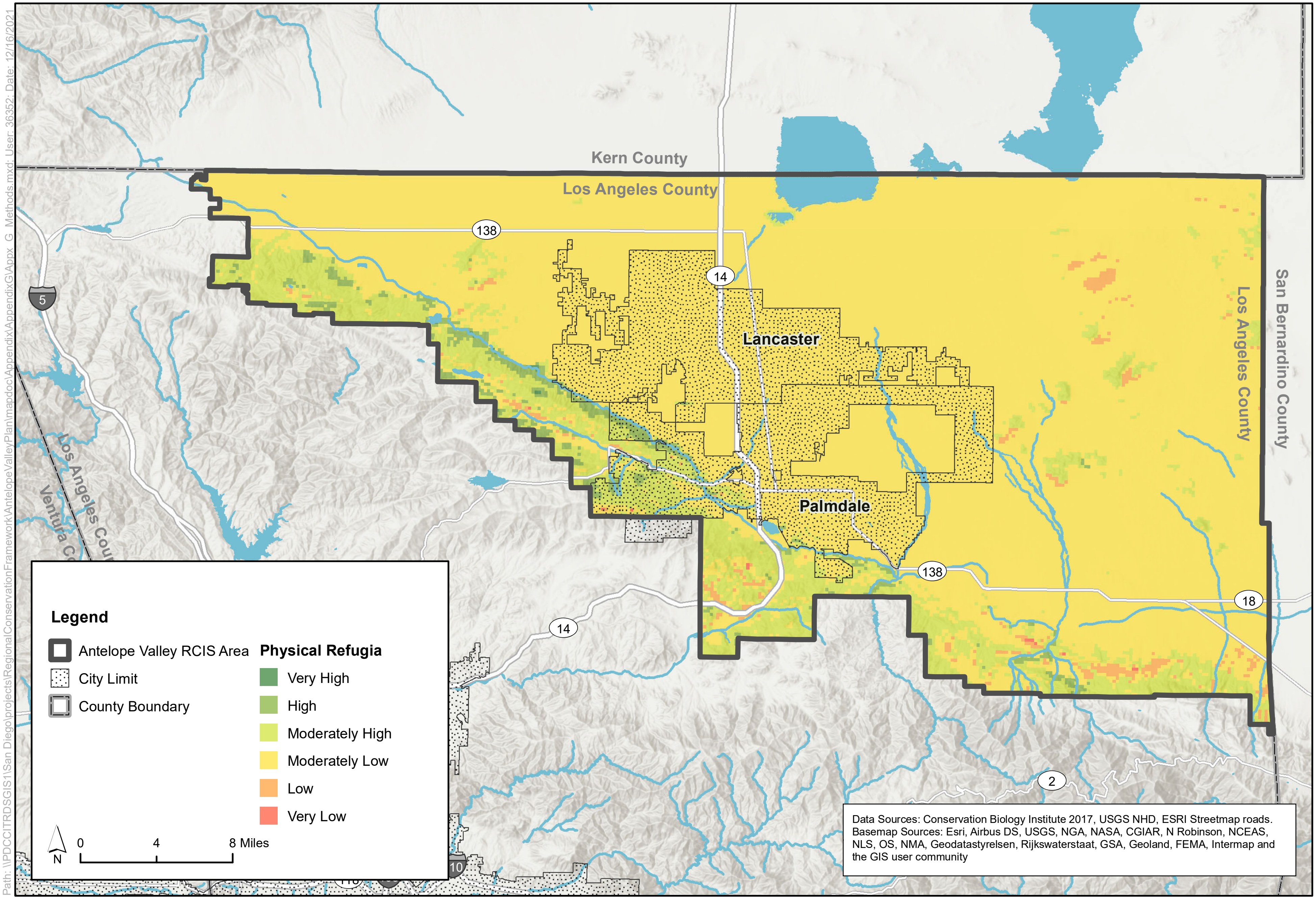


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**Figure G-12**
**Climate Physical Refugia for the Antelope Valley RCIS**

**Table G-8. List of Fuzzy Logic Data Inputs for the AV RCIS Biological Values Models, Showing Range of Values, and True and False Modeling Thresholds for Each Item at 270m Resolution**

| Input | Range | Mean | Standard Deviation | True Threshold | False Threshold |
|---|---|---|---|---|---|
| Foothills/Riparian Focal Species Stack | 0–6 | 0.643 | 0.873 | 2.0 | 0.0 |
| Agriculture/Grasslands Focal Species Stack | 0–11 | 4.383 | 3.233 | 8.0 | 0.0 |
| Desert Focal Species Stack | 0–7 | 2.092 | 1.544 | 5.0 | 0.0 |
| Occurrence Elements Index | 0–7 | 0.039 | 0.306 | 7.0 | 0.0 |
| CNDDB index | 0–4.5 | 0.353 | 0.532 | 1.5 | 0.0 |
| Vegetation Emphasis Score | 1–12 | 4.771 | 2.405 | 9.0 | 1.0 |
| Large Species Relative Core Value | 0–0.8 | 0.059 | 0.191 | 1.2 | 0.0 |
| Large Species Connectivity Value | 0–0.758 | 0.271 | 0.235 | 0.758 | 0.0 |
| Small Species Relative Core Value | 0–0.8 | 0.079 | 0.219 | 1.2 | 0.0 |
| Small Species Connectivity Value | 0–0.815 | 0.246 | 0.241 | 0.815 | 0.0 |

**Table G-9. Source Data Inputs with Online Hyperlinks, Data Type, and Data Originator for the AV RCIS Biological Value Models**

| Input | Data Type | Originator |
|---|---|---|
| Foothills/Riparian Focal Species Stack | Raster | Composite of Species Distribution Models[1] |
| Agriculture/Grasslands Focal Species Stack | Raster | Composite of Species Distribution Models[2] |
| Desert Focal Species Stack | Raster | Composite of Species Distribution Models[3] |
| Vegetation Emphasis Score | Polygon | See Table 3-24 in Section 3 |
| California Native Diversity Database 1/2017 | Polygon | California Department of Fish and Wildlife |
| eBird Occurrences | Points | Cornell Lab of Ornithology and Audubon |
| HerpMapper Occurrences | Points | HerpMapper[4] |
| Large Species Core Value | Raster | CBI Linkage Mapper |
| Large Species Least Cost Corridors | Raster | CBI Linkage Mapper |
| Large Species Relative Linkage Importance | Raster | CBI Linkage Mapper |
| Large Species Ranked Pinch Points | Raster | CBI Linkage Mapper |
| Large Species Linear Pinch Points | Raster | CBI Linkage Mapper |
| Small Species Core Value | Raster | CBI Linkage Mapper |
| Small Species Least Cost Corridors | Raster | CBI Linkage Mapper |
| Small Species Relative Linkage Importance | Raster | CBI Linkage Mapper |
| Small Species Ranked Pinch Points | Raster | CBI Linkage Mapper |
| Small Species Linear Pinch Points | Raster | CBI Linkage Mapper |

[1] Short-joint beavertail cactus (location points, California Department of Fish and Wildlife); California condor (statistical model, US Geological Survey and US Fish and Wildlife Service); California juniper (mapped, California Department of Fish and Wildlife); coast horned lizard (statistical model, UC Santa Barbara); golden eagle (expert model, Conservation Biology Institute); least Bell's vireo (statistical model, UC Santa Barbara); mountain lion surrogate (CWHR for mule deer, California Department of Fish and Wildlife); Tehachapi pocket mouse (statistical model, Conservation Biology Institute); southwestern willow flycatcher (statistical model, UC Santa Barbara); Swainson's hawk (expert model, Conservation Biology Institute).

[2] American badger (statistical model, UC Santa Barbara); burrowing owl (statistical model, Conservation Biology Institute); desert kit fox (statistical model, Conservation Biology Institute); Joshua tree (mapped, California Department of

Fish and Wildlife); Le Conte's thrasher (statistical model, UC Santa Barbara); loggerhead shrike (statistical model, UC Santa Barbara); long-billed curlew (statistical model, Conservation Biology Institute); mountain plover (expert model Dudek); northern harrier (statistical model, Point Blue); prairie falcon (statistical model, UC Santa Barbara); Swainson's hawk (expert model, Conservation Biology Institute); tricolored blackbird (statistical model, UC Santa Barbara).

[3] Alkali mariposa lily (statistical model, UC Santa Barbara); American badger (statistical model, UC Santa Barbara); desert horned lizard (statistical model, Conservation Biology Institute); desert kit fox (statistical model, Conservation Biology Institute); desert tortoise (statistical model, US Geological Survey); golden eagle (expert model, Conservation Biology Institute); Joshua tree (mapped, California Department of Fish and Wildlife); Le Conte's thrasher (statistical model, UC Santa Barbara); Mohave ground squirrel (statistical model, US Geological Survey).

[4] Original vegetation data comprised of three inputs: VegCAMP ds745 by California Department of Fish and Wildlife, CalVeg, and DRECP Land Cover.

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Appendix H

# Species Conservation Value Maps and Graphs

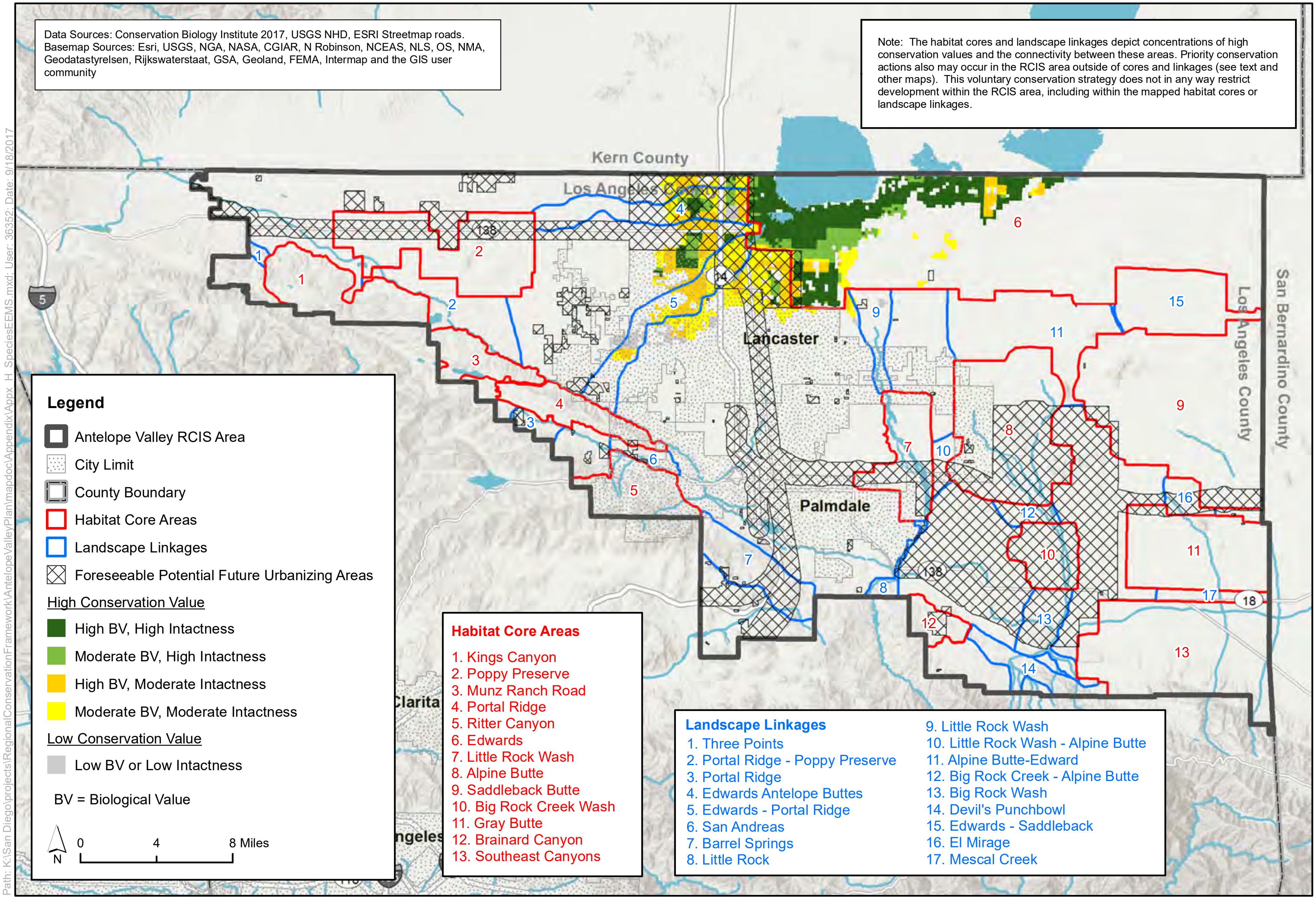




**Figure H-1**
**Alkali Mariposa-Lily High Conservation Value Habitat (Desert Species Group)**

**Alkali Mariposa Lily**

**Desert**

- High BV, High Intactness
- Moderate BV, High Intactness
- High BV, Moderate Intactness
- Moderate BV, Moderate Intactness
- Low BV or Low Intactness

There are 25,019 acres (5.09%) of High Conservation Value habitat in Cores and 8,797 acres (2%) in Linkages. The total acreages, including all habitat conservation values, are shown with each graph. Proportions indicate the relative Biological Value and Intactness of that habitat.

## Habitat Cores

1. Kings Canyon -

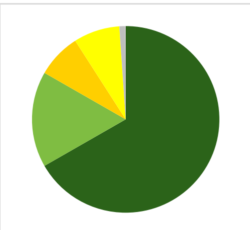
2. Poppy Preserve -

3. Munz Ranch Road -

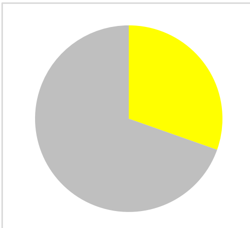
4. Portal Ridge -

5. Ritter Canyon -

6. Edwards 25,239



7. Little Rock Wash 181



8. Alpine Butte -

9. Saddleback Butte -

10. Big Rock Creek Wash -

11. Gray Butte -

12. Brainard Canyon -

13. Southeast Canyons -

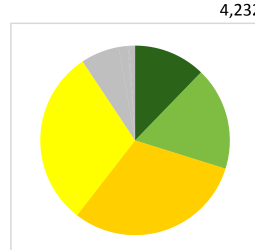
## Landscape Linkages

1. Three Points -

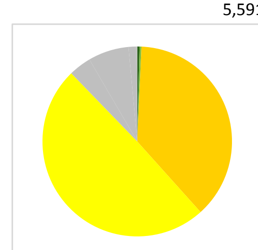
2. Portal Ridge to Poppy Preserve -

3. Portal Ridge -

4. Edwards Antelope Buttes 4,232



5. Edwards - Portal Ridge 5,591

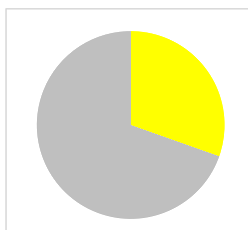


6. San Andreas -

7. Barrel Springs -

8. Little Rock -

9. Little Rock Wash 181



10. Little Rock Wash - Alpine Butte -

11. Alpine Butte-Edward -

12. Big Rock Creek - Alpine Butte -

13. Big Rock Wash -

14. Devil's Punchbowl -

15. Edwards - Saddleback -

16. El Mirage -

17. Mescal Creek -

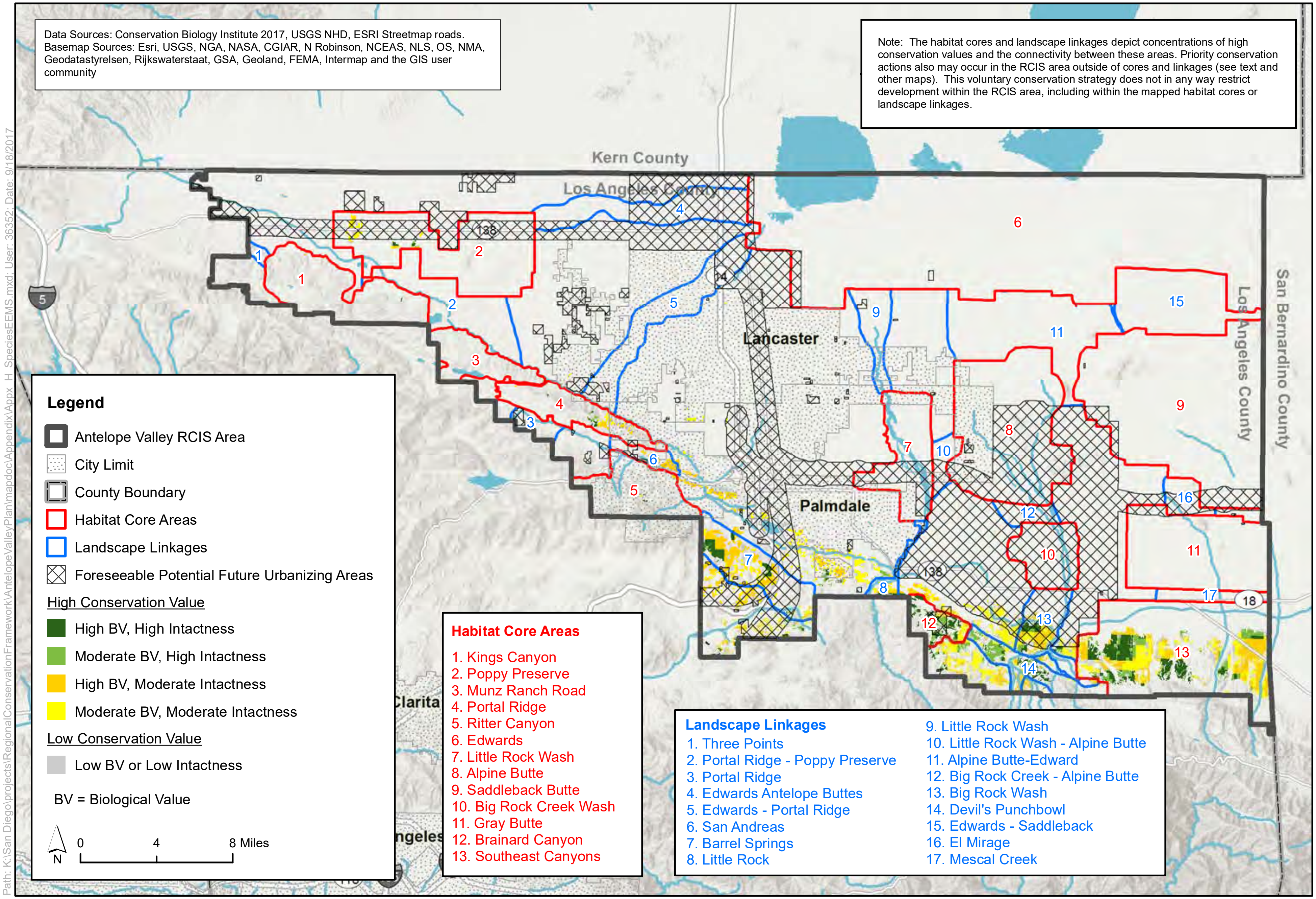



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**Figure H-2**
**California Juniper High Conservation Value Habitat (Foothill and Riparian Species Group)**

**California Juniper**

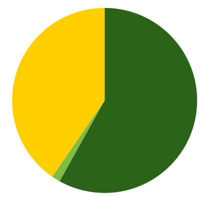


- High BV, High Intactness
- Moderate BV, High Intactness
- High BV, Moderate Intactness
- Moderate BV, Moderate Intactness
- Low BV or Low Intactness

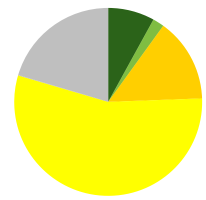
There are 11,416 acres (4.15%) of High Conservation Value habitat in Cores and 7,166 acres (3%) in Linkages. The total acreages, including all habitat conservation values, are shown with each graph. Proportions indicate the relative Biological Value and Intactness of that habitat.

## Habitat Cores

1. Kings Canyon — 10

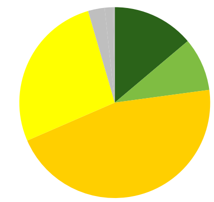


2. Poppy Preserve — 649

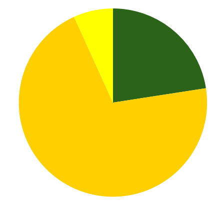


3. Munz Ranch Road — -

4. Portal Ridge — 418



5. Ritter Canyon — 68



6. Edwards — -

7. Little Rock Wash — -

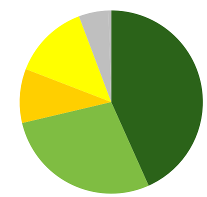
8. Alpine Butte — -

9. Saddleback Butte — -

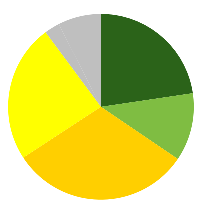
10. Big Rock Creek Wash — -

11. Gray Butte — -

12. Brainard Canyon — 1,428



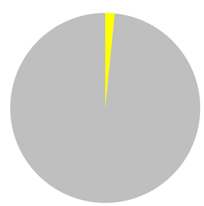
13. Southeast Canyons — 10,104



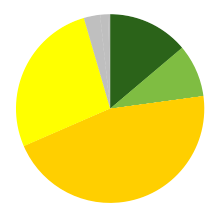
## Landscape Linkages

1. Three Points — -

2. Portal Ridge to Poppy Preserve — 0

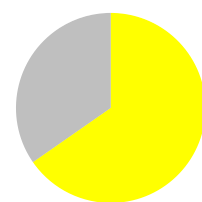


3. Portal Ridge — 418

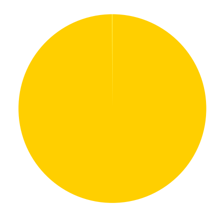


4. Edwards Antelope Buttes — -

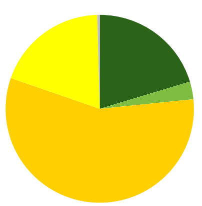
5. Edwards - Portal Ridge — 2



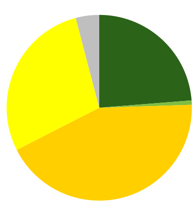
6. San Andreas — 357



7. Barrel Springs — 2,933



8. Little Rock — 339



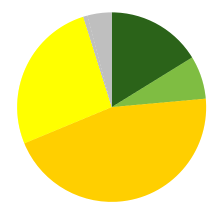
9. Little Rock Wash — -

10. Little Rock Wash - Alpine Butte — -

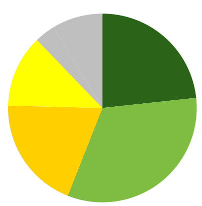
11. Alpine Butte-Edward — -

12. Big Rock Creek - Alpine Butte — -

13. Big Rock Wash — 1,756



14. Devil's Punchbowl — 1,701



15. Edwards - Saddleback — -

16. El Mirage — -

17. Mescal Creek — -

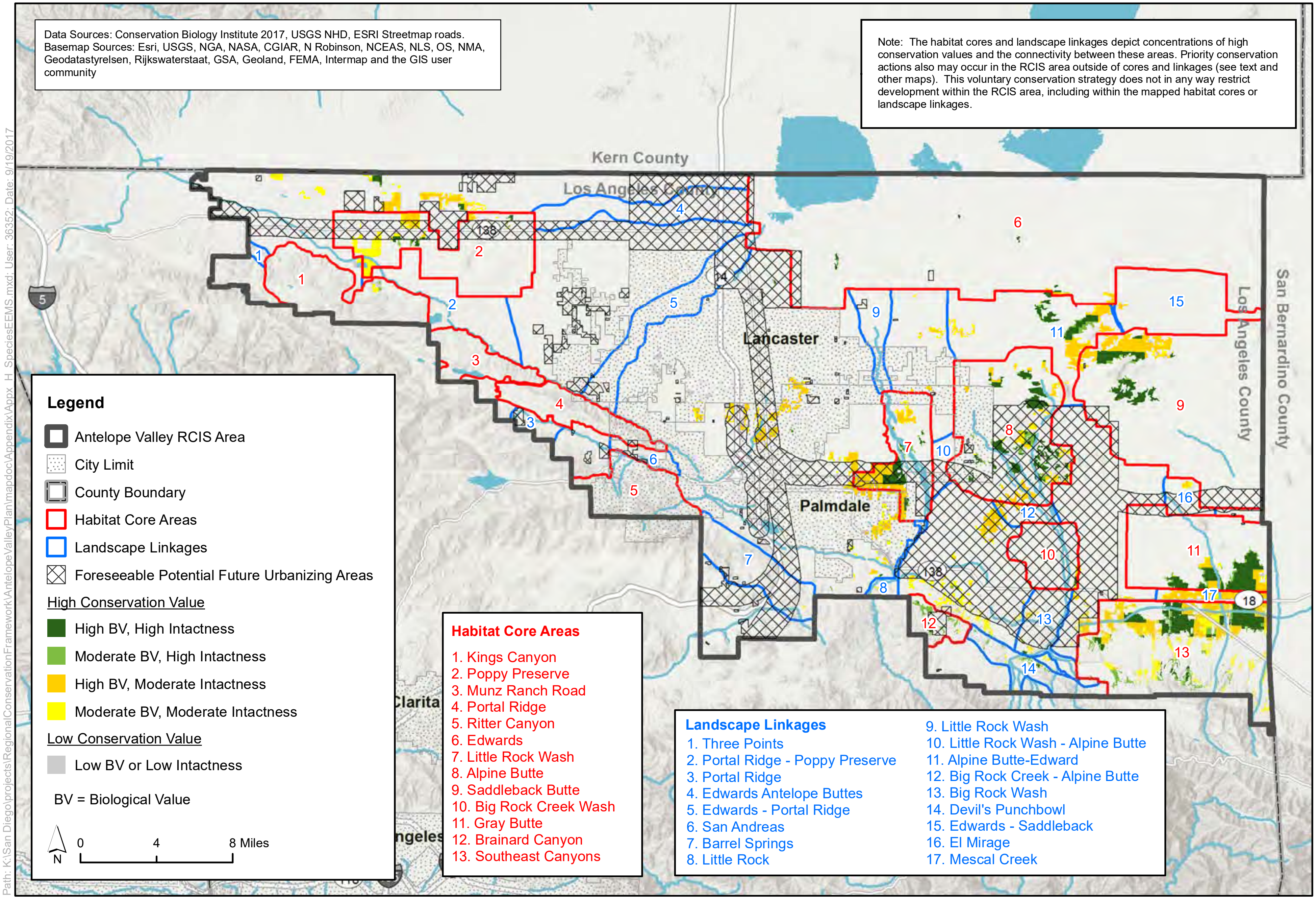



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**Figure H-3**
**Joshua Tree High Conservation Value Habitat (Desert Species Group)**

## Joshua Tree

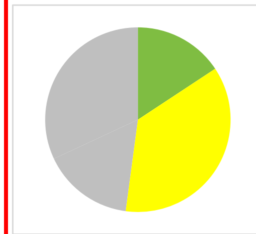
## Desert

- High BV, High Intactness
- Moderate BV, High Intactness
- High BV, Moderate Intactness
- Moderate BV, Moderate Intactness
- Low BV or Low Intactness

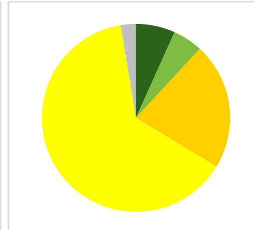
There are 26,432 acres (6.51%) of High Conservation Value habitat in Cores and 8,370 acres (2%) in Linkages. The total acreages, including all habitat conservation values, are shown with each graph. Proportions indicate the relative Biological Value and Intactness of that habitat.

### Habitat Cores

1. Kings Canyon
190



2. Poppy Preserve
2,087

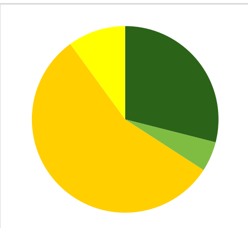


3. Munz Ranch Road
-

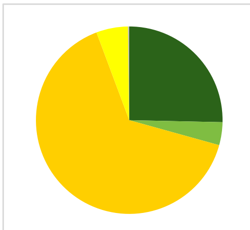
4. Portal Ridge
-

5. Ritter Canyon
-

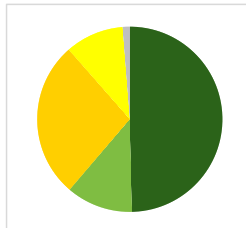
6. Edwards
400



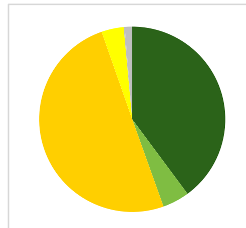
7. Little Rock Wash
2,940



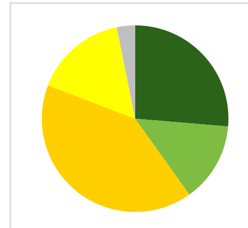
8. Alpine Butte
4,188



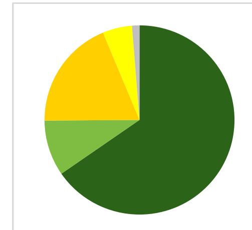
9. Saddleback Butte
3,776



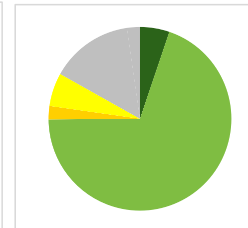
10. Big Rock Creek Wash
124



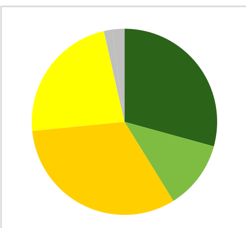
11. Gray Butte
3,317



12. Brainard Canyon
455



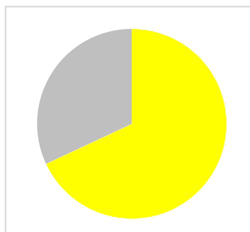
13. Southeast Canyons
9,684



### Landscape Linkages

1. Three Points
-

2. Portal Ridge to Poppy Preserve
4



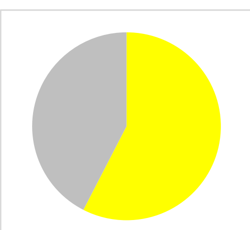
3. Portal Ridge
-

4. Edwards Antelope Buttes
-

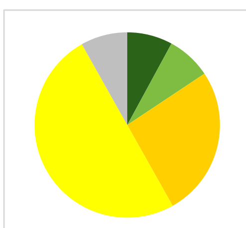
5. Edwards - Portal Ridge
-

6. San Andreas
-

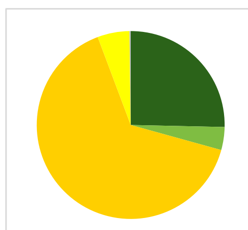
7. Barrel Springs
32



8. Little Rock
98

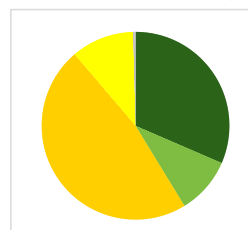


9. Little Rock Wash
2,940

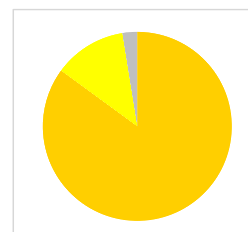


10. Little Rock Wash - Alpine Butte
-

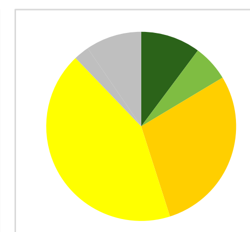
11. Alpine Butte-Edward
2,636



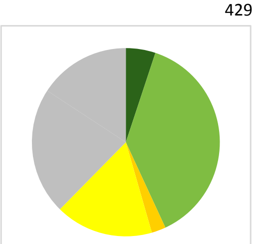
12. Big Rock Creek - Alpine Butte
302



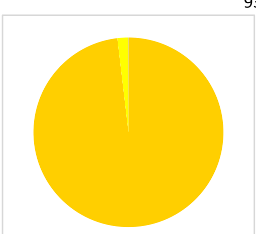
13. Big Rock Wash
304



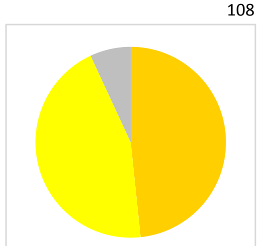
14. Devil's Punchbowl
429



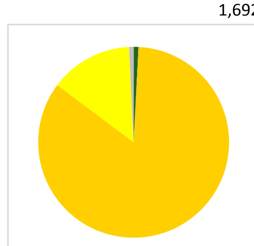
15. Edwards - Saddleback
93



16. El Mirage
108



17. Mescal Creek
1,692



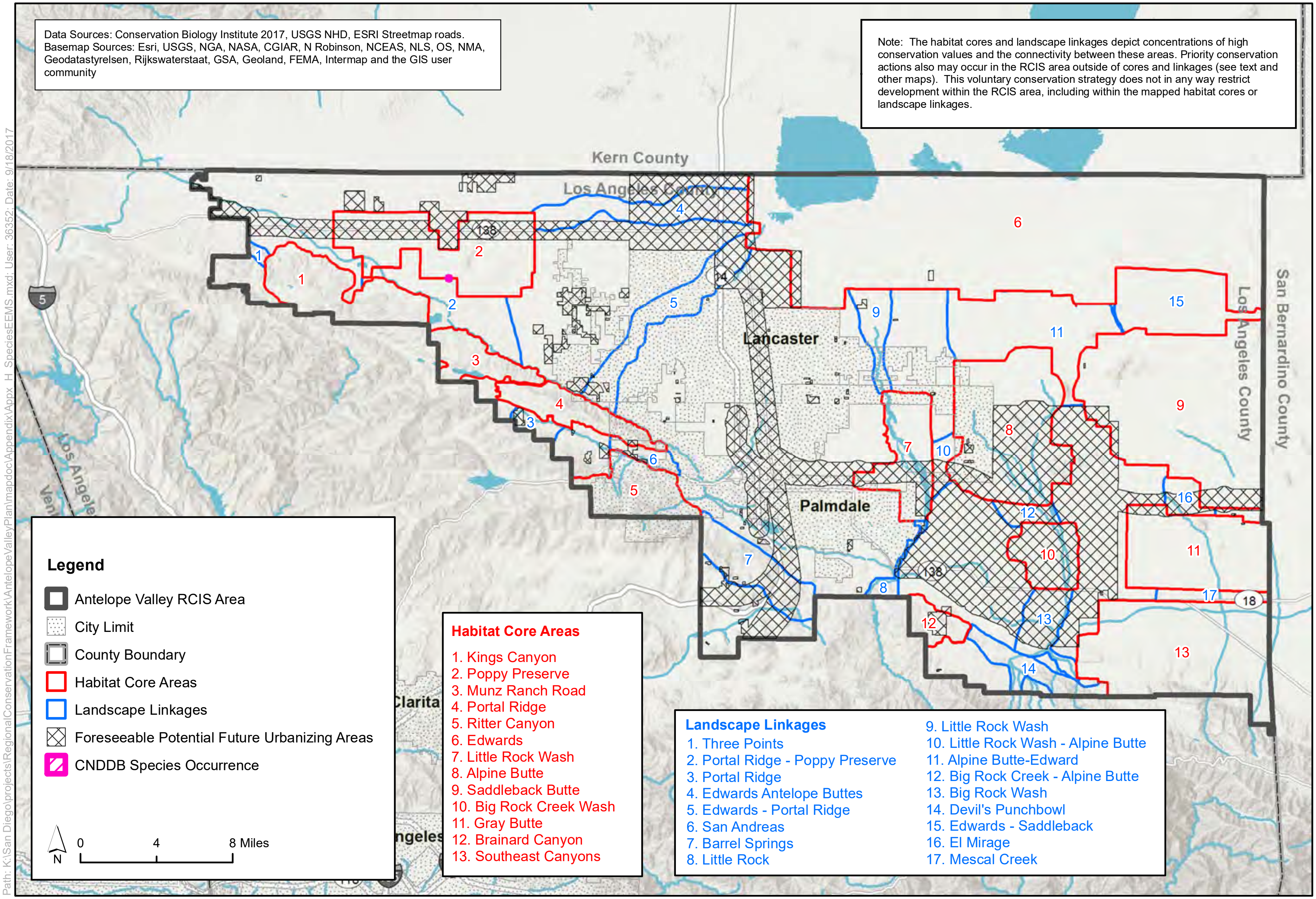



**Figure H-4**
**Spreading Navarretia Occurrence (no model) with Habitat Cores and Linkages**

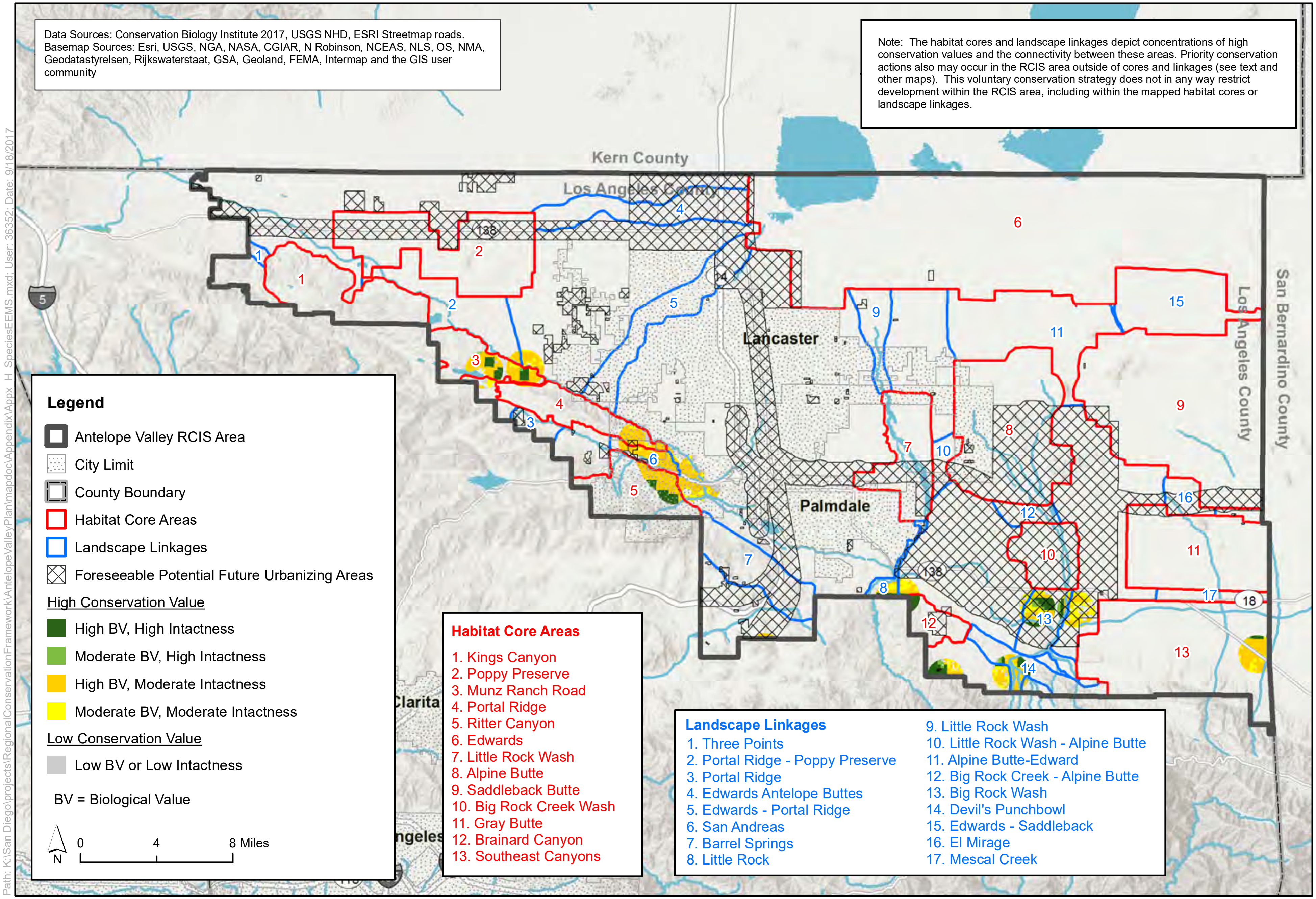



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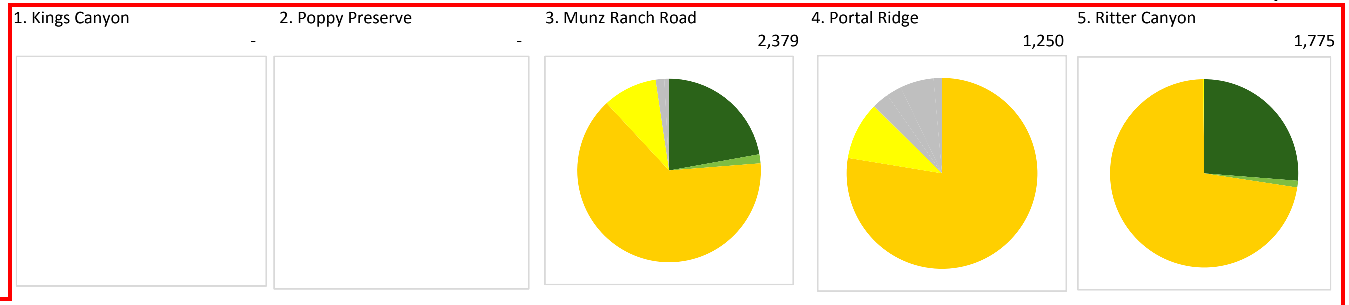
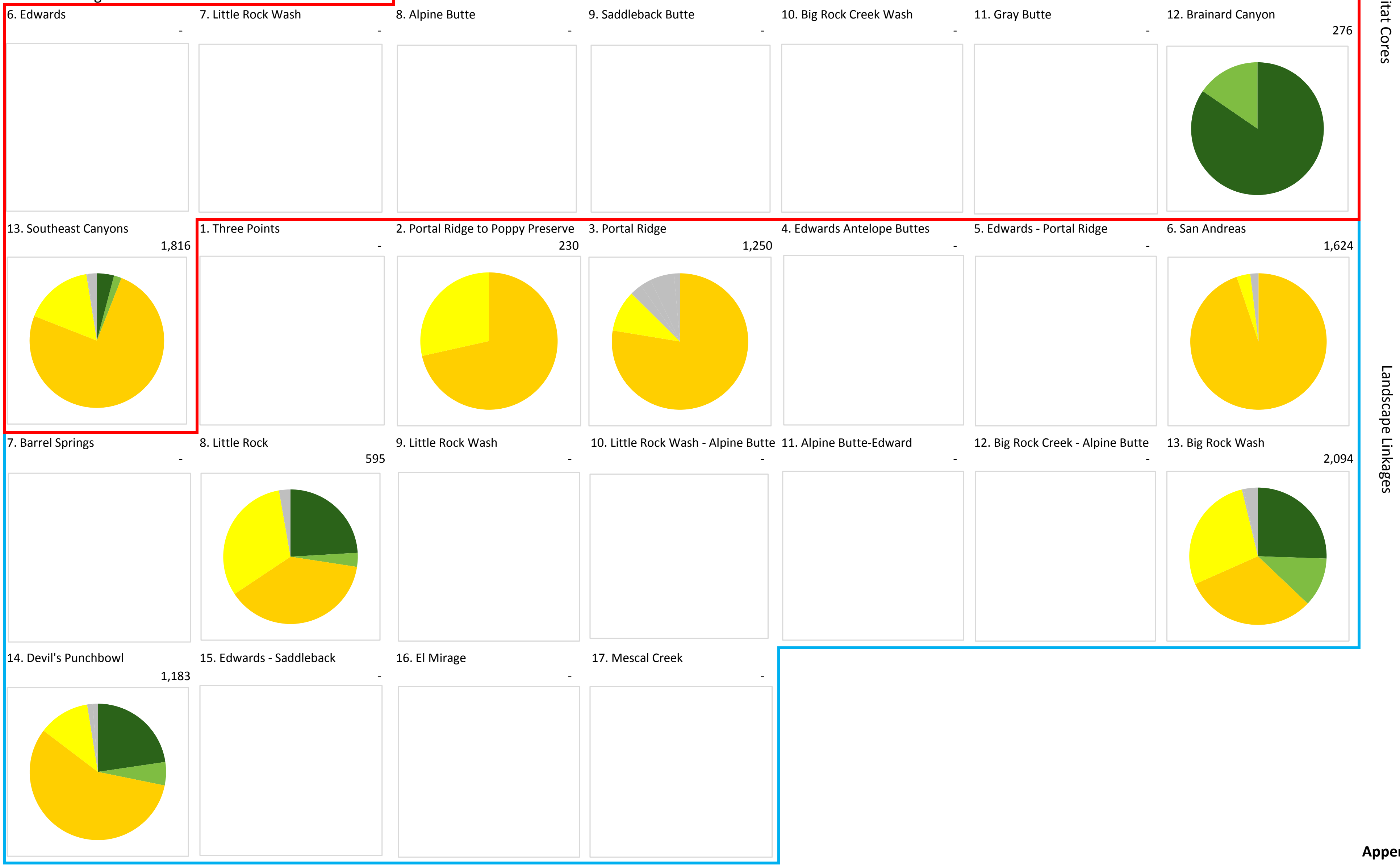
**Figure H-5**
**Short-jointed Beavertail Cactus High Conservation Value Habitat (Foothill and Riparian Species Group)**

**Short JointedBeavertailCactus**

- High BV, High Intactness
- Moderate BV, High Intactness
- High BV, Moderate Intactness
- Moderate BV, Moderate Intactness
- Low BV or Low Intactness

There are 7,237 acres (3.77%) of High Conservation Value habitat in Cores and 6,662 acres (3%) in Linkages. The total acreages, including all habitat conservation values, are shown with each graph. Proportions indicate the relative Biological Value and Intactness of that habitat.



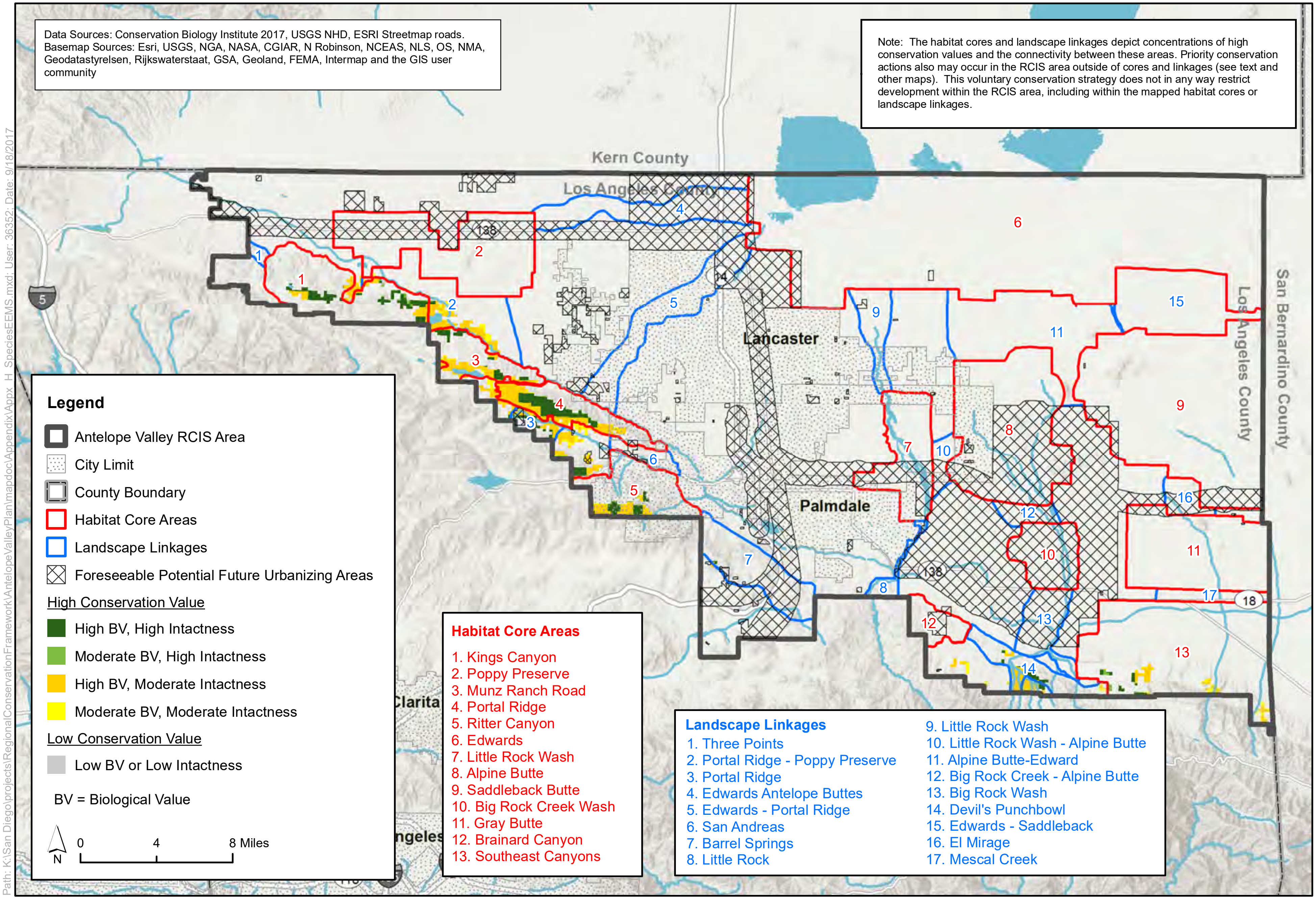



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**Figure H-6**
**Coast Horned Lizard High Conservation Value Habitat (Foothill and Riparian Species Group)**

## Coast Horned Lizard

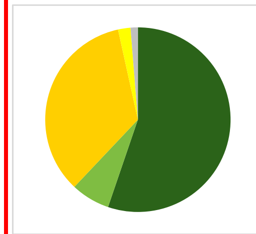
**Foothill/Riparian**

- High BV, High Intactness
- Moderate BV, High Intactness
- High BV, Moderate Intactness
- Moderate BV, Moderate Intactness
- Low BV or Low Intactness

There are 11,028 acres (6.31%) of High Conservation Value habitat in Cores and 7,136 acres (4%) in Linkages. The total acreages, including all habitat conservation values, are shown with each graph. Proportions indicate the relative Biological Value and Intactness of that habitat.

### Habitat Cores

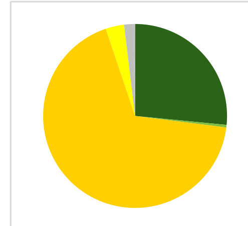
1. Kings Canyon 2,226



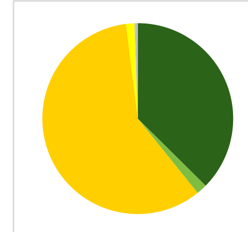
2. Poppy Preserve 0



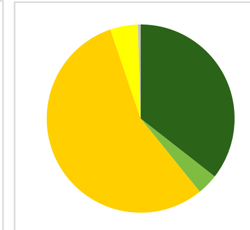
3. Munz Ranch Road 1,965



4. Portal Ridge 4,248



5. Ritter Canyon 1,450



6. Edwards -

7. Little Rock Wash -

8. Alpine Butte -

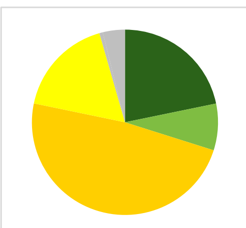
9. Saddleback Butte -

10. Big Rock Creek Wash -

11. Gray Butte -

12. Brainard Canyon -

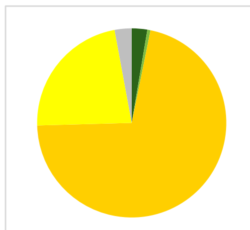
13. Southeast Canyons 1,294



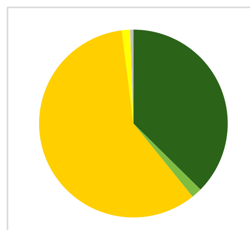
### Landscape Linkages

1. Three Points -

2. Portal Ridge to Poppy Preserve 1,950



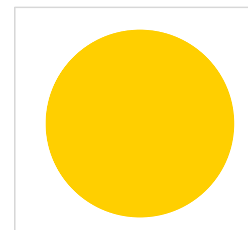
3. Portal Ridge 4,248



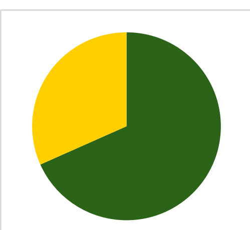
4. Edwards Antelope Buttes -

5. Edwards - Portal Ridge -

6. San Andreas 11



7. Barrel Springs 31



8. Little Rock -

9. Little Rock Wash -

10. Little Rock Wash - Alpine Butte -

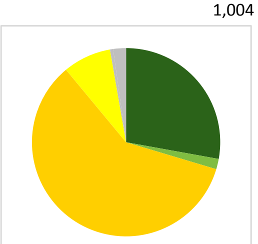
11. Alpine Butte-Edward -

12. Big Rock Creek - Alpine Butte -

13. Big Rock Wash 0



14. Devil's Punchbowl 1,004



15. Edwards - Saddleback -

16. El Mirage -

17. Mescal Creek -

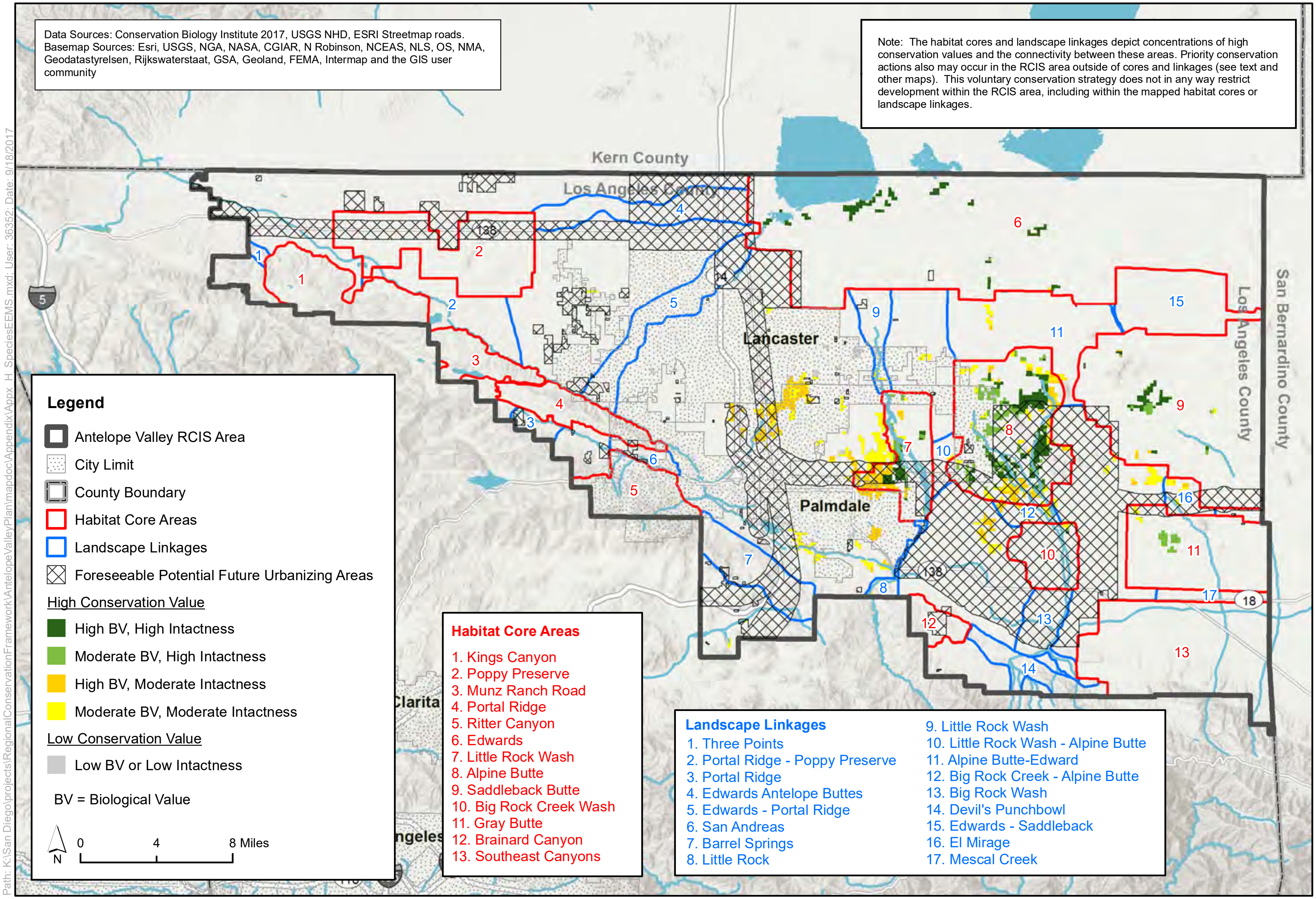



**Figure H-7**
**Desert Horned Lizard High Conservation Value Habitat (Desert Species Group)**

## Desert Horned Lizard

Desert

- High BV, High Intactness
- Moderate BV, High Intactness
- High BV, Moderate Intactness
- Moderate BV, Moderate Intactness
- Low BV or Low Intactness

There are 14,575 acres (6.22%) of High Conservation Value habitat in Cores and 4,148 acres (2%) in Linkages. The total acreages, including all habitat conservation values, are shown with each graph. Proportions indicate the relative Biological Value and Intactness of that habitat.

### Habitat Cores

1. Kings Canyon -

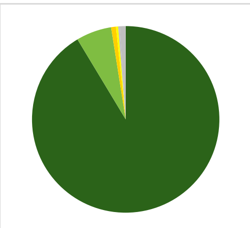
2. Poppy Preserve -

3. Munz Ranch Road -

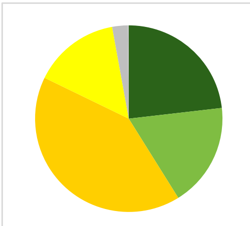
4. Portal Ridge -

5. Ritter Canyon -

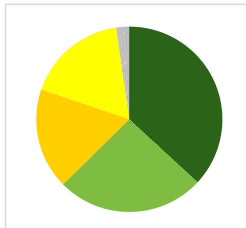
6. Edwards 1,747



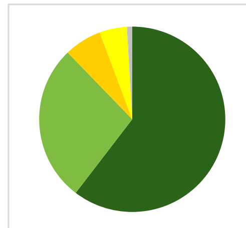
7. Little Rock Wash 2,997



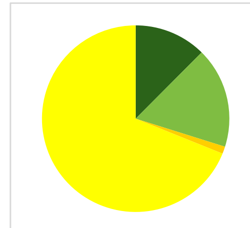
8. Alpine Butte 8,369



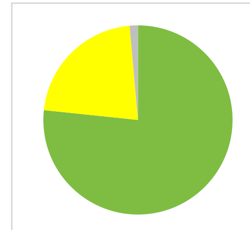
9. Saddleback Butte 1,138



10. Big Rock Creek Wash 103



11. Gray Butte 535



12. Brainard Canyon -

13. Southeast Canyons -

### Landscape Linkages

1. Three Points -

2. Portal Ridge to Poppy Preserve -

3. Portal Ridge -

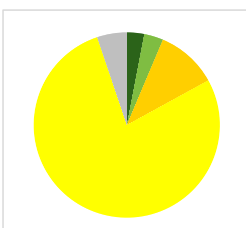
4. Edwards Antelope Buttes -

5. Edwards - Portal Ridge -

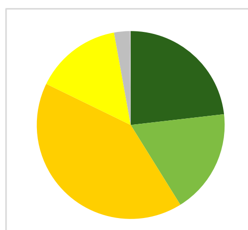
6. San Andreas -

7. Barrel Springs -

8. Little Rock 154



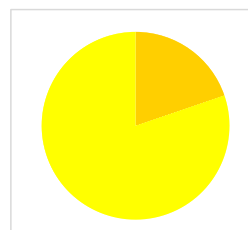
9. Little Rock Wash 2,997



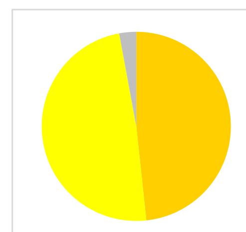
10. Little Rock Wash - Alpine Butte 49



11. Alpine Butte-Edward 291



12. Big Rock Creek - Alpine Butte 482

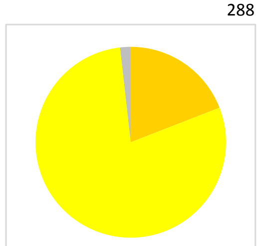


13. Big Rock Wash -

14. Devil's Punchbowl -

15. Edwards - Saddleback -

16. El Mirage 288



17. Mescal Creek -

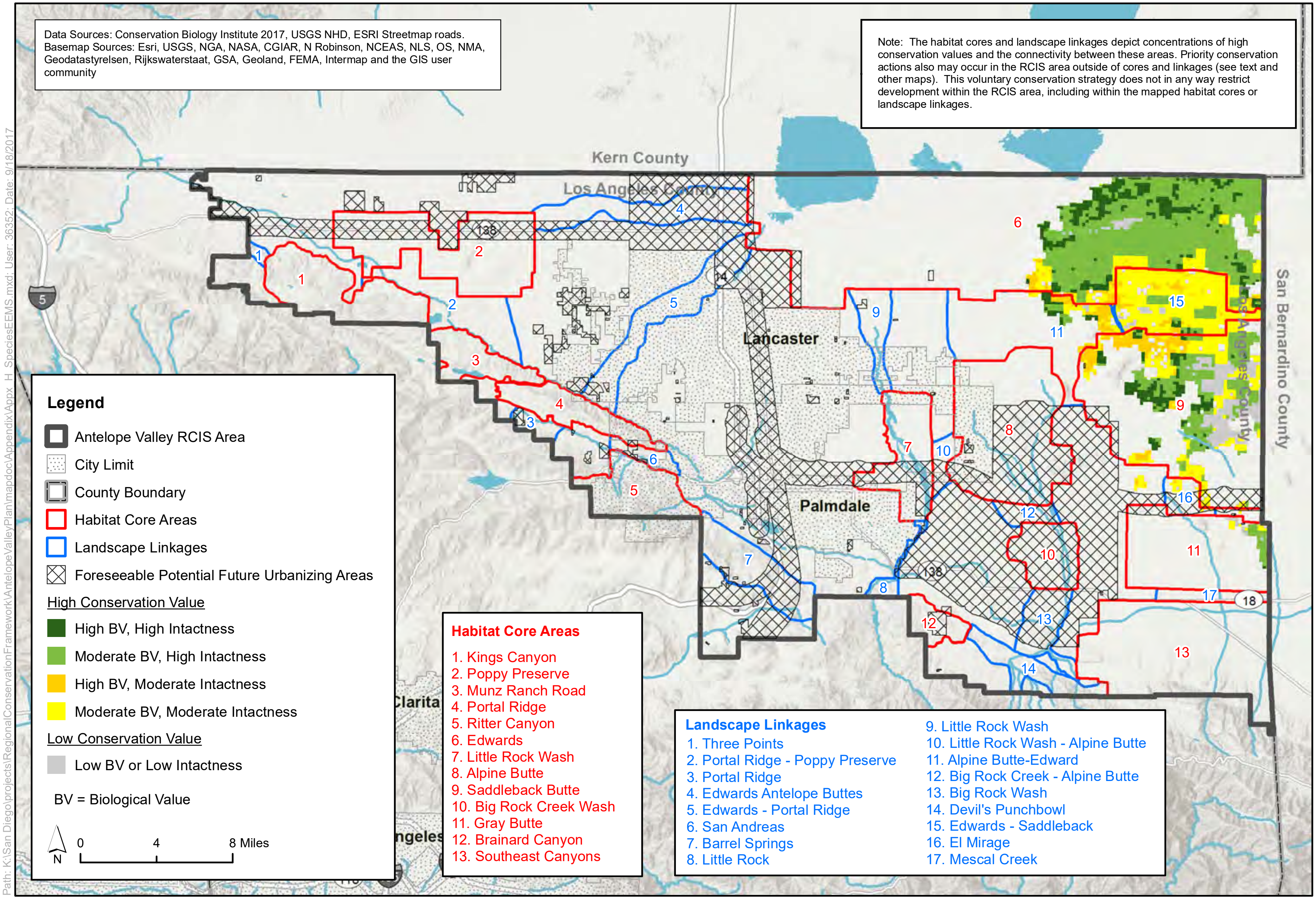



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**Figure H-8**
**Desert Tortoise High Conservation Value Habitat (Desert Species Group)**

## Desert Tortoise

**Desert**

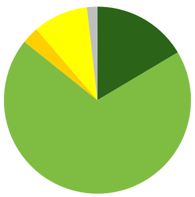
- High BV, High Intactness
- Moderate BV, High Intactness
- High BV, Moderate Intactness
- Moderate BV, Moderate Intactness
- Low BV or Low Intactness

There are 58,449 acres (7.86%) of High Conservation Value habitat in Cores and 15,449 acres (2%) in Linkages. The total acreages, including all habitat conservation values, are shown with each graph. Proportions indicate the relative Biological Value and Intactness of that habitat.

### Habitat Cores

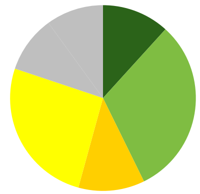
1. Kings Canyon -
2. Poppy Preserve -
3. Munz Ranch Road -
4. Portal Ridge -
5. Ritter Canyon -

6. Edwards 38,973



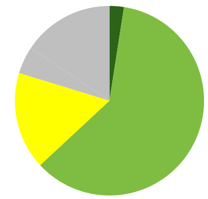
7. Little Rock Wash -
8. Alpine Butte -

9. Saddleback Butte 23,882



10. Big Rock Creek Wash -

11. Gray Butte 1,305

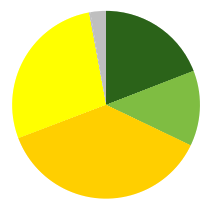


12. Brainard Canyon -
13. Southeast Canyons -

### Landscape Linkages

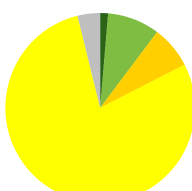
1. Three Points -
2. Portal Ridge to Poppy Preserve -
3. Portal Ridge -
4. Edwards Antelope Buttes -
5. Edwards - Portal Ridge -
6. San Andreas -
7. Barrel Springs -
8. Little Rock -
9. Little Rock Wash -
10. Little Rock Wash - Alpine Butte -

11. Alpine Butte-Edward 2,997

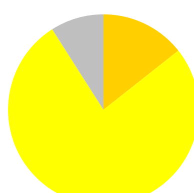


12. Big Rock Creek - Alpine Butte -
13. Big Rock Wash -
14. Devil's Punchbowl -

15. Edwards - Saddleback 12,645



16. El Mirage 421



17. Mescal Creek -

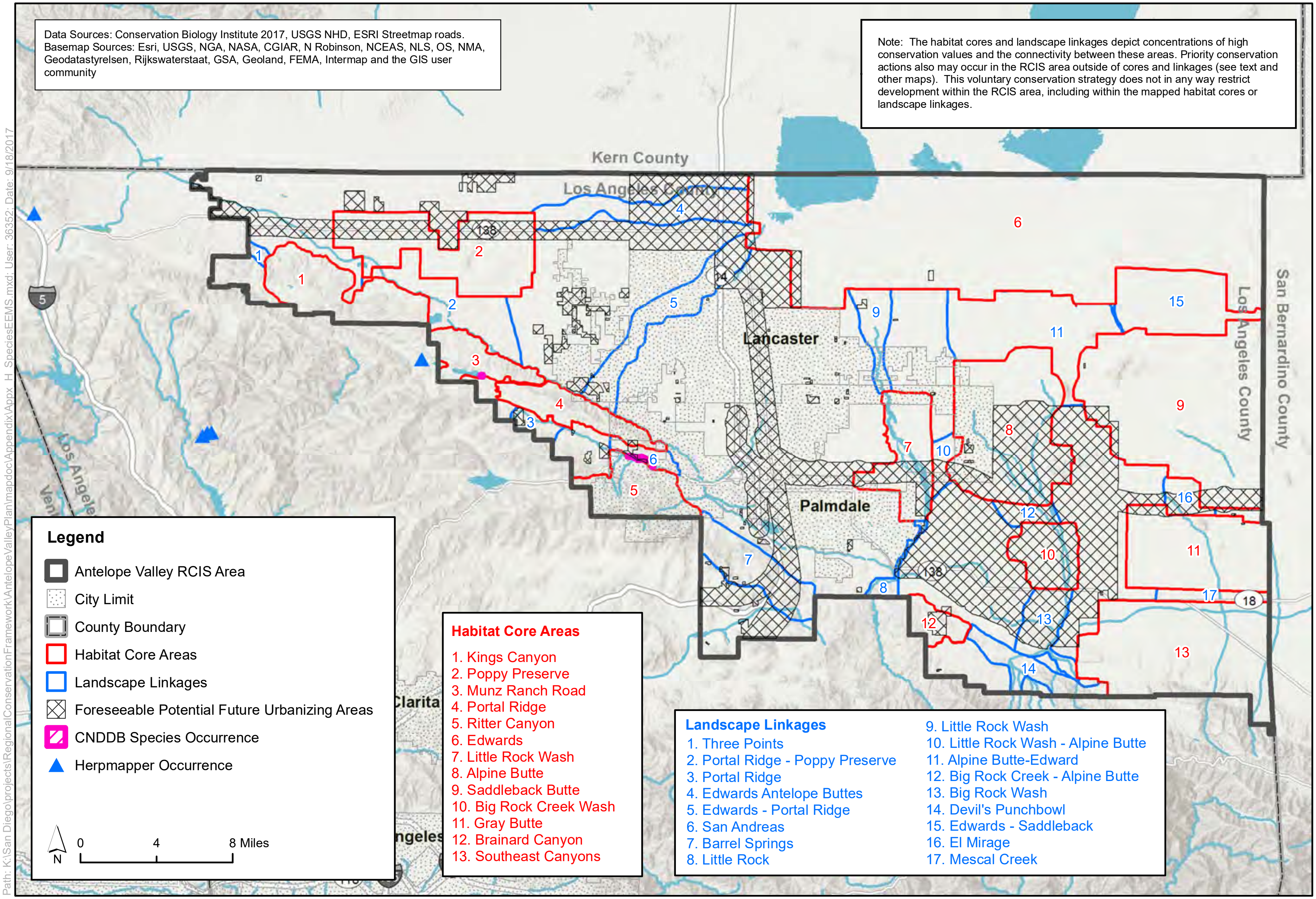



**Figure H-9**
**Western Pond Turtle Occurrence (no model) with Habitat Cores and Linkages**

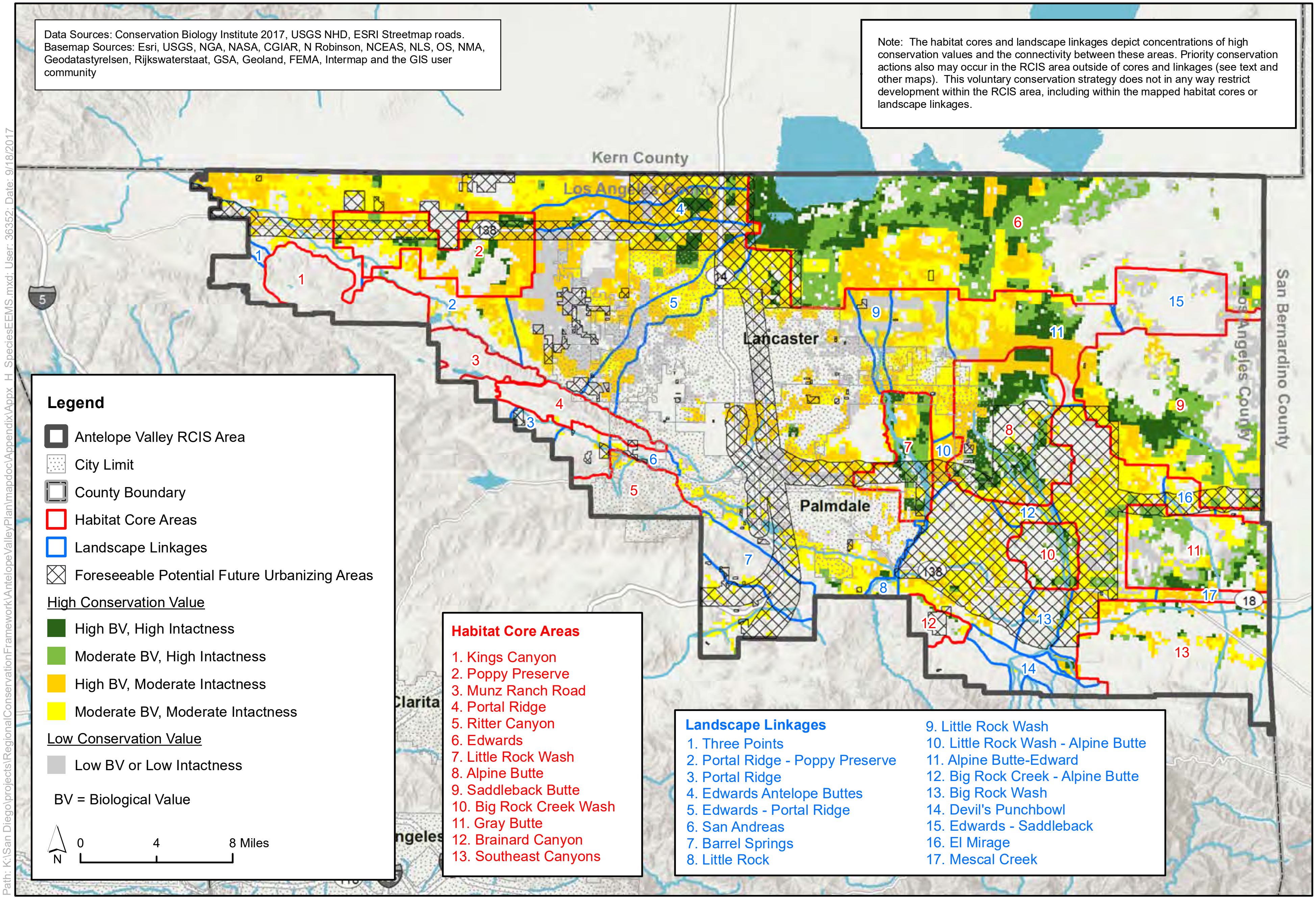





**Figure H-10**
**Burrowing Owl High Conservation Value Habitat (Agriculture and Grassland Species Group)**

**Burrowing Owl**

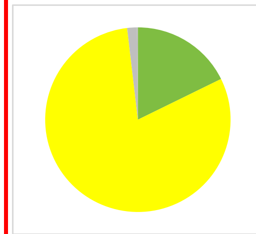
**Ag/Grassland**

- High BV, High Intactness
- Moderate BV, High Intactness
- High BV, Moderate Intactness
- Moderate BV, Moderate Intactness
- Low BV or Low Intactness

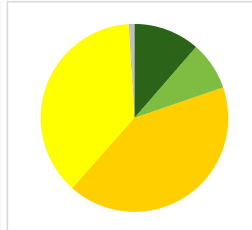
There are 141,601 acres (4.69%) of High Conservation Value habitat in Cores and 53,787 acres (2%) in Linkages. The total acreages, including all habitat conservation values, are shown with each graph. Proportions indicate the relative Biological Value and Intactness of that habitat.

## Habitat Cores

1. Kings Canyon 68

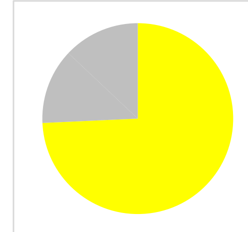


2. Poppy Preserve 14,946

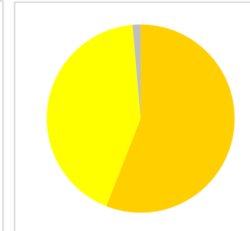


3. Munz Ranch Road -

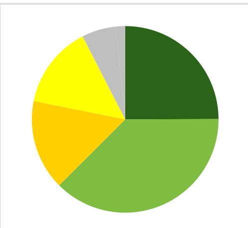
4. Portal Ridge 81



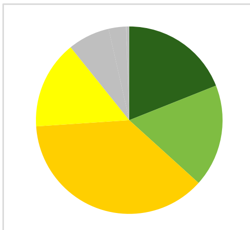
5. Ritter Canyon 634



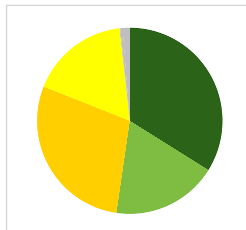
6. Edwards 62,095



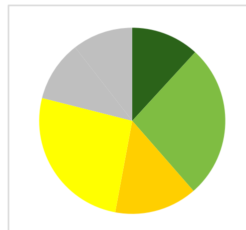
7. Little Rock Wash 12,363



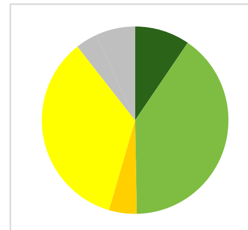
8. Alpine Butte 18,230



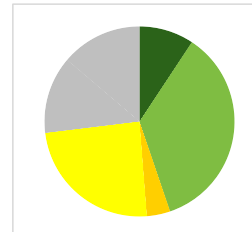
9. Saddleback Butte 26,584



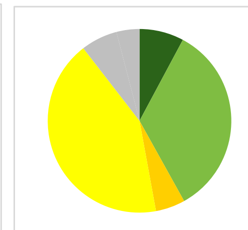
10. Big Rock Creek Wash 3,305



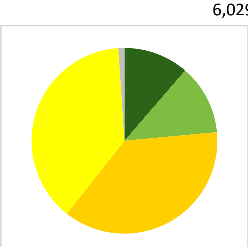
11. Gray Butte 12,784



12. Brainard Canyon 516



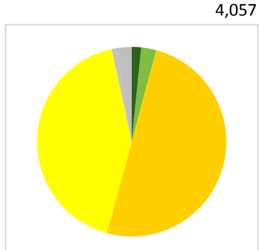
13. Southeast Canyons 6,029



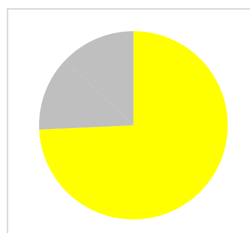
## Landscape Linkages

1. Three Points -

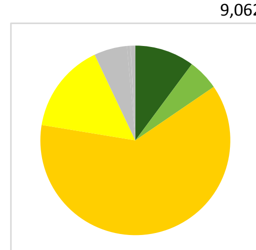
2. Portal Ridge to Poppy Preserve 4,057



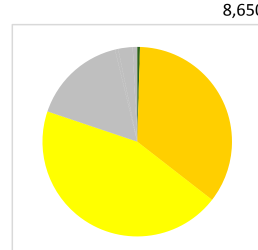
3. Portal Ridge 81



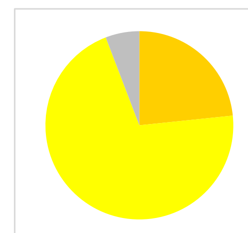
4. Edwards Antelope Buttes 9,062



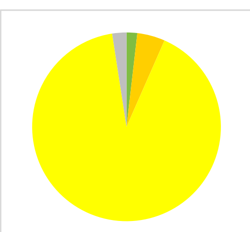
5. Edwards - Portal Ridge 8,650



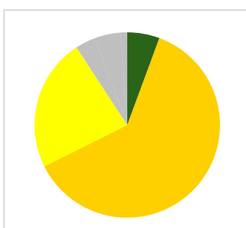
6. San Andreas 248



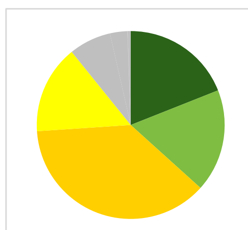
7. Barrel Springs 610



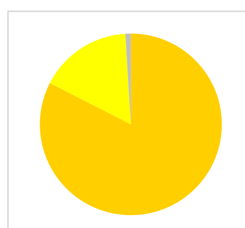
8. Little Rock 725



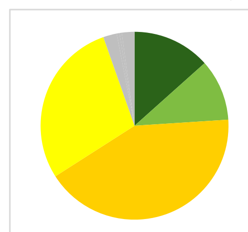
9. Little Rock Wash 12,363



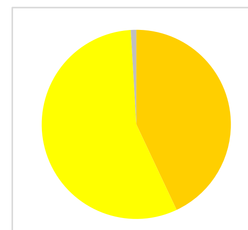
10. Little Rock Wash - Alpine Butte 1,786



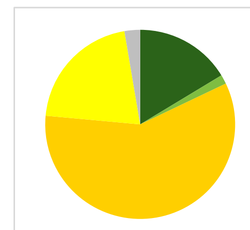
11. Alpine Butte-Edward 14,942



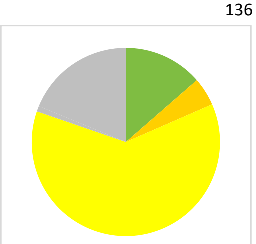
12. Big Rock Creek - Alpine Butte 1,398



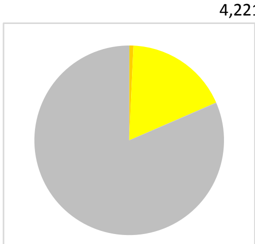
13. Big Rock Wash 1,233



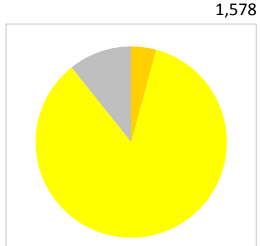
14. Devil's Punchbowl 136



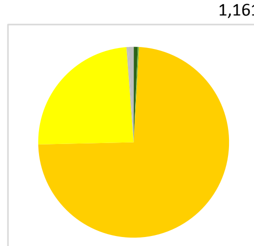
15. Edwards - Saddleback 4,221



16. El Mirage 1,578



17. Mescal Creek 1,161



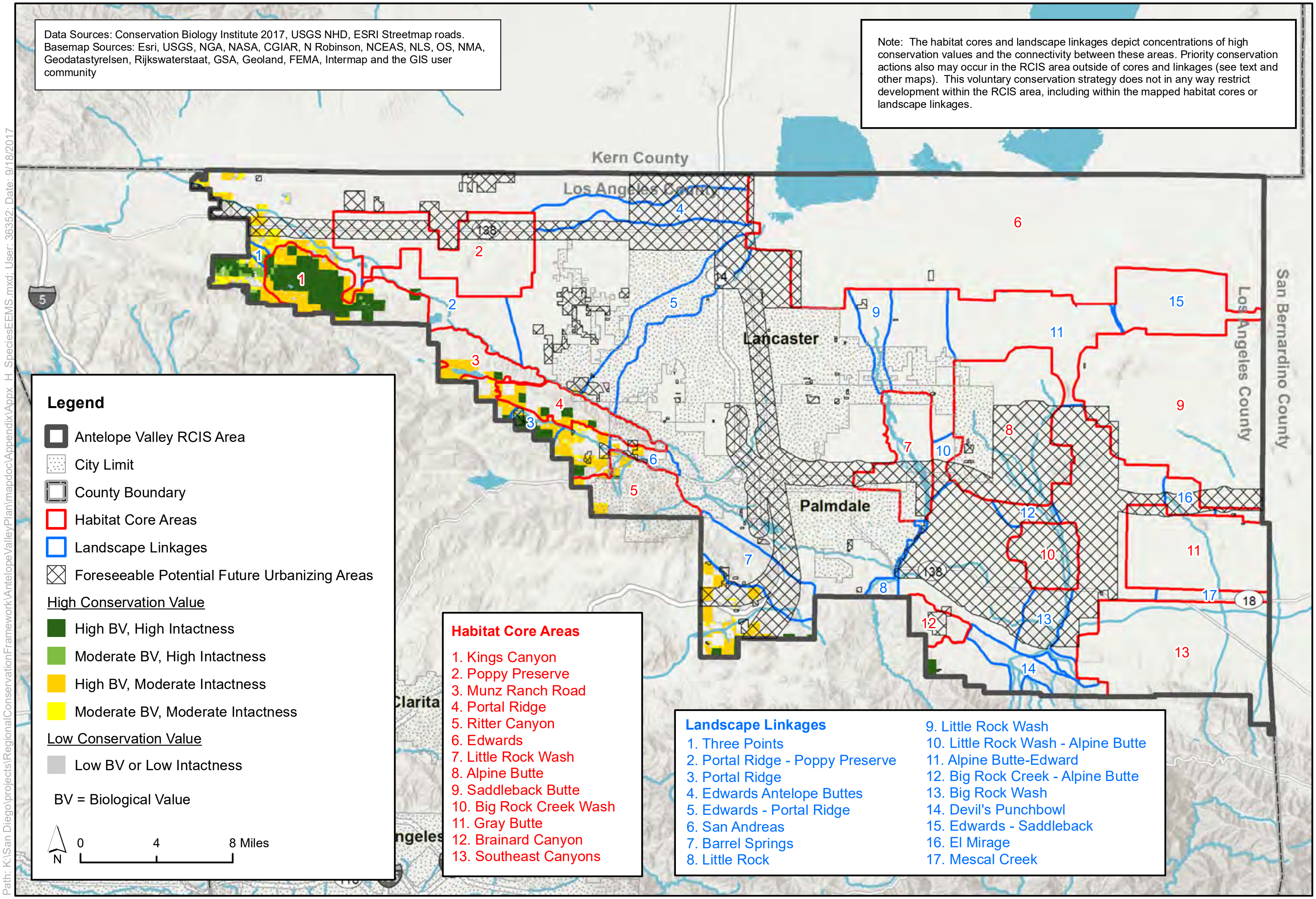





**Figure H-11**
**California Condor High Conservation Value Habitat (Foothill and Riparian Species Group)**

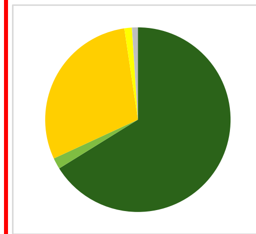
## California Condor

- High BV, High Intactness
- Moderate BV, High Intactness
- High BV, Moderate Intactness
- Moderate BV, Moderate Intactness
- Low BV or Low Intactness

There are 16,001 acres (3.13%) of High Conservation Value habitat in Cores and 4,067 acres (1%) in Linkages. The total acreages, including all habitat conservation values, are shown with each graph. Proportions indicate the relative Biological Value and Intactness of that habitat.

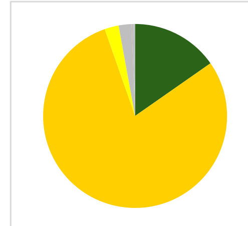
### Habitat Cores

1. Kings Canyon — 10,216

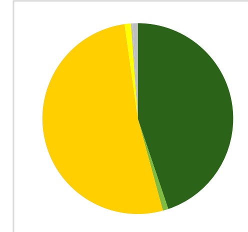


2. Poppy Preserve — -

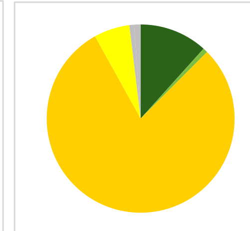
3. Munz Ranch Road — 1,593



4. Portal Ridge — 3,193



5. Ritter Canyon — 1,210



6. Edwards — -

7. Little Rock Wash — -

8. Alpine Butte — -

9. Saddleback Butte — -

10. Big Rock Creek Wash — -

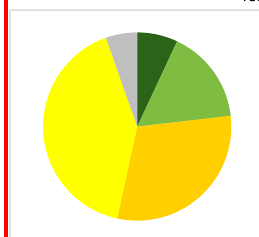
11. Gray Butte — -

12. Brainard Canyon — -

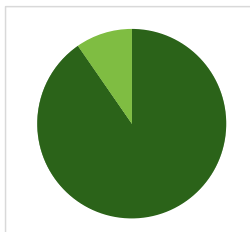
13. Southeast Canyons — -

### Landscape Linkages

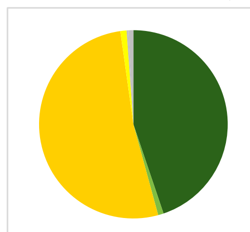
1. Three Points — 465



2. Portal Ridge to Poppy Preserve — 105

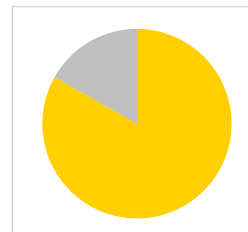


3. Portal Ridge — 3,193

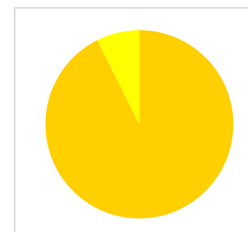


4. Edwards Antelope Buttes — -

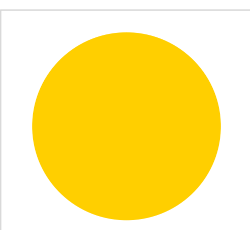
5. Edwards - Portal Ridge — 37



6. San Andreas — 328



7. Barrel Springs — 5



8. Little Rock — -

9. Little Rock Wash — -

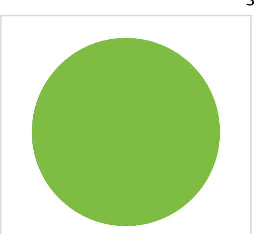
10. Little Rock Wash - Alpine Butte — -

11. Alpine Butte-Edward — -

12. Big Rock Creek - Alpine Butte — -

13. Big Rock Wash — -

14. Devil's Punchbowl — 3



15. Edwards - Saddleback — -

16. El Mirage — -

17. Mescal Creek — -

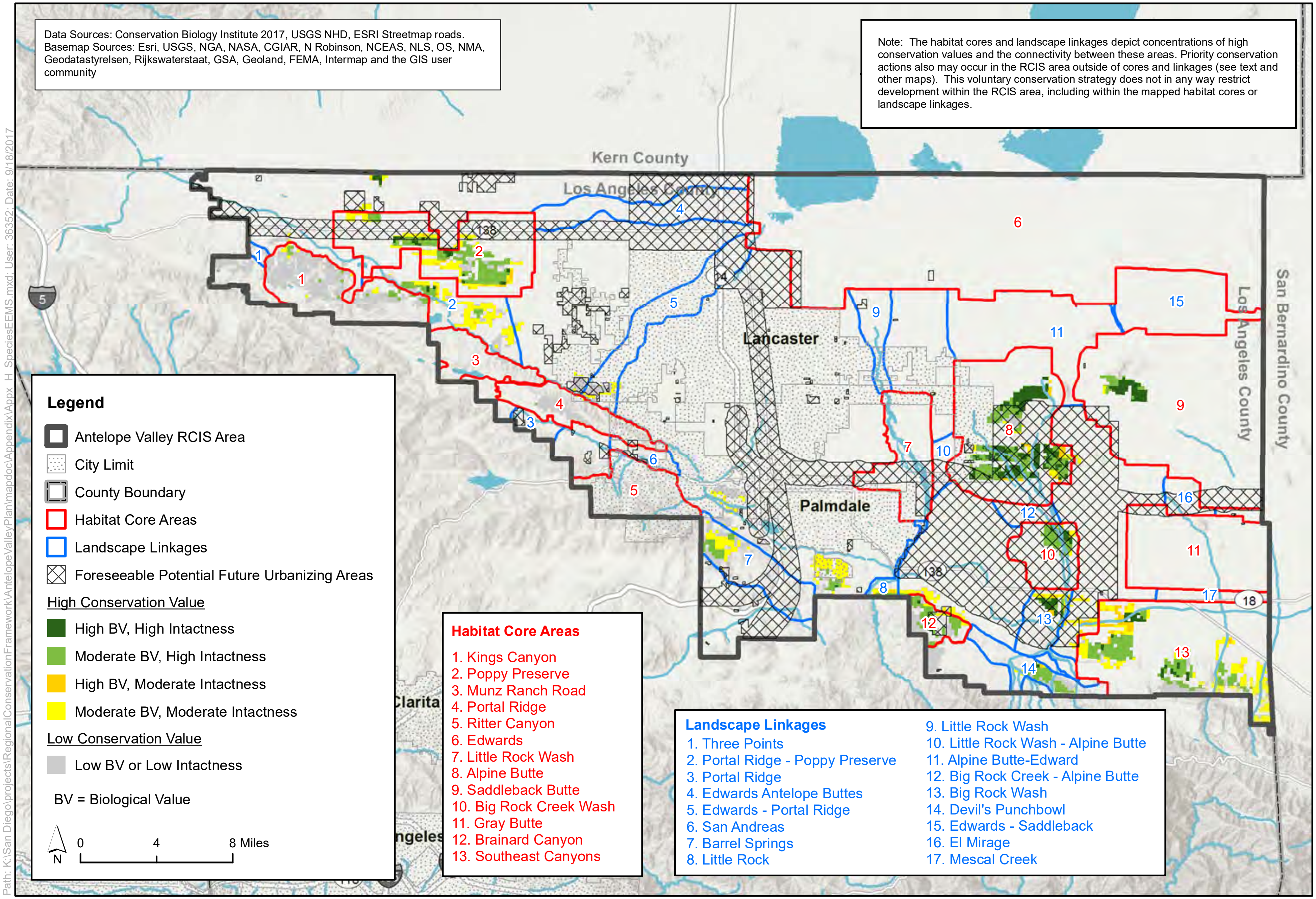



**Figure H-12a**
**Golden Eagle High Conservation Value Habitat (Desert Species Group)**

## Golden Eagle

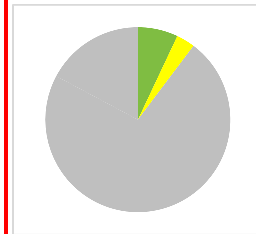
**Desert**

- High BV, High Intactness
- Moderate BV, High Intactness
- High BV, Moderate Intactness
- Moderate BV, Moderate Intactness
- Low BV or Low Intactness

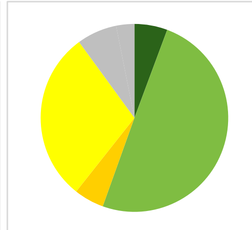
There are 23,862 acres (7%) of High Conservation Value habitat in Cores and 6,308 acres (2%) in Linkages. The total acreages, including all habitat conservation values, are shown with each graph. Proportions indicate the relative Biological Value and Intactness of that habitat.

### Habitat Cores

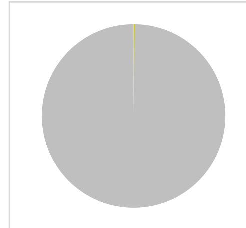
1. Kings Canyon
6,246



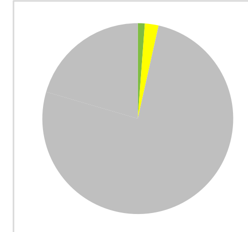
2. Poppy Preserve
5,606



3. Munz Ranch Road
106



4. Portal Ridge
994

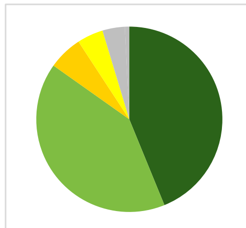


5. Ritter Canyon
-

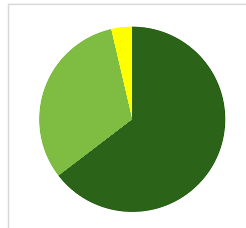
6. Edwards
-

7. Little Rock Wash
-

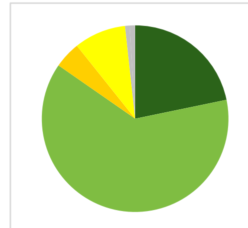
8. Alpine Butte
7,246



9. Saddleback Butte
1,261

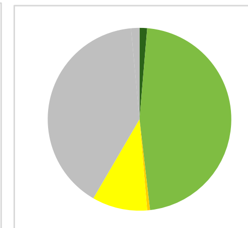


10. Big Rock Creek Wash
1,325

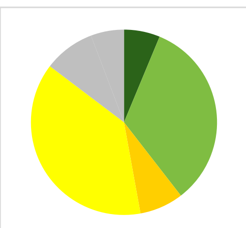


11. Gray Butte
-

12. Brainard Canyon
2,233

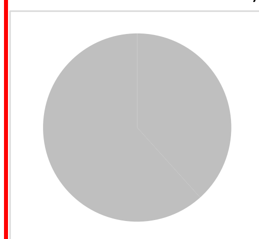


13. Southeast Canyons
8,632

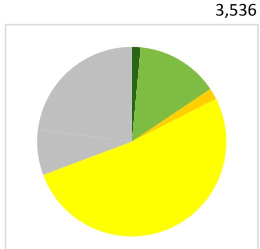


### Landscape Linkages

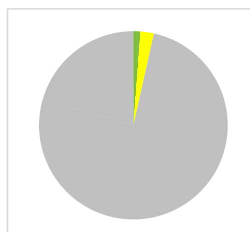
1. Three Points
70



2. Portal Ridge to Poppy Preserve
3,536

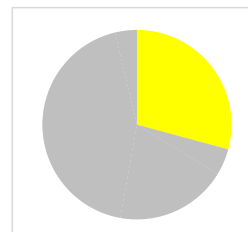


3. Portal Ridge
994



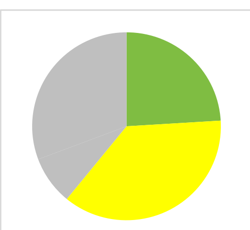
4. Edwards Antelope Buttes
-

5. Edwards - Portal Ridge
795

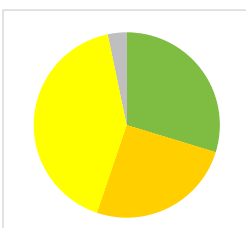


6. San Andreas
-

7. Barrel Springs
2,039



8. Little Rock
303

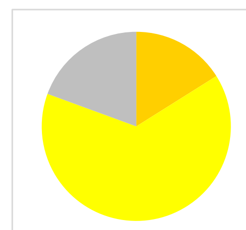


9. Little Rock Wash
-

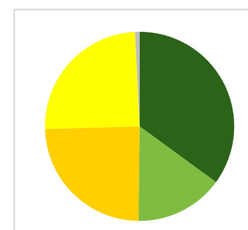
10. Little Rock Wash - Alpine Butte
-

11. Alpine Butte-Edward
-

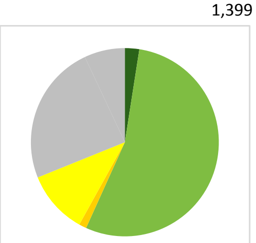
12. Big Rock Creek - Alpine Butte
69



13. Big Rock Wash
1,046



14. Devil's Punchbowl
1,399



15. Edwards - Saddleback
-

16. El Mirage
-

17. Mescal Creek
-

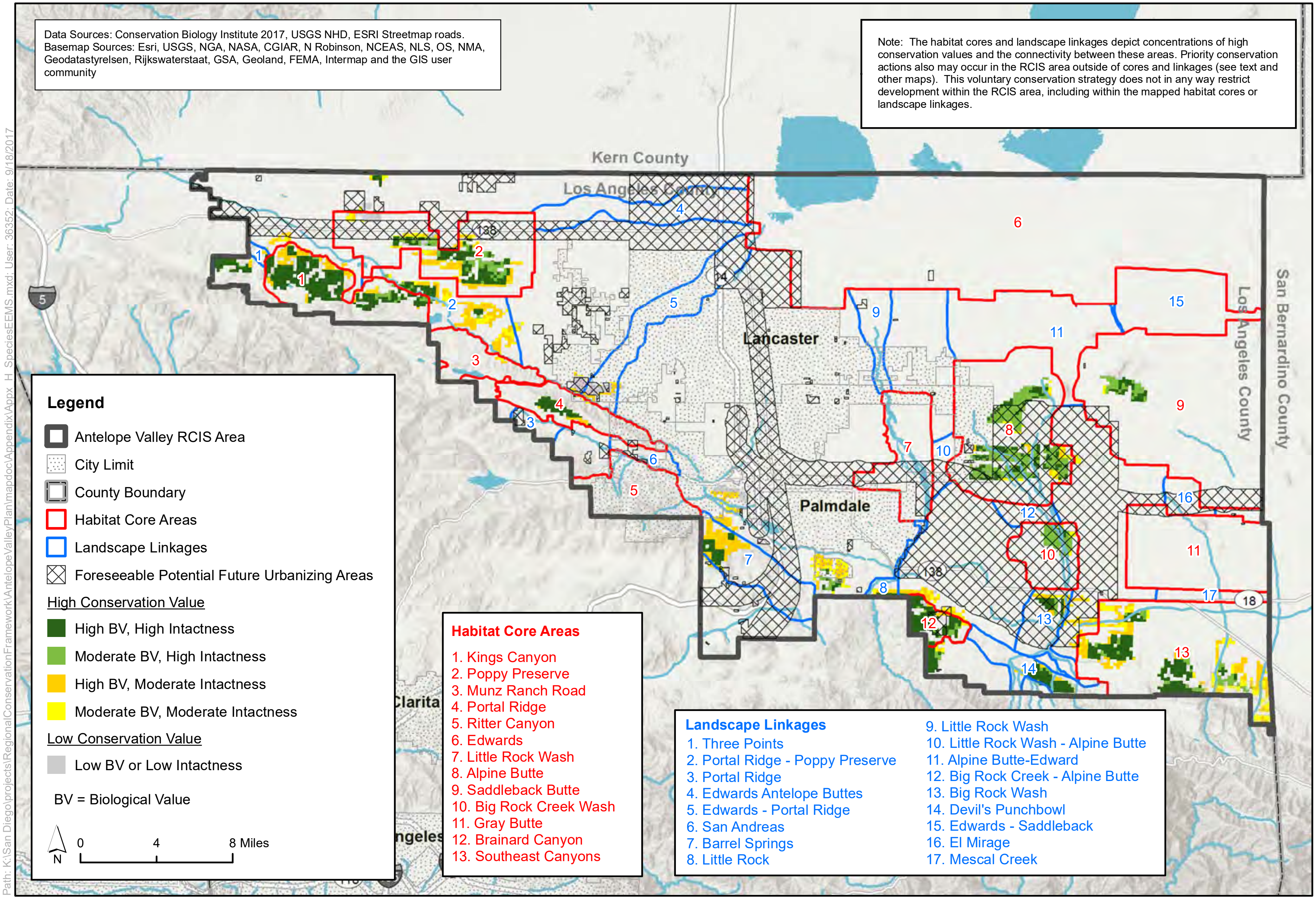



**Figure H-12b**
**Golden Eagle High Conservation Value Habitat (Foothill and Riparian Species Group)**

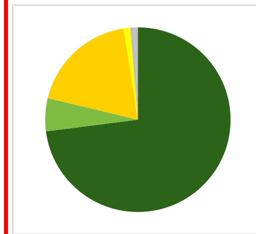
**Golden Eagle** **Foothill/Riparian**

- High BV, High Intactness
- Moderate BV, High Intactness
- High BV, Moderate Intactness
- Moderate BV, Moderate Intactness
- Low BV or Low Intactness

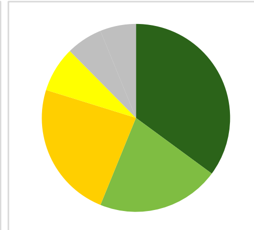
There are 31,998 acres (6.76%) of High Conservation Value habitat in Cores and 9,473 acres (2%) in Linkages. The total acreages, including all habitat conservation values, are shown with each graph. Proportions indicate the relative Biological Value and Intactness of that habitat.

Habitat Cores

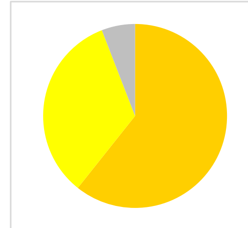
1. Kings Canyon 6,246



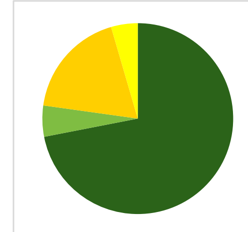
2. Poppy Preserve 5,606



3. Munz Ranch Road 106



4. Portal Ridge 994

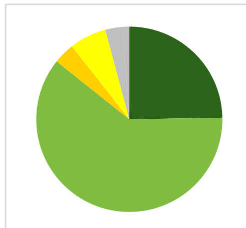


5. Ritter Canyon -

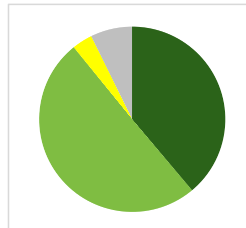
6. Edwards -

7. Little Rock Wash -

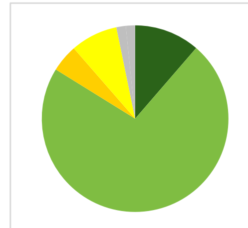
8. Alpine Butte 7,246



9. Saddleback Butte 1,261

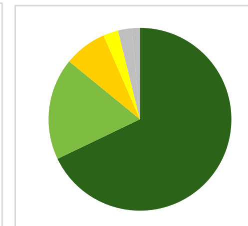


10. Big Rock Creek Wash 1,325

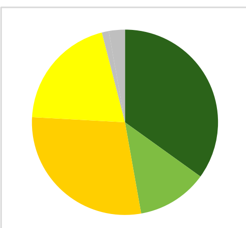


11. Gray Butte -

12. Brainard Canyon 2,233

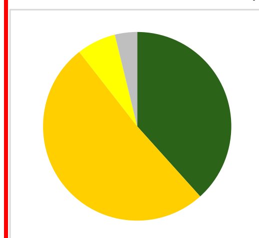


13. Southeast Canyons 8,632

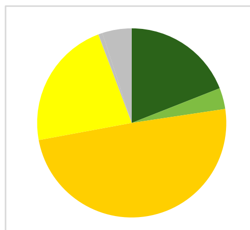


Landscape Linkages

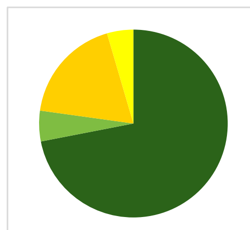
1. Three Points 70



2. Portal Ridge to Poppy Preserve 3,536

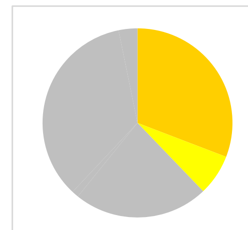


3. Portal Ridge 994



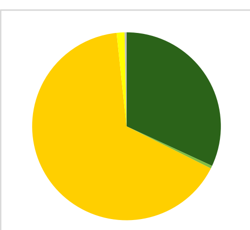
4. Edwards Antelope Buttes -

5. Edwards - Portal Ridge 795

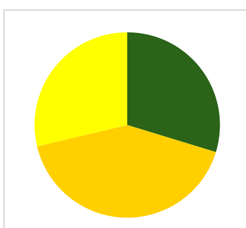


6. San Andreas -

7. Barrel Springs 2,039



8. Little Rock 303

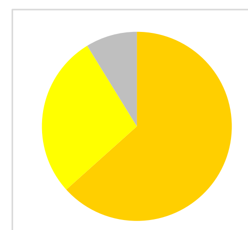


9. Little Rock Wash -

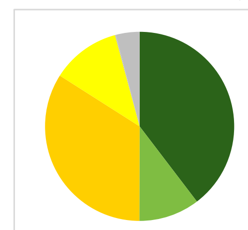
10. Little Rock Wash - Alpine Butte -

11. Alpine Butte-Edward -

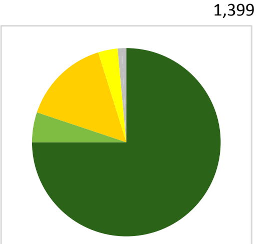
12. Big Rock Creek - Alpine Butte 69



13. Big Rock Wash 1,046



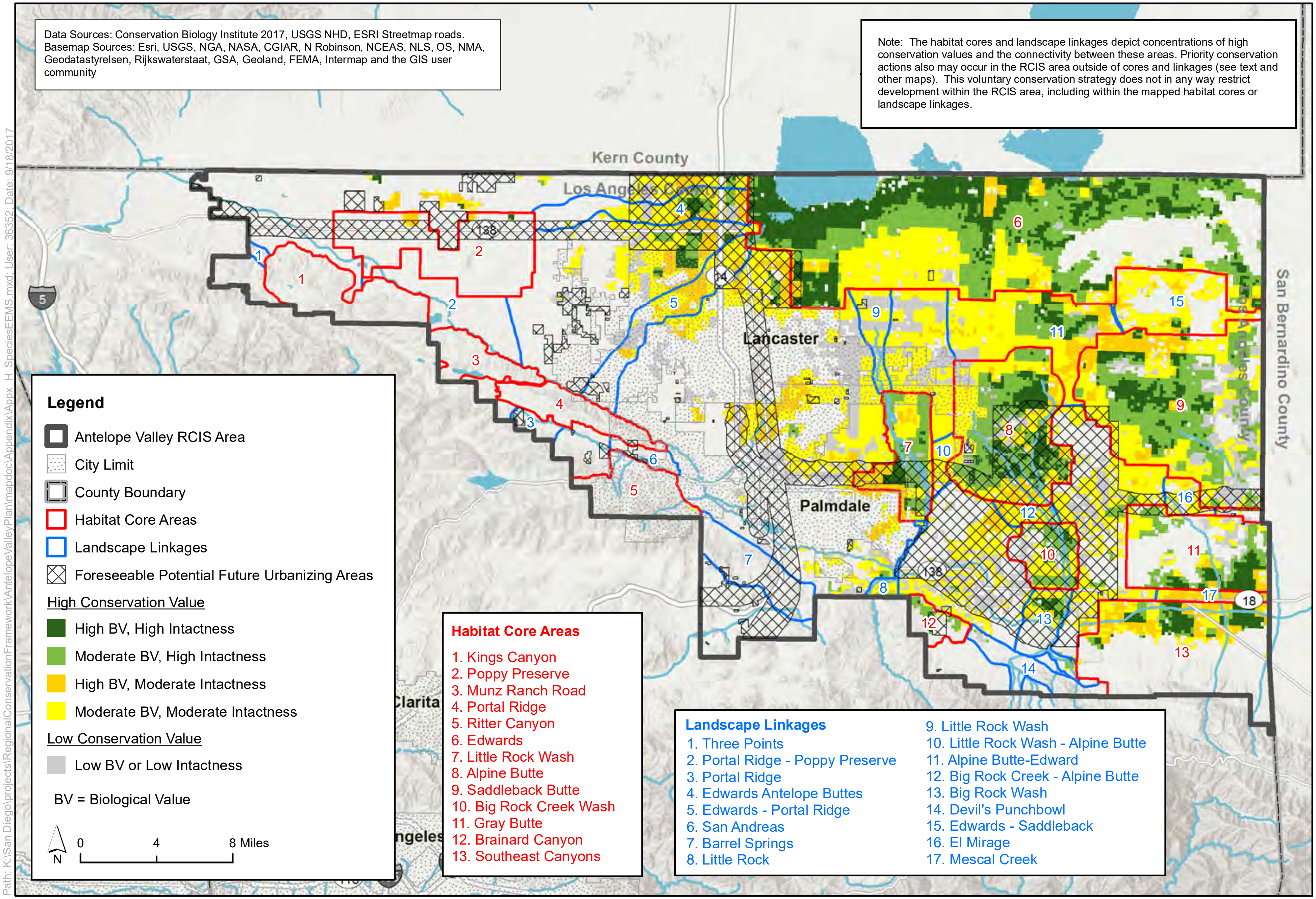
14. Devil's Punchbowl 1,399



15. Edwards - Saddleback -

16. El Mirage -

17. Mescal Creek -




Path: K:\San Diego\projects\Regional\ConservationFramework\AntelopeValleyPlan\mapdoc\Appendix\Appx_H_SpeciesEEMS.mxd; User: 36352; Date: 9/18/2017

**Figure H-13a**
**Le Conte's Thrasher High Conservation Value Habitat (Desert Species Group)**

**Le Conte's Thrasher** **Desert**

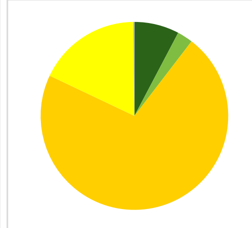
- High BV, High Intactness
- Moderate BV, High Intactness
- High BV, Moderate Intactness
- Moderate BV, Moderate Intactness
- Low BV or Low Intactness

There are 176,713 acres (5.98%) of High Conservation Value habitat in Cores and 59,201 acres (2%) in Linkages. The total acreages, including all habitat conservation values, are shown with each graph. Proportions indicate the relative Biological Value and Intactness of that habitat.

## Habitat Cores

1. Kings Canyon
-

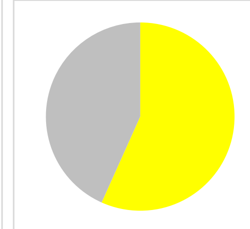
2. Poppy Preserve
592



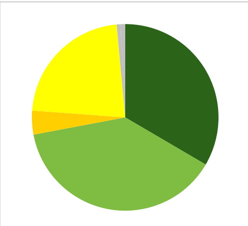
3. Munz Ranch Road
-

4. Portal Ridge
-

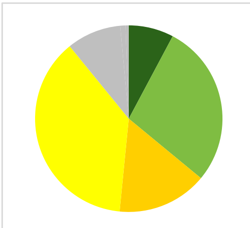
5. Ritter Canyon
78



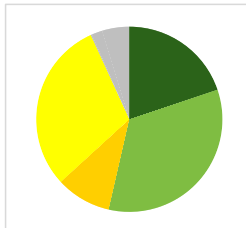
6. Edwards
79,553



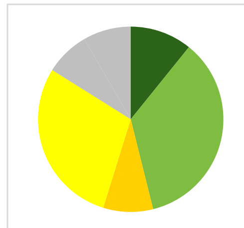
7. Little Rock Wash
14,545



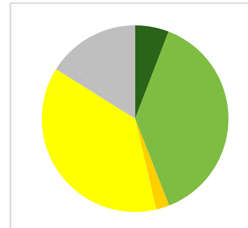
8. Alpine Butte
26,249



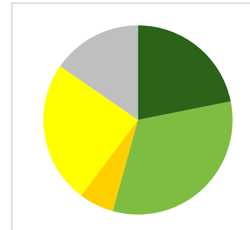
9. Saddleback Butte
41,283



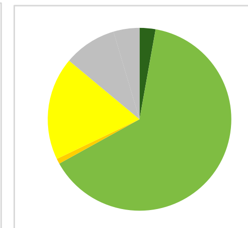
10. Big Rock Creek Wash
5,534



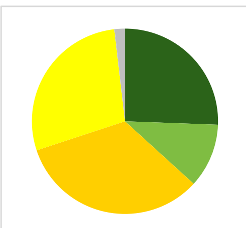
11. Gray Butte
10,551



12. Brainard Canyon
1,220



13. Southeast Canyons
11,215



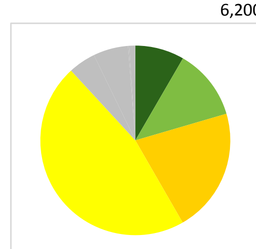
## Landscape Linkages

1. Three Points
-

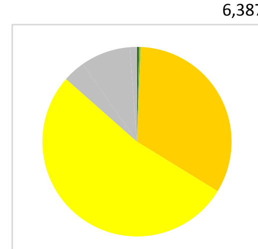
2. Portal Ridge to Poppy Preserve
-

3. Portal Ridge
-

4. Edwards Antelope Buttes
6,200



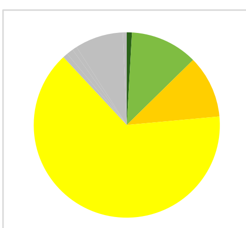
5. Edwards - Portal Ridge
6,387



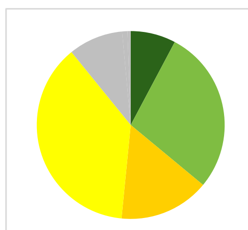
6. San Andreas
-

7. Barrel Springs
-

8. Little Rock
1,292



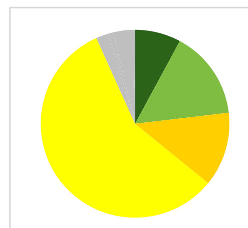
9. Little Rock Wash
14,545



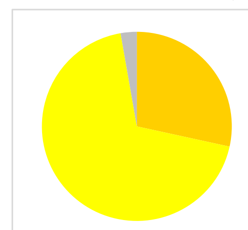
10. Little Rock Wash - Alpine Butte
1,817



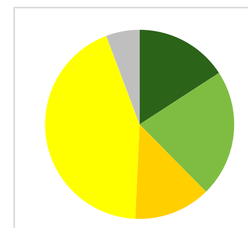
11. Alpine Butte-Edward
17,774



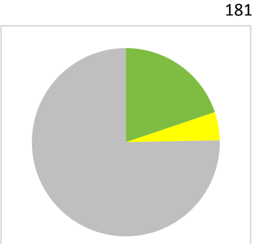
12. Big Rock Creek - Alpine Butte
1,974



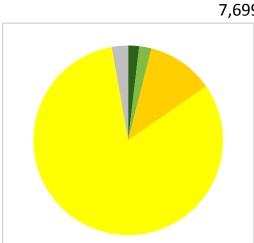
13. Big Rock Wash
2,582



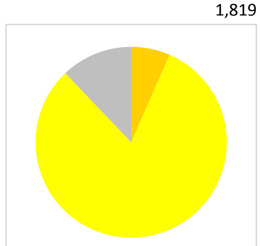
14. Devil's Punchbowl
181



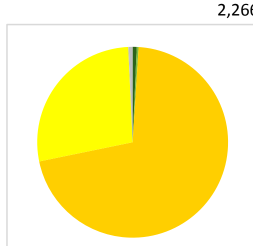
15. Edwards - Saddleback
7,699



16. El Mirage
1,819



17. Mescal Creek
2,266



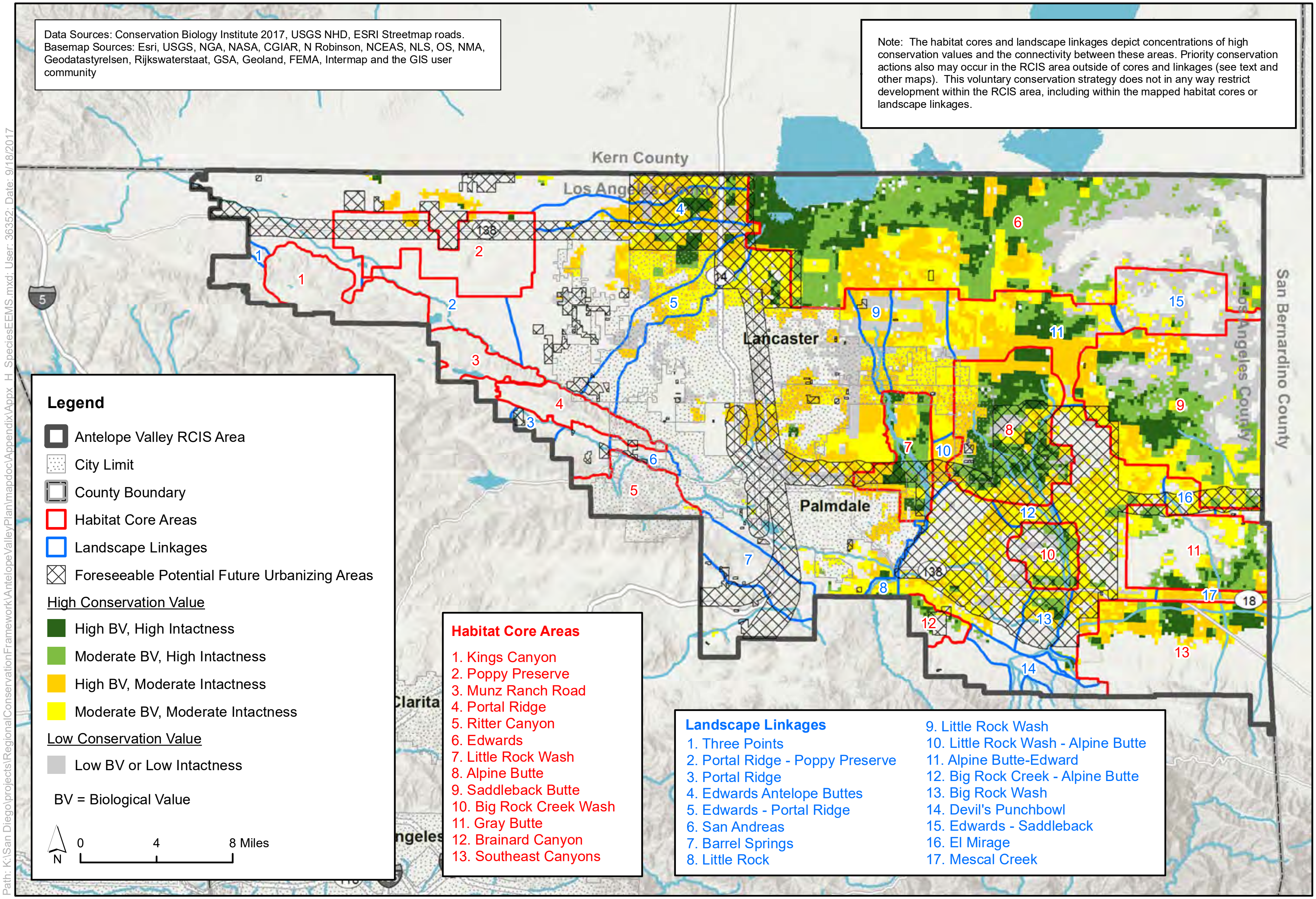




**Figure H-13b**
**Le Conte's Thrasher High Conservation Value Habitat (Agriculture and Grassland Species Group)**

## Le Conte's Thrasher

**Ag/Grassland**

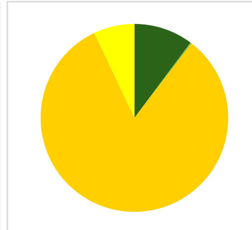
- High BV, High Intactness
- Moderate BV, High Intactness
- High BV, Moderate Intactness
- Moderate BV, Moderate Intactness
- Low BV or Low Intactness

There are 155,154 acres (5.55%) of High Conservation Value habitat in Cores and 53,727 acres (2%) in Linkages. The total acreages, including all habitat conservation values, are shown with each graph. Proportions indicate the relative Biological Value and Intactness of that habitat.

### Habitat Cores

1. Kings Canyon -

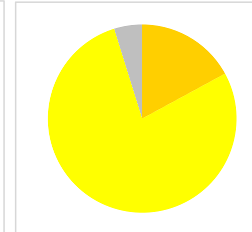
2. Poppy Preserve 592



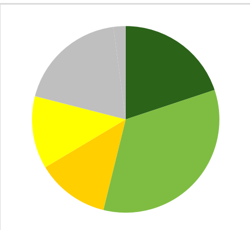
3. Munz Ranch Road -

4. Portal Ridge -

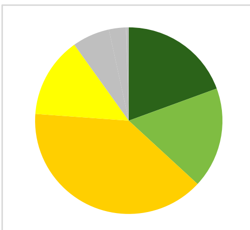
5. Ritter Canyon 78



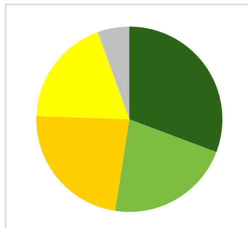
6. Edwards 79,553



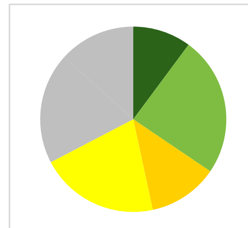
7. Little Rock Wash 14,545



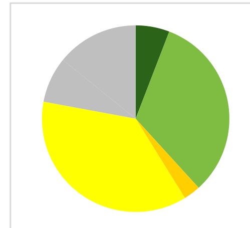
8. Alpine Butte 26,249



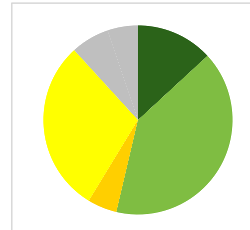
9. Saddleback Butte 41,283



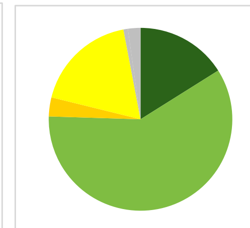
10. Big Rock Creek Wash 5,534



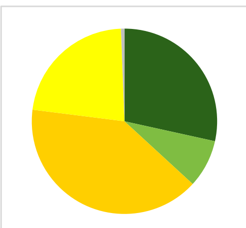
11. Gray Butte 10,551



12. Brainard Canyon 1,220



13. Southeast Canyons 11,215



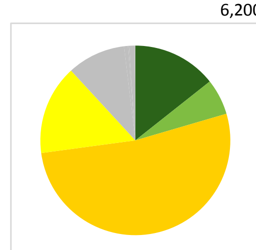
### Landscape Linkages

1. Three Points -

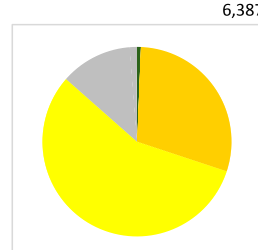
2. Portal Ridge to Poppy Preserve -

3. Portal Ridge -

4. Edwards Antelope Buttes 6,200



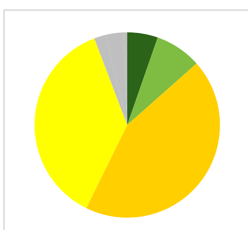
5. Edwards - Portal Ridge 6,387



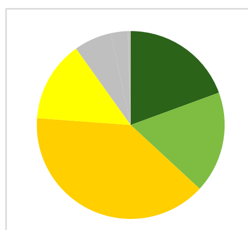
6. San Andreas -

7. Barrel Springs -

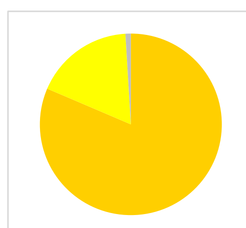
8. Little Rock 1,292



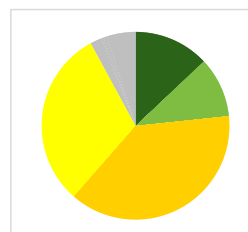
9. Little Rock Wash 14,545



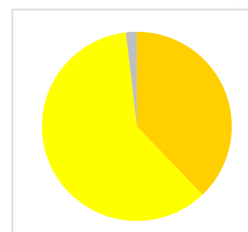
10. Little Rock Wash - Alpine Butte 1,817



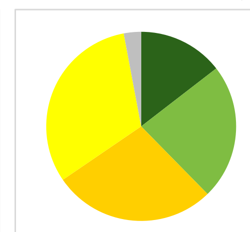
11. Alpine Butte-Edward 17,774



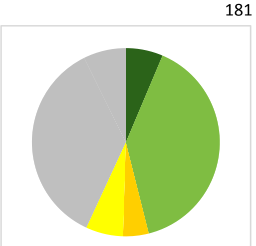
12. Big Rock Creek - Alpine Butte 1,974



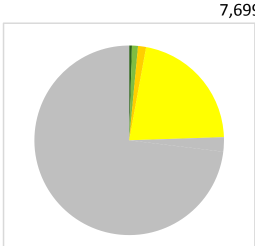
13. Big Rock Wash 2,582



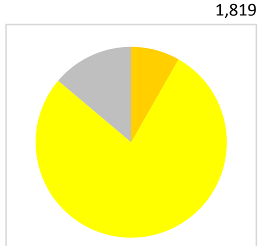
14. Devil's Punchbowl 181



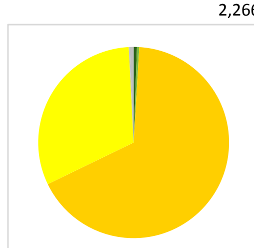
15. Edwards - Saddleback 7,699



16. El Mirage 1,819



17. Mescal Creek 2,266



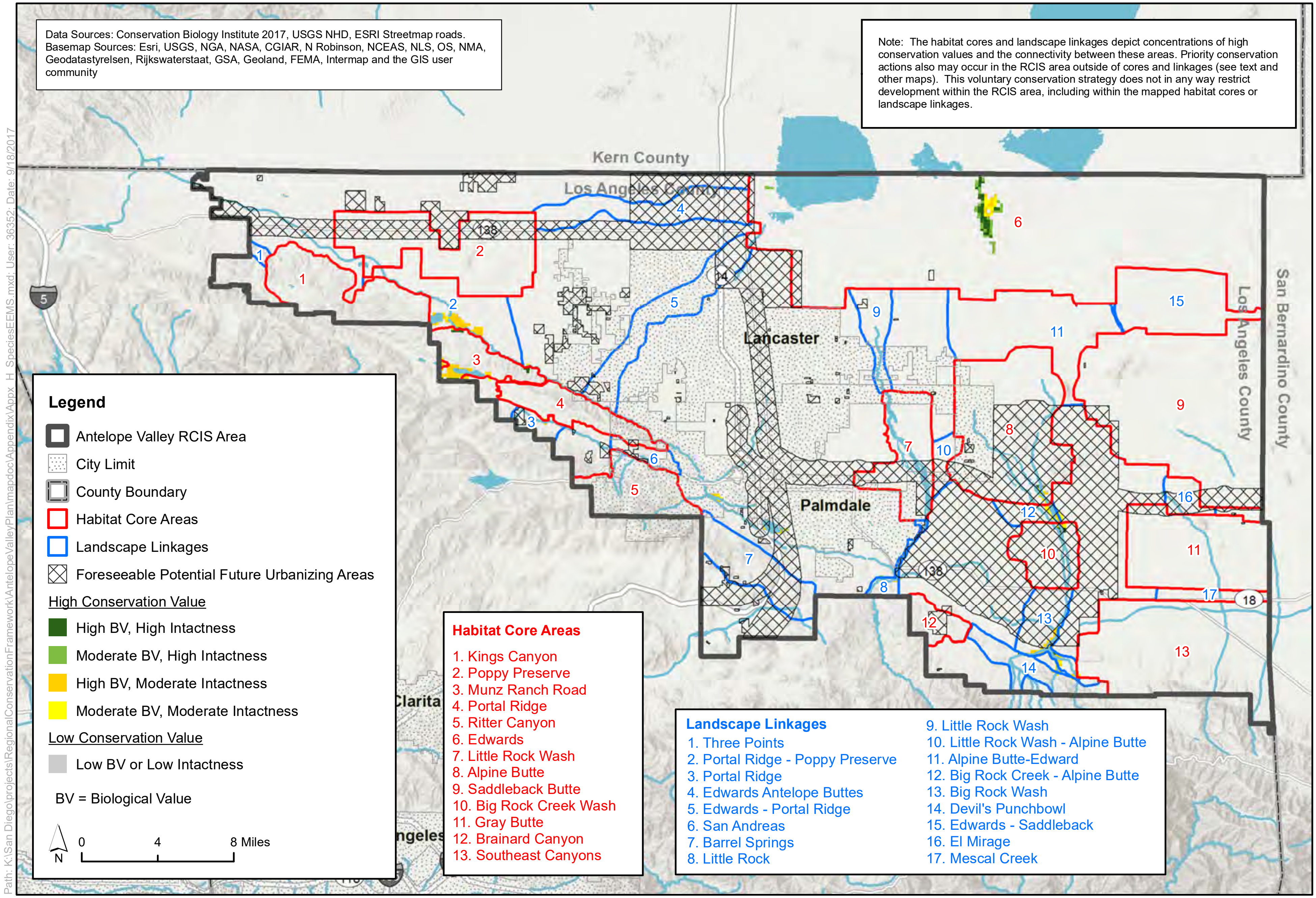



**Figure H-14**
**Least Bell's Vireo High Conservation Value Habitat (Foothill and Riparian Species Group)**

## Least Bell's Vireo

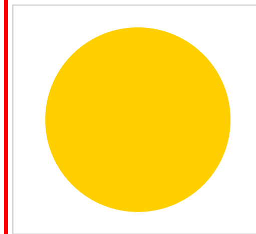
**Foothill/Riparian**

- High BV, High Intactness
- Moderate BV, High Intactness
- High BV, Moderate Intactness
- Moderate BV, Moderate Intactness
- Low BV or Low Intactness

There are 2,836 acres (3.81%) of High Conservation Value habitat in Cores and 2,061 acres (3%) in Linkages. The total acreages, including all habitat conservation values, are shown with each graph. Proportions indicate the relative Biological Value and Intactness of that habitat.

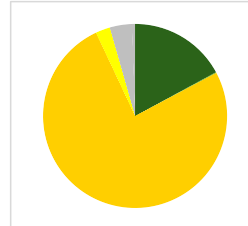
### Habitat Cores

1. Kings Canyon 1

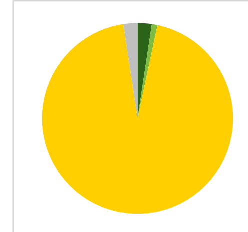


2. Poppy Preserve -

3. Munz Ranch Road 924

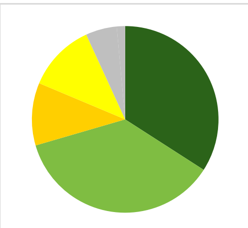


4. Portal Ridge 54



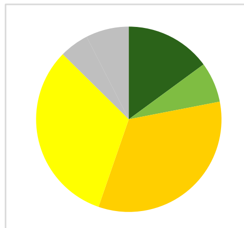
5. Ritter Canyon -

6. Edwards 1,602



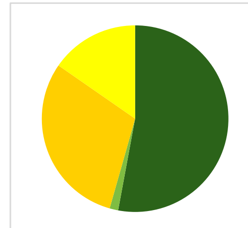
7. Little Rock Wash -

8. Alpine Butte 238



9. Saddleback Butte -

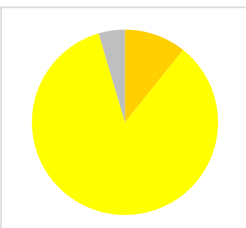
10. Big Rock Creek Wash 174



11. Gray Butte -

12. Brainard Canyon -

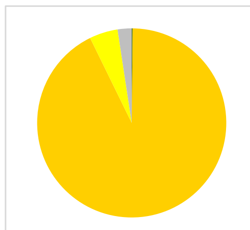
13. Southeast Canyons 28



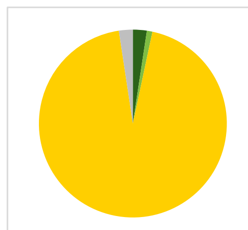
### Landscape Linkages

1. Three Points -

2. Portal Ridge to Poppy Preserve 871



3. Portal Ridge 54



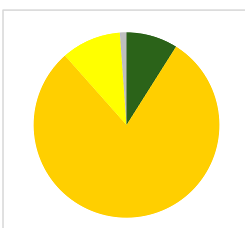
4. Edwards Antelope Buttes -

5. Edwards - Portal Ridge -

6. San Andreas -

7. Barrel Springs -

8. Little Rock 112

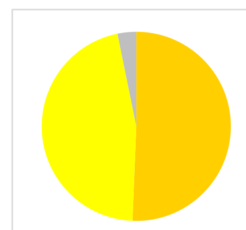


9. Little Rock Wash -

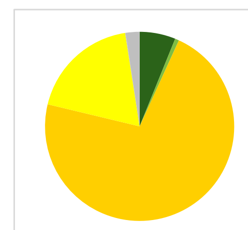
10. Little Rock Wash - Alpine Butte -

11. Alpine Butte-Edward -

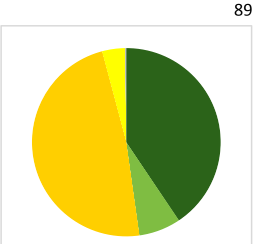
12. Big Rock Creek - Alpine Butte 288



13. Big Rock Wash 697



14. Devil's Punchbowl 89



15. Edwards - Saddleback -

16. El Mirage -

17. Mescal Creek -

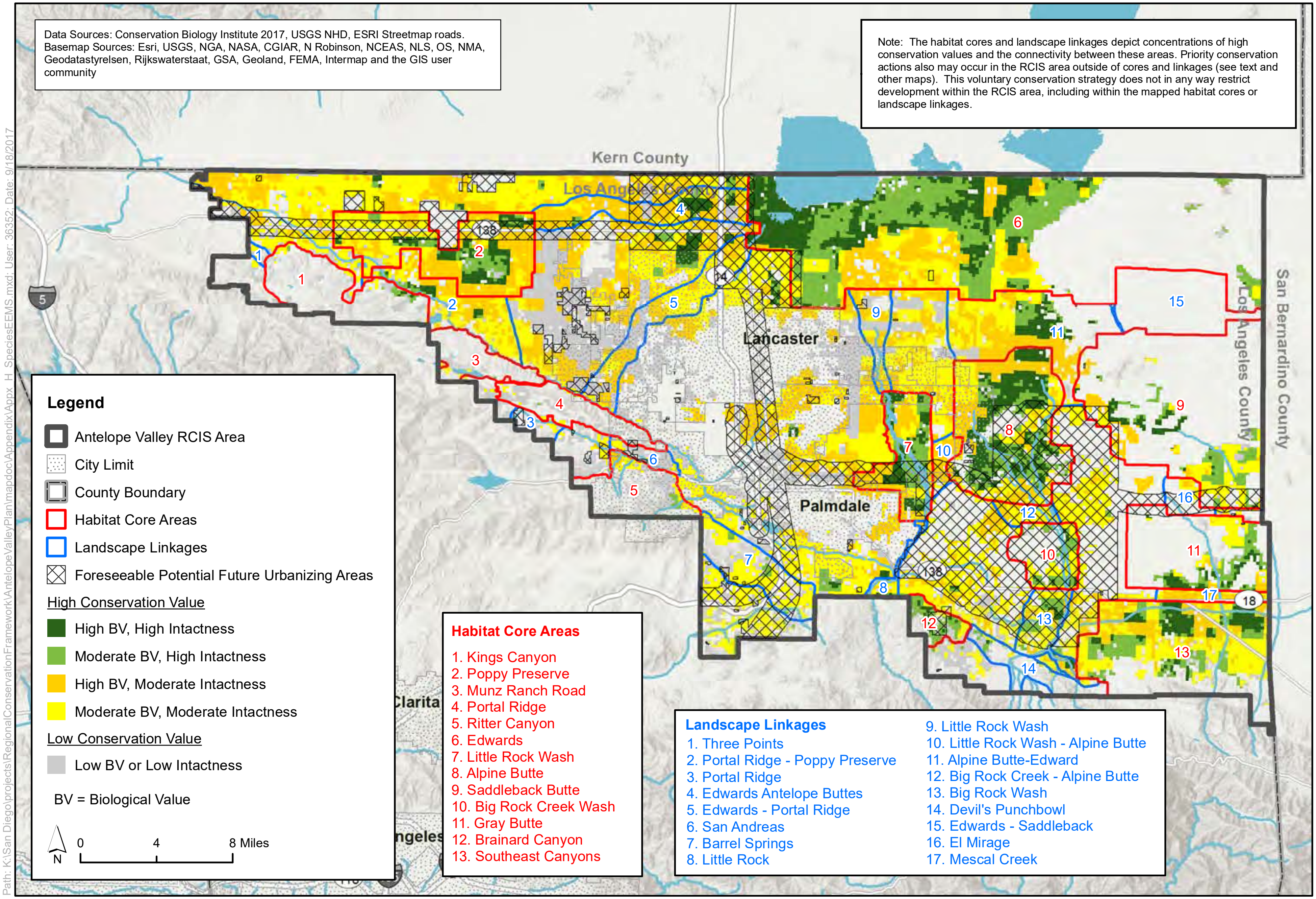



Figure H-15
Loggerhead Shrike High Conservation Value Habitat (Agriculture and Grassland Species Group)

## Loggerhead Shrike

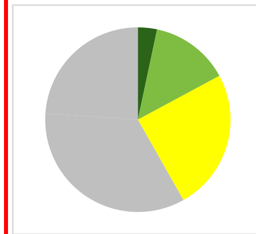
## Ag/Grassland

- High BV, High Intactness
- Moderate BV, High Intactness
- High BV, Moderate Intactness
- Moderate BV, Moderate Intactness
- Low BV or Low Intactness

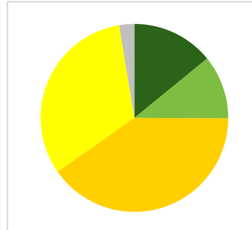
There are 157,168 acres (4.41%) of High Conservation Value habitat in Cores and 67,376 acres (2%) in Linkages. The total acreages, including all habitat conservation values, are shown with each graph. Proportions indicate the relative Biological Value and Intactness of that habitat.

### Habitat Cores

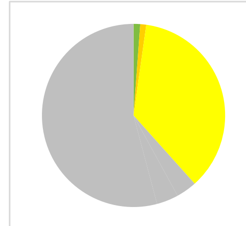
1. Kings Canyon 2,174



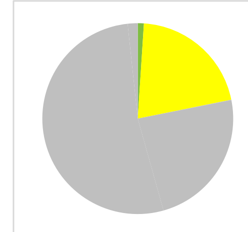
2. Poppy Preserve 20,669



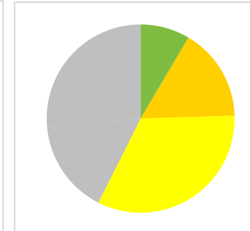
3. Munz Ranch Road 989



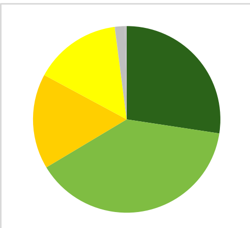
4. Portal Ridge 2,553



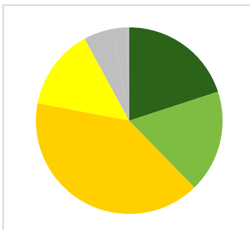
5. Ritter Canyon 2,512



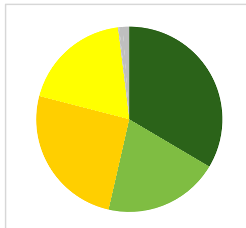
6. Edwards 57,213



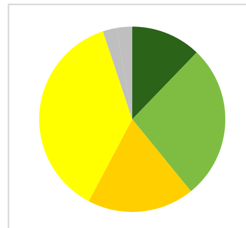
7. Little Rock Wash 14,005



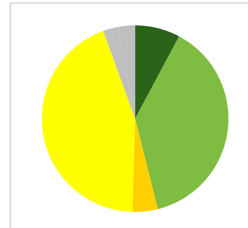
8. Alpine Butte 22,967



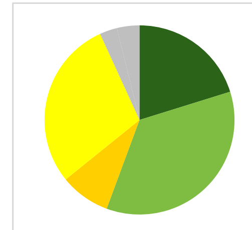
9. Saddleback Butte 10,112



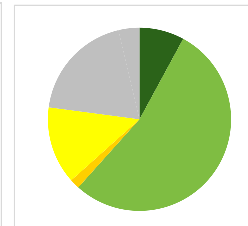
10. Big Rock Creek Wash 3,576



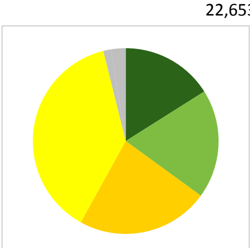
11. Gray Butte 5,851



12. Brainard Canyon 2,733

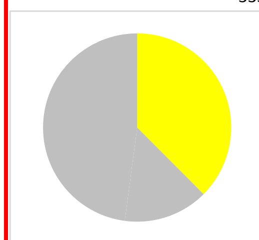


13. Southeast Canyons 22,653

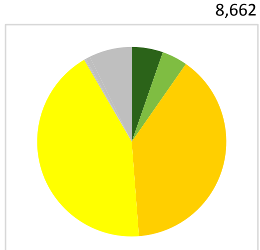


### Landscape Linkages

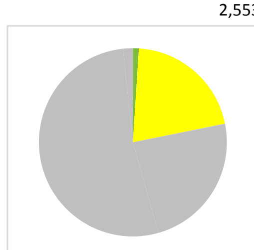
1. Three Points 333



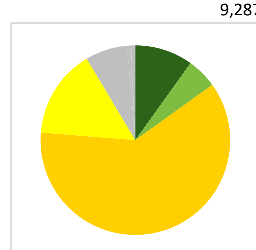
2. Portal Ridge to Poppy Preserve 8,662



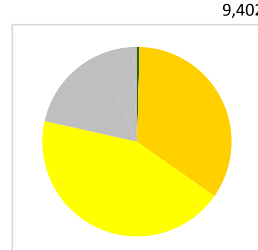
3. Portal Ridge 2,553



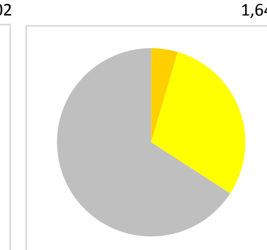
4. Edwards Antelope Buttes 9,287



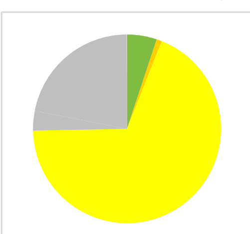
5. Edwards - Portal Ridge 9,402



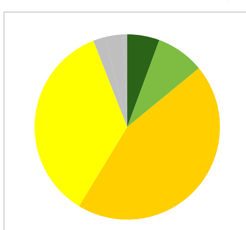
6. San Andreas 1,644



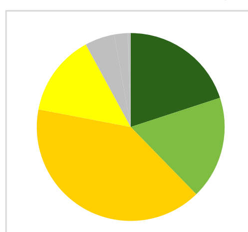
7. Barrel Springs 5,976



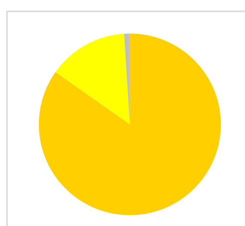
8. Little Rock 1,256



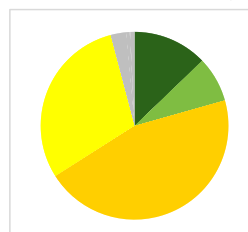
9. Little Rock Wash 14,005



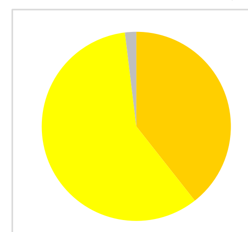
10. Little Rock Wash - Alpine Butte 1,696



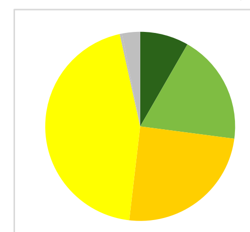
11. Alpine Butte-Edward 13,002



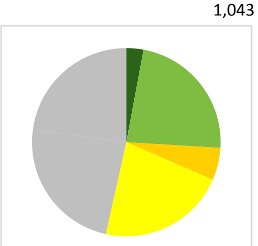
12. Big Rock Creek - Alpine Butte 1,890



13. Big Rock Wash 4,746



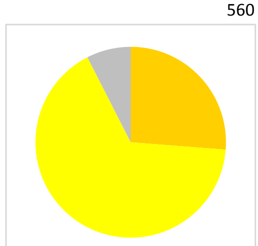
14. Devil's Punchbowl 1,043



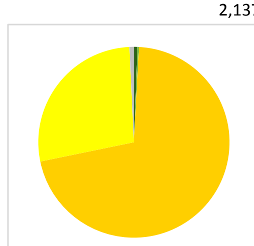
15. Edwards - Saddleback 10



16. El Mirage 560



17. Mescal Creek 2,137



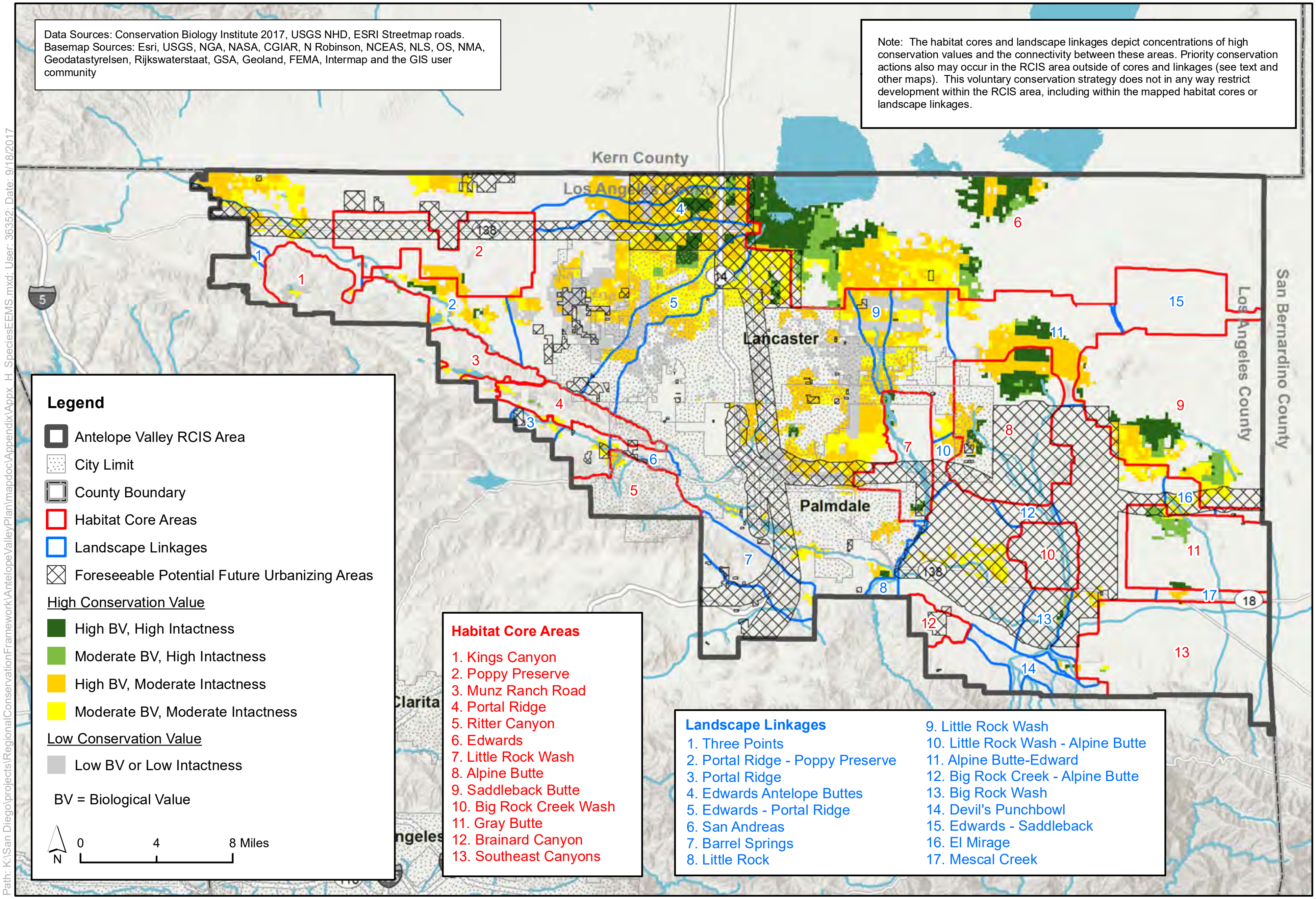





**Figure H-16**
**Long-Billed Curlew High Conservation Value Habitat (Agriculture and Grassland Species Group)**

**Long Billed Curlew**

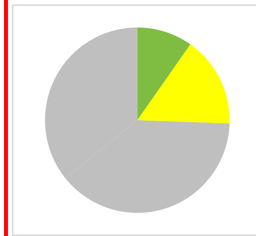
**Ag/Grassland**

- High BV, High Intactness
- Moderate BV, High Intactness
- High BV, Moderate Intactness
- Moderate BV, Moderate Intactness
- Low BV or Low Intactness

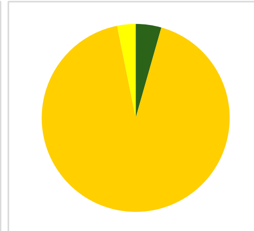
There are 52,408 acres (3.61%) of High Conservation Value habitat in Cores and 28,468 acres (2%) in Linkages. The total acreages, including all habitat conservation values, are shown with each graph. Proportions indicate the relative Biological Value and Intactness of that habitat.

## Habitat Cores

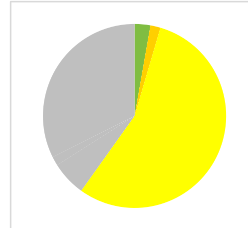
1. Kings Canyon
847



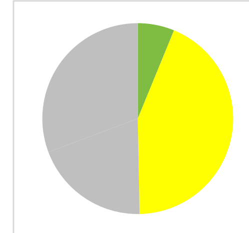
2. Poppy Preserve
1,209



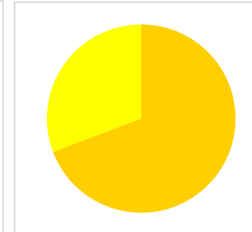
3. Munz Ranch Road
588



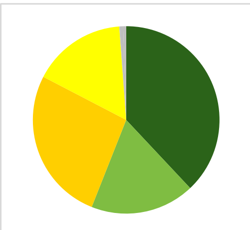
4. Portal Ridge
1,334



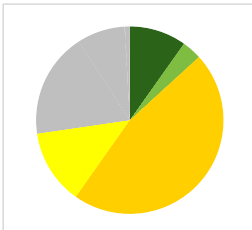
5. Ritter Canyon
422



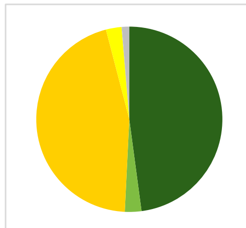
6. Edwards
29,035



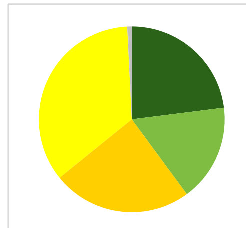
7. Little Rock Wash
5,182



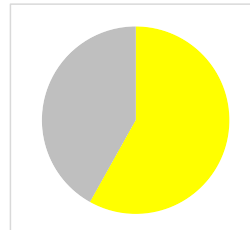
8. Alpine Butte
6,538



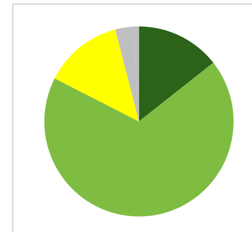
9. Saddleback Butte
8,804



10. Big Rock Creek Wash
7

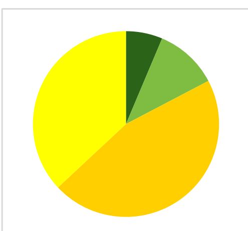


11. Gray Butte
1,746



12. Brainard Canyon
-

13. Southeast Canyons
223

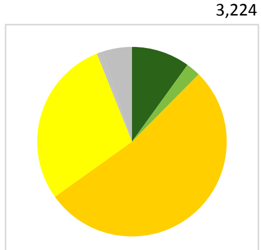


## Landscape Linkages

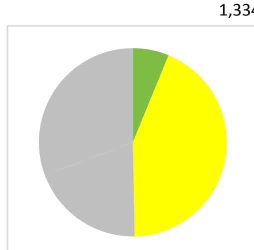
1. Three Points
2



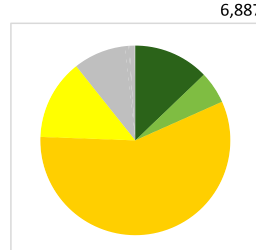
2. Portal Ridge to Poppy Preserve
3,224



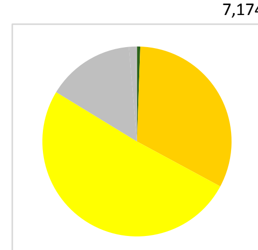
3. Portal Ridge
1,334



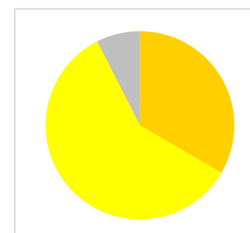
4. Edwards Antelope Buttes
6,887



5. Edwards - Portal Ridge
7,174



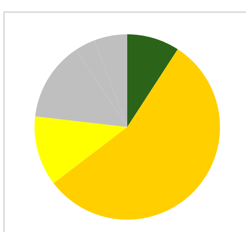
6. San Andreas
200



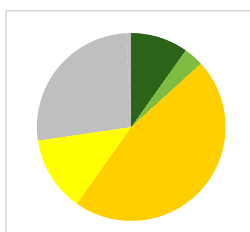
7. Barrel Springs
108



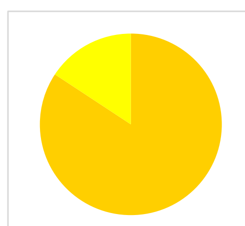
8. Little Rock
150



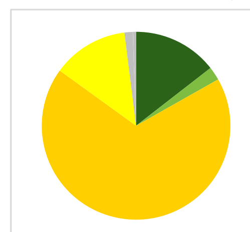
9. Little Rock Wash
5,182



10. Little Rock Wash - Alpine Butte
571

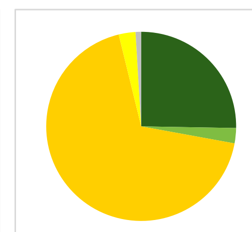


11. Alpine Butte-Edward
6,473

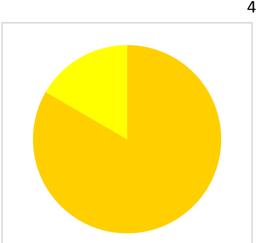


12. Big Rock Creek - Alpine Butte
-

13. Big Rock Wash
545

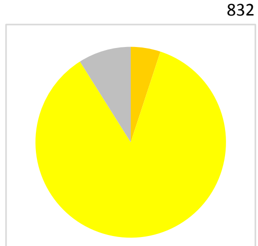


14. Devil's Punchbowl
4

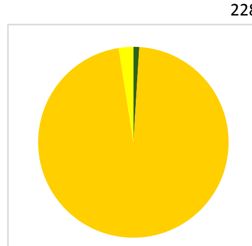


15. Edwards - Saddleback
-

16. El Mirage
832



17. Mescal Creek
228



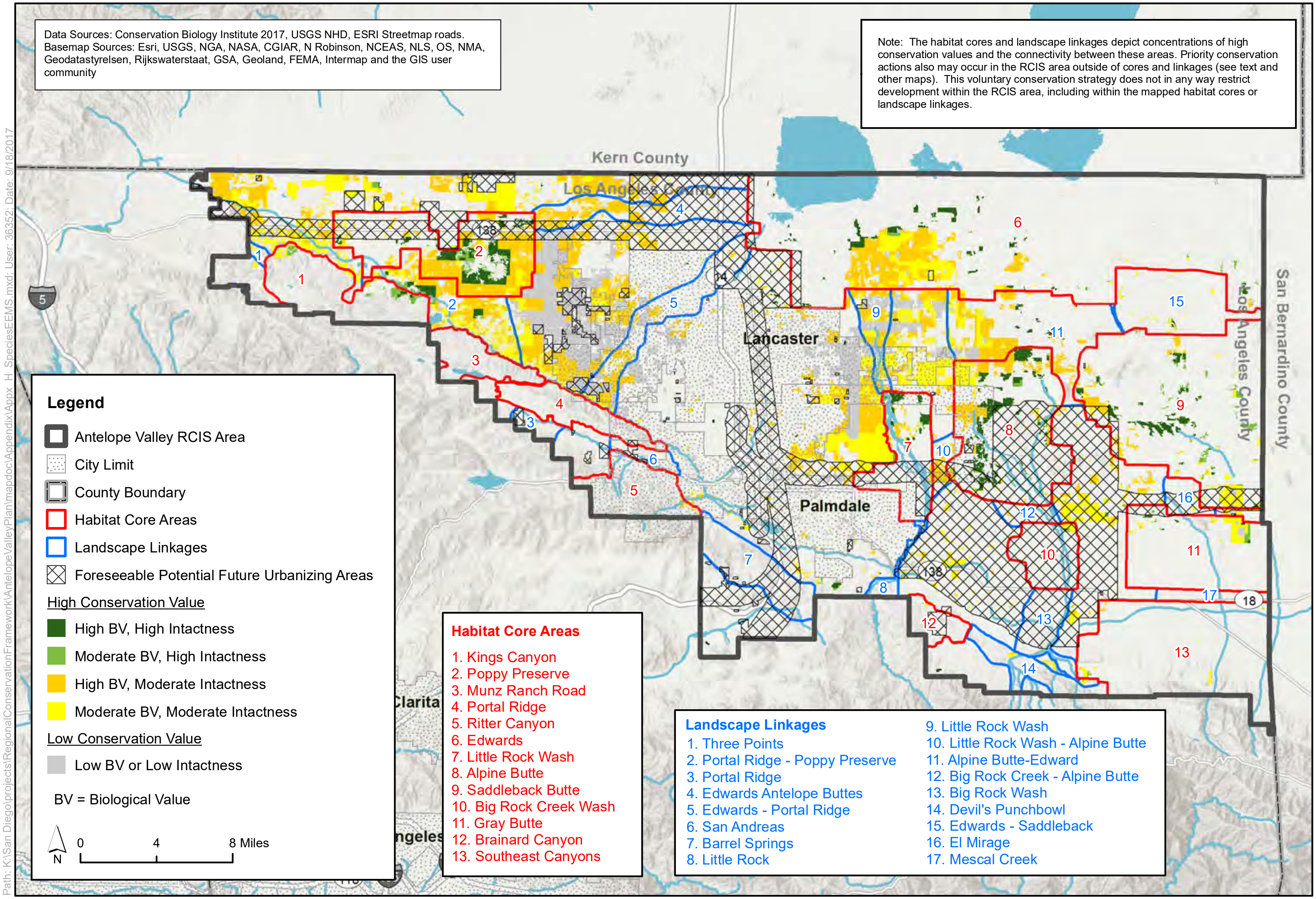



**Figure H-17**
**Mountain Plover High Conservation Value Habitat (Agriculture and Grassland Species Group)**

**Mountain Plover**

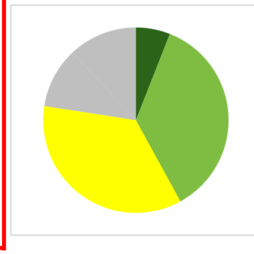
**Ag/Grassland**

- High BV, High Intactness
- Moderate BV, High Intactness
- High BV, Moderate Intactness
- Moderate BV, Moderate Intactness
- Low BV or Low Intactness

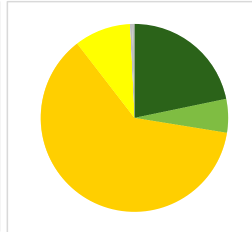
There are 37,455 acres (3.76%) of High Conservation Value habitat in Cores and 19,650 acres (2%) in Linkages. The total acreages, including all habitat conservation values, are shown with each graph. Proportions indicate the relative Biological Value and Intactness of that habitat.

## Habitat Cores

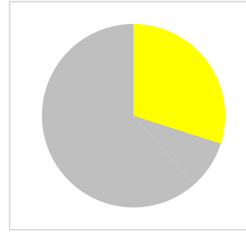
1. Kings Canyon 1,252



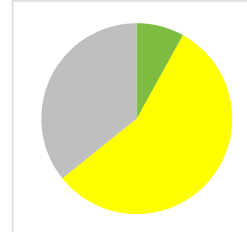
2. Poppy Preserve 9,979



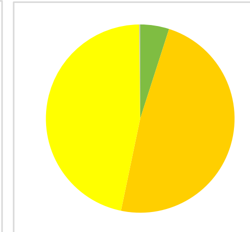
3. Munz Ranch Road 56



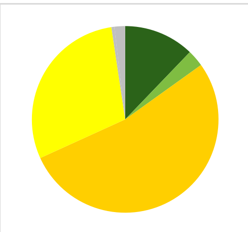
4. Portal Ridge 116



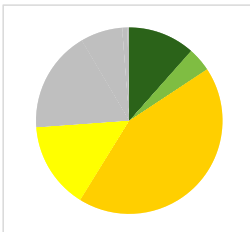
5. Ritter Canyon 127



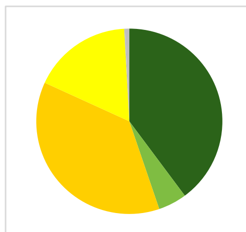
6. Edwards 10,623



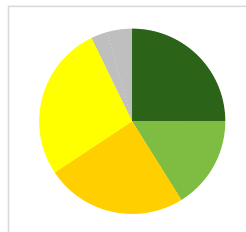
7. Little Rock Wash 4,813



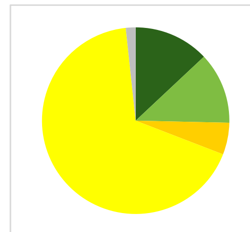
8. Alpine Butte 6,352



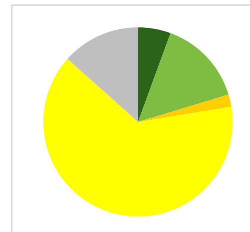
9. Saddleback Butte 4,980



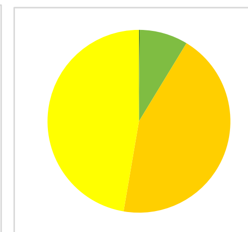
10. Big Rock Creek Wash 231



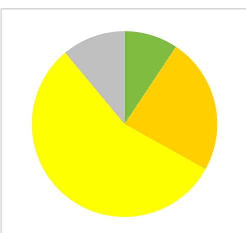
11. Gray Butte 1,164



12. Brainard Canyon 26

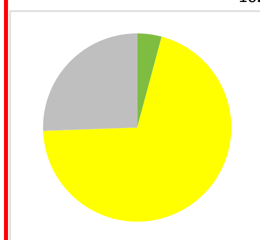


13. Southeast Canyons 293

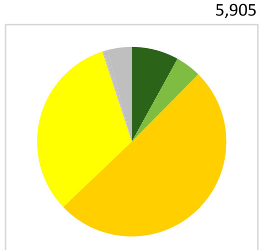


## Landscape Linkages

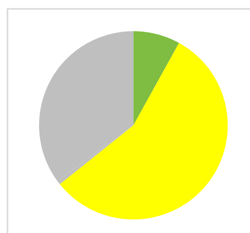
1. Three Points 102



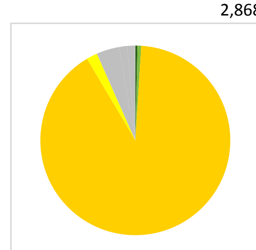
2. Portal Ridge to Poppy Preserve 5,905



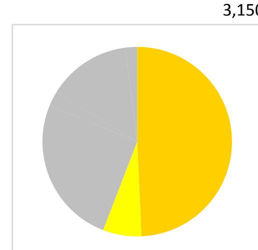
3. Portal Ridge 116



4. Edwards Antelope Buttes 2,868

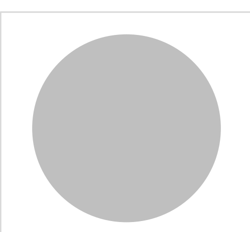


5. Edwards - Portal Ridge 3,150

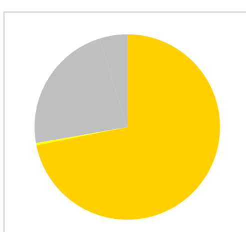


6. San Andreas -

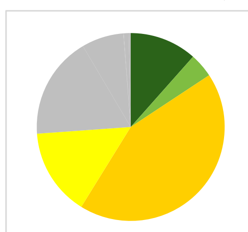
7. Barrel Springs 0



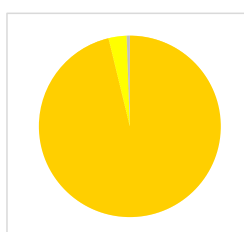
8. Little Rock 8



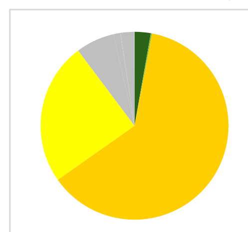
9. Little Rock Wash 4,813



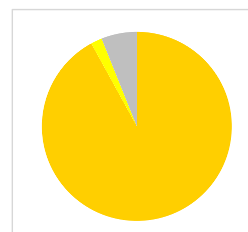
10. Little Rock Wash - Alpine Butte 826



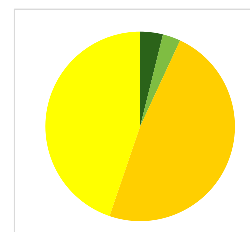
11. Alpine Butte-Edward 5,048



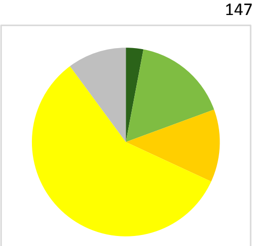
12. Big Rock Creek - Alpine Butte 29



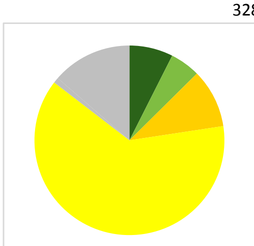
13. Big Rock Wash 26



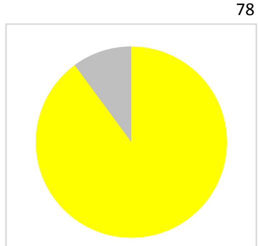
14. Devil's Punchbowl 147



15. Edwards - Saddleback 328



16. El Mirage 78



17. Mescal Creek 6

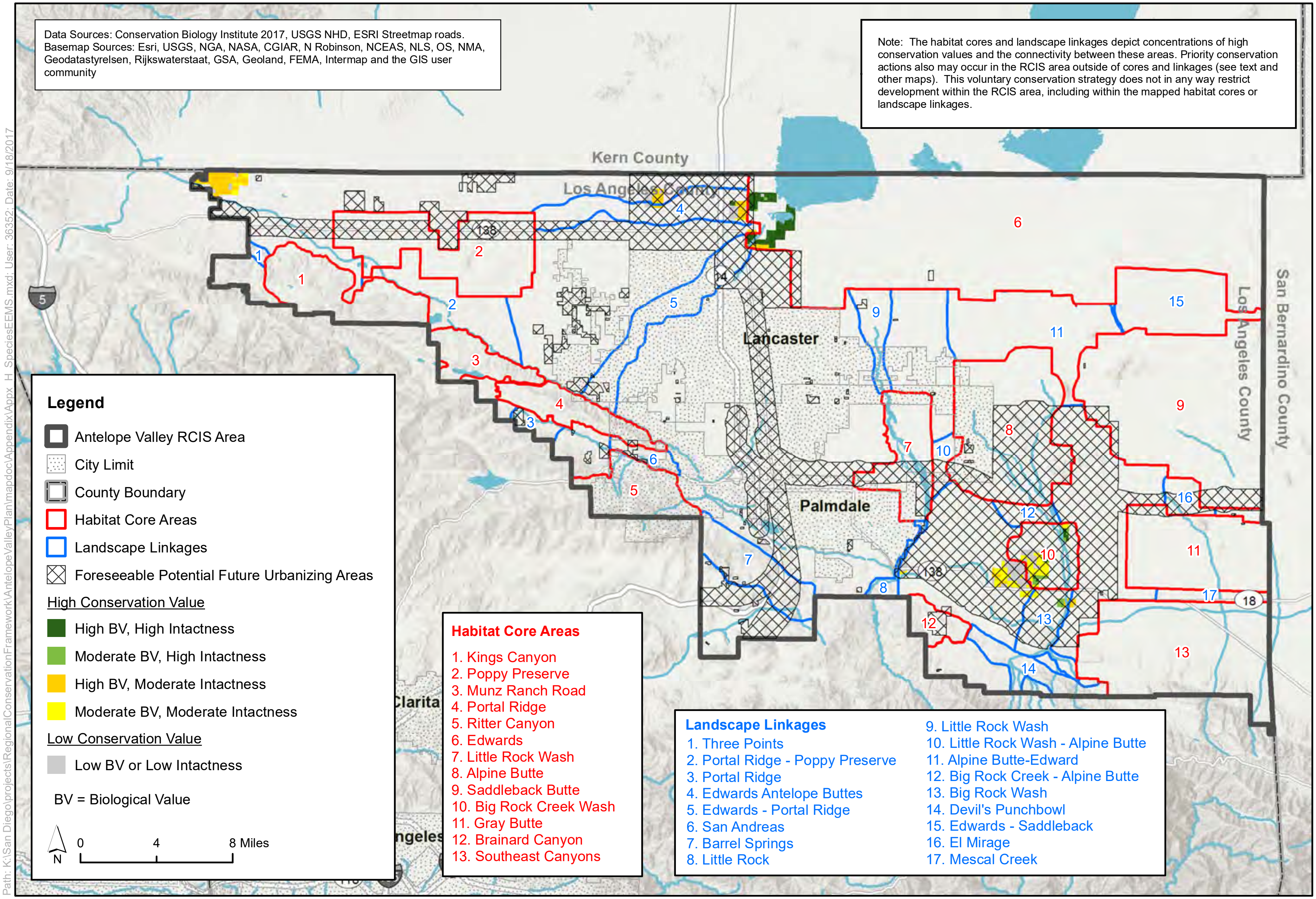



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**Figure H-18**
**Northern Harrier High Conservation Value Habitat (Agriculture and Grassland Species Group)**

## Northern Harrier



- High BV, High Intactness
- Moderate BV, High Intactness
- High BV, Moderate Intactness
- Moderate BV, Moderate Intactness
- Low BV or Low Intactness

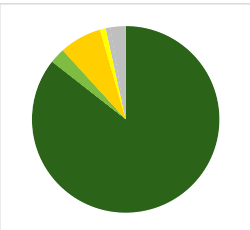
-

There are 3,514 acres (2.54%) of High Conservation Value habitat in Cores and 781 acres (1%) in Linkages. The total acreages, including all habitat conservation values, are shown with each graph. Proportions indicate the relative Biological Value and Intactness of that habitat.

### Habitat Cores

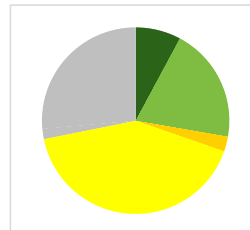
1. Kings Canyon -
2. Poppy Preserve -
3. Munz Ranch Road -
4. Portal Ridge -
5. Ritter Canyon -

6. Edwards 2,320



7. Little Rock Wash -
8. Alpine Butte -
9. Saddleback Butte -

10. Big Rock Creek Wash 1,773

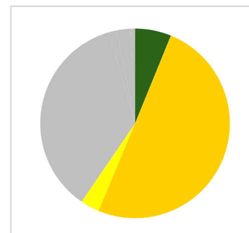


11. Gray Butte -
12. Brainard Canyon -
13. Southeast Canyons -

### Landscape Linkages

1. Three Points -
2. Portal Ridge to Poppy Preserve -
3. Portal Ridge -

4. Edwards Antelope Buttes 760

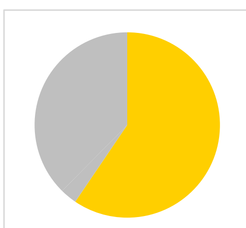


5. Edwards - Portal Ridge 5



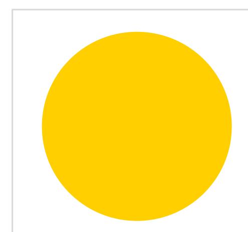
6. San Andreas -
7. Barrel Springs -

8. Little Rock 73

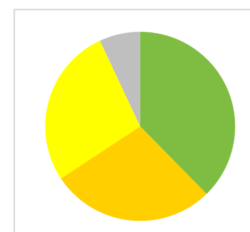


9. Little Rock Wash -
10. Little Rock Wash - Alpine Butte -
11. Alpine Butte-Edward -

12. Big Rock Creek - Alpine Butte 2



13. Big Rock Wash 298



14. Devil's Punchbowl -
15. Edwards - Saddleback -
16. El Mirage -
17. Mescal Creek -

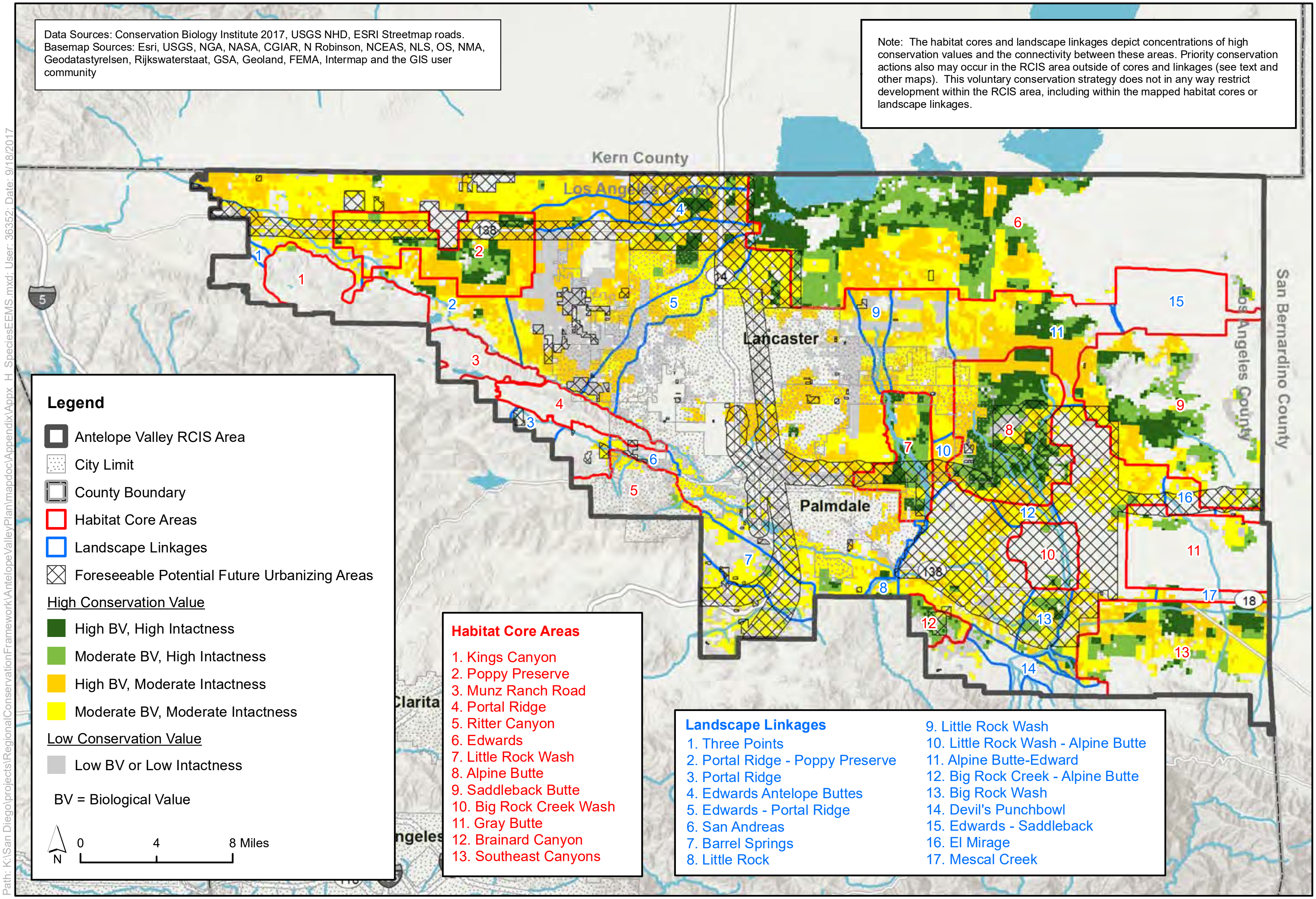



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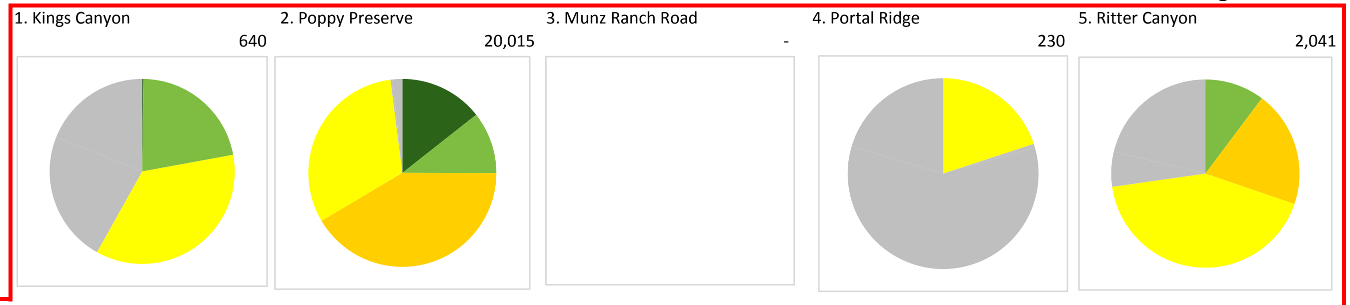
**Figure H-19**
**Prairie Falcon High Conservation Value Habitat (Agriculture and Grassland Species Group)**

**Prarie Falcon**

**Ag/Grassland**

- High BV, High Intactness
- Moderate BV, High Intactness
- High BV, Moderate Intactness
- Moderate BV, Moderate Intactness
- Low BV or Low Intactness

There are 151,773 acres (4.4%) of High Conservation Value habitat in Cores and 65,618 acres (2%) in Linkages. The total acreages, including all habitat conservation values, are shown with each graph. Proportions indicate the relative Biological Value and Intactness of that habitat.



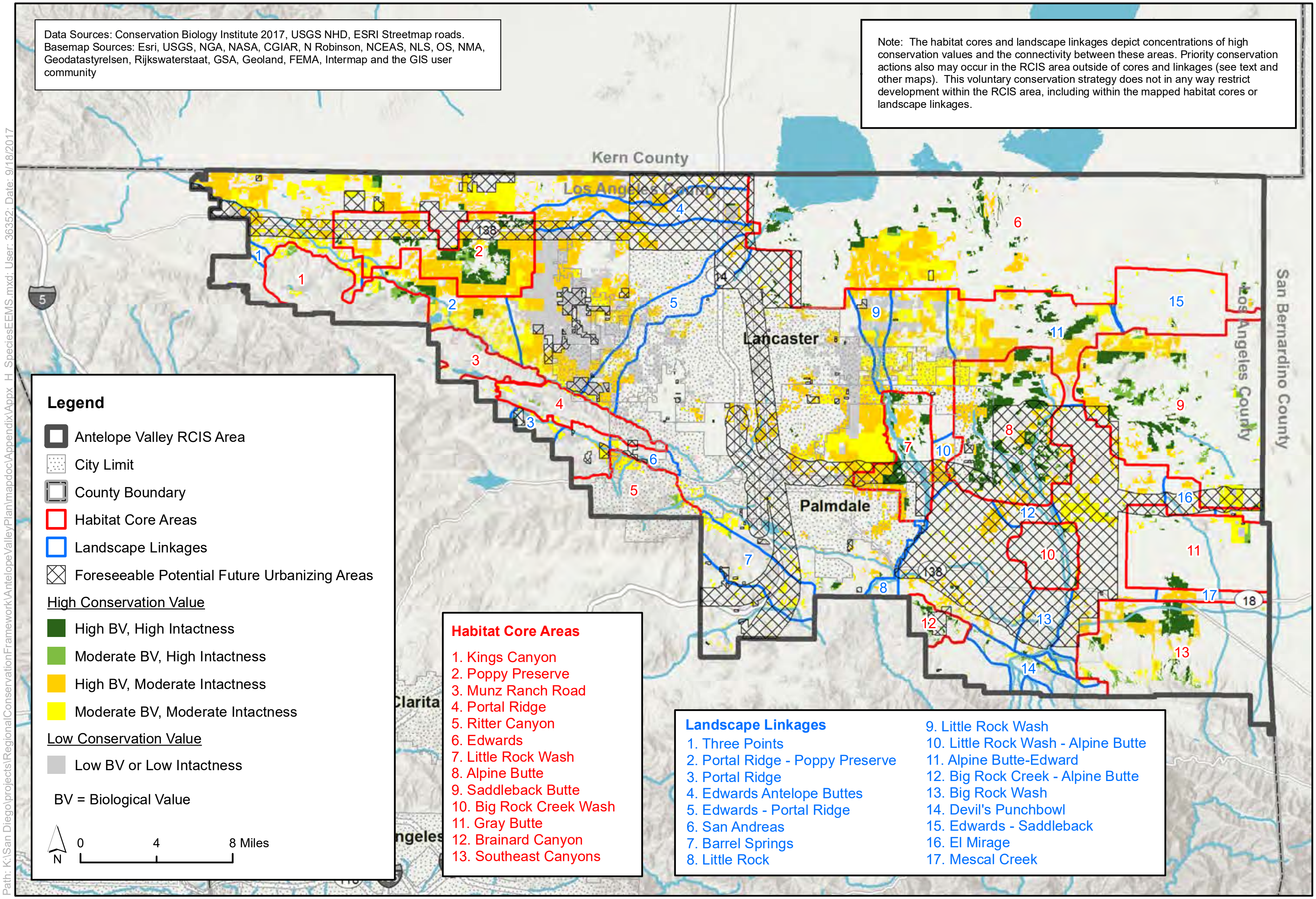





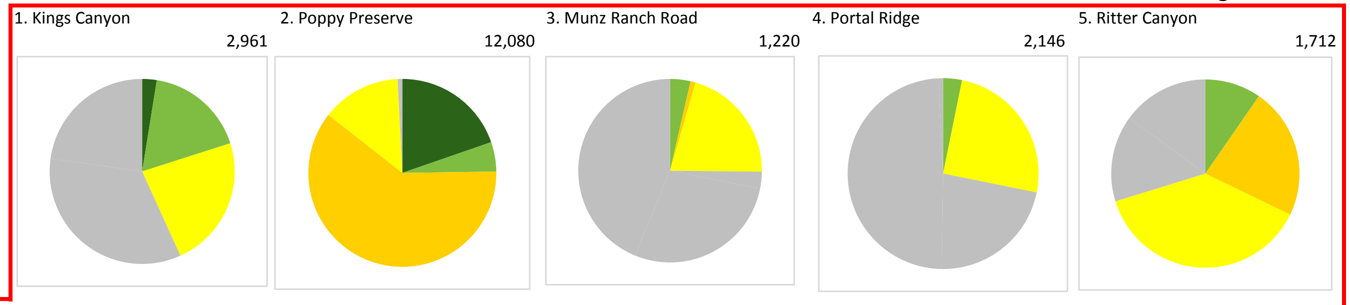

**Figure H-20**
**Swainson's Hawk High Conservation Value Habitat (Agriculture and Grassland Species Group)**

## Swainson's Hawk

**Ag/Grassland**

- High BV, High Intactness
- Moderate BV, High Intactness
- High BV, Moderate Intactness
- Moderate BV, Moderate Intactness
- Low BV or Low Intactness

There are 61,642 acres (3.97%) of High Conservation Value habitat in Cores and 29,701 acres (2%) in Linkages. The total acreages, including all habitat conservation values, are shown with each graph. Proportions indicate the relative Biological Value and Intactness of that habitat.



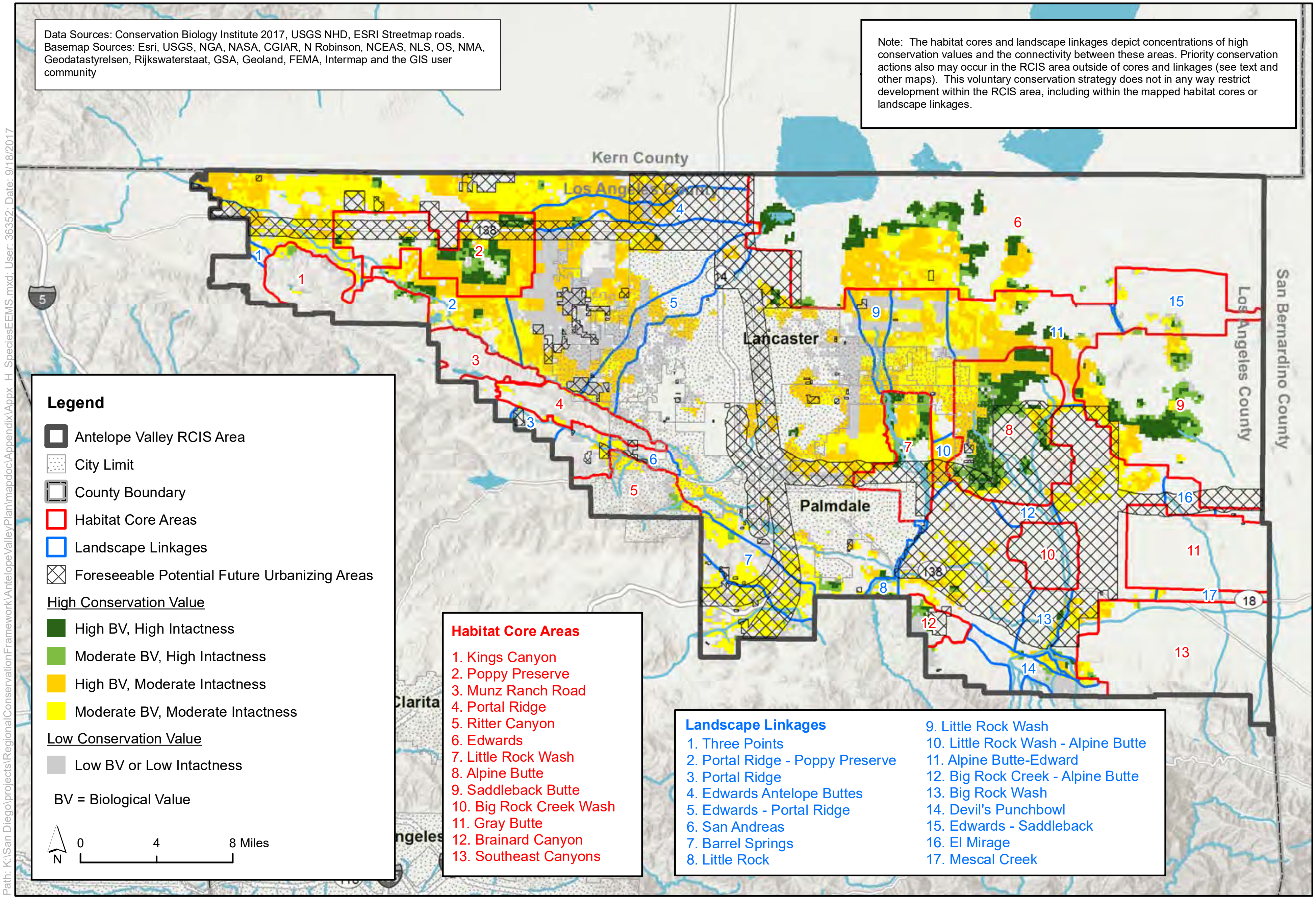




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**Figure H-21**
**Tri-colored Blackbird High Conservation Value Habitat (Agriculture and Grassland Species Group)**

**Tricolored Blackbird**

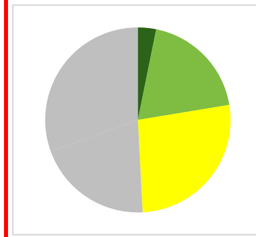
**Ag/Grassland**

- High BV, High Intactness
- Moderate BV, High Intactness
- High BV, Moderate Intactness
- Moderate BV, Moderate Intactness
- Low BV or Low Intactness

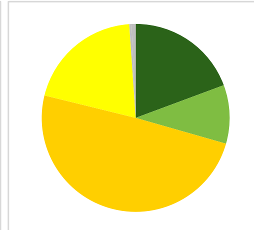
There are 74,620 acres (3.48%) of High Conservation Value habitat in Cores and 44,169 acres (2%) in Linkages. The total acreages, including all habitat conservation values, are shown with each graph. Proportions indicate the relative Biological Value and Intactness of that habitat.

## Habitat Cores

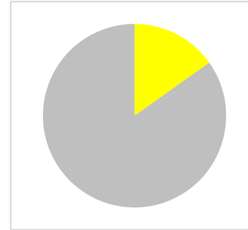
1. Kings Canyon 2,134



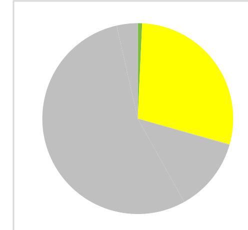
2. Poppy Preserve 14,521



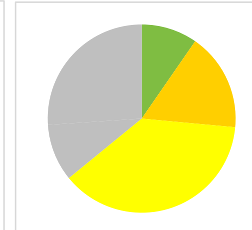
3. Munz Ranch Road 92



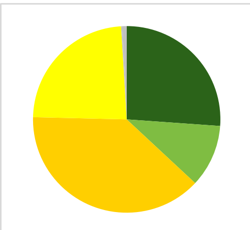
4. Portal Ridge 1,744



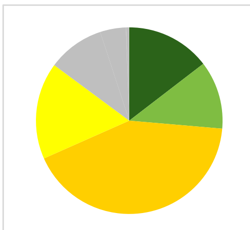
5. Ritter Canyon 2,428



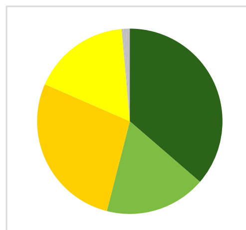
6. Edwards 21,308



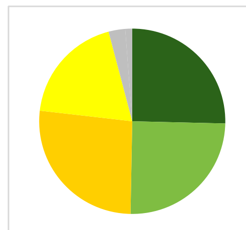
7. Little Rock Wash 9,569



8. Alpine Butte 16,134

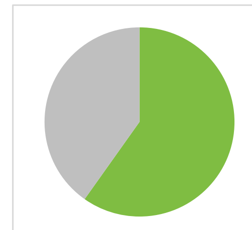


9. Saddleback Butte 10,708

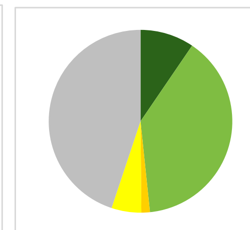


10. Big Rock Creek Wash -

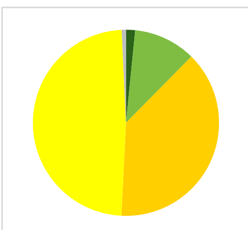
11. Gray Butte 19



12. Brainard Canyon 1,205

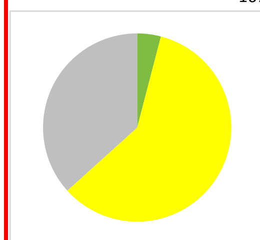


13. Southeast Canyons 1,033

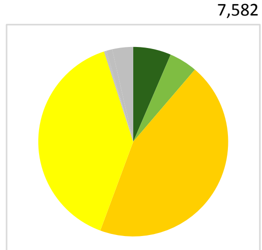


## Landscape Linkages

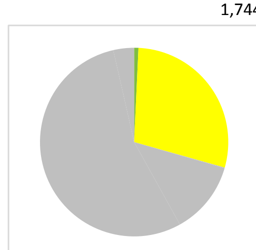
1. Three Points 167



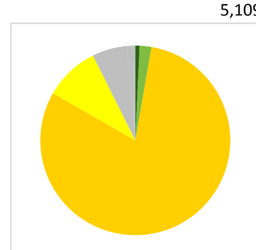
2. Portal Ridge to Poppy Preserve 7,582



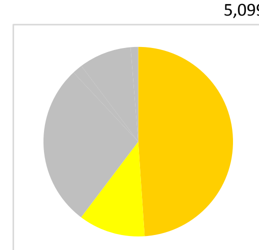
3. Portal Ridge 1,744



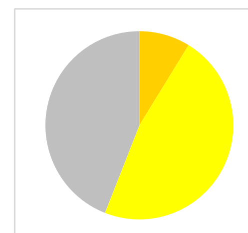
4. Edwards Antelope Buttes 5,109



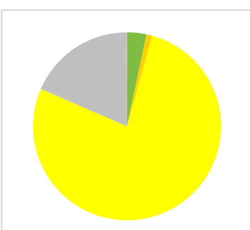
5. Edwards - Portal Ridge 5,099



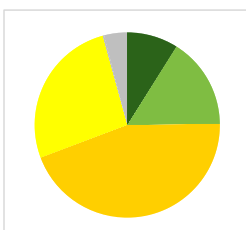
6. San Andreas 853



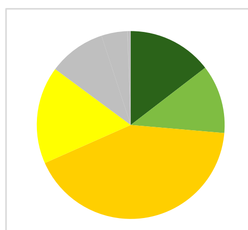
7. Barrel Springs 4,846



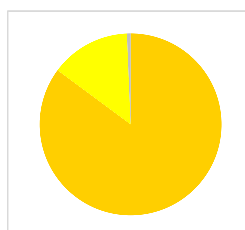
8. Little Rock 792



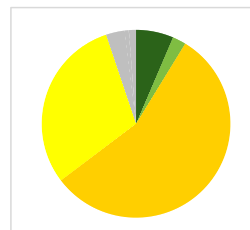
9. Little Rock Wash 9,569



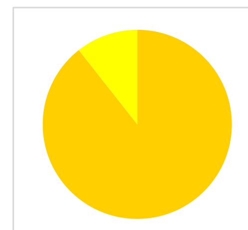
10. Little Rock Wash - Alpine Butte 1,734



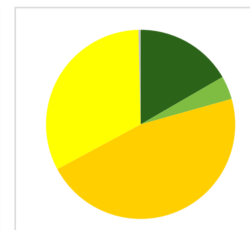
11. Alpine Butte-Edward 10,939



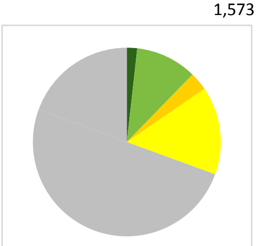
12. Big Rock Creek - Alpine Butte 70



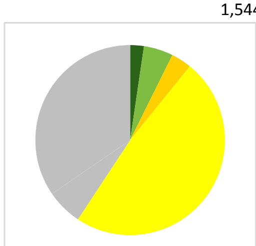
13. Big Rock Wash 1,500



14. Devil's Punchbowl 1,573

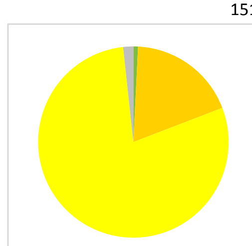


15. Edwards - Saddleback 1,544



16. El Mirage -

17. Mescal Creek 151



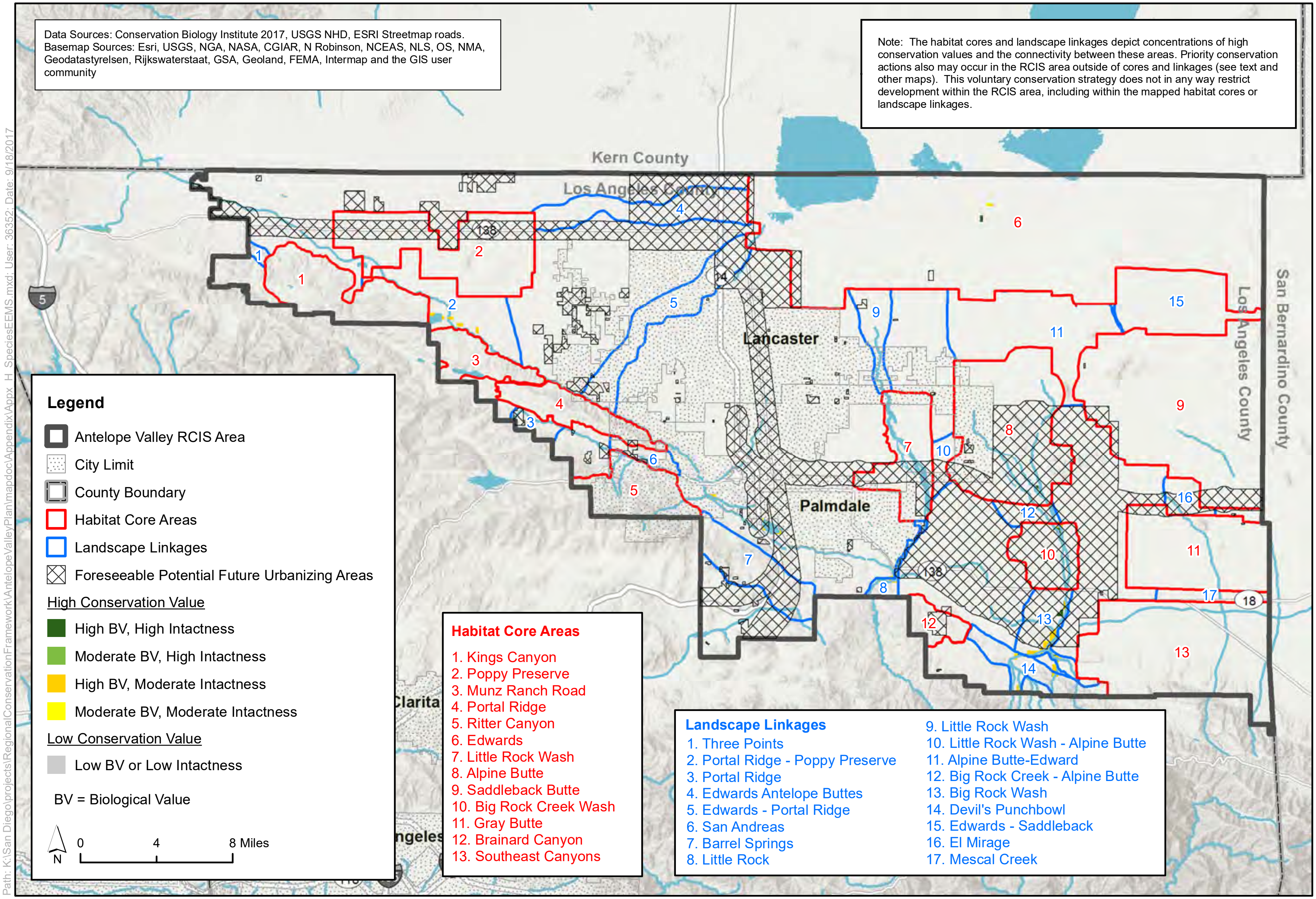



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**Figure H-22**
**WIllow Flycatcher High Conservation Value Habitat (Foothill and Riparian Species Group)**

**Willow Flycatcher**

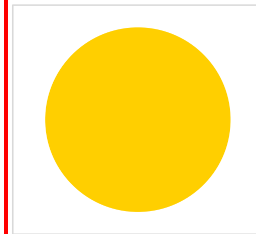


- High BV, High Intactness
- Moderate BV, High Intactness
- High BV, Moderate Intactness
- Moderate BV, Moderate Intactness
- Low BV or Low Intactness

There are 223 acres (0.88%) of High Conservation Value habitat in Cores and 1,317 acres (5%) in Linkages. The total acreages, including all habitat conservation values, are shown with each graph. Proportions indicate the relative Biological Value and Intactness of that habitat.

## Habitat Cores

1. Kings Canyon 1



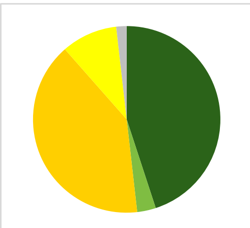
2. Poppy Preserve -

3. Munz Ranch Road -

4. Portal Ridge -

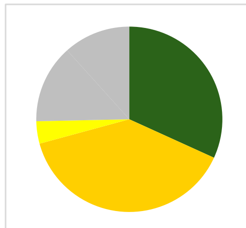
5. Ritter Canyon -

6. Edwards 72



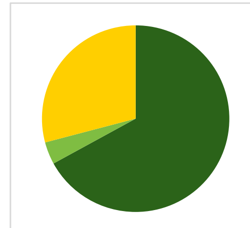
7. Little Rock Wash -

8. Alpine Butte 51



9. Saddleback Butte -

10. Big Rock Creek Wash 113



11. Gray Butte -

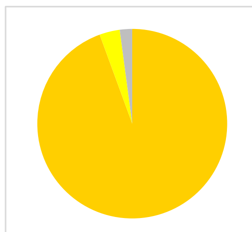
12. Brainard Canyon -

13. Southeast Canyons -

## Landscape Linkages

1. Three Points -

2. Portal Ridge to Poppy Preserve 306



3. Portal Ridge -

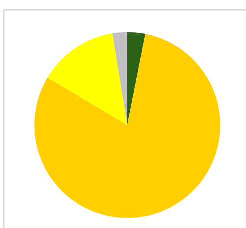
4. Edwards Antelope Buttes -

5. Edwards - Portal Ridge -

6. San Andreas -

7. Barrel Springs -

8. Little Rock 149

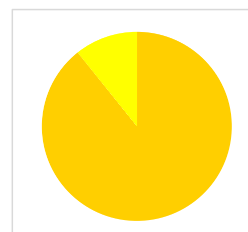


9. Little Rock Wash -

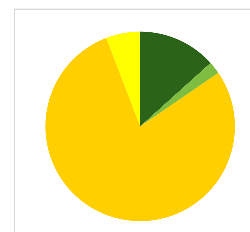
10. Little Rock Wash - Alpine Butte -

11. Alpine Butte-Edward -

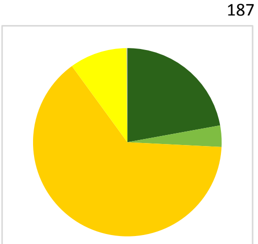
12. Big Rock Creek - Alpine Butte 60



13. Big Rock Wash 626



14. Devil's Punchbowl 187



15. Edwards - Saddleback -

16. El Mirage -

17. Mescal Creek -

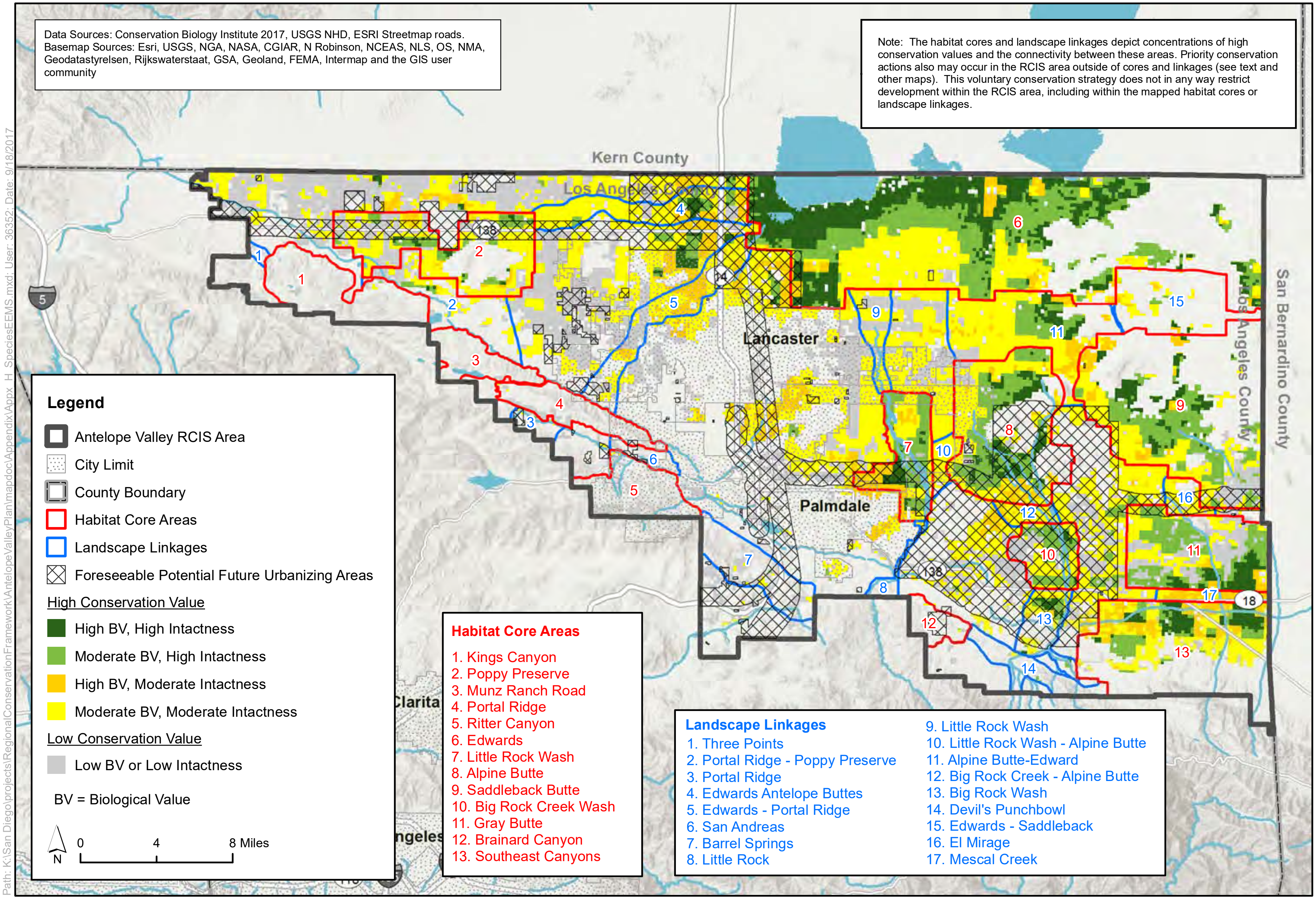




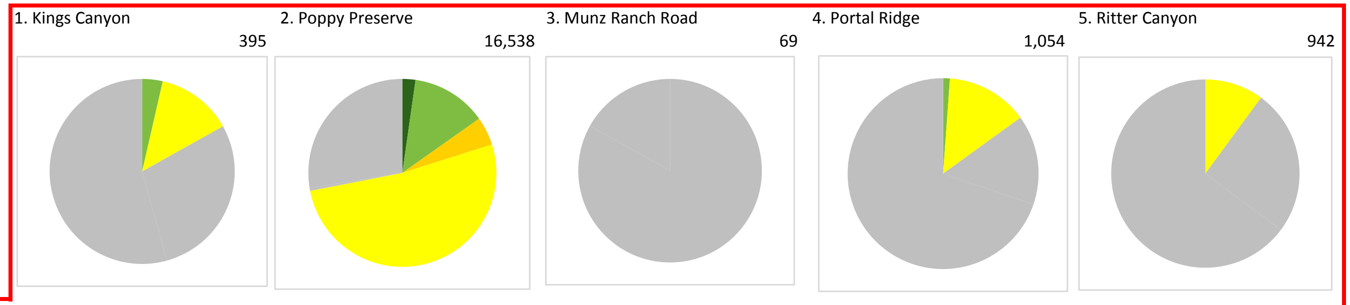

**Figure H-23a**
**American Badger High Conservation Value Habitat (Desert Species Group)**

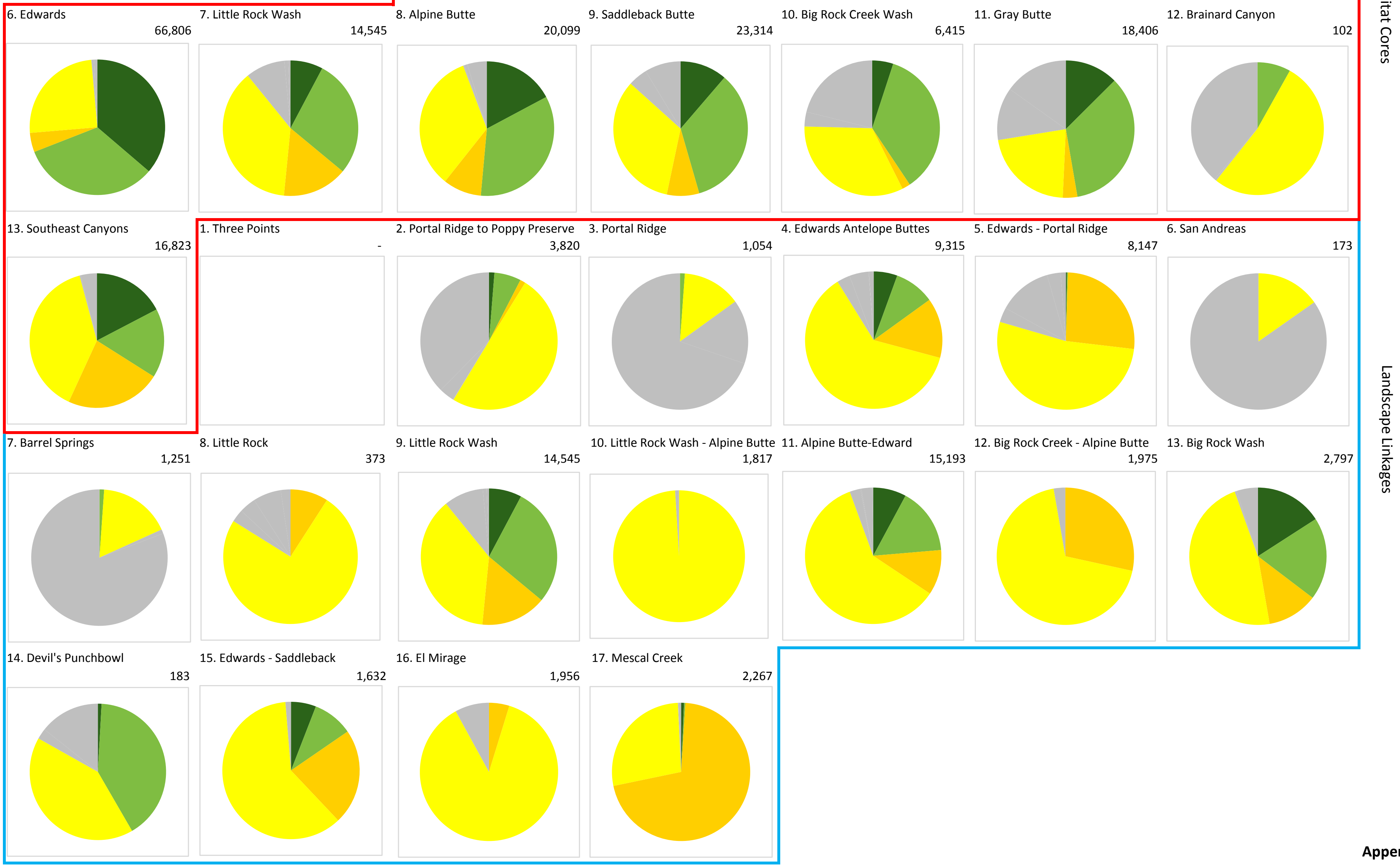
## American Badger

- High BV, High Intactness
- Moderate BV, High Intactness
- High BV, Moderate Intactness
- Moderate BV, Moderate Intactness
- Low BV or Low Intactness

There are 164,536 acres (5.54%) of High Conservation Value habitat in Cores and 57,422 acres (2%) in Linkages. The total acreages, including all habitat conservation values, are shown with each graph. Proportions indicate the relative Biological Value and Intactness of that habitat.

**Desert**



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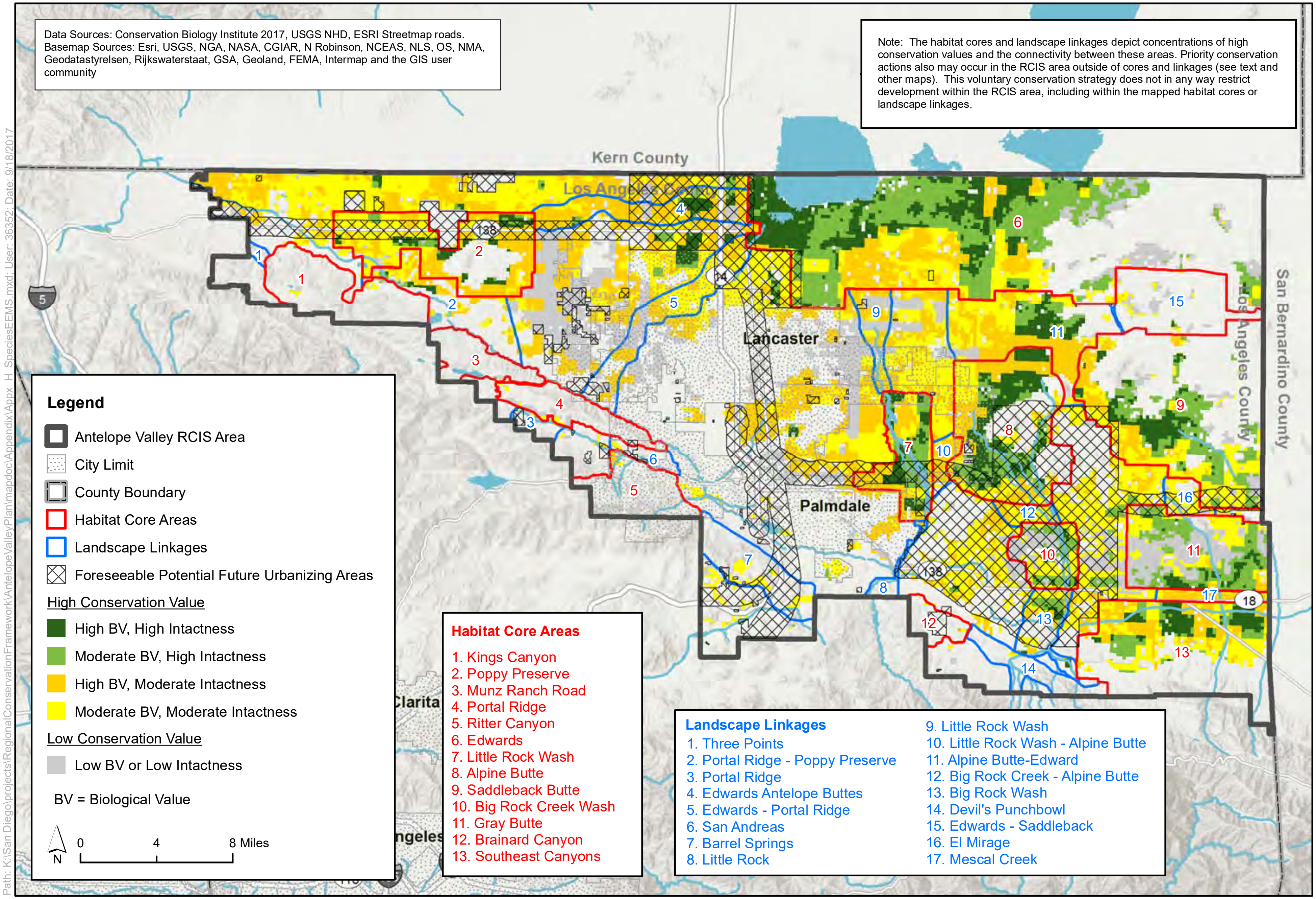



**Figure H-23b**
**American Badger High Conservation Value Habitat (Agriculture and Grassland Species Group)**

## American Badger

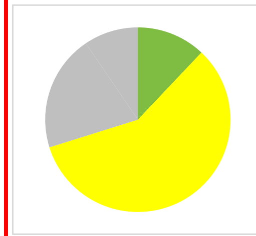
**Ag/Grassland**

- High BV, High Intactness
- Moderate BV, High Intactness
- High BV, Moderate Intactness
- Moderate BV, Moderate Intactness
- Low BV or Low Intactness

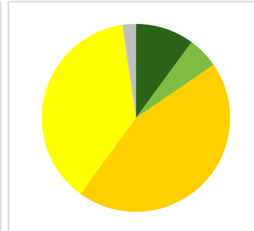
There are 164,456 acres (5.01%) of High Conservation Value habitat in Cores and 59,356 acres (2%) in Linkages. The total acreages, including all habitat conservation values, are shown with each graph. Proportions indicate the relative Biological Value and Intactness of that habitat.

### Habitat Cores

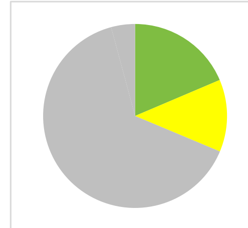
1. Kings Canyon 395



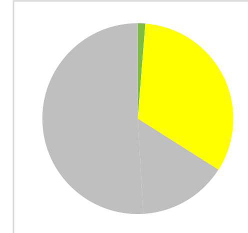
2. Poppy Preserve 16,538



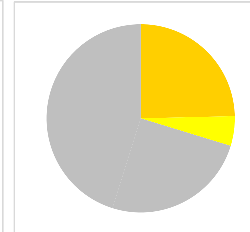
3. Munz Ranch Road 69



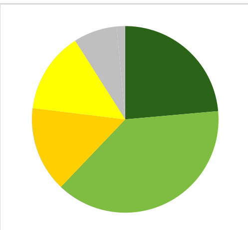
4. Portal Ridge 1,054



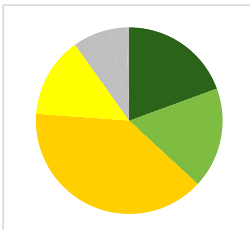
5. Ritter Canyon 942



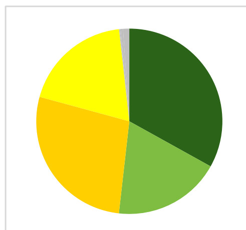
6. Edwards 66,806



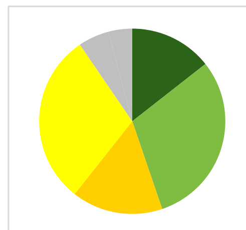
7. Little Rock Wash 14,545



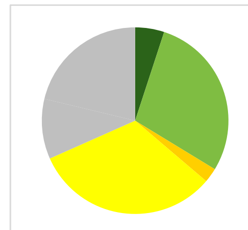
8. Alpine Butte 20,099



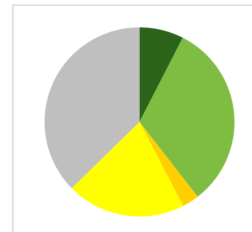
9. Saddleback Butte 23,314



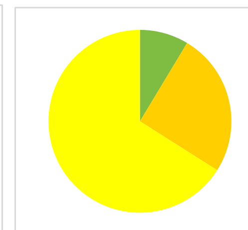
10. Big Rock Creek Wash 6,415



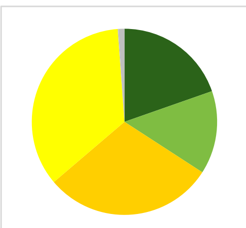
11. Gray Butte 18,406



12. Brainard Canyon 102



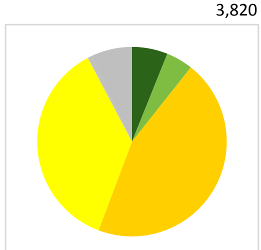
13. Southeast Canyons 16,823



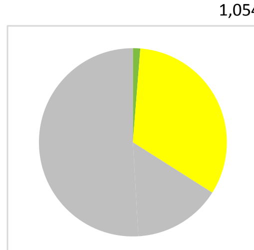
### Landscape Linkages

1. Three Points -

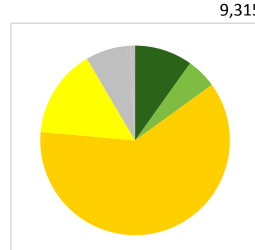
2. Portal Ridge to Poppy Preserve 3,820



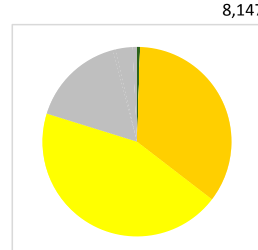
3. Portal Ridge 1,054



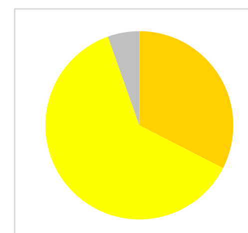
4. Edwards Antelope Buttes 9,315



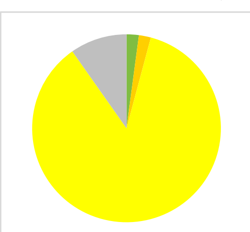
5. Edwards - Portal Ridge 8,147



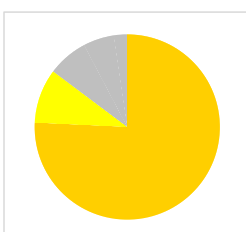
6. San Andreas 173



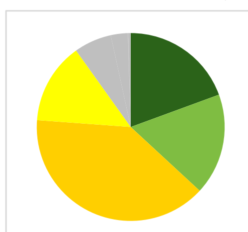
7. Barrel Springs 1,251



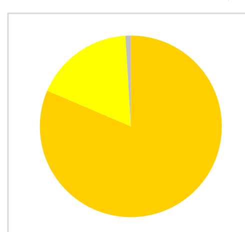
8. Little Rock 373



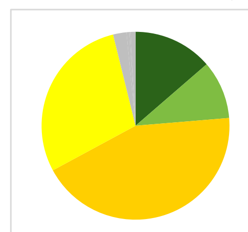
9. Little Rock Wash 14,545



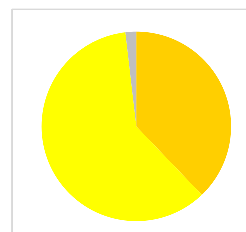
10. Little Rock Wash - Alpine Butte 1,817



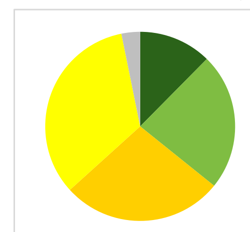
11. Alpine Butte-Edward 15,193



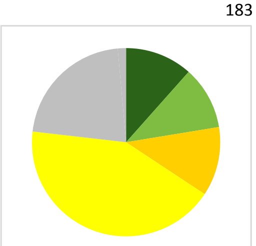
12. Big Rock Creek - Alpine Butte 1,975



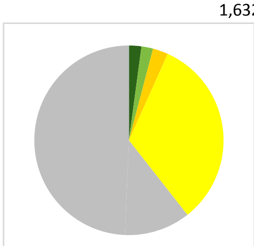
13. Big Rock Wash 2,797



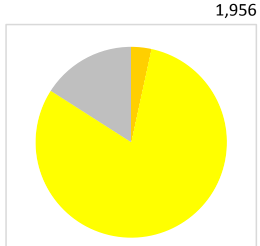
14. Devil's Punchbowl 183



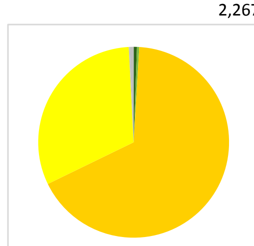
15. Edwards - Saddleback 1,632



16. El Mirage 1,956



17. Mescal Creek 2,267



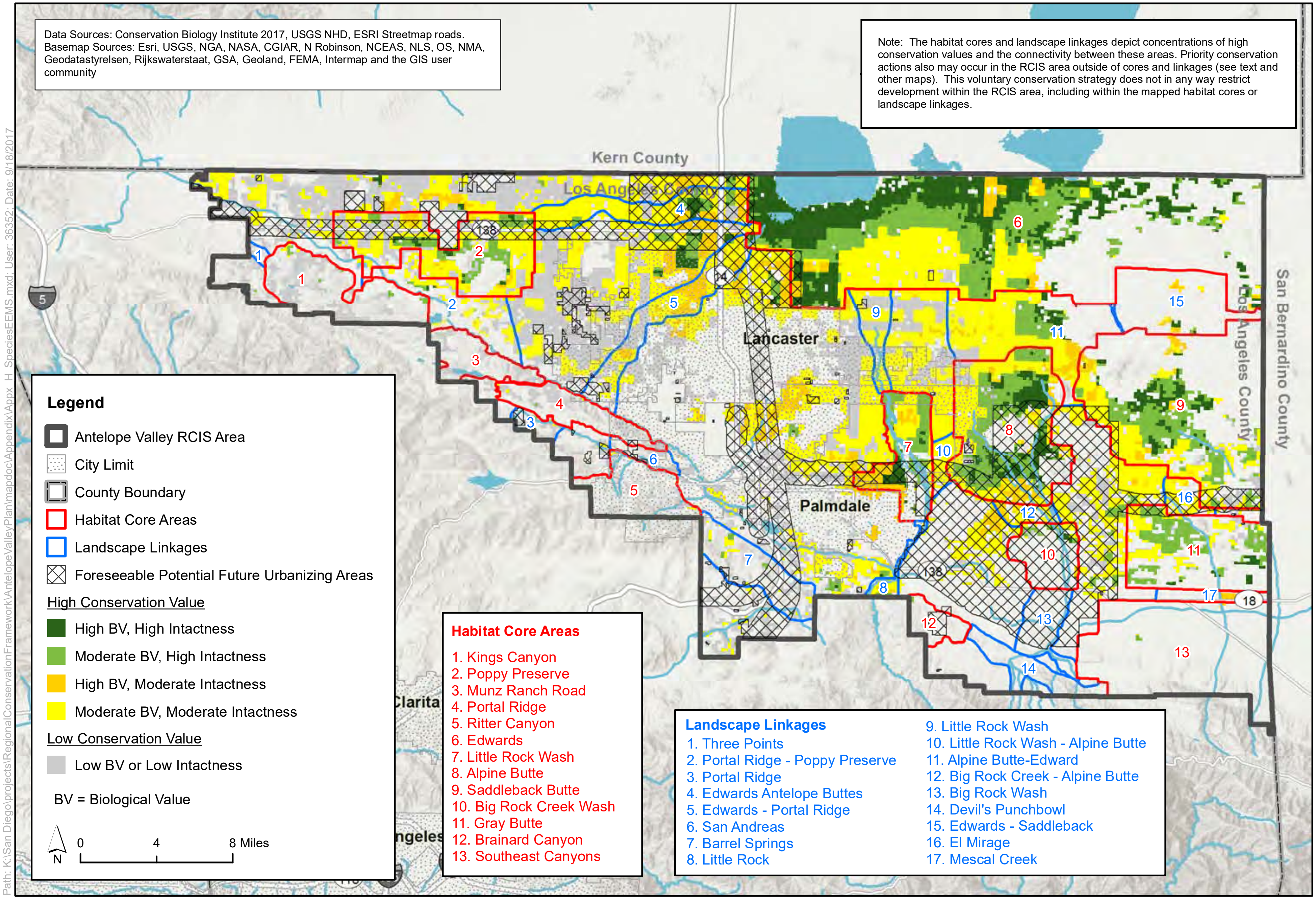



**Figure H-24a**
**Desert Kit Fox High Conservation Value Habitat (Desert Species Group)**

## Desert Kit Fox

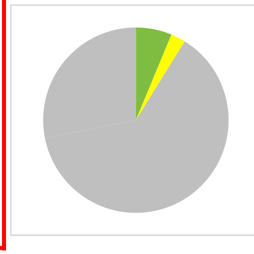
**Desert**

- High BV, High Intactness
- Moderate BV, High Intactness
- High BV, Moderate Intactness
- Moderate BV, Moderate Intactness
- Low BV or Low Intactness

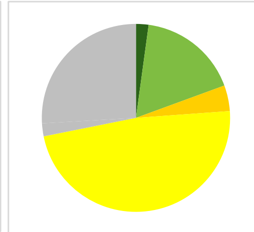
There are 134,499 acres (5.11%) of High Conservation Value habitat in Cores and 48,339 acres (2%) in Linkages. The total acreages, including all habitat conservation values, are shown with each graph. Proportions indicate the relative Biological Value and Intactness of that habitat.

### Habitat Cores

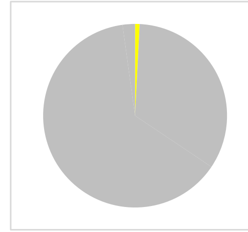
1. Kings Canyon — 3,670



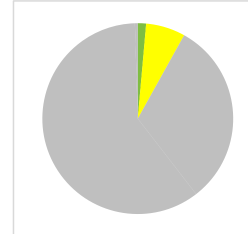
2. Poppy Preserve — 17,667



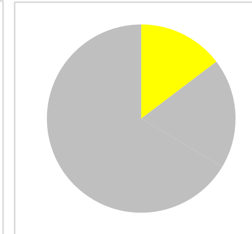
3. Munz Ranch Road — 1,642



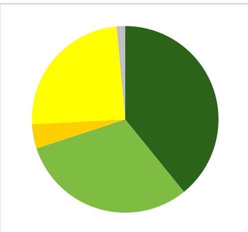
4. Portal Ridge — 2,476



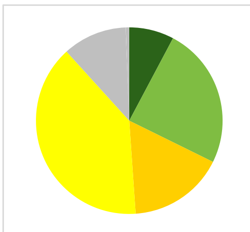
5. Ritter Canyon — 876



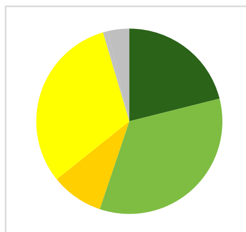
6. Edwards — 63,062



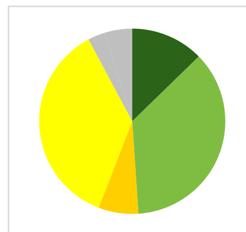
7. Little Rock Wash — 12,339



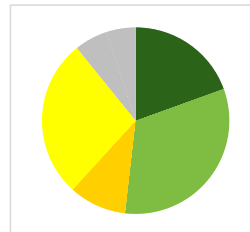
8. Alpine Butte — 21,762



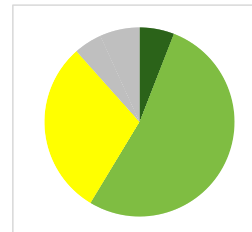
9. Saddleback Butte — 19,946



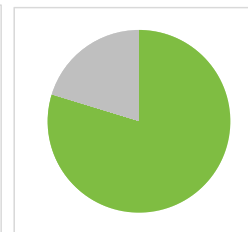
10. Big Rock Creek Wash — 1,242



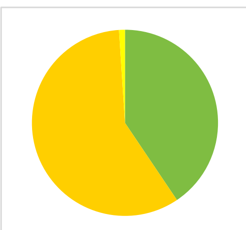
11. Gray Butte — 8,704



12. Brainard Canyon — 45

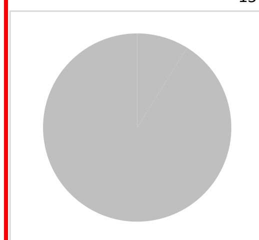


13. Southeast Canyons — 120

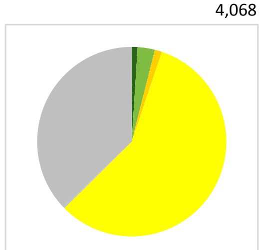


### Landscape Linkages

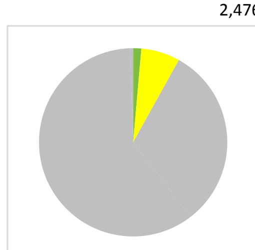
1. Three Points — 154



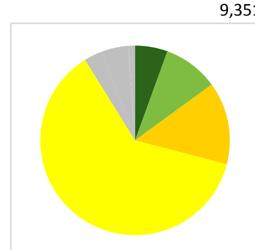
2. Portal Ridge to Poppy Preserve — 4,068



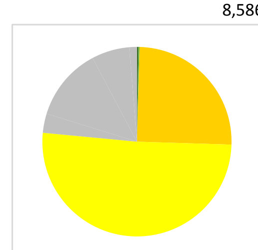
3. Portal Ridge — 2,476



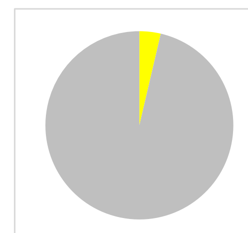
4. Edwards Antelope Buttes — 9,351



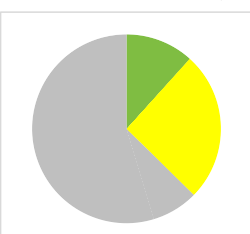
5. Edwards - Portal Ridge — 8,586



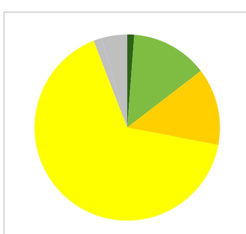
6. San Andreas — 708



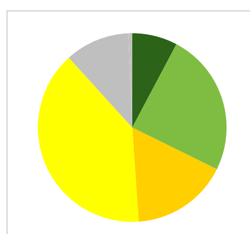
7. Barrel Springs — 1,633



8. Little Rock — 899



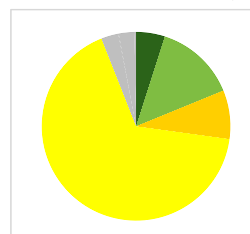
9. Little Rock Wash — 12,339



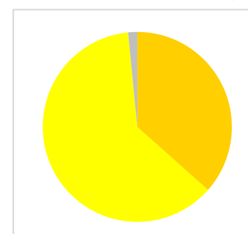
10. Little Rock Wash - Alpine Butte — 1,769



11. Alpine Butte-Edward — 13,223



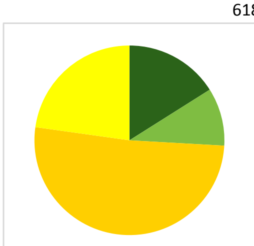
12. Big Rock Creek - Alpine Butte — 1,440



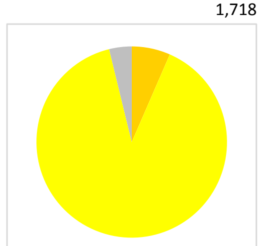
13. Big Rock Wash — -

14. Devil's Punchbowl — -

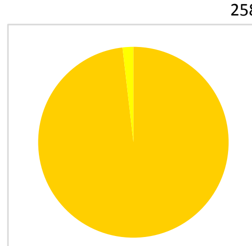
15. Edwards - Saddleback — 618



16. El Mirage — 1,718



17. Mescal Creek — 258



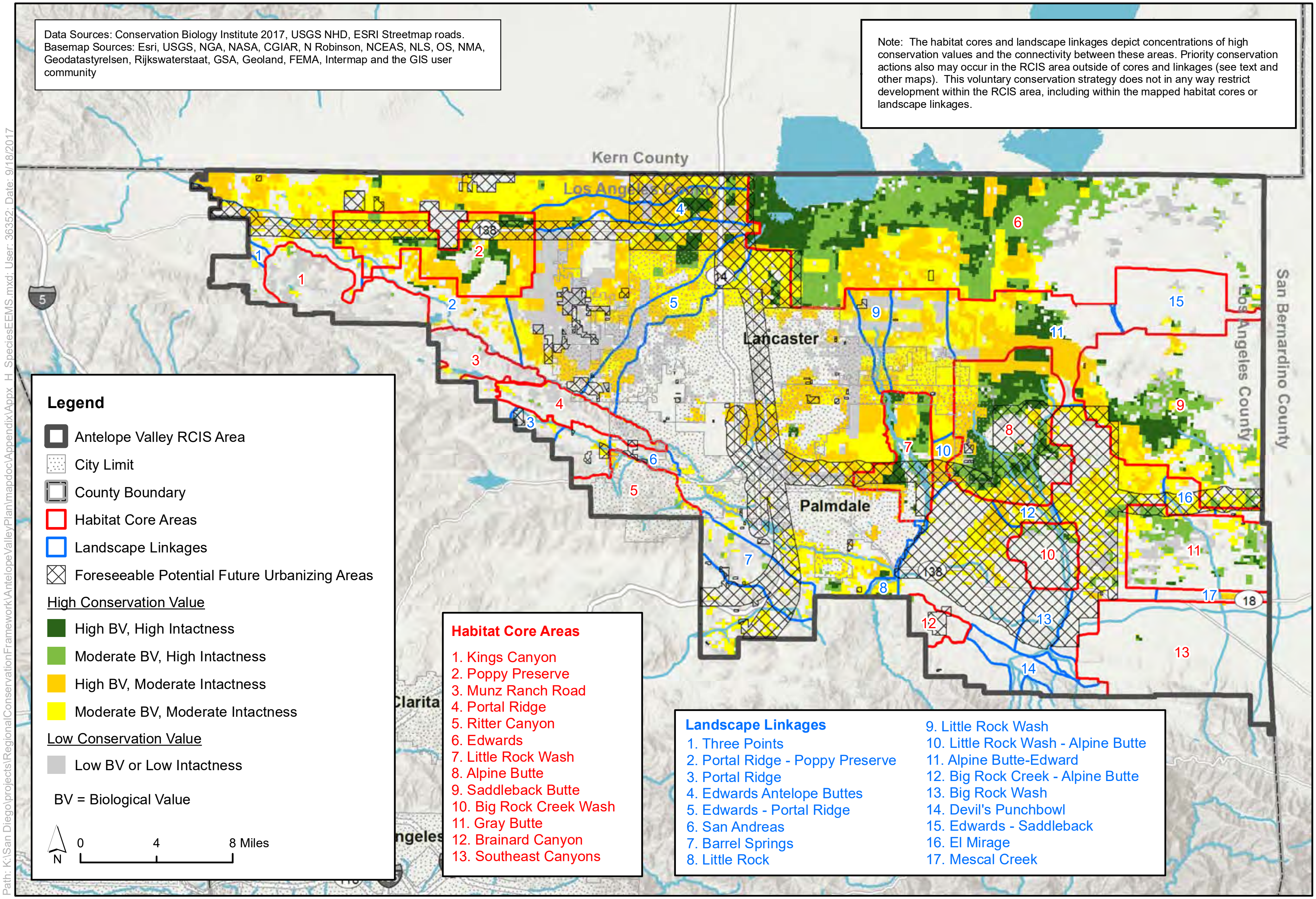



**Figure H-24b**
**Desert Kit Fox High Conservation Value Habitat (Agriculture and Grassland Species Group)**

## Desert Kit Fox

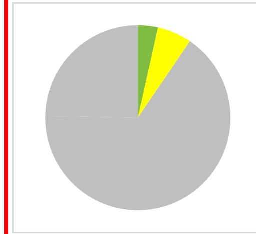
**Ag/Grassland**

- High BV, High Intactness
- Moderate BV, High Intactness
- High BV, Moderate Intactness
- Moderate BV, Moderate Intactness
- Low BV or Low Intactness

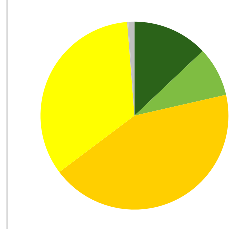
There are 134,961 acres (4.5%) of High Conservation Value habitat in Cores and 51,296 acres (2%) in Linkages. The total acreages, including all habitat conservation values, are shown with each graph. Proportions indicate the relative Biological Value and Intactness of that habitat.

### Habitat Cores

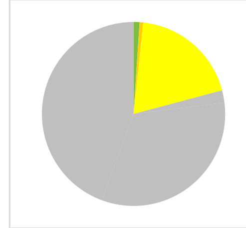
1. Kings Canyon 3,670



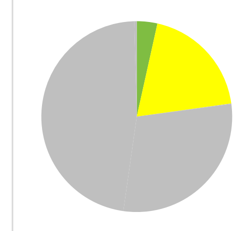
2. Poppy Preserve 17,667



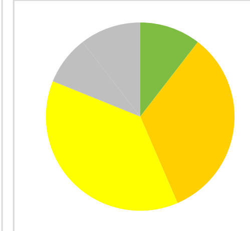
3. Munz Ranch Road 1,642



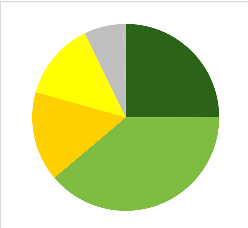
4. Portal Ridge 2,476



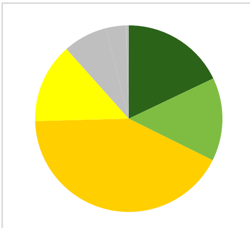
5. Ritter Canyon 876



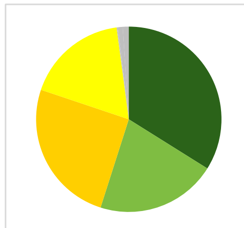
6. Edwards 63,062



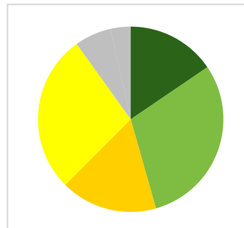
7. Little Rock Wash 12,339



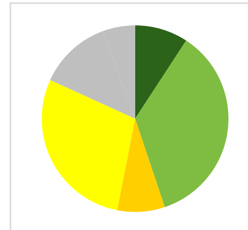
8. Alpine Butte 21,762



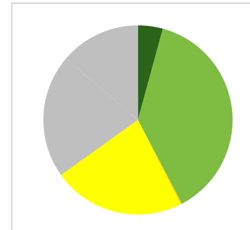
9. Saddleback Butte 19,946



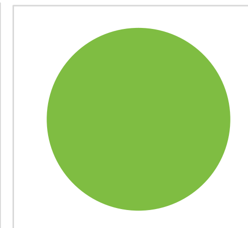
10. Big Rock Creek Wash 1,242



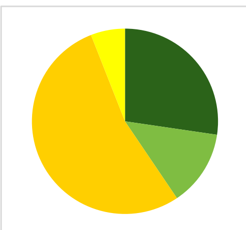
11. Gray Butte 8,704



12. Brainard Canyon 45

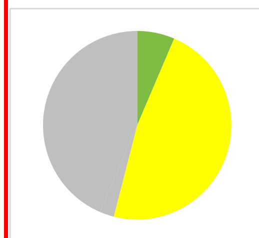


13. Southeast Canyons 120

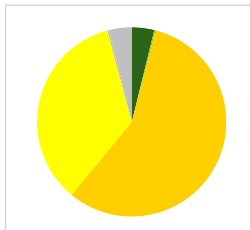


### Landscape Linkages

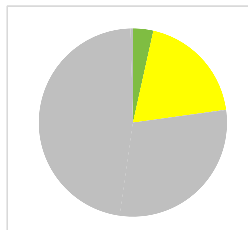
1. Three Points 154



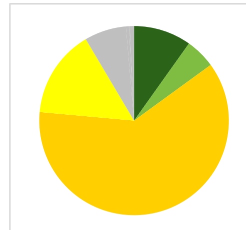
2. Portal Ridge to Poppy Preserve 4,068



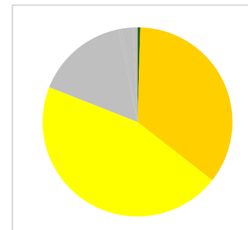
3. Portal Ridge 2,476



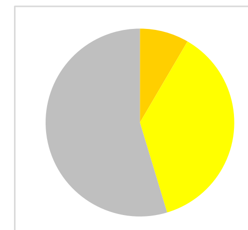
4. Edwards Antelope Buttes 9,351



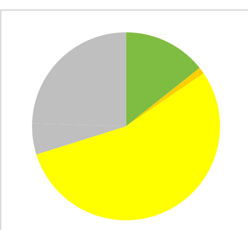
5. Edwards - Portal Ridge 8,586



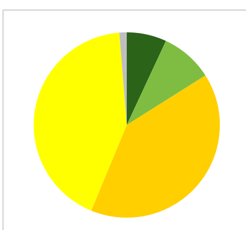
6. San Andreas 708



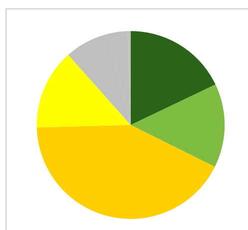
7. Barrel Springs 1,633



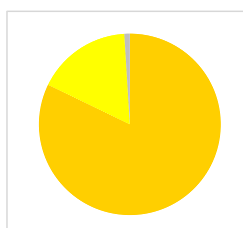
8. Little Rock 899



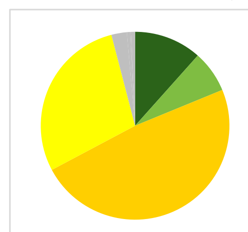
9. Little Rock Wash 12,339



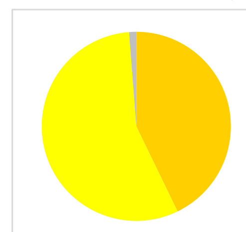
10. Little Rock Wash - Alpine Butte 1,769



11. Alpine Butte-Edward 13,223



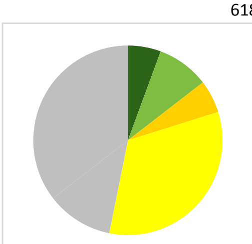
12. Big Rock Creek - Alpine Butte 1,440



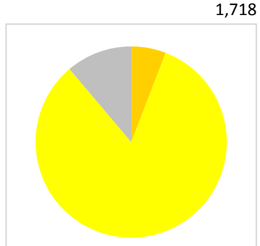
13. Big Rock Wash -

14. Devil's Punchbowl -

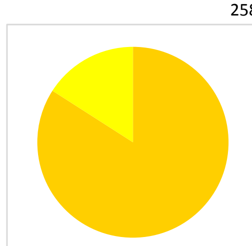
15. Edwards - Saddleback 618



16. El Mirage 1,718



17. Mescal Creek 258



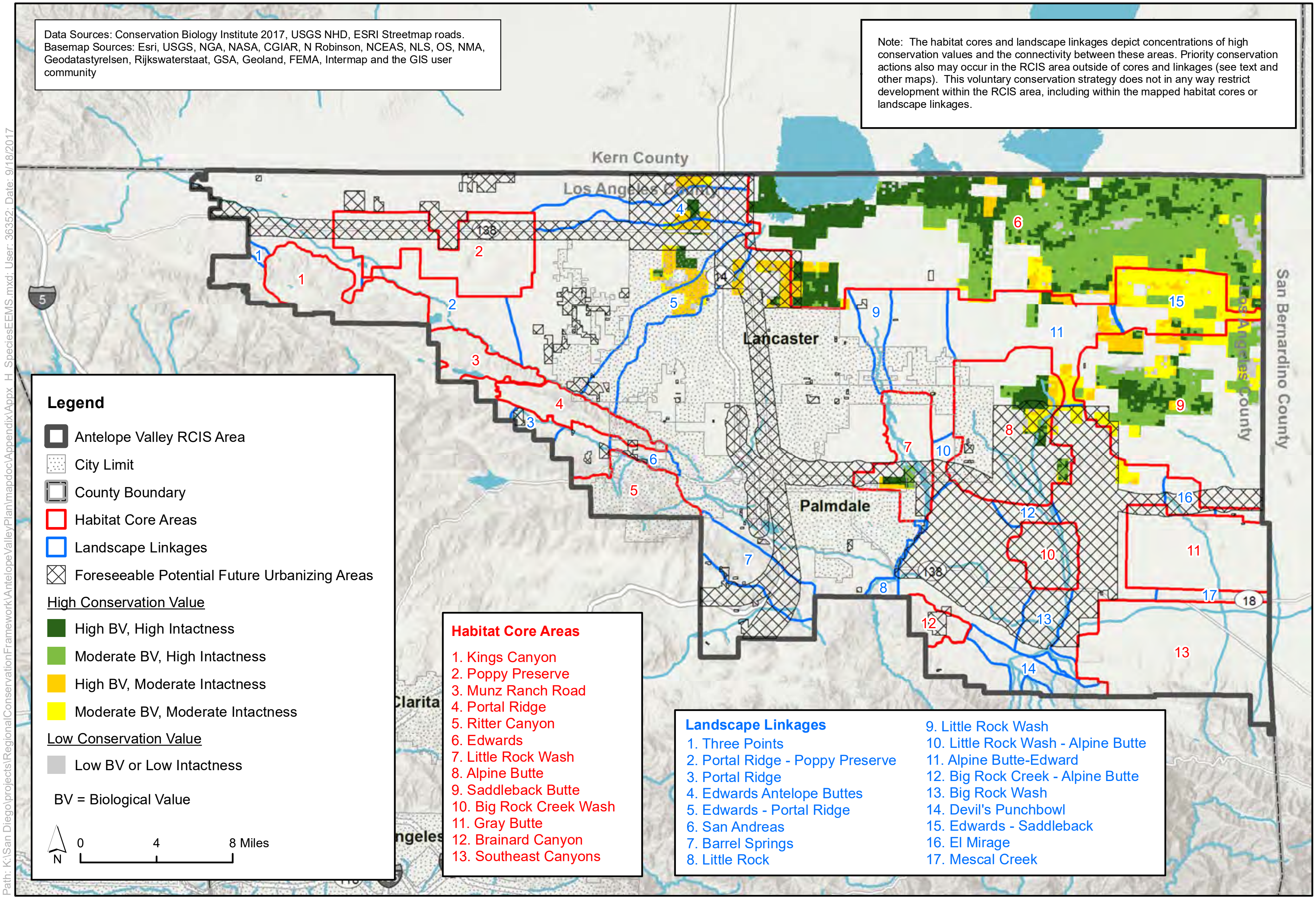



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**Figure H-25**
**Mohave Ground Squirrel High Conservation Value Habitat (Desert Species Group)**

**Mojave Ground Squirrel** **Desert**

- High BV, High Intactness
- Moderate BV, High Intactness
- High BV, Moderate Intactness
- Moderate BV, Moderate Intactness
- Low BV or Low Intactness

There are 91,556 acres (7.91%) of High Conservation Value habitat in Cores and 17,394 acres (2%) in Linkages. The total acreages, including all habitat conservation values, are shown with each graph. Proportions indicate the relative Biological Value and Intactness of that habitat.

## Habitat Cores

1. Kings Canyon -

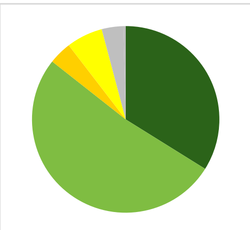
2. Poppy Preserve -

3. Munz Ranch Road -

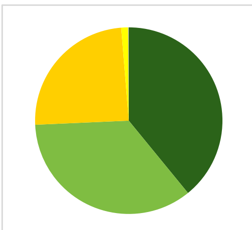
4. Portal Ridge -

5. Ritter Canyon -

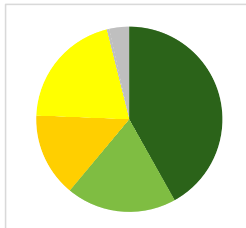
6. Edwards 71,404



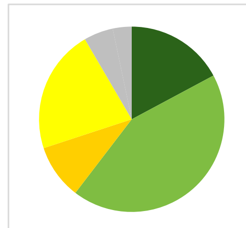
7. Little Rock Wash 989



8. Alpine Butte 4,827



9. Saddleback Butte 19,077



10. Big Rock Creek Wash -

11. Gray Butte -

12. Brainard Canyon -

13. Southeast Canyons -

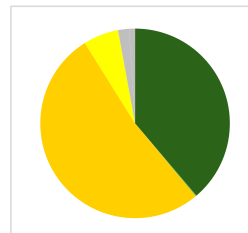
## Landscape Linkages

1. Three Points -

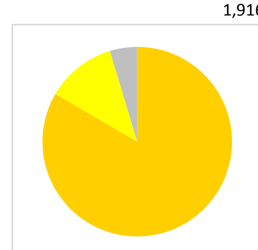
2. Portal Ridge to Poppy Preserve -

3. Portal Ridge -

4. Edwards Antelope Buttes 959



5. Edwards - Portal Ridge 1,916

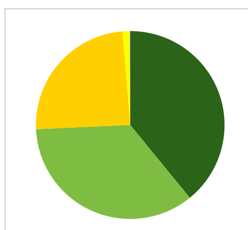


6. San Andreas -

7. Barrel Springs -

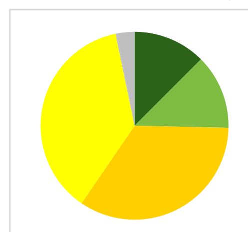
8. Little Rock -

9. Little Rock Wash 989



10. Little Rock Wash - Alpine Butte -

11. Alpine Butte-Edward 3,185

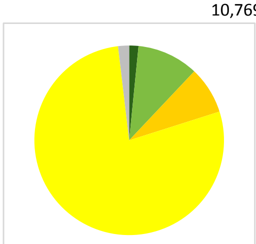


12. Big Rock Creek - Alpine Butte -

13. Big Rock Wash -

14. Devil's Punchbowl -

15. Edwards - Saddleback 10,769



16. El Mirage -

17. Mescal Creek -

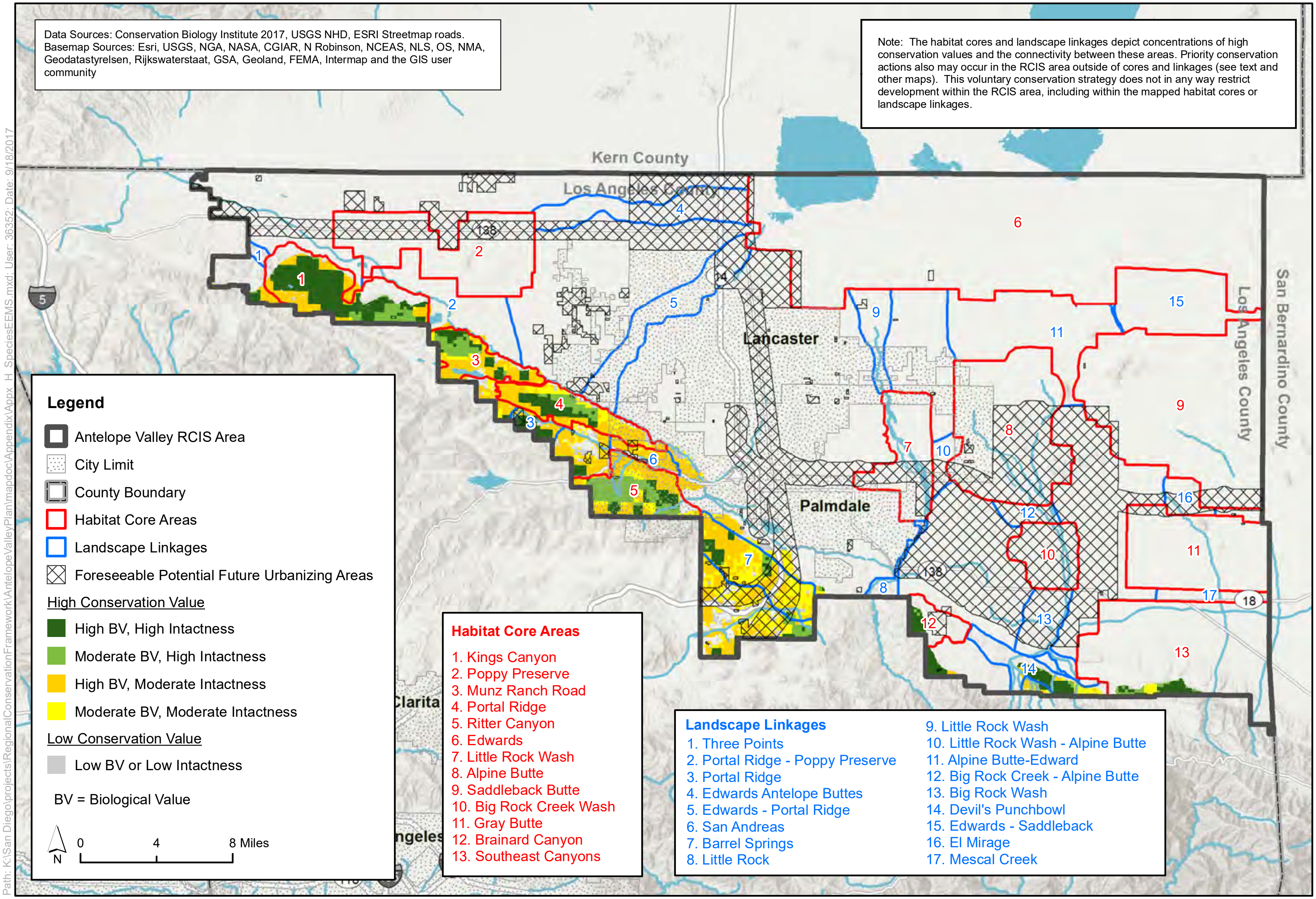





**Figure H-26**
**Mountain Lion High Conservation Value Habitat (Foothill and Riparian Species Group)**

## Mountain Lion

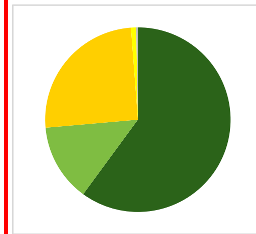
**Foothill/Riparian**

- High BV, High Intactness
- Moderate BV, High Intactness
- High BV, Moderate Intactness
- Moderate BV, Moderate Intactness
- Low BV or Low Intactness

There are 35,801 acres (5.36%) of High Conservation Value habitat in Cores and 20,860 acres (3%) in Linkages. The total acreages, including all habitat conservation values, are shown with each graph. Proportions indicate the relative Biological Value and Intactness of that habitat.

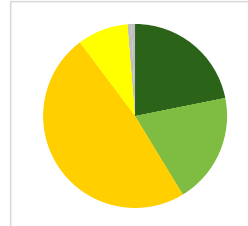
### Habitat Cores

1. Kings Canyon
11,218

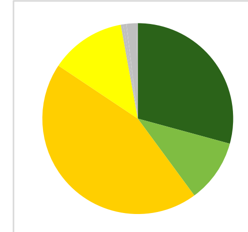


2. Poppy Preserve
-

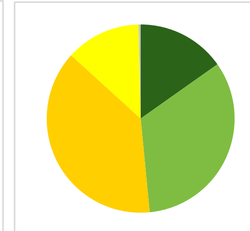
3. Munz Ranch Road
5,689



4. Portal Ridge
8,415



5. Ritter Canyon
8,523



6. Edwards
-

7. Little Rock Wash
-

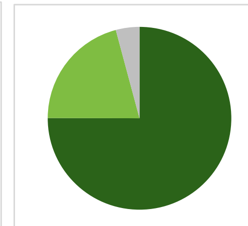
8. Alpine Butte
-

9. Saddleback Butte
-

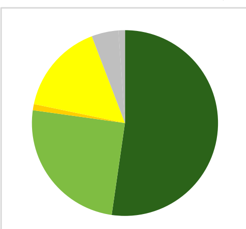
10. Big Rock Creek Wash
-

11. Gray Butte
-

12. Brainard Canyon
783



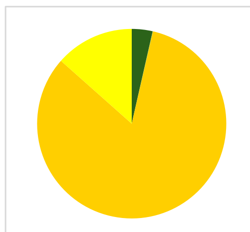
13. Southeast Canyons
1,681



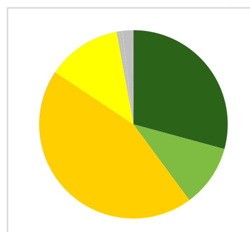
### Landscape Linkages

1. Three Points
-

2. Portal Ridge to Poppy Preserve
396

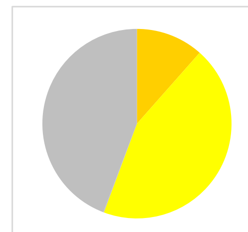


3. Portal Ridge
8,415

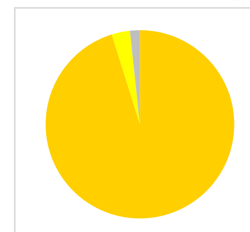


4. Edwards Antelope Buttes
-

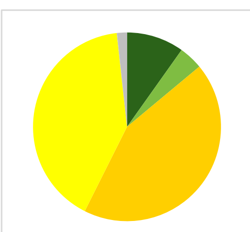
5. Edwards - Portal Ridge
24



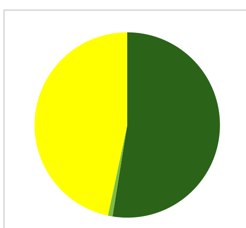
6. San Andreas
1,840



7. Barrel Springs
8,550



8. Little Rock
30



9. Little Rock Wash
-

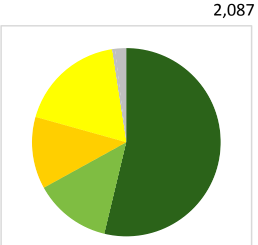
10. Little Rock Wash - Alpine Butte
-

11. Alpine Butte-Edward
-

12. Big Rock Creek - Alpine Butte
-

13. Big Rock Wash
-

14. Devil's Punchbowl
2,087



15. Edwards - Saddleback
-

16. El Mirage
-

17. Mescal Creek
-

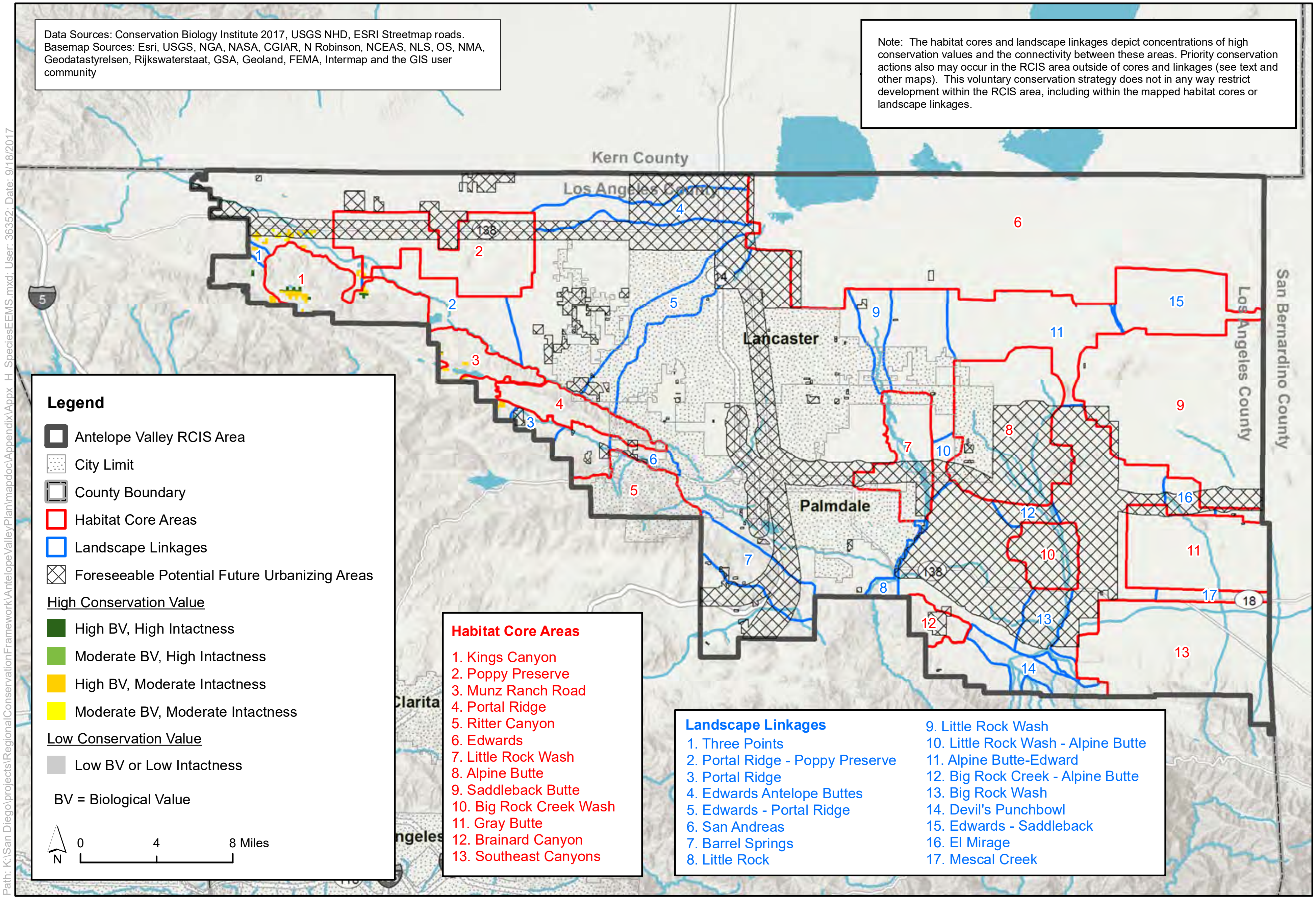



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**Figure H-27**
**Tehachapi Pocket Mouse High Conservation Value Habitat (Foothill and Riparian Species Group)**

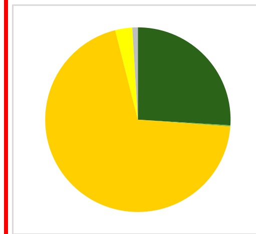
**Tehachapi Pocket Mouse** **Foothill/Riparian**

- High BV, High Intactness
- Moderate BV, High Intactness
- High BV, Moderate Intactness
- Moderate BV, Moderate Intactness
- Low BV or Low Intactness

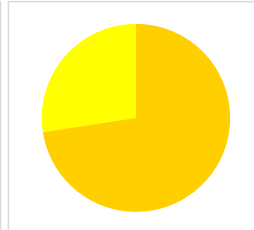
There are 800 acres (1.1%) of High Conservation Value habitat in Cores and 50 acres (0%) in Linkages. The total acreages, including all habitat conservation values, are shown with each graph. Proportions indicate the relative Biological Value and Intactness of that habitat.

## Habitat Cores

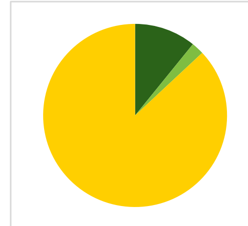
1. Kings Canyon 622



2. Poppy Preserve 25



3. Munz Ranch Road 158



4. Portal Ridge -

5. Ritter Canyon -

6. Edwards -

7. Little Rock Wash -

8. Alpine Butte -

9. Saddleback Butte -

10. Big Rock Creek Wash -

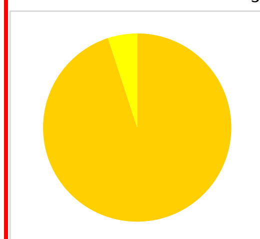
11. Gray Butte -

12. Brainard Canyon -

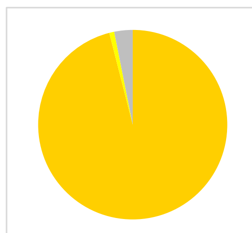
13. Southeast Canyons -

## Landscape Linkages

1. Three Points 36



2. Portal Ridge to Poppy Preserve 15



3. Portal Ridge -

4. Edwards Antelope Buttes -

5. Edwards - Portal Ridge -

6. San Andreas -

7. Barrel Springs -

8. Little Rock -

9. Little Rock Wash -

10. Little Rock Wash - Alpine Butte -

11. Alpine Butte-Edward -

12. Big Rock Creek - Alpine Butte -

13. Big Rock Wash -

14. Devil's Punchbowl -

15. Edwards - Saddleback -

16. El Mirage -

17. Mescal Creek -

Appendix I

# Land Cover Conservation Values Maps and Graphs

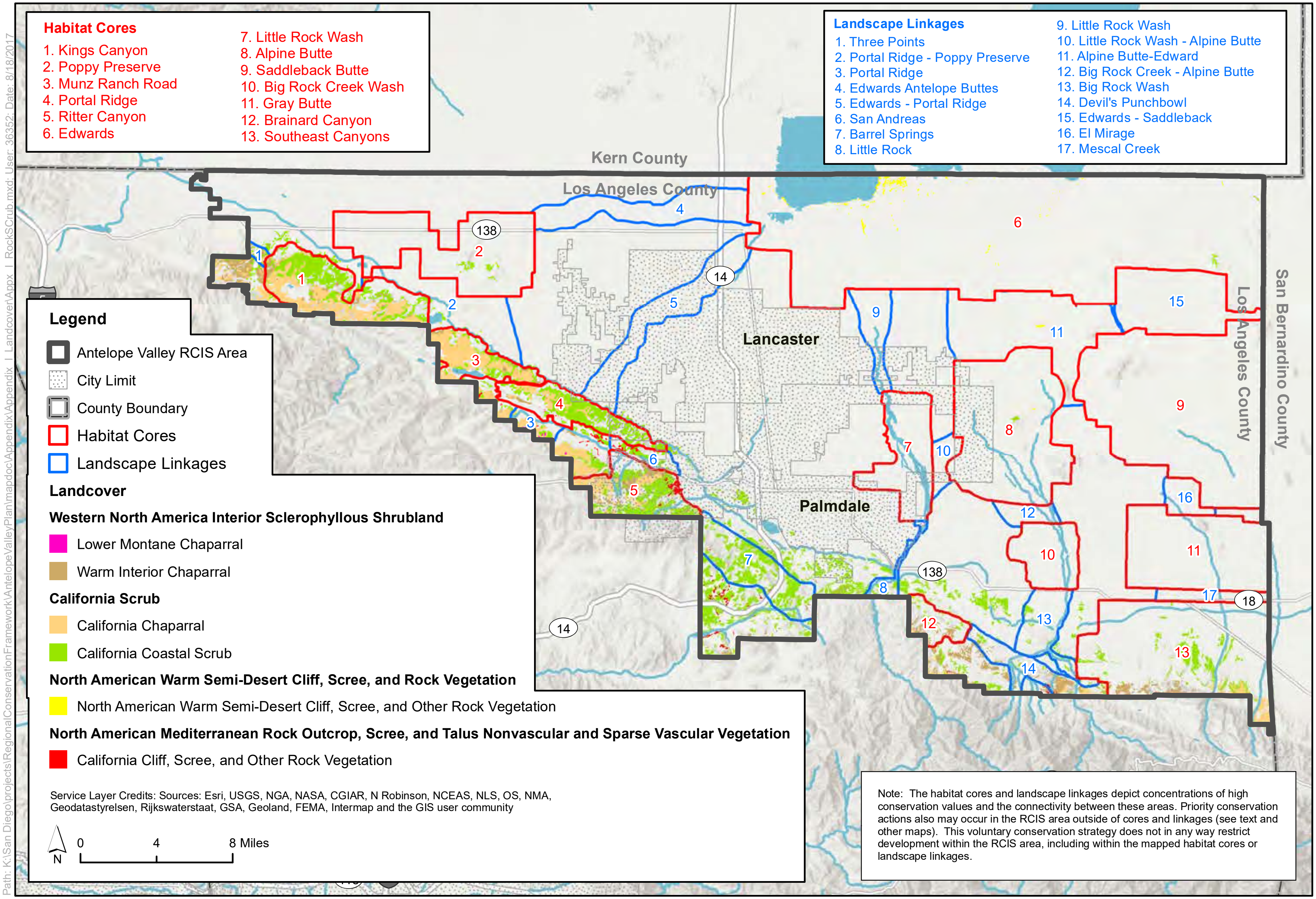



**Figure I-1**
**Rock and Scrub Land Cover with Habitat Cores and Landscape Linkages**

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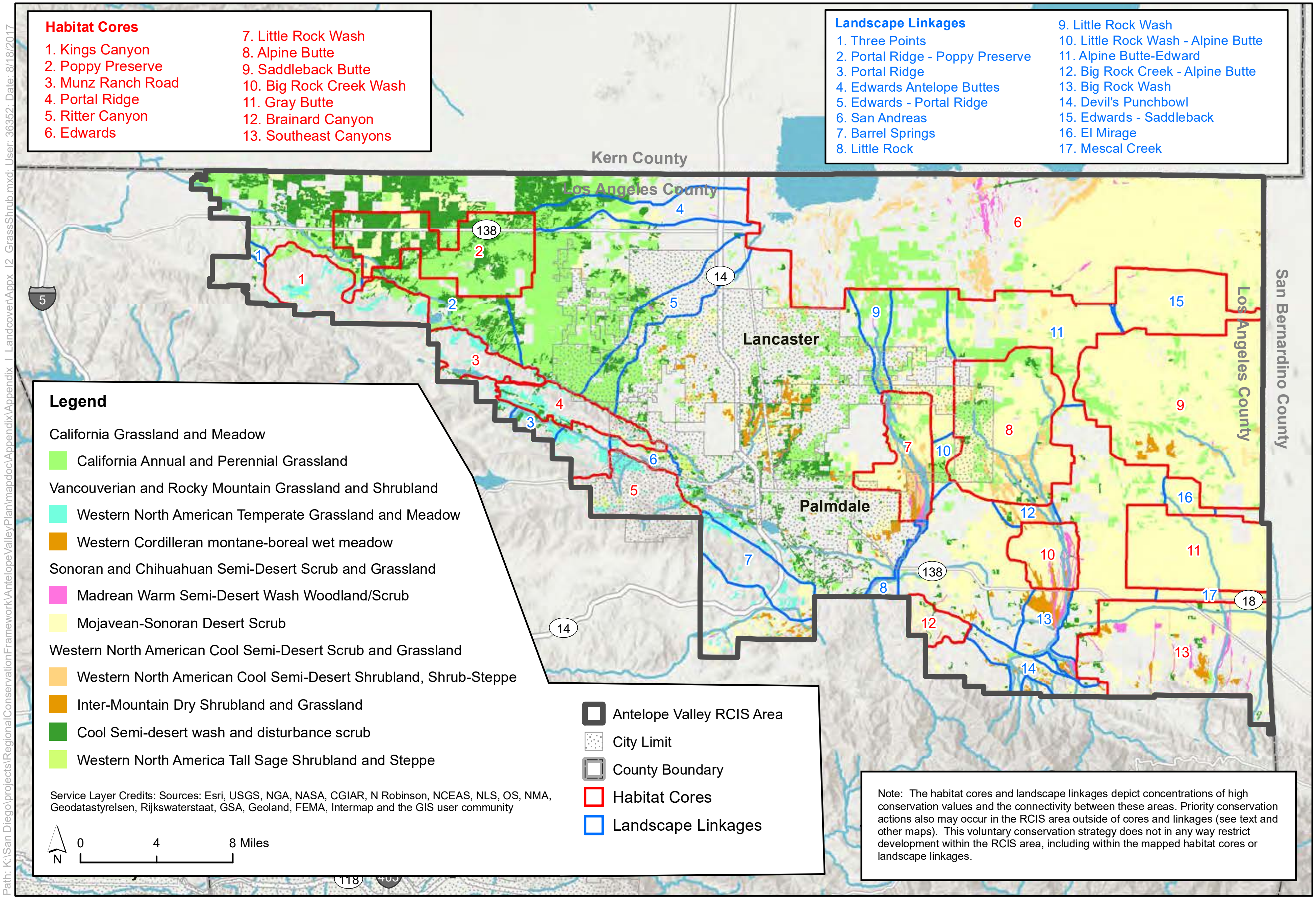


Path: K:\San Diego\projects\RegionalConservationFramework\AntelopeValleyPlan\mapdoc\Appendix\Appendix_I\LandcoverAppx_I2_GrassShrub.mxd; User: 36352; Date: 8/18/2017

**Figure I-2**
**Grassland and Shrubland Land Cover with Habitat Cores and Landscape Linkages**

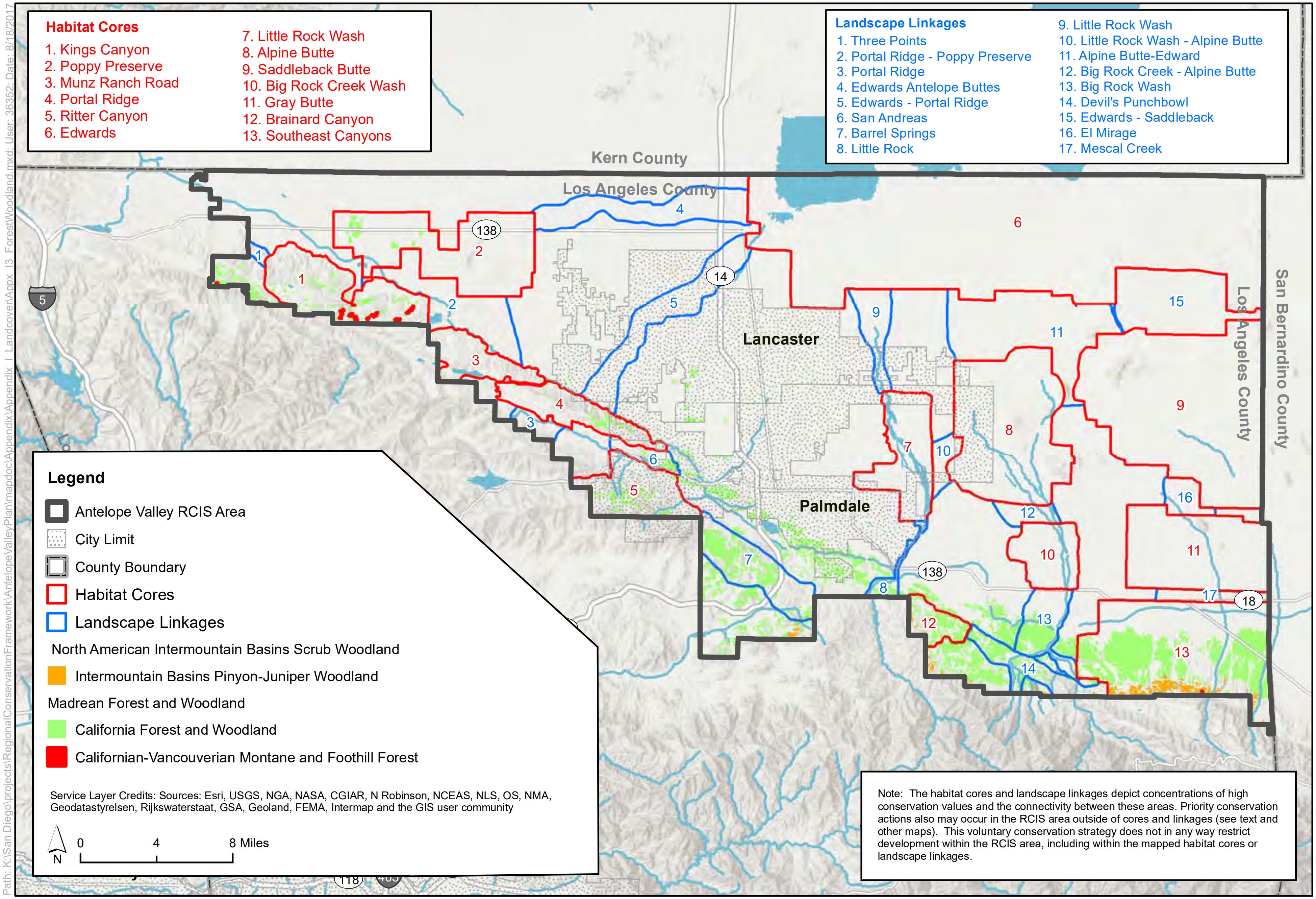


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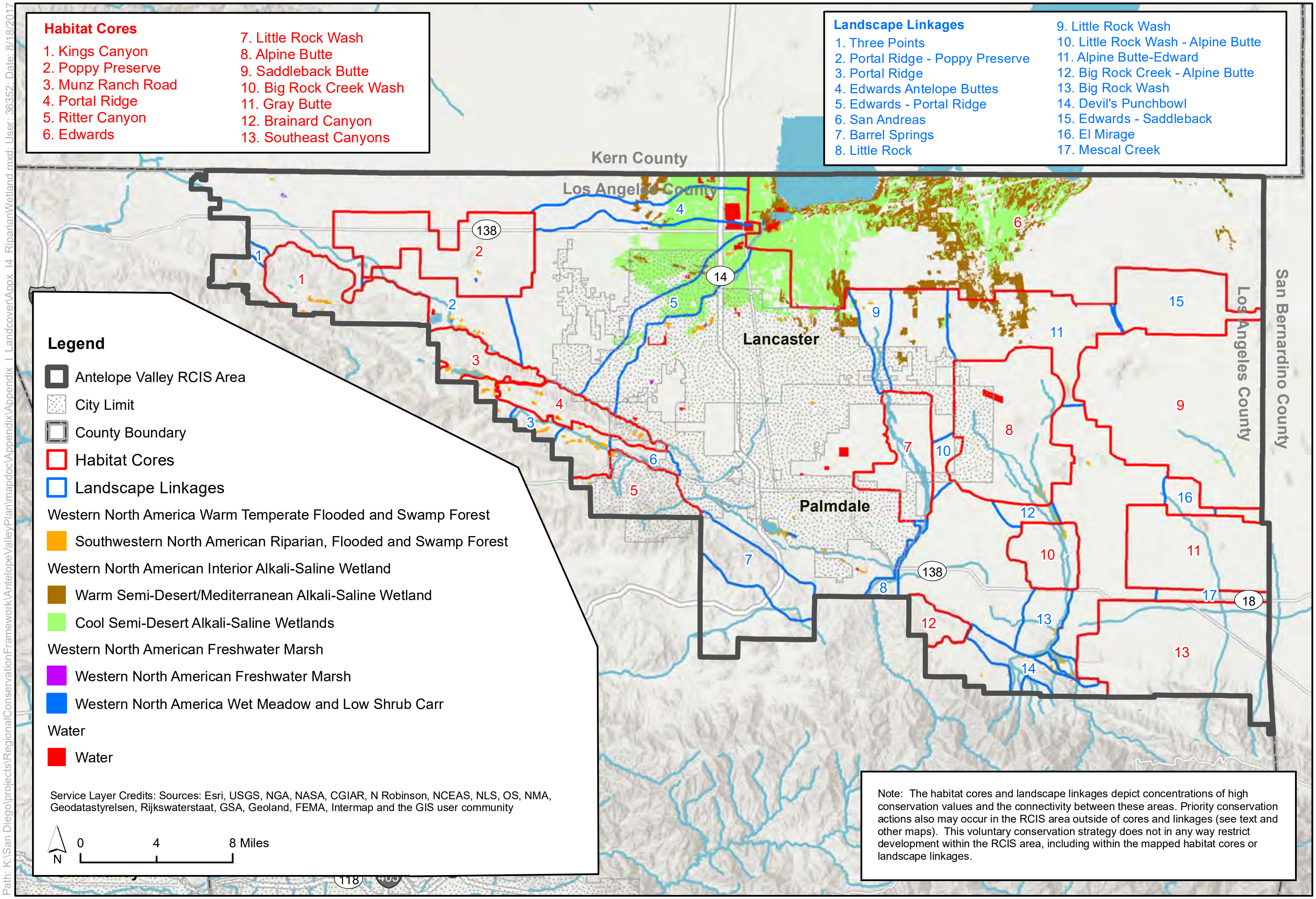
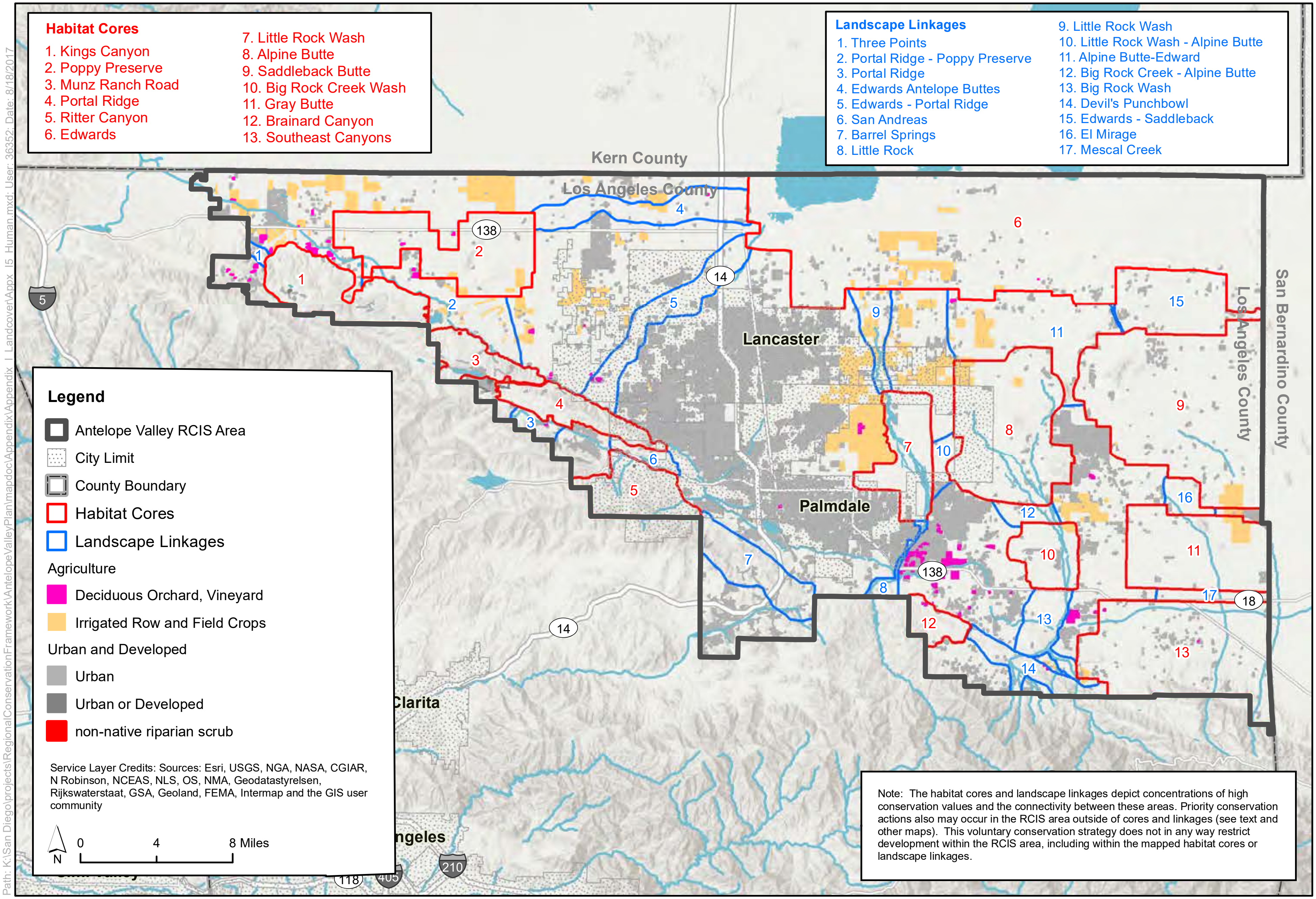
**Figure I-3**
**Forest and Woodland Land Cover with Habitat Cores and Landscape Linkages**




Path: K:\San Diego\projects\Regional\ConservationFramework\AntelopeValleyPlan\mapdoc\Appendix\Appendix I Landcover\Appx I4 RiparianWetland.mxd; User: 36352; Date: 8/18/2017

**Figure I-4**
**Riparian and Wetland Land Cover with Habitat Cores and Landscape Linkages**



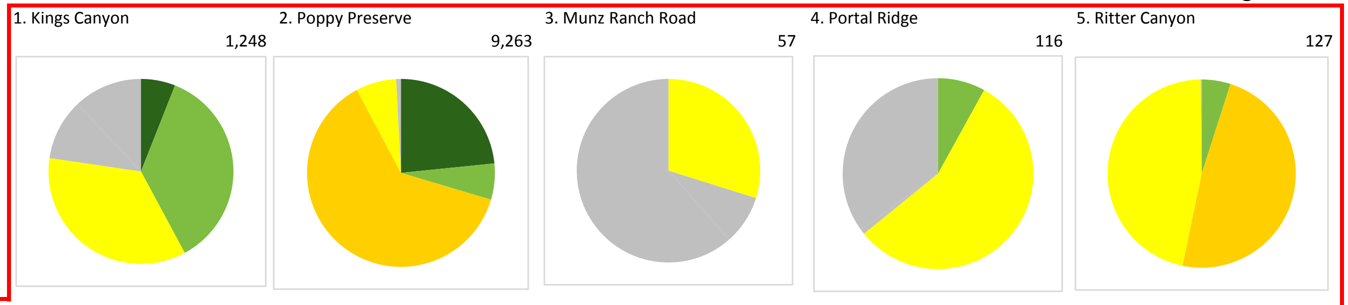

Path: K:\San Diego\projects\RegionalConservationFramework\AntelopeValleyPlan\mapdoc\Appendix\Appendix I Landcover\Appx I5 Human.mxd; User: 36352; Date: 8/18/2017

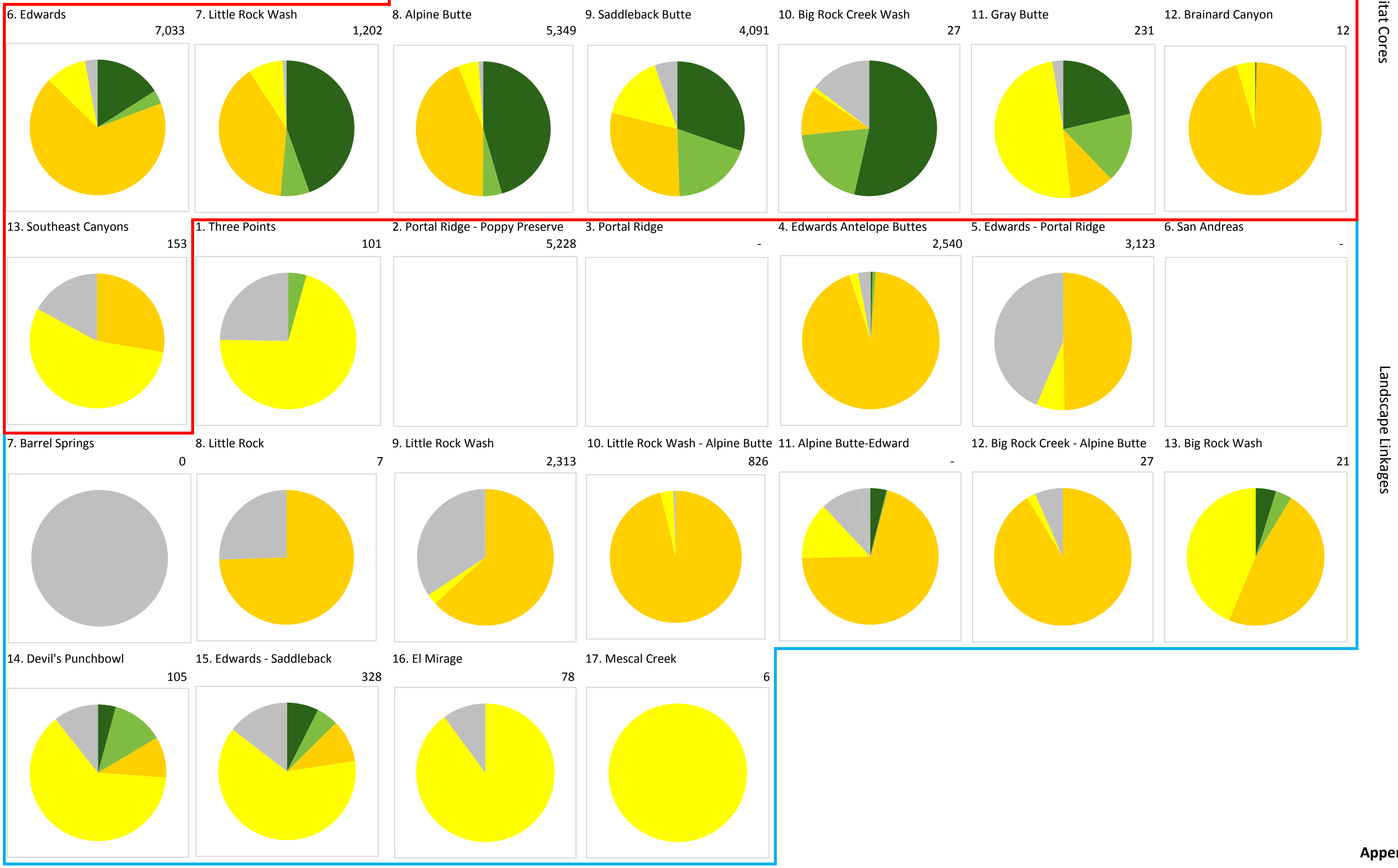
**Figure I-5**
**Agriculture and Developed Land Cover with Habitat Cores and Landscape Linkages**

## California Annual and Perennial Grassland

- High BV, High Intactness
- Moderate BV, High Intactness
- High BV, Moderate Intactness
- Moderate BV, Moderate Intactness
- Low BV or Low Intactness

There are 27,923 acres (3.93%) of High Conservation Value habitat in Cores and 12,114 acres (2%) in Linkages. The total acreages, including all habitat conservation values, are shown with each graph. Proportions indicate the relative Biological Value and Intactness of that habitat.



## California Chaparral

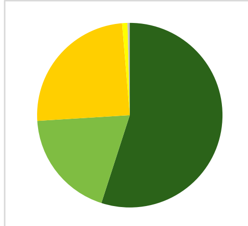
riparian

- High BV, High Intactness
- Moderate BV, High Intactness
- High BV, Moderate Intactness
- Moderate BV, Moderate Intactness
- Low BV or Low Intactness

There are 11,802 acres (7.62%) of High Conservation Value habitat in Cores and 879 acres (1%) in Linkages. The total acreages, including all habitat conservation values, are shown with each graph. Proportions indicate the relative Biological Value and Intactness of that habitat.

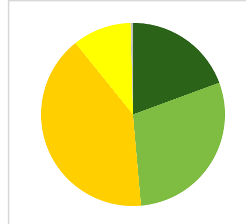
### Habitat Cores

1. Kings Canyon 5,098

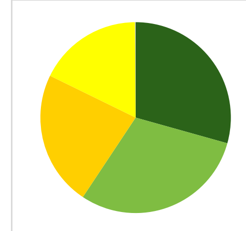


2. Poppy Preserve -

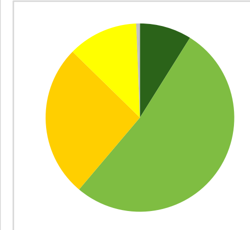
3. Munz Ranch Road 3,288



4. Portal Ridge 852



5. Ritter Canyon 1,810



6. Edwards -

7. Little Rock Wash -

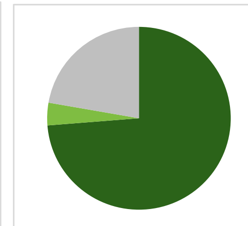
8. Alpine Butte -

9. Saddleback Butte -

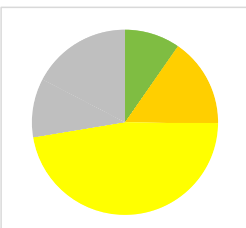
10. Big Rock Creek Wash -

11. Gray Butte -

12. Brainard Canyon 48

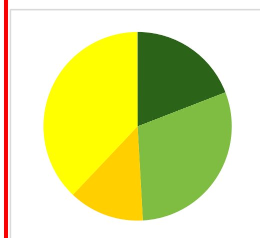


13. Southeast Canyons 1,053



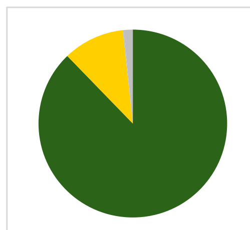
### Landscape Linkages

1. Three Points 104



2. Portal Ridge - Poppy Preserve 15

3. Portal Ridge 510

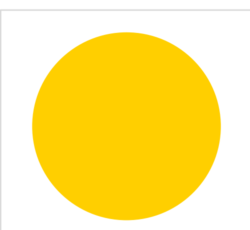


4. Edwards Antelope Buttes -

5. Edwards - Portal Ridge -

6. San Andreas -

7. Barrel Springs 1



8. Little Rock -

9. Little Rock Wash -

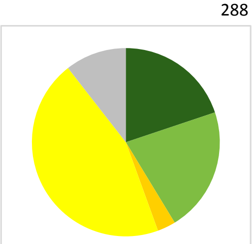
10. Little Rock Wash - Alpine Butte -

11. Alpine Butte-Edward -

12. Big Rock Creek - Alpine Butte -

13. Big Rock Wash -

14. Devil's Punchbowl 288



15. Edwards - Saddleback -

16. El Mirage -

17. Mescal Creek -

## California Cliff, Scree, and Other Rock Vegetation

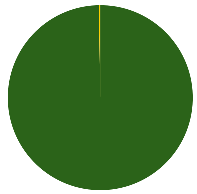
**riparian**

- High BV, High Intactness
- Moderate BV, High Intactness
- High BV, Moderate Intactness
- Moderate BV, Moderate Intactness
- Low BV or Low Intactness

There are 196 acres (2.26%) of High Conservation Value habitat in Cores and 251 acres (3%) in Linkages. The total acreages, including all habitat conservation values, are shown with each graph. Proportions indicate the relative Biological Value and Intactness of that habitat.

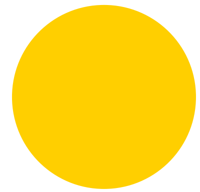
### Habitat Cores

1. Kings Canyon 1

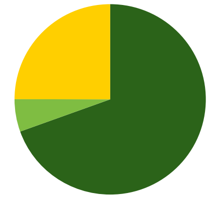


2. Poppy Preserve -

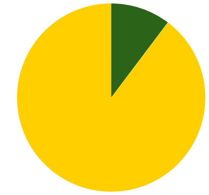
3. Munz Ranch Road 0



4. Portal Ridge 16



5. Ritter Canyon 178



6. Edwards -

7. Little Rock Wash -

8. Alpine Butte -

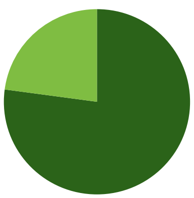
9. Saddleback Butte -

10. Big Rock Creek Wash -

11. Gray Butte -

12. Brainard Canyon -

13. Southeast Canyons 1

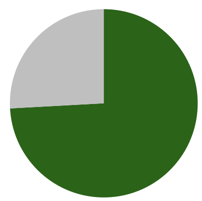


### Landscape Linkages

1. Three Points -

2. Portal Ridge - Poppy Preserve 3

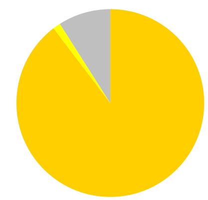
3. Portal Ridge 4



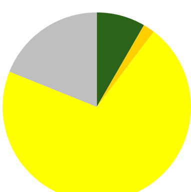
4. Edwards Antelope Buttes -

5. Edwards - Portal Ridge -

6. San Andreas 183



7. Barrel Springs 44



8. Little Rock -

9. Little Rock Wash -

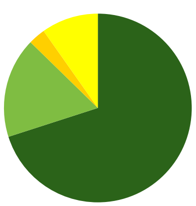
10. Little Rock Wash - Alpine Butte -

11. Alpine Butte-Edward -

12. Big Rock Creek - Alpine Butte -

13. Big Rock Wash -

14. Devil's Punchbowl 43



15. Edwards - Saddleback -

16. El Mirage -

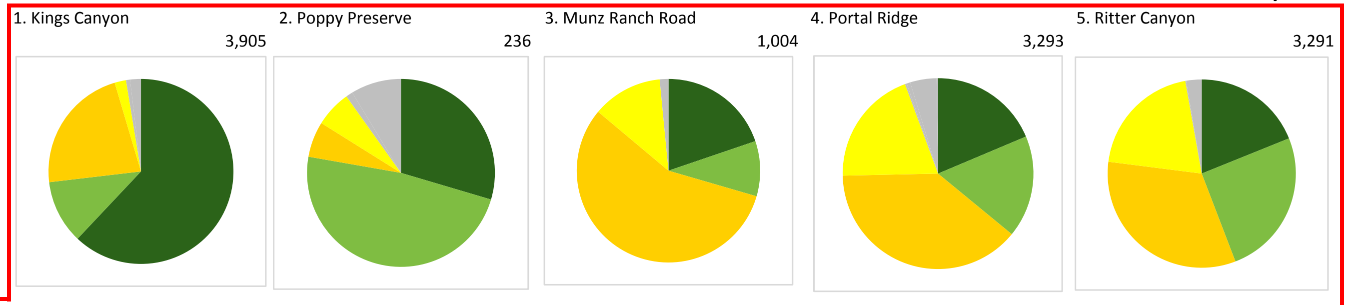
17. Mescal Creek -

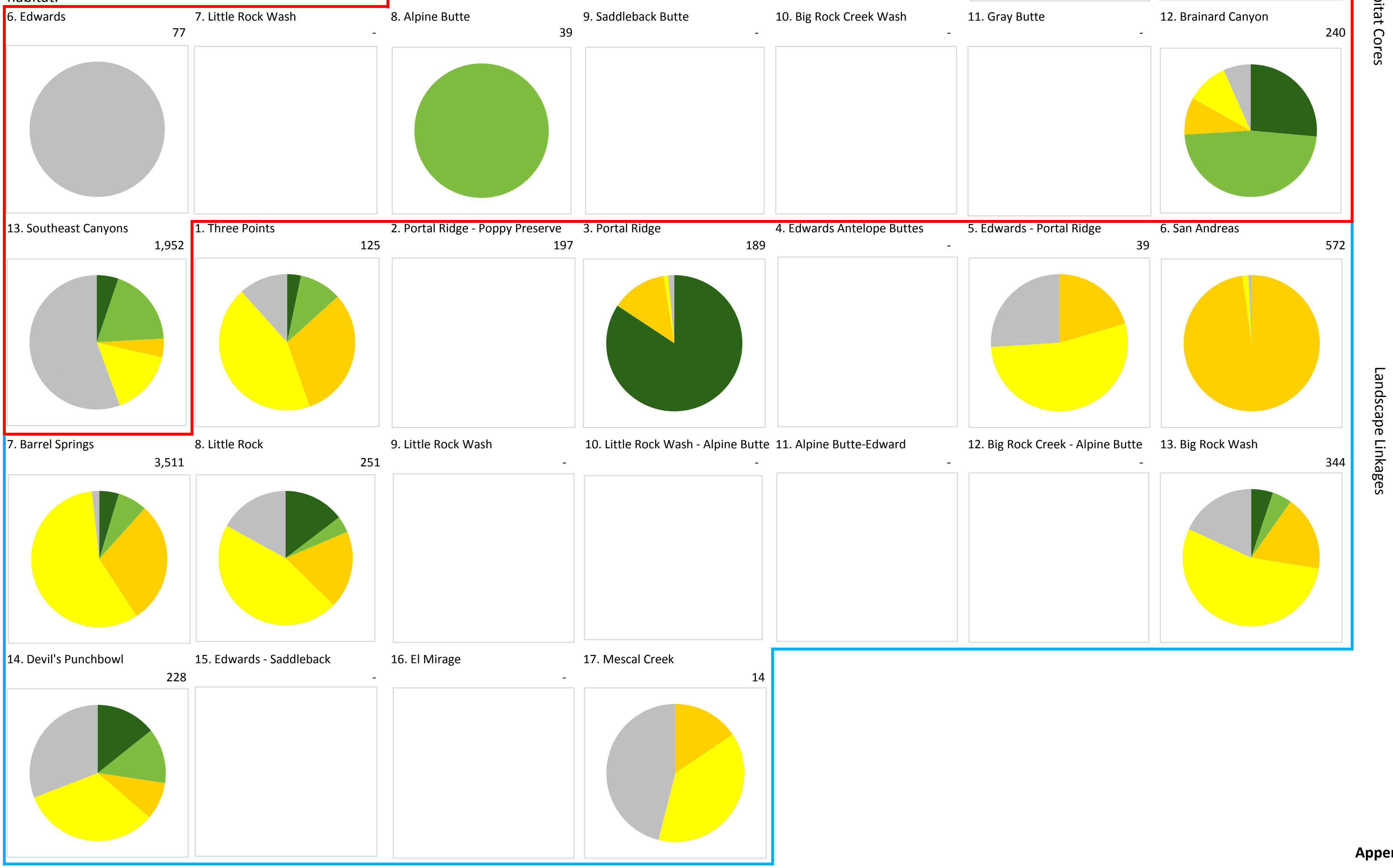
## California Coastal Scrub

**riparian**

- High BV, High Intactness
- Moderate BV, High Intactness
- High BV, Moderate Intactness
- Moderate BV, Moderate Intactness
- Low BV or Low Intactness

There are 12,441 acres (5.05%) of High Conservation Value habitat in Cores and 5,182 acres (2%) in Linkages. The total acreages, including all habitat conservation values, are shown with each graph. Proportions indicate the relative Biological Value and Intactness of that habitat.



## California Forest and Woodland

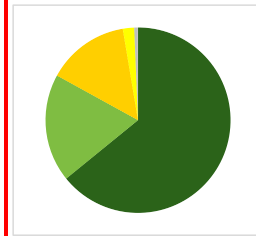
**riparian**

- High BV, High Intactness
- Moderate BV, High Intactness
- High BV, Moderate Intactness
- Moderate BV, Moderate Intactness
- Low BV or Low Intactness

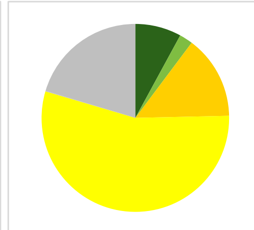
There are 13,781 acres (4.36%) of High Conservation Value habitat in Cores and 7,051 acres (2%) in Linkages. The total acreages, including all habitat conservation values, are shown with each graph. Proportions indicate the relative Biological Value and Intactness of that habitat.

### Habitat Cores

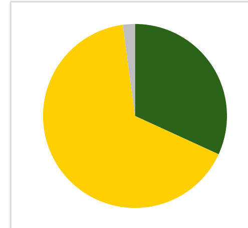
1. Kings Canyon
1,193



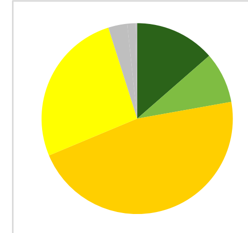
2. Poppy Preserve
654



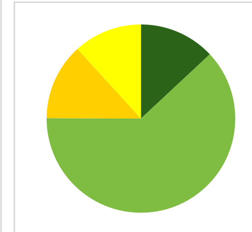
3. Munz Ranch Road
39



4. Portal Ridge
436



5. Ritter Canyon
890



6. Edwards
-

7. Little Rock Wash
-

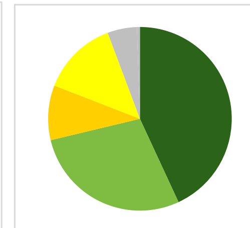
8. Alpine Butte
-

9. Saddleback Butte
-

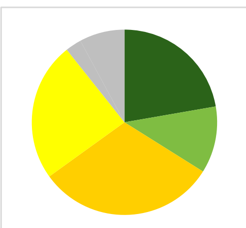
10. Big Rock Creek Wash
-

11. Gray Butte
-

12. Brainard Canyon
1,444

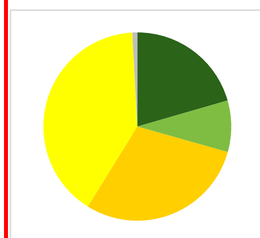


13. Southeast Canyons
10,493



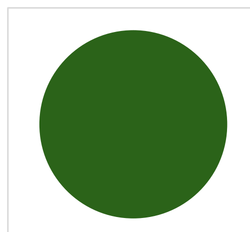
### Landscape Linkages

1. Three Points
13



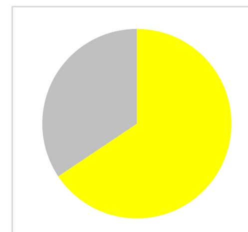
2. Portal Ridge - Poppy Preserve
13

3. Portal Ridge
38

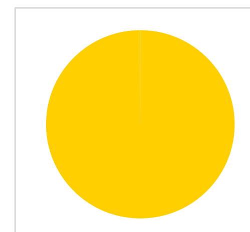


4. Edwards Antelope Buttes
-

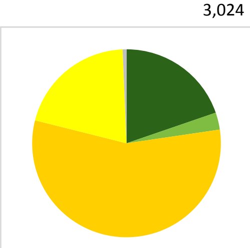
5. Edwards - Portal Ridge
2



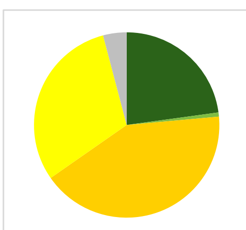
6. San Andreas
402



7. Barrel Springs
3,024



8. Little Rock
353



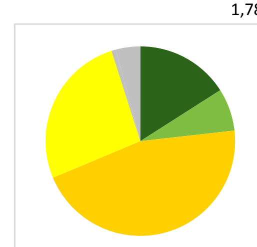
9. Little Rock Wash
-

10. Little Rock Wash - Alpine Butte
-

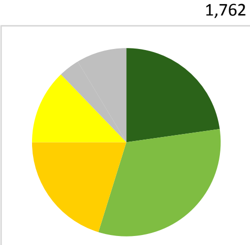
11. Alpine Butte-Edward
-

12. Big Rock Creek - Alpine Butte
-

13. Big Rock Wash
1,783



14. Devil's Punchbowl
1,762



15. Edwards - Saddleback
-

16. El Mirage
-

17. Mescal Creek
-

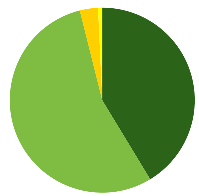
**Californian-Vancouverian Montane and Foothill Forest** **riparian**

- High BV, High Intactness
- Moderate BV, High Intactness
- High BV, Moderate Intactness
- Moderate BV, Moderate Intactness
- Low BV or Low Intactness

There are 98 acres (8.68%) of High Conservation Value habitat in Cores and acres (0%) in Linkages. The total acreages, including all habitat conservation values, are shown with each graph. Proportions indicate the relative Biological Value and Intactness of that habitat.

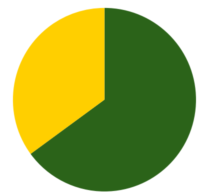
## Habitat Cores

1. Kings Canyon 94



2. Poppy Preserve -

3. Munz Ranch Road 2



4. Portal Ridge -

5. Ritter Canyon -

6. Edwards -

7. Little Rock Wash -

8. Alpine Butte -

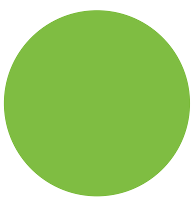
9. Saddleback Butte -

10. Big Rock Creek Wash -

11. Gray Butte -

12. Brainard Canyon -

13. Southeast Canyons 1



## Landscape Linkages

1. Three Points -

2. Portal Ridge - Poppy Preserve -

3. Portal Ridge -

4. Edwards Antelope Buttes -

5. Edwards - Portal Ridge -

6. San Andreas -

7. Barrel Springs -

8. Little Rock -

9. Little Rock Wash -

10. Little Rock Wash - Alpine Butte -

11. Alpine Butte-Edward -

12. Big Rock Creek - Alpine Butte -

13. Big Rock Wash -

14. Devil's Punchbowl -

15. Edwards - Saddleback -

16. El Mirage -

17. Mescal Creek -

## Cool Semi-Desert Alkali-Saline Wetlands



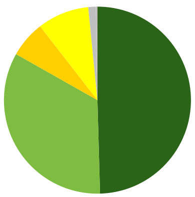
- High BV, High Intactness
- Moderate BV, High Intactness
- High BV, Moderate Intactness
- Moderate BV, Moderate Intactness
- Low BV or Low Intactness

There are 20,477 acres (4.77%) of High Conservation Value habitat in Cores and 7,732 acres (2%) in Linkages. The total acreages, including all habitat conservation values, are shown with each graph. Proportions indicate the relative Biological Value and Intactness of that habitat.

### Habitat Cores

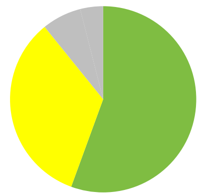
1. Kings Canyon -
2. Poppy Preserve -
3. Munz Ranch Road -
4. Portal Ridge -
5. Ritter Canyon -

6. Edwards 20,717



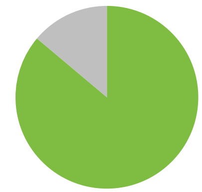
7. Little Rock Wash -
8. Alpine Butte -

9. Saddleback Butte 78



10. Big Rock Creek Wash -
11. Gray Butte -

12. Brainard Canyon 19

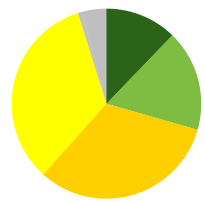


13. Southeast Canyons -

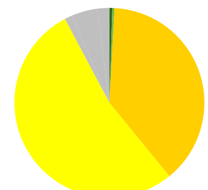
### Landscape Linkages

1. Three Points -
2. Portal Ridge - Poppy Preserve -
3. Portal Ridge -

4. Edwards Antelope Buttes 3,642



5. Edwards - Portal Ridge 4,605



6. San Andreas -
7. Barrel Springs -

8. Little Rock 2



9. Little Rock Wash 17



10. Little Rock Wash - Alpine Butte -

11. Alpine Butte-Edward -



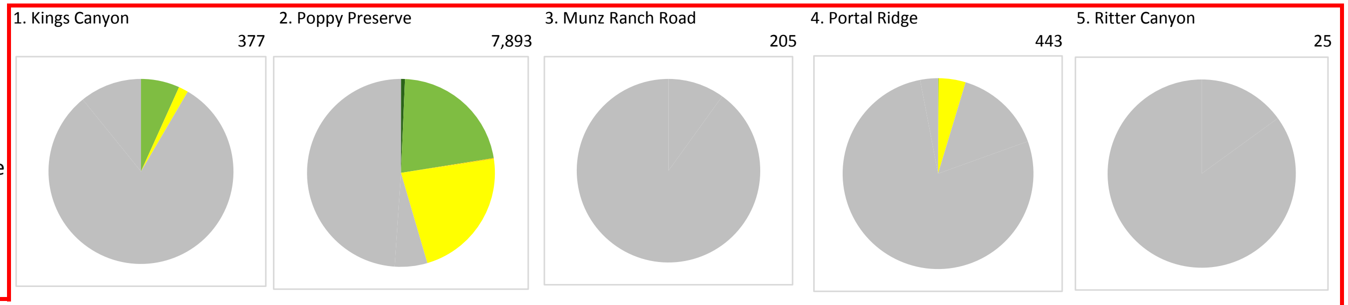
12. Big Rock Creek - Alpine Butte -
13. Big Rock Wash -
14. Devil's Punchbowl -
15. Edwards - Saddleback -
16. El Mirage -
17. Mescal Creek -

## Cool Semi-desert wash and disturbance scrub



- High BV, High Intactness
- Moderate BV, High Intactness
- High BV, Moderate Intactness
- Moderate BV, Moderate Intactness
- Low BV or Low Intactness

There are 5,070 acres (3.44%) of High Conservation Value habitat in Cores and 2,945 acres (2%) in Linkages. The total acreages, including all habitat conservation values, are shown with each graph. Proportions indicate the relative Biological Value and Intactness of that habitat.




**Deciduous Orchard, Vineyard** **grassland**

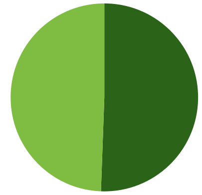
- High BV, High Intactness
- Moderate BV, High Intactness
- High BV, Moderate Intactness
- Moderate BV, Moderate Intactness
- Low BV or Low Intactness

There are 36 acres (0.28%) of High Conservation Value habitat in Cores and 68 acres (1%) in Linkages. The total acreages, including all habitat conservation values, are shown with each graph. Proportions indicate the relative Biological Value and Intactness of that habitat.

## Habitat Cores

1. Kings Canyon -

2. Poppy Preserve 7



3. Munz Ranch Road -

4. Portal Ridge -

5. Ritter Canyon -

6. Edwards 2



7. Little Rock Wash -

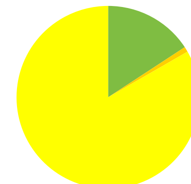
8. Alpine Butte -

9. Saddleback Butte -

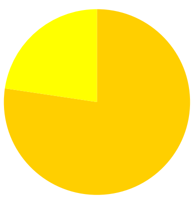
10. Big Rock Creek Wash -

11. Gray Butte -

12. Brainard Canyon 14

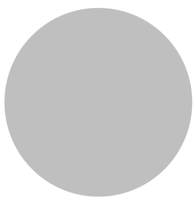


13. Southeast Canyons 13



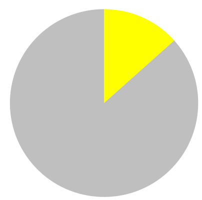
## Landscape Linkages

1. Three Points 1

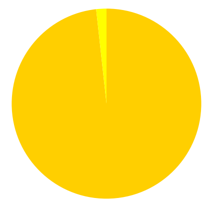


2. Portal Ridge - Poppy Preserve 54

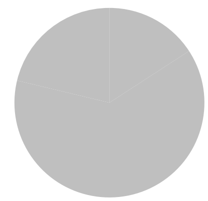
3. Portal Ridge 8



4. Edwards Antelope Buttes 5



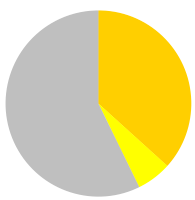
5. Edwards - Portal Ridge 34



6. San Andreas -

7. Barrel Springs -

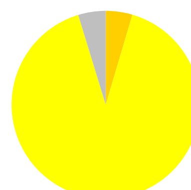
8. Little Rock 1



9. Little Rock Wash -

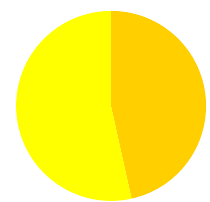
10. Little Rock Wash - Alpine Butte -

11. Alpine Butte-Edward -

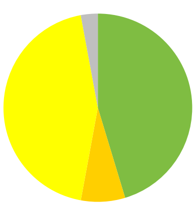


12. Big Rock Creek - Alpine Butte -

13. Big Rock Wash 0



14. Devil's Punchbowl 17



15. Edwards - Saddleback -

16. El Mirage -

17. Mescal Creek -

## Intermountain Basins Pinyon-Juniper Woodland

riparian

- High BV, High Intactness
- Moderate BV, High Intactness
- High BV, Moderate Intactness
- Moderate BV, Moderate Intactness
- Low BV or Low Intactness

There are 1,176 acres (7.39%) of High Conservation Value habitat in Cores and 34 acres (0%) in Linkages. The total acreages, including all habitat conservation values, are shown with each graph. Proportions indicate the relative Biological Value and Intactness of that habitat.

### Habitat Cores

1. Kings Canyon -

2. Poppy Preserve -

3. Munz Ranch Road -

4. Portal Ridge -

5. Ritter Canyon -

6. Edwards -

7. Little Rock Wash -

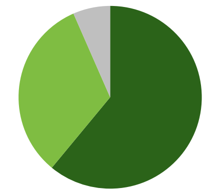
8. Alpine Butte -

9. Saddleback Butte -

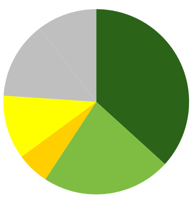
10. Big Rock Creek Wash -

11. Gray Butte -

12. Brainard Canyon 45



13. Southeast Canyons 1,491



### Landscape Linkages

1. Three Points -

2. Portal Ridge - Poppy Preserve -

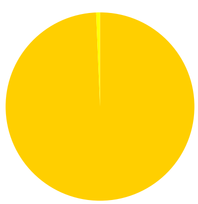
3. Portal Ridge -

4. Edwards Antelope Buttes -

5. Edwards - Portal Ridge -

6. San Andreas -

7. Barrel Springs 13



8. Little Rock -

9. Little Rock Wash -

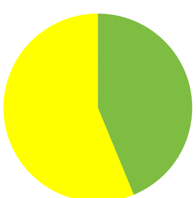
10. Little Rock Wash - Alpine Butte -

11. Alpine Butte-Edward -

12. Big Rock Creek - Alpine Butte -

13. Big Rock Wash -

14. Devil's Punchbowl 20



15. Edwards - Saddleback -

16. El Mirage -

17. Mescal Creek -

**Inter-Mountain Dry Shrubland and Grassland** **desert**

- High BV, High Intactness
- Moderate BV, High Intactness
- High BV, Moderate Intactness
- Moderate BV, Moderate Intactness
- Low BV or Low Intactness

There are 1,780 acres (3.24%) of High Conservation Value habitat in Cores and 1,398 acres (3%) in Linkages. The total acreages, including all habitat conservation values, are shown with each graph. Proportions indicate the relative Biological Value and Intactness of that habitat.

Habitat Cores

1. Kings Canyon -

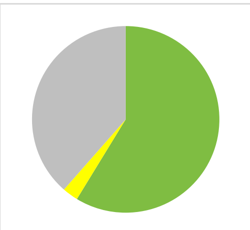
2. Poppy Preserve -

3. Munz Ranch Road -

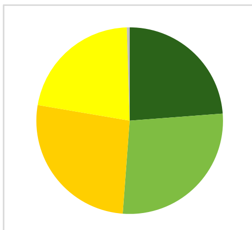
4. Portal Ridge -

5. Ritter Canyon -

6. Edwards 52

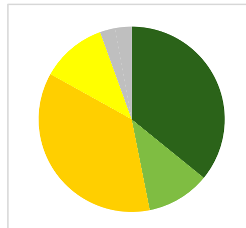


7. Little Rock Wash 387

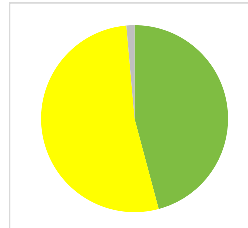


8. Alpine Butte -

9. Saddleback Butte 618

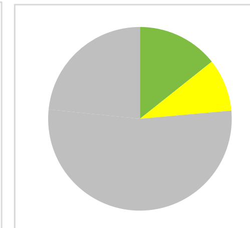


10. Big Rock Creek Wash 313

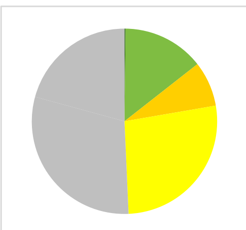


11. Gray Butte -

12. Brainard Canyon 21



13. Southeast Canyons 945



Landscape Linkages

1. Three Points -

2. Portal Ridge - Poppy Preserve -

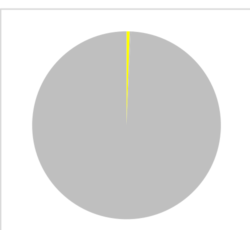
3. Portal Ridge -

4. Edwards Antelope Buttes -

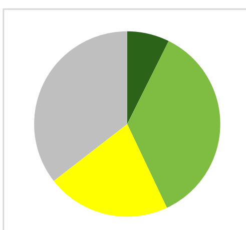
5. Edwards - Portal Ridge -

6. San Andreas -

7. Barrel Springs 103



8. Little Rock 30

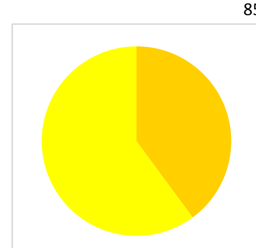


9. Little Rock Wash -

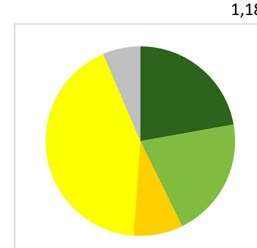
10. Little Rock Wash - Alpine Butte -

11. Alpine Butte-Edward -

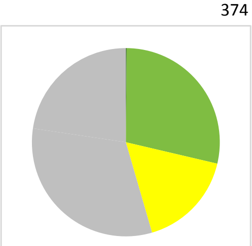
12. Big Rock Creek - Alpine Butte 85



13. Big Rock Wash 1,189



14. Devil's Punchbowl 374



15. Edwards - Saddleback 11



16. El Mirage -

17. Mescal Creek -

**Irrigated Row and Field Crops** **grassland**

- High BV, High Intactness
- Moderate BV, High Intactness
- High BV, Moderate Intactness
- Moderate BV, Moderate Intactness
- Low BV or Low Intactness

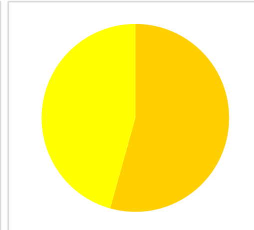
There are 7,312 acres (2.64%) of High Conservation Value habitat in Cores and 1,497 acres (1%) in Linkages. The total acreages, including all habitat conservation values, are shown with each graph. Proportions indicate the relative Biological Value and Intactness of that habitat.

## Habitat Cores

1. Kings Canyon — 5



2. Poppy Preserve — 709

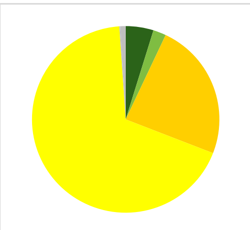


3. Munz Ranch Road — -

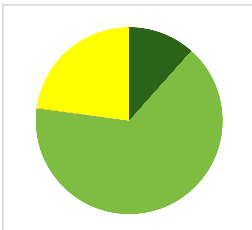
4. Portal Ridge — -

5. Ritter Canyon — -

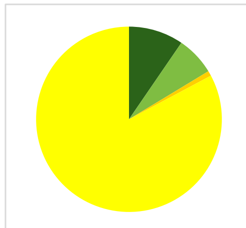
6. Edwards — 3,588



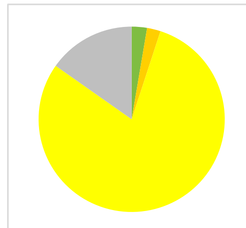
7. Little Rock Wash — 179



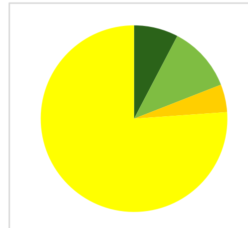
8. Alpine Butte — 1,008



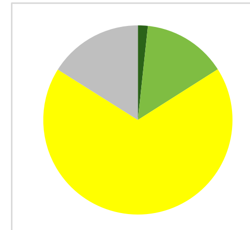
9. Saddleback Butte — 889



10. Big Rock Creek Wash — 204

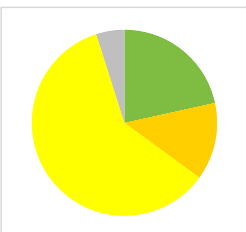


11. Gray Butte — 933



12. Brainard Canyon — -

13. Southeast Canyons — 127



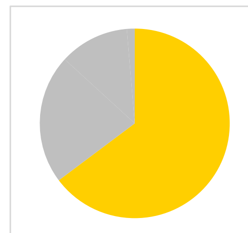
## Landscape Linkages

1. Three Points — -

2. Portal Ridge - Poppy Preserve — 626

3. Portal Ridge — -

4. Edwards Antelope Buttes — 324



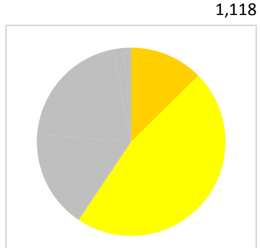
5. Edwards - Portal Ridge — -

6. San Andreas — -

7. Barrel Springs — -

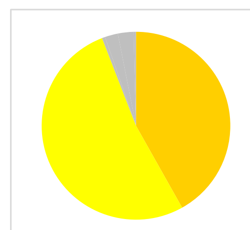
8. Little Rock — -

9. Little Rock Wash — 1,118

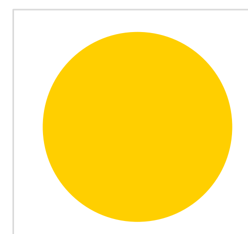


10. Little Rock Wash - Alpine Butte — -

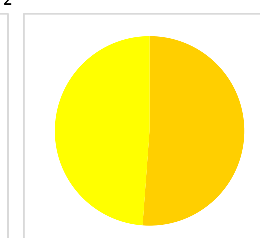
11. Alpine Butte-Edward — -



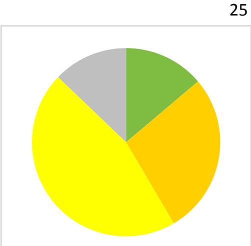
12. Big Rock Creek - Alpine Butte — 2



13. Big Rock Wash — 5



14. Devil's Punchbowl — 25



15. Edwards - Saddleback — -

16. El Mirage — -

17. Mescal Creek — -

## Lower Montane Chaparral

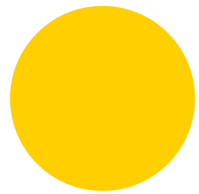
**riparian**

- High BV, High Intactness
- Moderate BV, High Intactness
- High BV, Moderate Intactness
- Moderate BV, Moderate Intactness
- Low BV or Low Intactness

There are 1 acres (0.15%) of High Conservation Value habitat in Cores and 64 acres (7%) in Linkages. The total acreages, including all habitat conservation values, are shown with each graph. Proportions indicate the relative Biological Value and Intactness of that habitat.

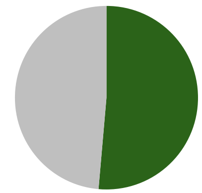
### Habitat Cores

1. Kings Canyon 1



2. Poppy Preserve -

3. Munz Ranch Road 1



4. Portal Ridge -

5. Ritter Canyon -

6. Edwards -

7. Little Rock Wash -

8. Alpine Butte -

9. Saddleback Butte -

10. Big Rock Creek Wash -

11. Gray Butte -

12. Brainard Canyon -

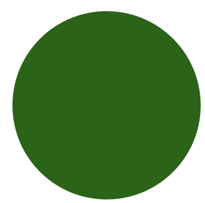
13. Southeast Canyons -

### Landscape Linkages

1. Three Points -

2. Portal Ridge - Poppy Preserve -

3. Portal Ridge 64



4. Edwards Antelope Buttes -

5. Edwards - Portal Ridge -

6. San Andreas -

7. Barrel Springs -

8. Little Rock -

9. Little Rock Wash -

10. Little Rock Wash - Alpine Butte -

11. Alpine Butte-Edward -

12. Big Rock Creek - Alpine Butte -

13. Big Rock Wash -

14. Devil's Punchbowl -

15. Edwards - Saddleback -

16. El Mirage -

17. Mescal Creek -

## Madrean Warm Semi-Desert Wash Woodland/Scrub

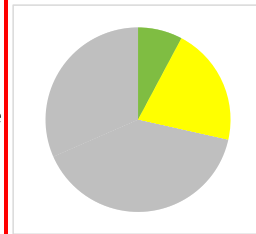


- High BV, High Intactness
- Moderate BV, High Intactness
- High BV, Moderate Intactness
- Moderate BV, Moderate Intactness
- Low BV or Low Intactness

There are 4,789 acres (7.51%) of High Conservation Value habitat in Cores and 1,272 acres (2%) in Linkages. The total acreages, including all habitat conservation values, are shown with each graph. Proportions indicate the relative Biological Value and Intactness of that habitat.

### Habitat Cores

1. Kings Canyon
24



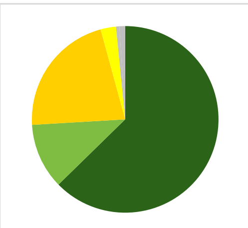
2. Poppy Preserve
-

3. Munz Ranch Road
-

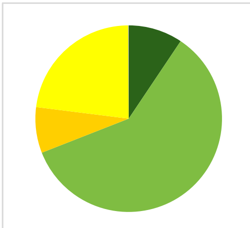
4. Portal Ridge
-

5. Ritter Canyon
-

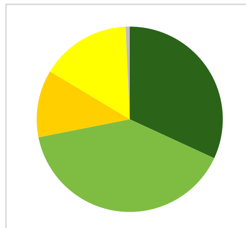
6. Edwards
1,103



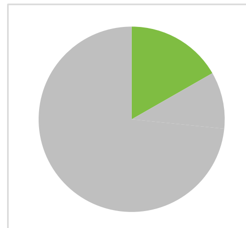
7. Little Rock Wash
1,307



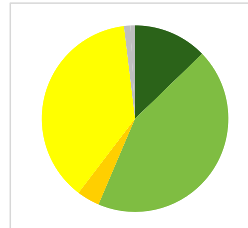
8. Alpine Butte
333



9. Saddleback Butte
8

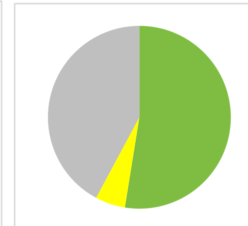


10. Big Rock Creek Wash
922

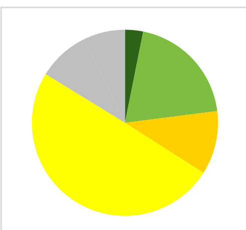


11. Gray Butte
-

12. Brainard Canyon
20

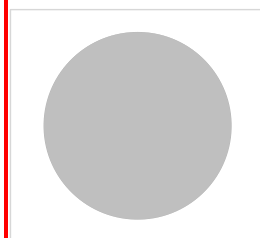


13. Southeast Canyons
1,365



### Landscape Linkages

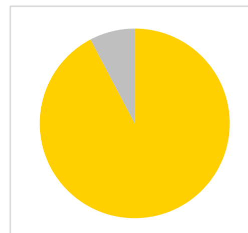
1. Three Points
3



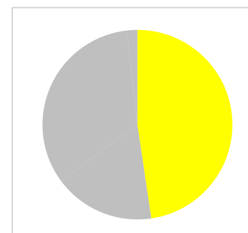
2. Portal Ridge - Poppy Preserve
35

3. Portal Ridge
-

4. Edwards Antelope Buttes
18



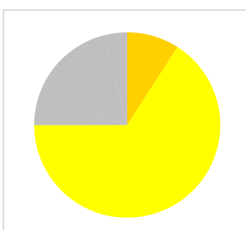
5. Edwards - Portal Ridge
45



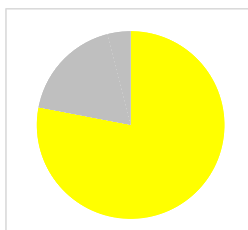
6. San Andreas
-

7. Barrel Springs
-

8. Little Rock
409

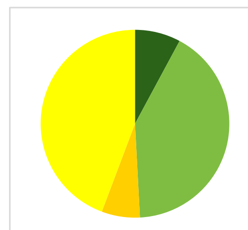


9. Little Rock Wash
189

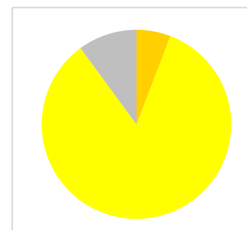


10. Little Rock Wash - Alpine Butte
-

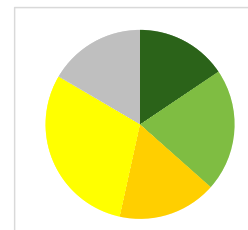
11. Alpine Butte-Edward
-



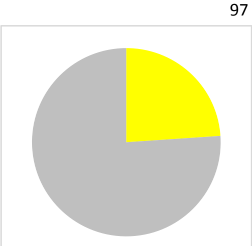
12. Big Rock Creek - Alpine Butte
53



13. Big Rock Wash
801



14. Devil's Punchbowl
97

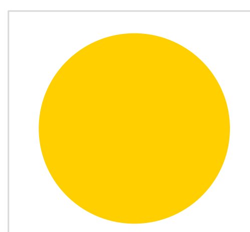


15. Edwards - Saddleback
15



16. El Mirage
-

17. Mescal Creek
6



## Mojavean-Sonoran Desert Scrub

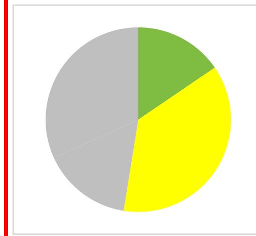


- High BV, High Intactness
- Moderate BV, High Intactness
- High BV, Moderate Intactness
- Moderate BV, Moderate Intactness
- Low BV or Low Intactness

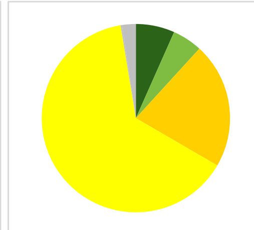
There are 121,569 acres (6.69%) of High Conservation Value habitat in Cores and 20,211 acres (1%) in Linkages. The total acreages, including all habitat conservation values, are shown with each graph. Proportions indicate the relative Biological Value and Intactness of that habitat.

### Habitat Cores

1. Kings Canyon 192

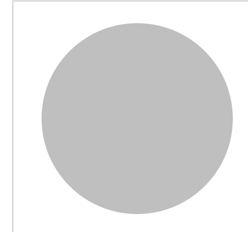


2. Poppy Preserve 2,109



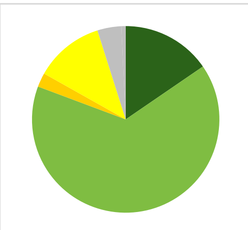
3. Munz Ranch Road -

4. Portal Ridge 214

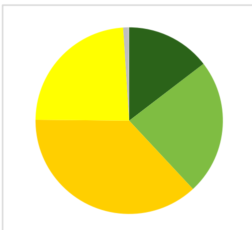


5. Ritter Canyon -

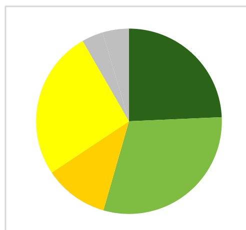
6. Edwards 43,422



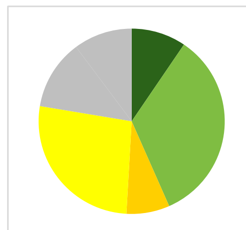
7. Little Rock Wash 5,414



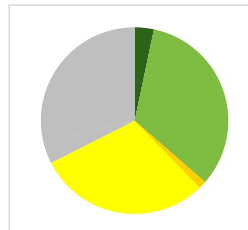
8. Alpine Butte 16,088



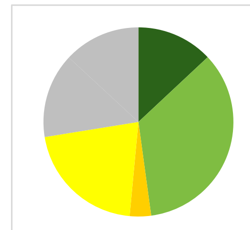
9. Saddleback Butte 39,148



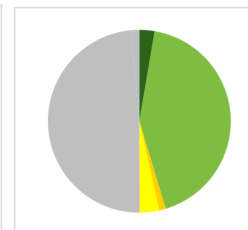
10. Big Rock Creek Wash 4,823



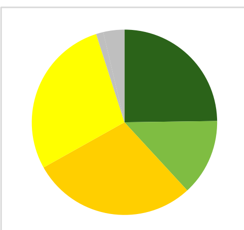
11. Gray Butte 17,742



12. Brainard Canyon 922



13. Southeast Canyons 11,617



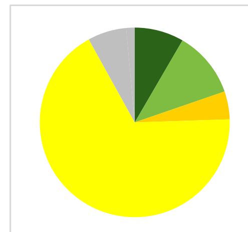
### Landscape Linkages

1. Three Points -

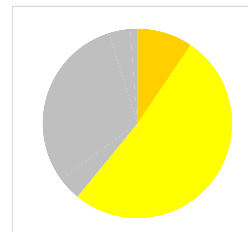
2. Portal Ridge - Poppy Preserve 4

3. Portal Ridge -

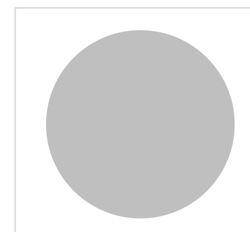
4. Edwards Antelope Buttes 726



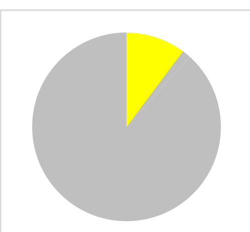
5. Edwards - Portal Ridge 522



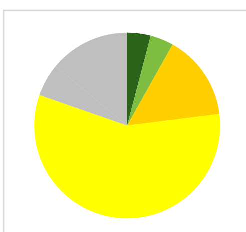
6. San Andreas 57



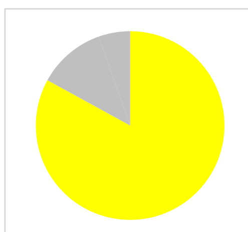
7. Barrel Springs 603



8. Little Rock 192



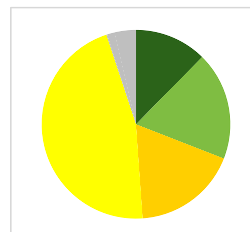
9. Little Rock Wash 189



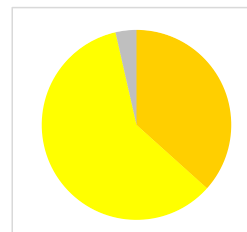
10. Little Rock Wash - Alpine Butte 880



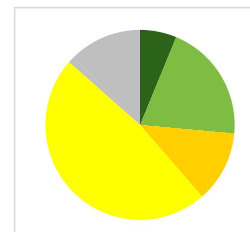
11. Alpine Butte-Edward -



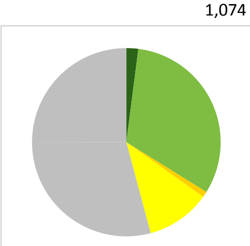
12. Big Rock Creek - Alpine Butte 975



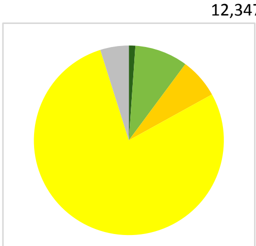
13. Big Rock Wash 748



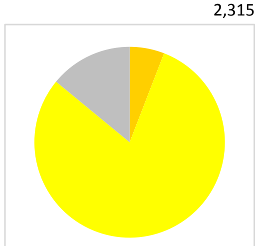
14. Devil's Punchbowl 1,074



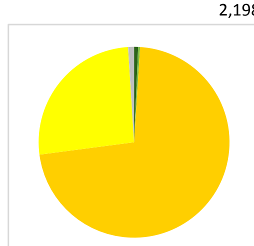
15. Edwards - Saddleback 12,347



16. El Mirage 2,315



17. Mescal Creek 2,198



**North American Warm Semi-Desert Cliff, Scree, and Other Rock Vegetation** **desert**

- High BV, High Intactness
- Moderate BV, High Intactness
- High BV, Moderate Intactness
- Moderate BV, Moderate Intactness
- Low BV or Low Intactness

There are 934 acres (9.64%) of High Conservation Value habitat in Cores and 4 acres (0%) in Linkages. The total acreages, including all habitat conservation values, are shown with each graph. Proportions indicate the relative Biological Value and Intactness of that habitat.

Habitat Cores

1. Kings Canyon -

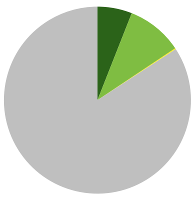
2. Poppy Preserve -

3. Munz Ranch Road -

4. Portal Ridge -

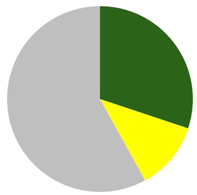
5. Ritter Canyon -

6. Edwards 5,821



7. Little Rock Wash -

8. Alpine Butte 7

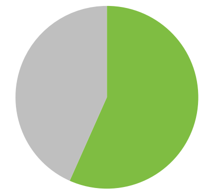


9. Saddleback Butte -

10. Big Rock Creek Wash -

11. Gray Butte -

12. Brainard Canyon 20



13. Southeast Canyons -

Landscape Linkages

1. Three Points -

2. Portal Ridge - Poppy Preserve -

3. Portal Ridge -

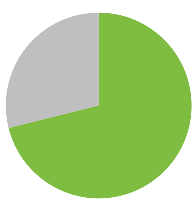
4. Edwards Antelope Buttes -

5. Edwards - Portal Ridge -

6. San Andreas -

7. Barrel Springs -

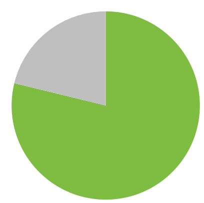
8. Little Rock 5



9. Little Rock Wash -

10. Little Rock Wash - Alpine Butte -

11. Alpine Butte-Edward -



12. Big Rock Creek - Alpine Butte -

13. Big Rock Wash -

14. Devil's Punchbowl -

15. Edwards - Saddleback -

16. El Mirage -

17. Mescal Creek -

## Southwestern North American Riparian, Flooded and Swamp Forest

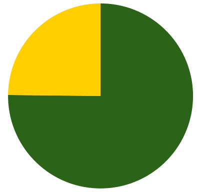


- High BV, High Intactness
- Moderate BV, High Intactness
- High BV, Moderate Intactness
- Moderate BV, Moderate Intactness
- Low BV or Low Intactness

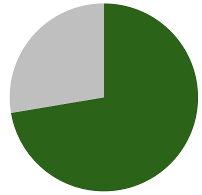
There are 395 acres (2.98%) of High Conservation Value habitat in Cores and 567 acres (4%) in Linkages. The total acreages, including all habitat conservation values, are shown with each graph. Proportions indicate the relative Biological Value and Intactness of that habitat.

### Habitat Cores

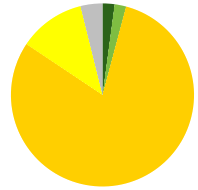
1. Kings Canyon — 48



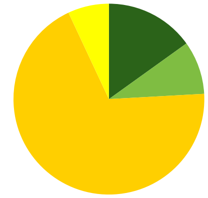
2. Poppy Preserve — 2



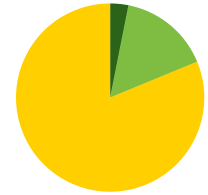
3. Munz Ranch Road — 70



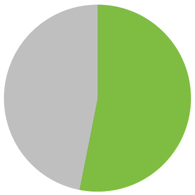
4. Portal Ridge — 45



5. Ritter Canyon — 90

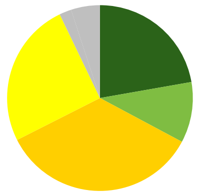


6. Edwards — 22



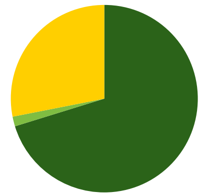
7. Little Rock Wash — -

8. Alpine Butte — 92



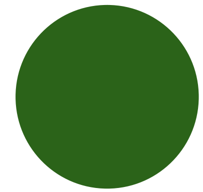
9. Saddleback Butte — -

10. Big Rock Creek Wash — 45



11. Gray Butte — -

12. Brainard Canyon — 1



13. Southeast Canyons — 0

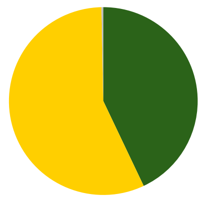


### Landscape Linkages

1. Three Points — -

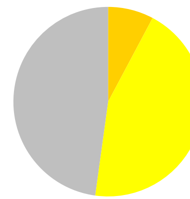
2. Portal Ridge - Poppy Preserve — 65

3. Portal Ridge — 51

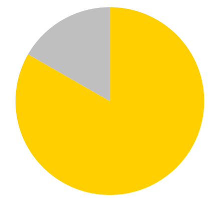


4. Edwards Antelope Buttes — -

5. Edwards - Portal Ridge — 50

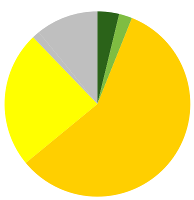


6. San Andreas — 26

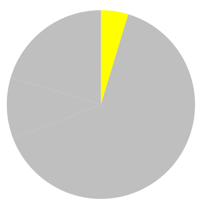


7. Barrel Springs — -

8. Little Rock — 43



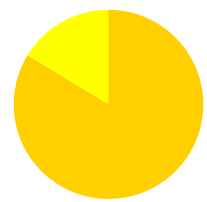
9. Little Rock Wash — 11



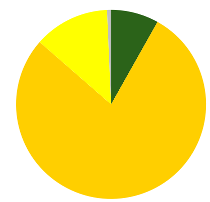
10. Little Rock Wash - Alpine Butte — -

11. Alpine Butte-Edward — -

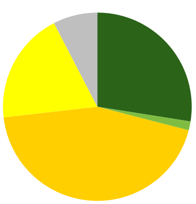
12. Big Rock Creek - Alpine Butte — 114



13. Big Rock Wash — 193



14. Devil's Punchbowl — 64



15. Edwards - Saddleback — -

16. El Mirage — -

17. Mescal Creek — -

## Warm Interior Chaparral

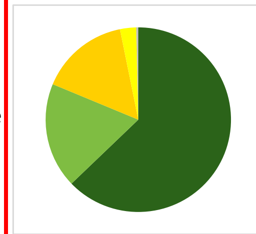
**riparian**

- High BV, High Intactness
- Moderate BV, High Intactness
- High BV, Moderate Intactness
- Moderate BV, Moderate Intactness
- Low BV or Low Intactness

There are 2,591 acres (4.86%) of High Conservation Value habitat in Cores and 862 acres (2%) in Linkages. The total acreages, including all habitat conservation values, are shown with each graph. Proportions indicate the relative Biological Value and Intactness of that habitat.

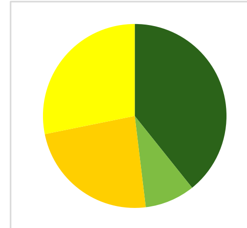
Habitat Cores

1. Kings Canyon 547

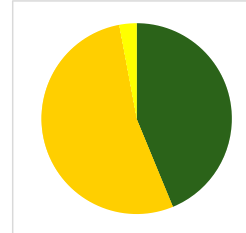


2. Poppy Preserve -

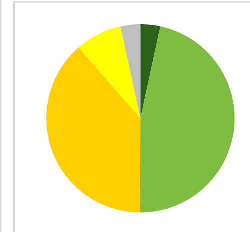
3. Munz Ranch Road 165



4. Portal Ridge 116



5. Ritter Canyon 718



6. Edwards -

7. Little Rock Wash -

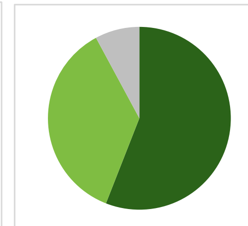
8. Alpine Butte -

9. Saddleback Butte -

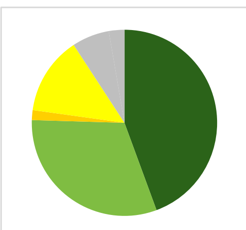
10. Big Rock Creek Wash -

11. Gray Butte -

12. Brainard Canyon 431

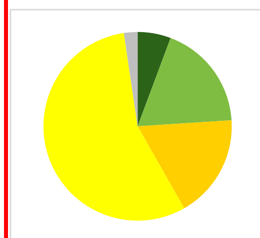


13. Southeast Canyons 743



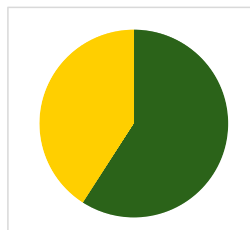
Landscape Linkages

1. Three Points 97



2. Portal Ridge - Poppy Preserve 6

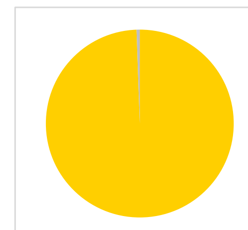
3. Portal Ridge 24



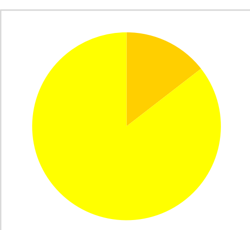
4. Edwards Antelope Buttes -

5. Edwards - Portal Ridge -

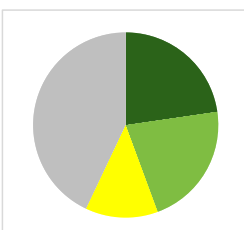
6. San Andreas 31



7. Barrel Springs 27



8. Little Rock 22



9. Little Rock Wash -

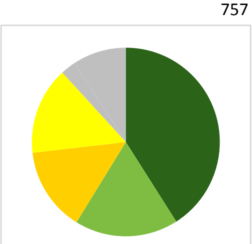
10. Little Rock Wash - Alpine Butte -

11. Alpine Butte-Edward -

12. Big Rock Creek - Alpine Butte -

13. Big Rock Wash -

14. Devil's Punchbowl 757



15. Edwards - Saddleback -

16. El Mirage -

17. Mescal Creek -

**Warm Semi-Desert/Mediterranean Alkali-Saline Wetland** **desert**

- High BV, High Intactness
- Moderate BV, High Intactness
- High BV, Moderate Intactness
- Moderate BV, Moderate Intactness
- Low BV or Low Intactness

There are 14,003 acres (8.07%) of High Conservation Value habitat in Cores and 266 acres (0%) in Linkages. The total acreages, including all habitat conservation values, are shown with each graph. Proportions indicate the relative Biological Value and Intactness of that habitat.

Habitat Cores

1. Kings Canyon -

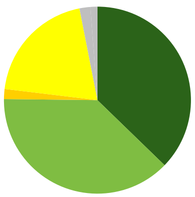
2. Poppy Preserve -

3. Munz Ranch Road -

4. Portal Ridge -

5. Ritter Canyon -

6. Edwards 14,449



7. Little Rock Wash -

8. Alpine Butte -

9. Saddleback Butte -

10. Big Rock Creek Wash -

11. Gray Butte -

12. Brainard Canyon -

13. Southeast Canyons -

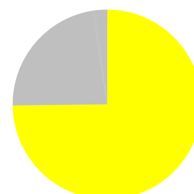
Landscape Linkages

1. Three Points -

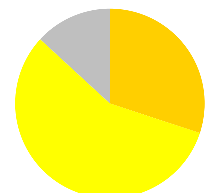
2. Portal Ridge - Poppy Preserve -

3. Portal Ridge -

4. Edwards Antelope Buttes 264



5. Edwards - Portal Ridge 42



6. San Andreas -

7. Barrel Springs -

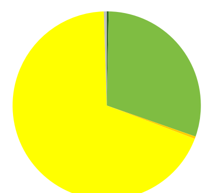
8. Little Rock -

9. Little Rock Wash 32



10. Little Rock Wash - Alpine Butte -

11. Alpine Butte-Edward -



12. Big Rock Creek - Alpine Butte -

13. Big Rock Wash -

14. Devil's Punchbowl -

15. Edwards - Saddleback -

16. El Mirage -

17. Mescal Creek -

## Western Cordilleran Montane-Boreal Riparian Scrub and Forest

- High BV, High Intactness
- Moderate BV, High Intactness
- High BV, Moderate Intactness
- Moderate BV, Moderate Intactness
- Low BV or Low Intactness

There are  acres (0%) of High Conservation Value habitat in Cores and  acres (0%) in Linkages.  The total acreages, including all habitat conservation values, are shown with each graph.  Proportions indicate the relative Biological Value and Intactness of that habitat.

### Habitat Cores

1. Kings Canyon -
2. Poppy Preserve -
3. Munz Ranch Road -
4. Portal Ridge -
5. Ritter Canyon -
6. Edwards -
7. Little Rock Wash -
8. Alpine Butte -
9. Saddleback Butte -
10. Big Rock Creek Wash -
11. Gray Butte -
12. Brainard Canyon -
13. Southeast Canyons -

### Landscape Linkages

1. Three Points -
2. Portal Ridge - Poppy Preserve -
3. Portal Ridge -
4. Edwards Antelope Buttes -
5. Edwards - Portal Ridge -
6. San Andreas -
7. Barrel Springs -
8. Little Rock -
9. Little Rock Wash -
10. Little Rock Wash - Alpine Butte -
11. Alpine Butte-Edward -
12. Big Rock Creek - Alpine Butte -
13. Big Rock Wash -
14. Devil's Punchbowl -
15. Edwards - Saddleback -
16. El Mirage -
17. Mescal Creek -

## Western Cordilleran montane-boreal wet meadow

riparian

- High BV, High Intactness
- Moderate BV, High Intactness
- High BV, Moderate Intactness
- Moderate BV, Moderate Intactness
- Low BV or Low Intactness

There are 3 acres (1.26%) of High Conservation Value habitat in Cores and  acres (0%) in Linkages.  The total acreages, including all habitat conservation values, are shown with each graph.  Proportions indicate the relative Biological Value and Intactness of that habitat.

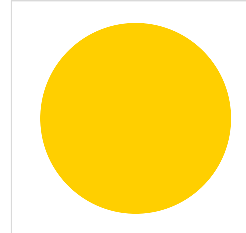
### Habitat Cores

1. Kings Canyon -

2. Poppy Preserve -

3. Munz Ranch Road -

4. Portal Ridge 3



5. Ritter Canyon -

6. Edwards -

7. Little Rock Wash -

8. Alpine Butte -

9. Saddleback Butte -

10. Big Rock Creek Wash -

11. Gray Butte -

12. Brainard Canyon -

13. Southeast Canyons -

### Landscape Linkages

1. Three Points -

2. Portal Ridge - Poppy Preserve -

3. Portal Ridge -

4. Edwards Antelope Buttes -

5. Edwards - Portal Ridge -

6. San Andreas -

7. Barrel Springs -

8. Little Rock -

9. Little Rock Wash -

10. Little Rock Wash - Alpine Butte -

11. Alpine Butte-Edward -

12. Big Rock Creek - Alpine Butte -

13. Big Rock Wash -

14. Devil's Punchbowl -

15. Edwards - Saddleback -

16. El Mirage -

17. Mescal Creek -

## Western North America Tall Sage Shrubland and Steppe

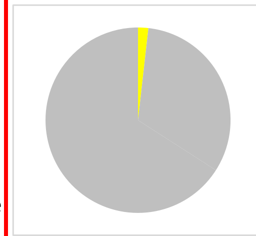
desert

- High BV, High Intactness
- Moderate BV, High Intactness
- High BV, Moderate Intactness
- Moderate BV, Moderate Intactness
- Low BV or Low Intactness

There are 29 acres (2.2%) of High Conservation Value habitat in Cores and 83 acres (6%) in Linkages. The total acreages, including all habitat conservation values, are shown with each graph. Proportions indicate the relative Biological Value and Intactness of that habitat.

### Habitat Cores

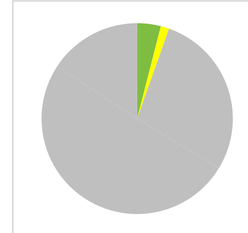
1. Kings Canyon 171



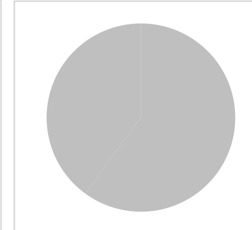
2. Poppy Preserve -

3. Munz Ranch Road -

4. Portal Ridge 190



5. Ritter Canyon 196



6. Edwards 16



7. Little Rock Wash -

8. Alpine Butte -

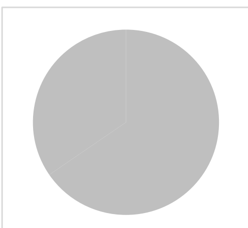
9. Saddleback Butte -

10. Big Rock Creek Wash -

11. Gray Butte -

12. Brainard Canyon -

13. Southeast Canyons 6

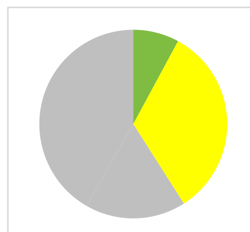


### Landscape Linkages

1. Three Points -

2. Portal Ridge - Poppy Preserve -

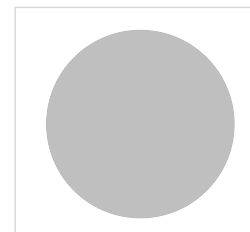
3. Portal Ridge 36



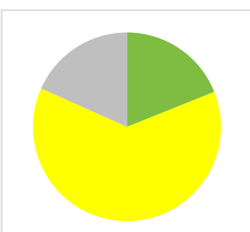
4. Edwards Antelope Buttes -

5. Edwards - Portal Ridge -

6. San Andreas 257



7. Barrel Springs 45



8. Little Rock 14



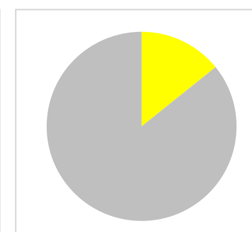
9. Little Rock Wash -

10. Little Rock Wash - Alpine Butte -

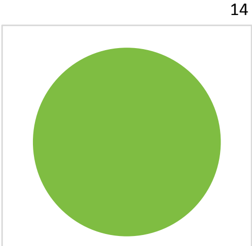
11. Alpine Butte-Edward -

12. Big Rock Creek - Alpine Butte -

13. Big Rock Wash 29



14. Devil's Punchbowl 14



15. Edwards - Saddleback -

16. El Mirage -

17. Mescal Creek -

**Western North America Wet Meadow and Low Shrub Carr** **riparian**

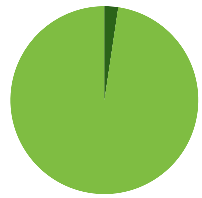
- High BV, High Intactness
- Moderate BV, High Intactness
- High BV, Moderate Intactness
- Moderate BV, Moderate Intactness
- Low BV or Low Intactness

There are 1 acres (4.06%) of High Conservation Value habitat in Cores and  acres (2%) in Linkages.  The total acreages, including all habitat conservation values, are shown with each graph.  Proportions indicate the relative Biological Value and Intactness of that habitat.

Habitat Cores

1. Kings Canyon -

2. Poppy Preserve 1

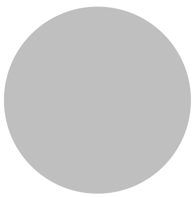


3. Munz Ranch Road -

4. Portal Ridge -

5. Ritter Canyon -

6. Edwards 7



7. Little Rock Wash -

8. Alpine Butte -

9. Saddleback Butte -

10. Big Rock Creek Wash -

11. Gray Butte -

12. Brainard Canyon -

13. Southeast Canyons -

Landscape Linkages

1. Three Points -

2. Portal Ridge - Poppy Preserve 0

3. Portal Ridge -

4. Edwards Antelope Buttes -

5. Edwards - Portal Ridge -

6. San Andreas -

7. Barrel Springs -

8. Little Rock -

9. Little Rock Wash -

10. Little Rock Wash - Alpine Butte -

11. Alpine Butte-Edward -

12. Big Rock Creek - Alpine Butte -

13. Big Rock Wash -

14. Devil's Punchbowl -

15. Edwards - Saddleback -

16. El Mirage -

17. Mescal Creek -

## Western North American Cool Semi-Desert Shrubland, Shrub-Steppe



- High BV, High Intactness
- Moderate BV, High Intactness
- High BV, Moderate Intactness
- Moderate BV, Moderate Intactness
- Low BV or Low Intactness

There are 10,082 acres (8.5%) of High Conservation Value habitat in Cores and 759 acres (1%) in Linkages. The total acreages, including all habitat conservation values, are shown with each graph. Proportions indicate the relative Biological Value and Intactness of that habitat.

### Habitat Cores

1. Kings Canyon -

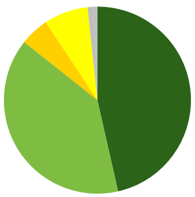
2. Poppy Preserve -

3. Munz Ranch Road -

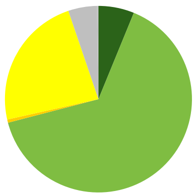
4. Portal Ridge -

5. Ritter Canyon -

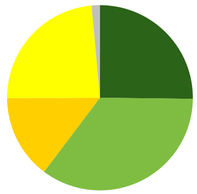
6. Edwards 5,350



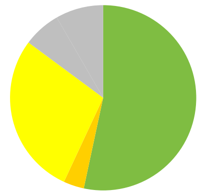
7. Little Rock Wash 1,626



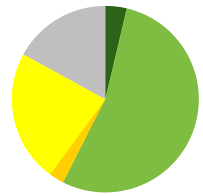
8. Alpine Butte 2,806



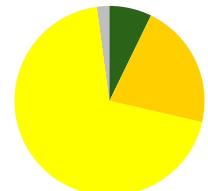
9. Saddleback Butte 368



10. Big Rock Creek Wash 186

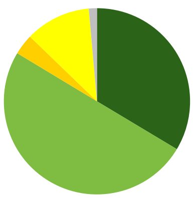


11. Gray Butte 13



12. Brainard Canyon -

13. Southeast Canyons 36



### Landscape Linkages

1. Three Points -

2. Portal Ridge - Poppy Preserve -

3. Portal Ridge -

4. Edwards Antelope Buttes -

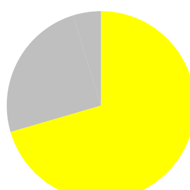
5. Edwards - Portal Ridge -

6. San Andreas -

7. Barrel Springs -

8. Little Rock -

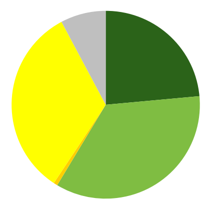
9. Little Rock Wash 206



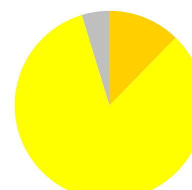
10. Little Rock Wash - Alpine Butte 5



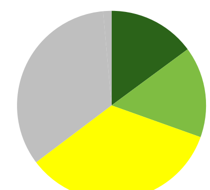
11. Alpine Butte-Edward -



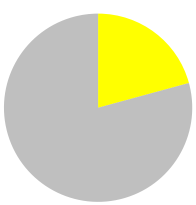
12. Big Rock Creek - Alpine Butte 613



13. Big Rock Wash 12



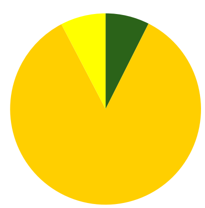
14. Devil's Punchbowl 55



15. Edwards - Saddleback -

16. El Mirage -

17. Mescal Creek 6



**Western North American Freshwater Marsh** **riparian**

- High BV, High Intactness
- Moderate BV, High Intactness
- High BV, Moderate Intactness
- Moderate BV, Moderate Intactness
- Low BV or Low Intactness

There are acres (0%) of High Conservation Value habitat in Cores and 3 acres (1%) in Linkages. The total acreages, including all habitat conservation values, are shown with each graph. Proportions indicate the relative Biological Value and Intactness of that habitat.

## Habitat Cores

| Core | Acres |
|---|---|
| 1. Kings Canyon | - |
| 2. Poppy Preserve | - |
| 3. Munz Ranch Road | - |
| 4. Portal Ridge | - |
| 5. Ritter Canyon | - |
| 6. Edwards | - |
| 7. Little Rock Wash | - |
| 8. Alpine Butte | - |
| 9. Saddleback Butte | - |
| 10. Big Rock Creek Wash | - |
| 11. Gray Butte | - |
| 12. Brainard Canyon | - |
| 13. Southeast Canyons | - |

## Landscape Linkages

| Linkage | Acres |
|---|---|
| 1. Three Points | - |
| 2. Portal Ridge - Poppy Preserve | 3 |
| 3. Portal Ridge | - |
| 4. Edwards Antelope Buttes | - |
| 5. Edwards - Portal Ridge | - |
| 6. San Andreas | - |
| 7. Barrel Springs | - |
| 8. Little Rock | - |
| 9. Little Rock Wash | - |
| 10. Little Rock Wash - Alpine Butte | - |
| 11. Alpine Butte-Edward | - |
| 12. Big Rock Creek - Alpine Butte | - |
| 13. Big Rock Wash | - |
| 14. Devil's Punchbowl | - |
| 15. Edwards - Saddleback | - |
| 16. El Mirage | - |
| 17. Mescal Creek | - |

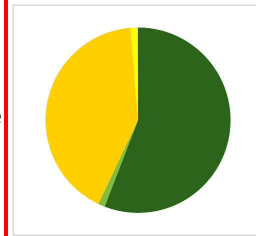
**Western North American Temperate Grassland and Meadow** **riparian**

- High BV, High Intactness
- Moderate BV, High Intactness
- High BV, Moderate Intactness
- Moderate BV, Moderate Intactness
- Low BV or Low Intactness

There are 5,230 acres (5.13%) of High Conservation Value habitat in Cores and 2,144 acres (2%) in Linkages. The total acreages, including all habitat conservation values, are shown with each graph. Proportions indicate the relative Biological Value and Intactness of that habitat.

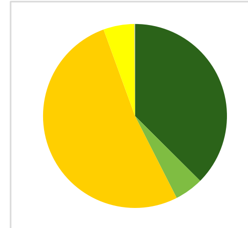
Habitat Cores

1. Kings Canyon 1,455

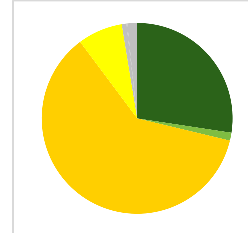


2. Poppy Preserve -

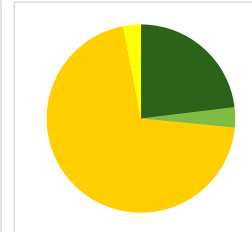
3. Munz Ranch Road 895



4. Portal Ridge 1,424



5. Ritter Canyon 1,495



6. Edwards -

7. Little Rock Wash -

8. Alpine Butte -

9. Saddleback Butte -

10. Big Rock Creek Wash -

11. Gray Butte -

12. Brainard Canyon -

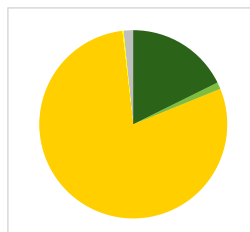
13. Southeast Canyons -

Landscape Linkages

1. Three Points -

2. Portal Ridge - Poppy Preserve 241

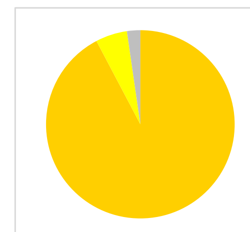
3. Portal Ridge 489



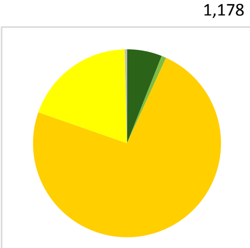
4. Edwards Antelope Buttes -

5. Edwards - Portal Ridge -

6. San Andreas 253



7. Barrel Springs 1,178



8. Little Rock -

9. Little Rock Wash -

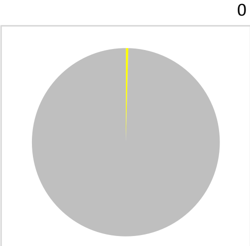
10. Little Rock Wash - Alpine Butte -

11. Alpine Butte-Edward -

12. Big Rock Creek - Alpine Butte -

13. Big Rock Wash -

14. Devil's Punchbowl 0



15. Edwards - Saddleback -

16. El Mirage -

17. Mescal Creek -