Appendix J

Draft Program Environmental Impact Report

Land Management Plan for the

Carrizo Plains Ecological Reserve

SCN# 2012111069

Prepared by:

The California Department of Fish and Wildlife

March 2019

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Acronyms

The following is a list of acronyms used in this report.

Acronym	Definition
ADA	Americans with Disabilities Act
AF	Acre Feet
ARB	Air Resources Board
ATCM	Air toxics control measure
BACT	Best Available Control Technology
BLM	US Department of Interior Bureau of Land Management
BMP	Best Management Practices
BRM	Bedrock mortar
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CalFire	California Department of Fire Protection and Forestry
CAL-OSHA	California Occupational Safety and Health Administration
CAP	Clean Air Plan
CAR	Center for Archaeological Research
CARB	California Air Resources Board
CBC	California Building Code
CCAA	California Clean Air Act
CCR	California Code of Regulations
CDC	Centers for Disease Control and Prevention
CDFW	California Department of Fish and Wildlife (former Ca. Dept. of Fish and Game)
CDWR	California Department of Water Resources
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CFC	Chlorofluorocarbons
CFMA	California Master Cooperative Wildland Fire Management (and Stafford Act Response) Agreement
CH_4	Methane
CHP	California Highway Patrol
CO	Carbon monoxide
CO_2	Carbon dioxide
COOP	Cooperative Observer Program
COSE	Conservation and Open Space Element
CPER	Carrizo Plains Ecological Reserve
CPNA	Carrizo Plain Natural Area
CPNM	Carrizo Plain National Monument
CPUC	California Public Utilities Commission

Acronym	Definition
CRHR	California Register of Historical Resources
CRP	Conservation Reserve Program
CRRE	Cuyama River Riparian Enhancement
CSU	Controlled surface use
CUP	Conditional Use Permit
CVSR	California Valley Solar Ranch
CWA	Clean Water Act
CWCG	California Wildfire Coordinating Group
DEIR	Draft Environmental Impact Report
DMA	Disaster Mitigation Act of 2000
DPA	Direct protection area
DRRP	Diesel Risk Reduction Plan
DSA	Division of the State Architect
EMFAC	Motor vehicle emissions model
EOP	San Luis Obispo County Emergency Operations Plan
EPA	(United States) Environmental Protection Agency
FEIR	Final Environmental Impact Report
FEIS	Final Environmental Impact Statement
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Maps
FLPMA	Federal Land Policy and Management Act
FMU	Fire management unit
FWFMP	Federal Wildland Fire Management Policy
GHG	Greenhouse gases
GIS	Geographic information system
GPS	Global positioning system
GWP	Global Warming Potential
HFC	Hydrofluorocarbons
HMGP	Hazard Mitigation Grant Program
IPCC	Intergovernmental Panel on Climate Change
ITE	Institute of Traffic Engineers
KRTP	Kern Regional Transportation Plan
kV	Kilovolt, a unit of power equal to 1,000 volts
LHMP	Local Hazard Mitigation Plan
LMP LPNF	Land Management Plan for the Los Padres National Forest
LMP	Land Management Plan
LPNF	Los Padres National Forest
MCL	Maximum contaminant levels
Mg/l	Milligrams per liter
MIS	Management indicator species

Acronym	Definition
MIST	Minimum impact suppression tactics
$MTCO_2e$	Metric tons of carbon dioxide equivalent
$MMTCO_2e$ is	Million Metric tons of carbon dioxide equivalent
MW	Megawatt, a unit of power equal to one million watts
MYA	Million years ago
N_2O	Nitrous oxide
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NEPA	National Environmental Policy Act
NESHAP	National Emissions Standards for Hazardous Air Pollutants
NFIP	National Flood Insurance Program
NO2	Nitrogen dioxide
NOA	Naturally occurring asbestos
NOAA	National Oceanic and Atmospheric Administration
NOC	Notice of Completion
NOI	Notice of Intent
NOP	Notice of Preparation
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
NWS	National Weather Service
O_3	Ozone
OES	(California) Office of Emergency Services
OPR	Governor's Office of Planning and Research
OSHA	Occupational Safety and Health Administration
PFCs	Perfluorocarbons
PM_{10}	Respirable particulate matter
$PM_{2.5}$	Fire particulate matter
PMP	Paleontological Mitigation Plan
PRC	California Public Resources Code
PV	Photovoltaic
RDM	Residual Dry Matter
RMP	Resource Management Plan
ROG	Reactive organic gases
RPS	Renewable Portfolio Standard
RSBL	Risk-Based Screening Levels
RWQCB	Regional Water Quality Control Board
SEMS	Standard Emergency Management System
SBC APCD	Santa Barbara County Air Pollution Control District

Acronym	Definition
SBCAG	Santa Barbara County Association of Governments
SEMS	Standard Emergency Management System
SIP	State Implementation Plan
SJVAPCD	San Joaquin Valley Air Pollution Control District
SLOFD	San Luis Obispo County Fire Department
SLO APCD	San Luis Obispo County Air Pollution Control District
SLO	San Luis Obispo
SLOCOG	San Luis Obispo Council of Governments
SOPs	Standard operating procedures
SOx	Sulfur dioxide
SWIRTS	Statewide Integrated Traffic Records System
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TAC	Toxic air contaminants
TDS	Total dissolved solids
TMDL	Total maximum daily load
TNC	The Nature Conservancy
TOG	Total organic gases
TPY	Tons per year
UDI	US Department of Interior
USDA	US Department of Agriculture
USGS	United States Geological Survey
VOC	Volatile organic compounds
VRM	Visual Resource Management

1 Introduction

1.1 Purpose

This Draft Environmental Impact Report (EIR) has been prepared in accordance with the California Environmental Quality Act (CEQA), to evaluate the potential adverse environmental impacts that may result from adoption and implementation of the Land Management Plan (LMP or Plan) for the Carrizo Plains Ecological Reserve (CPER or Reserve). Adoption or amendment of a Land Management Plan is considered a "project" as defined by Section (§) 15378 of the CEQA Guidelines (Guidelines), and therefore must be evaluated for potential adverse environmental impacts. An initial environmental study was prepared (Appendix B), which determined that the Draft LMP could result in one or more potentially significant adverse environmental impacts; therefore, an EIR is required.

In accordance with §15121(a) of the Guidelines, the purpose of this Draft EIR is to serve as an informational document that will inform the public agency decision makers and the public generally of the significant environmental effects of a project, identify ways to minimize the significant effects, and describe reasonable alternatives to the project.

The EIR will enable the California Department of Fish and Wildlife (Department or CDFW), the public, and other interested parties to consider the environmental consequences of approving and carrying out the Draft LMP prior to taking action, and will provide a basis for the tiering of future environmental documents. The EIR may also be used by responsible and trustee agencies in issuing permits and approvals for projects proposed under the LMP, as discussed below.

1.2 Project Background

Land within the CPER was acquired by the Department and designated as an ecological reserve to "*protect threatened or endangered native plants, wildlife, or aquatic organisms or specialized habitat types, both terrestrial and nonmarine aquatic, or large heterogeneous natural gene pools for the future use of mankind*" (§1580 of the Fish and Game Code). Generally speaking, the CPER acquisitions were designed to protect threatened and endangered species, and upland and grassland habitats.

The purpose of the Draft LMP is to set forth the goals, objectives, and actions for management of the Department's lands within the CPER consistent with the requirements of Section 1580 of the California Fish and Game Code. The primary objective of the LMP is to protect the natural habitats that contribute to, and help sustain, the overall ecosystem health of the region.

The specific goals for protection of the Carrizo Plains Ecological Reserve and for development of the LMP are described in Section 3.7, while Section 3.8 outlines the contents of the LMP.

1.3 Lead, Responsible, and Trustee Agencies

The Guidelines distinguish among "Lead," "Responsible," and "Trustee" agencies based on their responsibilities for approving or carrying out certain aspects of a project. The California Department of Fish and Wildlife is the Lead Agency for the project because it has the primary responsibility for approving the Plan and any subsequent management activities within the Reserve. A "Responsible Agency" refers to an agency other than the Lead Agency that has discretionary authority over certain management actions that

may be undertaken to implement the Draft LMP. Since the implementation of management actions recommended by the Draft LMP may occur over many years, they cannot be known with certainty at this time. However, the following agencies are likely to have some role in approving certain aspects of management actions recommended by the Draft LMP:

- The California Department of Transportation (Caltrans): Work within the rights-of-way along State Highway 166 would require approval from Caltrans.
- San Luis Obispo Air Pollution Control District (SLO APCD): This district issues prescribed burn permits that may be requested by the Department.
- Native American Heritage Commission (NAHC): In the event that management activities may adversely impact significant cultural resources, review and consultation with the NAHC is required.
- San Luis Obispo County: The County controls activities undertaken on County roads and rights-of-way.
- California Department of Forestry and Fire Protection (CalFire): This agency provides fire protection in the unincorporated county surrounding the Reserve and approves smoke management plans for prescribed burning that may be undertaken following adoption of the Draft LMP.

A "Trustee Agency" refers to a state agency having jurisdiction by law over natural resources affected by a project but without the legal authority to approve or carry out the project [Guidelines §15386]. The Department is the only trustee agency with jurisdiction over resources on the CPER. The Department of Interior U.S. Fish and Wildlife Service is responsible for the protection of species listed in accordance with the federal Endangered Species Act.

1.4 The Environmental Review Process

The CEQA requires that a public agency prepare an EIR for any project it proposes to approve that may have a significant adverse effect on the environment. The purpose of an EIR is not to recommend approval or denial of a project, but to provide decision makers/public agencies, and the general public with objective information regarding the range of potential environmental effects that could result from a proposed action. The EIR process is specifically designed to:

- objectively evaluate and disclose potentially significant direct, indirect, and cumulative impacts of a proposed project;
- identify alternatives that could reduce or eliminate a project's significant effects while continuing to achieve the major objectives of the project; and
- identify potentially feasible measures that reduce or avoid the significant effects of a project.

In addition, CEQA requires that an EIR identify those adverse impacts that remain significant after mitigation.

The environmental review process as mandated by CEQA and implemented to date as part of this project is summarized in the sections that follow in the order in which they occur.

1.4.1 Notice of Preparation

Immediately after deciding that an EIR is required, the Department as the Lead Agency must send a Notice of Preparation (NOP) soliciting input on the scope and content of the EIR. The NOP is sent to all "responsible," "trustee," and relevant federal agencies; to the State Clearinghouse, if one or more state agencies is a responsible or trustee agency; and to any other parties previously requesting notice in writing (State CEQA Guidelines Section 15082; Public Resources Code Section 21092.2). The NOP must also be posted in the office of the County Clerk for 30 days.

For this project, the NOP was circulated for 30 days, from November 21, 2012 to December 21, 2012. During that time, comment letters were received from public agencies and members of the public. The following parties submitted written comments on the NOP:

Steven G. Kohlmann

N. Patrick Veesart

The Chimineas Ranch Foundation

Craig Deutsche

U.S. Department of Interior, Bureau of Land Management*

The Northern Chumash Tribal Council/Fred Collins

Caltrans**

San Luis Obispo Air Pollution Control District**

Los Padres Forest Watch

Center for Biological Diversity

Western Watersheds Project

Santa Lucia Chapter of The Sierra Club

Sierra Club CA/NV Desert Committee

North County Watch

Rocky Mountain Elk Foundation, San Fernando Valley Chapter

* Federal agency
** Potential responsible agency

Appendix B provides the NOP and comment letters. The comments were addressed in the topical sections of this EIR as discussed below under Section 1.3— Scope of Analysis.

1.4.2 Scoping Meeting

Section 15082(c) of the State CEQA Guidelines states:

> *(c) Meetings. In order to expedite the consultation, the Lead Agency, a responsible agency, a trustee agency, the Office of Planning and Research or a project applicant may request one or more meetings between representatives of the agencies involved to assist the Lead Agency in determining the scope and content of*

> *the environmental information that the responsible or trustee agency may require. Such meetings shall be convened by the Lead Agency as soon as possible, but no later than 30 days after the meetings were requested. On request, the Office of Planning and Research will assist in convening meetings that involve state agencies.*
>
> *(1) For projects of statewide, regional or areawide significance pursuant to Section 15206, the Lead Agency shall conduct at least one scoping meeting.*

A duly-noticed scoping meeting was held on Monday December 3, 2012 at the San Luis Obispo Wildlife Area. The scoping meeting was attended by members of the public as well as representatives of public agencies and organizations. The following are representatives who signed in at the meeting.

David Chipping

Fred Collins, Northern Chumash Tribal Council

Craig Deutsche

N. Patrick Veesart

Dan Doiron

Cal French

Jim Patterson, San Luis Obispo County Board of Supervisors

Larry Smith

Steph Wald

The comments received were addressed in the topical sections of this EIR as discussed below under Section 1.3—Scope of Analysis.

1.4.3 Draft Environmental Impact Report (DEIR) Prepared

The DEIR provides the public and decision makers with an initial evaluation of potential environmental impacts of the proposed project. The DEIR must contain the following elements:

- A table of contents or index;
- A summary of the findings of the EIR;
- The project description;
- The environmental setting;
- Environmental impact analysis;
- Mitigation measures to reduce identified significant adverse impacts;
- An assessment of significant irreversible environmental changes and growth-inducing impacts;
- An evaluation of cumulative impacts;
- A description of effects found not to be significant;
- A discussion of project alternatives; and
- References and a list of those who prepared the DEIR.

This document constitutes the DEIR.

1.4.4 Public Notice and Review of Draft EIR

A lead agency must prepare a Public Notice of Availability of a draft EIR. The notice must be posted in the County Clerk's office for 30 days (Public Resources Code Section 21092) and the Lead Agency must send a copy of the notice to anyone requesting it (State CEQA Guidelines Section 15087). Additionally, public notice of the availability of a DEIR must be given by at least one of the following methods: 1) publication in a newspaper of general circulation; 2) posting on and off the project site; or 3) direct mailing to owners and occupants of contiguous property. As the lead agency, the Department must consult with, and request comments on, the DEIR from responsible and trustee agencies, and adjacent cities and counties, as applicable (Public Resources Code Sections 21104 and 21153). When a DEIR is sent to the State Clearinghouse for review, the public review period must be at least 45 days unless a shorter period is approved by the State Clearinghouse; in no case may the public review period be less than 30 days (Public Resources Code 21091).

1.4.5 Notice of Completion

A Notice of Completion (NOC) states that a DEIR has been prepared for a particular project and states where it can be reviewed. The Notice of Completion is sent at the same time the Notice of Availability is issued. In addition, the Lead Agency must file a Notice of Completion with the State Clearinghouse as soon as it completes a DEIR. The NOC was sent to the State Clearinghouse on March 15, 2019.

1.4.6 Final EIR (FEIR)

A final EIR must include: 1) the DEIR; 2) copies of comments received during public review; 3) a list of persons and entities commenting; and 4) written responses by the lead agency to the comments. The Department will prepare the FEIR based upon comments received on the DEIR.

1.4.7 Certification of FEIR

To approve a project for which an EIR has been prepared, the Department as the lead agency must make certain specific findings that: 1) the FEIR has been completed in compliance with CEQA; 2) that the FEIR was presented to the decision-making body of the lead agency; 3) that the decision-making body reviewed and considered the information contained in the FEIR prior to approving a project (State CEQA Guidelines Section 15090); 4) that the conclusions of the FEIR represent the independent judgment and analysis of the lead agency; and 5) that the FEIR provides factual evidence that links the significant adverse impacts identified in the FEIR with the conclusions reached regarding their significance after mitigation.

For each significant impact identified in the FEIR, the lead agency and responsible agencies (such as Caltrans and the SLO APCD) must find, based on substantial evidence in the record, that either 1) the project has been changed to avoid or substantially reduce the magnitude of the impact, 2) changes to the project are within another agency's jurisdiction and such changes have or should be adopted, or 3) specific legal, technological, economic social, or other considerations make the mitigation measures or project alternatives infeasible. The lead agency may approve a project for which significant and unavoidable adverse impacts have been identified in the FEIR. In such cases, findings of overriding considerations must be

made by the lead agency, which state that the benefits of the project outweigh the significant unavoidable impacts.

1.4.8 Lead Agency Project Decision

A lead agency may: 1) disapprove a project because of its significant environmental effects; 2) require changes in a project to reduce or avoid significant environmental effects; or 3) approve a project in spite of its significant environmental effects, if the proper findings and statement of overriding considerations are adopted (State CEQA Guidelines Sections 15041 through 15043). The Department may take an action to approve the Draft LMP following certification of the final EIR.

1.4.9 Mitigation Monitoring/Reporting Program

When a lead agency makes findings on significant effects identified in the FEIR, it must adopt a reporting or monitoring program for mitigation measures that were adopted or made conditions of project approval (Public Resources Code Section 21081.6). A monitoring program will be prepared as needed and adopted at the time the Draft LMP is approved.

1.4.10 Notice of Determination

An agency may file a Notice of Determination (NOD) after deciding to approve a project for which an EIR is prepared (State CEQA Guidelines Section 15094). The NOD must be filed with the County Clerk and must be posted for 30 days; the NOD must also be sent to anyone previously requesting such notice. Posting of the NOD starts a 30-day statute of limitations on legal challenges to the adequacy of the FEIR (Public Resources Code Section 21167[c]).

1.5 Scope of Analysis

The Initial Study prepared for the Draft LMP (and distributed with the Notice of Preparation) concluded that the project could result in potentially-significant adverse impacts in the following topical areas:

- Aesthetic and Visual Resources;
- Air Quality;
- Biological Resources;
- Cultural Resources;
- Geology and Soils;
- Hazards and Hazardous Materials;
- Hydrology and Water Resources; and
- Public Services – Fire Protection.

As discussed above, the Notice of Preparation was circulated for 30 days, from November 21, 2012 to December 21, 2012. In addition, a duly-noticed scoping meeting was held on December 3, 2012. Table 1 provides a summary of the comments received during the NOP/Scoping period.

Table 1: Summary of Written Comments on the Notice of Preparation and Comments from the CPER LMP Scoping Meeting

Author/Source	Issues	Response of the Draft EIR
Steven G. Kohlmann	Pronghorn populations are in decline in the area because of habitat loss and impacts of grazing. EIR should assess impacts of vegetation management on pronghorn.	Impacts of vegetation management on pronghorns are addressed in Section 5.4 Biological Resources.
N. Patrick Veesart	EIR should asses the impacts of grazing; allow for more public access; consider a "no-grazing" alternative; and assess a "free-use" strategy for grazing management. Assess adequacy of staffing to implement LMP. Use monitoring to determine when cattle should be turned out. Assess impacts of increased public access to North Chimineas Unit (including camping, biking, hiking, quail hunting) and use of Sprague Hill Road through to HWY 166. Consider using ranch headquarters as a visitor center. Assess impacts on law enforcement, including volunteer patrol. Consider setting aside wilderness areas.	Section 8 Alternatives assesses a No-Grazing Alternative as well as an Increased-Public-Access Alternative. Impacts of implementing the LMP on staffing and law enforcement are addressed in the Initial Study (Appendix B). The grazing plan that will developed consistent with the LMP will address the timing of grazing. Increased access for motor vehicles is considered as part of the Increased-Public-Access Alternative discussed in *Section 8. Alternatives* As above. As above.
Chimineas Ranch Foundation	Keep public access to a minimum. Grazing should be managed to promote the resource objectives of the CPER.	The comment letter identified issues to be addressed by the Draft LMP and did not raise any issues to be addressed by the EIR.
Craig Deutsche	Assess impacts of grazing, positive and negative, as well as the No-Grazing alternative. Consider the impacts of water distribution on the CPER, how they benefit some species but may adversely impact others. Consider a range of public access to the CPER, including motorized access; designate travel routes or consider preparing a Travel Management Plan.	Section 8 Alternatives assesses a No-Grazing Alternative as well as an Increased-Public-Access Alternative. Impacts associated with increased water distribution for wildlife are addressed in Section 5.4 Biological Resources. Increased access for motor vehicles is considered as part of the Increased-Public-Access Alternative discussed in Section 8 Alternatives.

Table 1: Summary of Written Comments on the Notice of Preparation and Comments from the CPER LMP Scoping Meeting

Author/Source	Issues	Response of the Draft EIR
Bureau of Land Management (BLM)	Maps provided in the NOP are not accurate with respect to federal ownership.	Boundary maps have been corrected.
	An update of the Caliente Resource Management Plan and associated EIS are nearing completion and should be used as a reference.	Information from the Bakersfield Field Office of the Bureau of Land Management, Proposed Resource Management Plan, 2012 was used to prepare the topical sections of this EIR.
	A federal mineral estate remains under a portion of the South Chimineas Unit of the CPER and remains open to fluid mineral extraction.	Mineral rights and their relation to the Draft LMP are discussed in Section 4 Environmental Setting and Baseline Conditions.
	Correct reference to BLM rather than USFS for Caliente Resource Area.	
Northern Chumash Tribal Council (NCTC)	Asks to see "baseline archaeological reports on all known sacred sites or places".	The archaeological investigations of the CPER referenced by the EIR are included in Appendix F of the LMP.
	Would like permission for NCTC to hike the property and to have ceremonies.	Section 8 Alternatives assesses an Increased-Public-Access Alternative.
	Encourages meaningful consultation with NCTC.	The NCTC was officially consulted by CDFW along with the representatives of other relevant Chumash organizations as part of the preparation of this EIR.
Caltrans	Highway 166 is eligible for designation as a scenic highway, and new construction along the highway would adversely impact that eligibility.	Potential impacts to scenic resources, including structures and parking along Highway 166, are addressed in Section 5.1 Aesthetics and Visual Resources.
	Additional parking along Highway 166 could pose safety problems.	Safety issues associated with new parking areas along Highway 166 are addressed in Section 5.7 Hazards.
San Luis Obispo Air Pollution Control District (APCD)	Permits for portable generators and equipment with engines that are 50 horsepower or greater may require statewide registration or an APCD permit.	The need for permits for certain equipment is noted in Section 5.3 Air Quality and Climate Change.
	The air quality section of the EIR should follow the recommendations of the 2012 CEQA Air Quality Handbook.	The analysis provided in Section 5.3 Air Quality and Climate Change follows the recommendations of the 2012 CEQA Air Quality Handbook.

Table 1: Summary of Written Comments on the Notice of Preparation and Comments from the CPER LMP Scoping Meeting

Author/Source	Issues	Response of the Draft EIR
	Prescribed burning can have significant adverse air quality impacts and should be coordinated with APCD.	Section 5.3 Air Quality and Climate Change discusses the potential air quality impacts associated with prescribed burning as well as the APCD permitting requirements.
Los Padres Forest Watch Center for Biological Diversity	Assess the impacts of grazing on the CPER and its resources, especially special-status plants and animals. LMP should establish measurable management objectives for grazing. Assess alternative strategies for vegetation management.	Potential impacts associated with grazing and other vegetation management strategies are assessed throughout the topical sections of the EIR, which features a No-Grazing Alternative.
Western Watersheds Project	Cumulative impacts should assess grazing on adjacent properties.	Potential impacts to plant and animal species are assessed in Section 5.4 Biological Resources.
Sierra Club	Consider a No-Grazing Alternative in EIR.	
Sierra Club CA/NV	Perform protocol-level surveys of rare plants as part of the EIR.	The potential impacts of the use of pesticides and herbicides are discussed in Section 5.7 Hazards.
Desert Committee North County Watch	The EIR should assess impacts to soil crusts, oak regeneration, wild ungulates and large mammals, additional "focal species", the use of pesticides and herbicides, water quantity and quality, strategies for the control of invasive species.	Potential impacts to water quality are discussed in Section 5.8 Hydrology and Water Quality.
	Consider an alternative that allows for more public access.	Section 8 Alternatives assesses an Increased-Public-Access Alternative.
	Assess potential impacts of new fencing on species of the CPER.	The potential impact of additional fencing is assessed in Section 5.4 Biological Resources.
	Assess potential visual impacts of establishing water tanks on the CPER.	Potential impacts to visual and aesthetic resources are assessed in Section 5.1 Aesthetic and Visual Resources.
	Consultation with USFWS is required.	Fire history is discussed in Section 5.7 Hazards.
	EIR should include maps of historic wildfires fires and fire frequency on the CPER.	Potential impacts to staffing and law enforcement are discussed in the Initial Study (Appendix B).
	The EIR should assess staffing requirements for law enforcement on the CPER.	The Department has formally consulted with the U.S. Fish and Wildlife Service as discussed in Section 5.4 Biological Resources.

Table 1: Summary of Written Comments on the Notice of Preparation and Comments from the CPER LMP Scoping Meeting

Author/Source	Issues	Response of the Draft EIR
Rocky Mountain Elk Foundation, San Fernando Valley Chapter	Continue to manage grazing in a manner that benefits tule elk.	Potential impacts associated with grazing and other vegetation management strategies are assessed throughout the topical sections of the EIR.
	Continue the restrictions on public access to the North Chimineas Unit of the CPER.	Section 8. Alternatives assesses an Increased-Public-Access Alternative.

1.6 Impacts Found to Be Less Than Significant

According to the Initial Study released along with the Notice of Preparation on November 21, 2012, adoption and implementation of the Draft LMP is expected to result in a less-than-significant impact for the following topical areas:

- Agricultural Resources;
- Land Use and Planning;
- Mineral Resources;
- Noise;
- Population and Housing;
- Public Services;
- Recreation;
- Transportation/Traffic; and
- Utilities and Service Systems.

Accordingly, this EIR does not assess impacts in these topical areas. The Initial Study/NOP provides the evidence to support the conclusion that the Project will have a less-than-significant impact to these topics (Appendix B).

1.7 Assumptions

The assumptions used in the topical analyses of this EIR are described in detail in Section 3 Project Description, and Section 4 Environmental Setting and Baseline Conditions.

1.8 Documents Incorporated by Reference

Section 15150 of the State CEQA Guidelines permits documents of lengthy technical detail to be incorporated by reference in an EIR. Specifically, Section 15150 states that an EIR may:

> "*…incorporate by reference all or portions of another document which is a matter of public record or is generally available to the public…*"

Accordingly, this EIR incorporates by reference information and analyses derived from previously prepared environmental documents that are relevant to the consideration of environmental effects of the Draft LMP. In addition to materials cited, the following documents have been used in this EIR and are incorporated herein by reference as if set forth in their entirety:

California Department of Fish and Wildlife (CDFW). 2018. Land management plan for the Carrizo Plains Ecological Reserve. Public draft prepared by Jodi McGraw Consulting. October 2018. 243 pages + appendices.

California Department of Fish and (Game) Wildlife (CDFW). 2011b. Mitigated negative declaration for grazing lease allotment Carrizo Plains Ecological Reserve (Chimineas Ranch), San Luis Obispo County. November 2011. Region 4. Fresno, California.

San Luis Obispo County (SLO County). 2011a. California Valley Solar Ranch conditional use permit, and Twisselman reclamation plan and conditional use permit: final environmental impact report (DRC 2008-00097, DRC 2009-0004). January 2011. Report prepared by Aspen Environmental Group,

San Francisco, California. Department of Planning and Building. Accessed at: http://www.sloplanning.org/EIRs/CaliforniaValleySolarRanch/

San Luis Obispo County (SLO County). 2011b. Topaz Solar Farm (First Solar/Optisolar) conditional use permit (DRC2008-00009), final environmental impact report. March 2011. Department of Planning and Building. Accessed at: http://www.slocounty.ca.gov/planning/environmental/EnvironmentalNotices/optisoloar.htm

U.S. Department of Agriculture (USDA). 2005a. Record of decision Los Padres National Forest land management plan. U.S. Department of Agriculture, Forest Service, Pacific Southwest Region. 26 pages. Accessed at: https://fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5337803.pdf

Bureau of Land Management (BLM). 2010. Carrizo Plain National Monument approved resource management plan and record of decision. United States Department of the Interior. Bakersfield Field Office. Bakersfield, California. 356 pages. Accessed at: http://www.blm.gov/style/medialib/blm/ca/pdf/bakersfield/carrizo.Par.8414.File.dat/CarrizoPlainNationalMonumentApprovedROD.pdf

Bureau of Land Management (BLM). 2014. Record of decision and approved resource management plan for the Bakersfield office. United States Department of the Interior. Bakersfield, California. 320 pages. Accessed at: http://www.blm.gov/style/medialib/blm/ca/pdf/bakersfield/planning/Bakersfield_ARMP_ROD.Par.35153.File.dat/Bakersfield_ROD-ARMP.pdf

These documents are available for review at the 3196 S. Higuera, Suite A, San Luis Obispo, California.

1.9 Forecasting and Specificity

The preparation of an EIR necessarily involves some degree of forecasting and speculation. The CEQA Guidelines speak to these issues as follows:

> *15144. Forecasting. Drafting an EIR or preparing a Negative Declaration necessarily involves some degree of forecasting. While foreseeing the unforeseeable is not possible, an agency must use its best efforts to find out and disclose all that it reasonably can.*
>
> *15145. Speculation. If, after thorough investigation, a Lead Agency finds that a particular impact is too speculative for evaluation, the Agency should note its conclusion and terminate discussion of the impact.*
>
> *15146. Degree of Specificity. The degree of specificity required by an EIR will correspond to the degree of specificity involved in the underlying activity which is described in the EIR.*
>
> *An EIR on a construction project will necessarily be more detailed in the specific effects of the project than will be an EIR on the adoption of a local general plan or comprehensive zoning ordinance because the effects of the construction can be predicted with greater accuracy.*
>
> *An EIR on a project such as the adoption or amendment of a comprehensive zoning ordinance or local general plan should focus on the secondary effects that can be expected to follow from the adoption or*

> *amendment, but the EIR need not be as detailed as an EIR on the specific construction projects that might follow.*

This EIR focuses on the impacts that could result from implementation of the management strategies and actions described in the Project Description (Section 3). The degree of specificity corresponds to the degree of detail contained in the project description provided by the Lead Agency.

1.10 Program EIR

The State CEQA Guidelines provide for a number of different types of EIRs to suit the range of projects and activities that may be considered by the Lead Agency. Based on the level of detail of the Draft LMP, this EIR has been prepared as a Program EIR, which, according to Section 15168, is appropriate when a project consists of:

> *…a series of actions that can be characterized as one large project and are related in one of more of the following ways:*
>
> - *Geographically,*
> - *As logical parts in the chain of contemplated actions,*
> - *In connection with the issuance of rules, regulations, plans, or other general criteria to govern the conduct of a continuing program, or*
> - *As individual activities carried out under the same authorizing, statutory, or regulatory authority and having generally similar environmental effects which can be mitigated in similar ways.*

A Program EIR is intended to provide analysis that is more general and anticipate future project refinement and review.

The CEQA Guidelines Section 1516B [c] provides that subsequent activities in the program must be examined in the light of the program EIR to determine whether an additional environmental document should be prepared. If a subsequent activity would have significant environmental effects that were not analyzed in the program EIR, an Initial Study environmental checklist would be prepared to determine if an EIR, a Negative Declaration, or an exemption would be appropriate. But if no new or substantially more severe significant environmental effects would occur (pursuant to Section 15162), the activity can be approved as being within the scope of the project covered by the program EIR, without having to prepare a new environmental document (CEQA Guidelines §15168[c]). The Lead Agency is required to incorporate feasible mitigation measures and alternatives developed in the program EIR into subsequent actions of the program.

1.11 Organization of This EIR

This EIR is organized to enable the Lead Agency, the public, and other interested parties to understand the potential adverse environmental consequences of adopting and implementing the Draft LMP. Accordingly, the EIR is organized into ten chapters and seven appendices, as follows:

Chapter 1: Introduction

The Introduction describes the purpose of the EIR, the scope of topics covered, and how it will be used in the decision-making process.

Chapter 2: Summary of Environmental Effects

Chapter 2 provides a summary of potential impacts, mitigation measures, and residual impacts in tabular form.

Chapter 3: Project Description

This chapter describes the project under consideration by CDFW. More detailed information is provided in the Draft LMP (CDFW 2018).

Chapter 4: Environmental Setting and Baseline Environmental Conditions

Chapter 4 describes the conditions that existed at the time the Notice of Preparation was distributed, which will serve as the baseline against which the significance of environmental impacts will be assessed. As part of the baseline conditions, this chapter also summarizes the resource management plans of surrounding jurisdictions as well as reasonably foreseeable regional development which may contribute to cumulative impacts. Chapter 4 also explains the methodology for characterizing the impacts provided in the EIR, along with the organization of the topical discussions. Finally, Chapter 4 discusses the approach for the consideration of cumulative impacts and provides a list of other environmental documents that were used to prepare the draft EIR.

Chapter 5: Impact Analysis by Topic

Chapter 5 contains the topical analysis of impacts associated with the Draft LMP. The analysis uses a systematic approach and is preceded by a discussion of the methodologies used to assess the significance of impacts. Each issue area is analyzed separately and the discussion is further divided into the following topics: the Environmental Setting, the Regulatory Setting, Standards of Significance, Project Impacts, Management Actions of the Land Management Plan, Additional Mitigation Measures (if any), the Cumulative Setting, and Impacts and Management Actions. The Setting describes the existing environmental and/or regulatory conditions affecting the Draft LMP area.

Chapter 6: Cumulative Impacts

Cumulative impacts are those associated with implementation of the Draft LMP when added to impacts associated with other closely related past, present, and reasonably foreseeable future plans and projects in the region. Cumulative impacts are discussed in each of the topical sections and summarized in Chapter 6. The approach to the consideration of cumulative impacts is described in Section 5.1. Impact Analysis.

Chapter 7: Growth-Inducing Impacts and Other CEQA Considerations

This chapter provides a discussion of other issues required to be considered by an EIR, including growth-inducing impacts, significant environmental changes that would occur if the project is adopted, as well as significant and unavoidable environmental effects.

Chapter 8: Alternatives

This chapter provides a summary comparison of the environmental effects of feasible project alternatives, as well as the No-Project Alternative. At the end of the discussion, the EIR identifies the alternative that is "environmentally superior" for each issue area. This analysis allows decision makers to make an informed choice by providing a full explanation of the environmental implications of the different options.

Chapter 9: Preparers

This chapter identifies the preparers of the EIR by topic.

Appendices

The appendices to the EIR provide the following supplemental information:

Appendix A: Geographic Information System Data Used to Prepare the EIR;

Appendix B: Initial Study and Notice of Preparation;

Appendix C: Best Management Practices;

Appendix D: California Emissions Estimation Model (CalEEMod) Output (CAPCOA 2011);

Appendix E: Review of Grazing and Rangeland Management Actions (Van Hoorn and Ford 2013); and

Appendix F: Maps of Biological Survey Areas and Results.

2 Summary

To aid the public and decision makers in understanding the findings of an EIR, the California Environmental Quality Act (CEQA) Guidelines §15123 requires that a summary be provided which discusses the significant environmental effects and mitigation measures, project alternatives, areas of controversy, and issues to be resolved.

2.1 Introduction

This Environmental Impact Report (EIR) provides an analysis of the potential impacts associated with the Draft Land Management Plan (Draft LMP) for the Carrizo Plains Ecological Reserve (CPER). The analysis focuses upon potential environmental impacts that could arise from implementation of the various management actions recommended by the LMP. The LMP recommends a range of Best Management Practices (BMPs) to be applied when management actions have the potential to adversely impact the resources of the Reserve.

2.2 Project Characteristics

The purpose of the Draft LMP is to set forth the goals, objectives, and actions for management of the Department's lands within the CPER consistent with the requirements of Section 1580 of the California Fish and Game Code (Section 3.7).

The Draft LMP is organized as follows:

Section 1 – Introduction: provides an overview of the CPER and the Plan, and describes the purpose and history of the Reserve's acquisition.

Section 2 – Property Description: describes the historic and current land use and the abiotic (non-biological) conditions including geology, hydrology, cultural resources, infrastructure and facilities, and current uses of the Reserve lands;

Section 3 – Habitat and Species Description: describes the biological resources, including the plant communities (i.e., vegetation) and species, animals, and rare species;

Section 4 – Management Goals and Tasks: outlines the management goals for the Reserve, including the steps that will be taken to manage the biological and cultural resources, while providing for compatible public uses and maintaining the facilities.

Section 5 — Operations and Maintenance: assesses the resources needed to implement the Plan, including personnel and direct costs.

References: lists the sources of information used and cited in the LMP.

Appendices: documents that provide more detailed information used to develop the LMP, which can also facilitate its implementation (Section 3.8).

The goals and actions for management of the CPER are broadly designed to protect biological and cultural resources while providing for wildlife-dependent public use. Management is outlined in three hierarchical levels: elements, goals, and tasks. The elements are the management categories or considerations; the goals identify the conditions management is designed to achieve; and tasks are the steps that will be taken to attain the goals.

The Draft LMP also recommends Best Management Practices to guide the implementation of management actions in a manner that protects the resources of the Reserve and mitigates potentially adverse environmental effects. Section 3 Project Description provides a more complete description of the Draft LMP.

2.3 Areas of Controversy Known to the Lead Agency

The California Department of Fish and Wildlife (CDFW, or Department) is the lead agency for adoption of the LMP. In accordance with Section 15082 of the State CEQA Guidelines, the Department prepared and distributed a Notice of Preparation (NOP) that was circulated for public review for 30 days from November 21, 2012 to December 21, 2012. The NOP included a summary of probable effects on the environment from implementation of the project. During that time, comments were received from public agencies and members of the public as summarized in Section 1 Introduction. A duly-noticed scoping meeting was held on Monday, December 3, 2012 at the San Luis Obispo Wildlife Area. The scoping meeting was attended by members of the public as well as representatives of public agencies and organizations. Comments received in response to the NOP and at the scoping meeting were considered in the preparation of this EIR. The issues raised included concerns about livestock grazing, public access to the Reserve, and impacts to biological resources as summarized in Table 1.

2.4 Issues to Be Resolved

No known issues remain to be resolved.

2.5 Summary of Alternatives

This EIR considers three alternatives:

Alternative 1 – The No-Project Alternative: The No-Project Alternative is required by CEQA. Under the No-Project Alternative, the Draft LMP would not be adopted and management of the CPER would continue as it has since the Reserve was formed. Existing management and monitoring activities (Section 5.4) would continue. These activities include:

- Installation of fencing along creeks and around springs;
- Ongoing research and monitoring of various species;
- Efforts to control and where feasible, eradicate, exotic species; and
- Managed grazing for vegetation management.

Alternative 2 – No-Grazing Alternative: Under this alternative, all of the management actions and Best Management Practices recommended by the Draft LMP except managed livestock grazing, which would not be used as a vegetation management tool.

Alternative 3 – Increased-Public-Access Alternative: Under this alternative the Draft LMP would be adopted and would allow for a greater geographic access to the CPER and a wider range of allowable activities, including:

- Unsupervised day use for hiking, only, on the North Chimineas Unit;
- Development of a more extensive trail system for hiking than proposed by the Draft LMP; and
- Construction of more facilities for wildlife viewing on the North Chimineas Unit.

The alternatives are described in detail below. Each will result in different levels of environmental impacts while affording a reasonable range of options for the consideration of decision makers with respect to the management of the CPER. These alternatives constitute an adequate range of reasonable alternatives as required under State CEQA Guidelines Section 15126.6.

Several factors were considered in determining the range of alternatives analyzed in this EIR and the level of analytical detail that is provided. These factors include: 1) the nature of the significant impacts of the proposed project (the Draft LMP); 2) the ability of alternatives to avoid or lessen the significant impacts associated with the project; 3) the ability of the alternatives to meet the objectives of the project; and 4) the feasibility of the alternatives. In addition, the alternatives were derived by considering the following sources of information:

- Comments provided by the public, organizations, and government agencies during the public outreach phase of the Draft LMP;
- Comments from the public, organizations and government agencies received during the comment period on the Notice of Preparation and public scoping meeting; and
- The findings and conclusions of the topical sections of this EIR with respect to potentially significant impacts.

The Draft LMP was determined to be the environmentally superior alternative (Section 8.4).

2.6 Summary of Environmental Impacts and Mitigation Measures

Table 2 provides a summary of the environmental effects associated with implementation of the Draft LMP, the levels of significance of adverse effects, mitigation applied to each impact, if applicable, and the residual level of significance. If an impact is determined to be significant or potentially significant, mitigation measures are identified, where appropriate and feasible. More than one mitigation measure may be required to reduce the impact to a less-than-significant level. This Draft EIR assumes that all applicable plans, policies, and regulations would be implemented as required, including, but not necessarily limited to, the management actions and Best Management Practices contained in the Draft LMP (Appendix C). Applicable plans, policies, and regulations are identified and described in each topical issue area of this EIR. A description of the organization of the environmental analysis, as well as key foundational assumptions regarding the approach to the analysis, is provided in Section 5 Impact Analysis.
Impacts are categorized in the following manner:

Significant and Unavoidable/Cumulatively Considerable (Class I)

These impacts cannot be mitigated to a less than significant level. To approve a project resulting in one or more significant and unavoidable impact, the CEQA Guidelines require decision makers to make findings of overriding consideration that "*…specific legal, technological, economic, social, or other considerations make infeasible the mitigation measures or alternatives identified in the EIR…*".

Potentially Significant (Class II)

These impacts can be mitigated to a level of insignificance by measures identified in this EIR and the project description. When approving a project with significant but mitigable impacts, the decision makers must make findings that changes or alternatives to the project have been incorporated that reduce the impacts to a less than significant level.

Less than Significant (Class III)

Less than significant impacts may be adverse but are not significant because of management actions and Best Management Practices incorporated into the project description of the Draft LMP that reduce the impact to a less than significant level.

Beneficial Impacts (Class IV)

Beneficial impacts are the environmental impacts of the Draft LMP that would result in one or more positive changes to the environment.

Table 2: Summary of Impacts and Mitigation Measures				
Impact Number	**Description**	**Level of Significance Before BMPs**	**Best Management Practices**	**Level of Significance After BMPs**
5.1 Aesthetics and Visual Resources				
5.2-1	The construction of new or expanded parking areas could adversely alter the scenic qualities of the CPER.	Potentially significant	BMP G-1, AV-1, AV-2, DC-2 New construction will be subject to project-specific CEQA compliance which will identify the appropriate BMPs from the Draft LMP to ensure visual impacts associated with new or expanded parking areas do not detract from the visual character of the CPER.	Less than significant (Class III)
5.2-2	The construction of new trails could adversely alter the scenic qualities of the CPER.	Potentially significant	BMP G-1, DC-1	Less than significant (Class III)
5.2-3	The construction of new wildlife viewing facilities could adversely alter the scenic qualities of the CPER.	Potentially significant	BMP G-1, AV-1, AV-2, DC-2	Less than significant (Class III)
5.2-4	The placement of water tanks to provide supplemental water for animals could adversely impact the visual character of the CPER.	Potentially significant	BMP G-1, AV-1, AV-2, DC-2	Less than significant (Class III)
5.2-5	The installation of exclusionary fencing around sensitive resources and along the CPER boundary could adversely alter the scenic qualities of the CPER, while benefiting the biological resources they are designed to protect.	Adverse but less than significant	BMP AV-4 New fencing shall be placed in the least visible location practical to accomplish the resource protection or safety objectives of the LMP.	Less than significant (Class III)
5.2-6	Prescribed burning as recommended by the Draft LMP could adversely alter the scenic qualities of the CPER.	Potentially significant	BMP AQ-7 Prescribed burning shall be conducted in full compliance with the provisions of Rule 502 of the San Luis Obispo County Air Pollution Control District (SLO APCD) Rules and Procedures	Less than significant (Class III)

Table 2: Summary of Impacts and Mitigation Measures				
Impact Number	**Description**	**Level of Significance Before BMPs**	**Best Management Practices**	**Level of Significance After BMPs**
5.2-7	Implementation of management actions recommended by the Draft LMP could result in the discovery of previously undiscovered cultural resources, which in turn would necessitate actions to protect these resources.	Potentially significant	BMP AV-2, AV-4, S-6 New construction will be subject to project-specific CEQA compliance, which will identify the appropriate BMPs from the Draft LMP to ensure visual impacts associated with efforts to protect cultural resources do not detract from the visual character of the CPER.	Less than significant (Class III)
5.2-8	Implementation of the management actions recommended by the Draft LMP, when added to other closely-related past, present, and reasonably-foreseeable future projects in the region, could alter the area's scenic qualities during the timeframe of the Draft LMP.	Potentially significant	Previously approved and reasonably foreseeable development activities in the California Valley and the region will significantly alter the visual character of the area. However, new development will be subject to the permitting requirements of the applicable jurisdiction and subject to compliance with CEQA, which will help minimize the cumulative degradation of visual qualities. Implementation of the management actions and BMPs recommended by the Draft LMP is expected to have an overall beneficial impact on the visual qualities of the CPER as the habitats and vegetative communities are maintained, restored, and enhanced. The Draft LMP recommends a range of management actions and BMPs to ensure implementation of the Draft LMP complements the visual qualities of the CPER. In addition, implementation of management plans on federal lands surrounding the CPER will contribute to the protection of the visual qualities of these areas.	Less than cumulatively considerable (Class III). Beneficial impact (Class IV)
5.2 Air Quality				
5.3-1	Management actions recommended by the Draft LMP could result in construction activities, which would generate short-term construction-related emissions.	Potentially significant	BMP G-1, G-2, G-3, AQ-4, AQ-5, AQ-6 Implementation of the management actions and BMPs included the Draft LMP will ensure air quality impacts	Less than significant (Class III)

Table 2: Summary of Impacts and Mitigation Measures

Impact Number	Description	Level of Significance Before BMPs	Best Management Practices	Level of Significance After BMPs
			associated with construction activities do not exceed the thresholds of significance adopted by SLO APCD. New construction will be subject to project-specific CEQA compliance which will identify the appropriate BMPs from the Draft LMP to ensure impacts associated with construction activities do not exceed SLO APCD thresholds of significance.	
5.3-2	Motor vehicle trips associated with implementation of the management actions recommended by the Draft LMP will generate particulate matter and ozone precursors, which could contribute to a periodic exceedance of adopted air quality standards.	Potentially significant	BMP AQ-1, AQ-2, AQ-3	Less than significant (Class III)
5.3-3	Implementation of the Draft LMP will generate additional motor vehicle trips on surrounding roadways serving the CPER, which in turn will result in elevated CO emissions.	Less than significant	None required.	Less than significant Class III)
5.3-4	Periodic prescribed burning will result in temporary adverse impacts to air quality.	Potentially significant	Mitigation Provided by Existing Regulations: Regulations for the management of smoke from agriculture and prescribed burning are set forth in the Smoke Management Guidelines of Article J, Subchapter 2 of Title 17 California Code of Regulations. At the local level, these regulations are implemented by the SLO APCD through Rule 502. Any person or agency who intends to undertake a prescribed burn must first obtain a burn permit from the SLO APCD. A burn permit sets forth the precise time, date and conditions under which a prescribed burn will be permitted in order to protect air quality and public safety. BMP G-1, G-2, G-3, AQ-4, AQ-5, AQ-6	Less than significant (Class III)

Table 2: Summary of Impacts and Mitigation Measures				
Impact Number	**Description**	**Level of Significance Before BMPs**	**Best Management Practices**	**Level of Significance After BMPs**
5.3-5	The Draft LMP is consistent with the 2001 Clean Air Plan for San Luis Obispo County (SLO APCD 2001).	Less than significant	None required.	Less than significant (Class III)
5.3-6	Motor vehicle trips and the use of motorized machinery anticipated to occur during implementation of the Draft LMP will generate greenhouse gases, which may contribute to climate change.	Potentially significant	The Draft LMP is consistent with an adopted Climate Action Plan for the area (SLO County 2011d). Implementation of the management actions of the Draft LMP will promote the enhancement of vegetation communities, which in turn will help maintain the capacity of the CPER for GHG sequestration. Although the regulation of greenhouse gas emissions associated with motor vehicle use is beyond the authority of the Department, the Draft LMP recommends BMPs to reduce motor vehicle use associated with management of the CPER.	Less than cumulatively considerable (Class III)
5.3-7	The resources of the CPER, in particular the special-status species, may be subject to additional risk of physical harm resulting from climate change.	Potentially significant	The Draft LMP recommends a wide range of management actions specifically aimed at improving the native habitats and which in turn will help maintain the capacity of the CPER to sequester greenhouse gases from the atmosphere. The adaptive management strategies outlined in the Draft LMP will ensure that the threat to special-status plants and animals associated with climate change will be addressed to the extent possible over the timeframe of the LMP. By applying these actions, exposure of the resources of the CPER to the effects of climate change will be reduced to a level that is less than cumulatively considerable.	Less than cumulatively considerable (Class III)
5.3-8	The management actions recommended by the Draft LMP, when added to other closely related past, present, and reasonably foreseeable future projects in the region, will contribute to cumulative air quality impacts and could	Potentially significant	The Draft LMP is consistent with the 2001 Clean Air Plan (SLO APCD 2001) and subsequent amendments which demonstrates attainment of the state ozone and PM PM10 standards (Impact 5.3-5); and New construction will be subject to project-specific CEQA compliance which will identify the appropriate project-	Less than cumulatively considerable (Class III)

Table 2: Summary of Impacts and Mitigation Measures				
Impact Number	**Description**	**Level of Significance Before BMPs**	**Best Management Practices**	**Level of Significance After BMPs**
	conflict with ozone and particulate matter attainment efforts.		specific BMPS to be applied to mitigate potential impacts to air quality. This in turn will mitigate project-level and cumulative air quality impacts to a less than significant level.	
5.3 Biological Resources				
5.4-1	Construction activities associated with management actions recommended by the Draft LMP may adversely impact habitat for species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or the U.S. Fish and Wildlife Service.	Potentially significant	BMP 6-1, G-2, G-3, BIO-1, BIO-2, BIO-3, BIO-4, BIO-5, BIO-6, BIO-7, BIO-8, BIO-9, BIO-10, BIO-11, BIO-12, BIO-13, BIO-14, BIO-15. BIO-18, BIO-24, BIO-25, BIO-26, BIO-27, BIO-28, BIO-29, BIO-30, BIO-31, BIO-32, BIO-33, BIO-34, BIO-35, BIO-36, BIO-37, BIO-38 DC-1, DC-2, DC-4 The design and location of new facilities will be consistent with the Best Management Practices recommended by the Draft LMP, which will minimize impacts to sensitive resources. Project-specific CEQA compliance will precede approval of any new construction activities with the potential to adversely impact sensitive species and identify the appropriate BMPs to be applied.	Less than significant (Class III)
5.4-2	The continuation of managed livestock grazing under the management actions recommended by the Draft LMP may adversely impact habitat for species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or the U.S. Fish and Wildlife Service.	Potentially significant	The BMPs described above under impact 5.4-1 apply to this impact. BMP BIO-20, BIO-21, BIO-22, BIO-23 The Draft LMP states that any authorization of new or expanded grazing activities will be preceded by the adoption of a grazing management plan following project-specific environmental review.	Less than significant (Class III) Beneficial impact (Class IV)

Table 2: Summary of Impacts and Mitigation Measures

Impact Number	Description	Level of Significance Before BMPs	Best Management Practices	Level of Significance After BMPs
			Unless and until a grazing management plan is adopted, and a new grazing lease is adopted, or the terms of the Cuyama River Riparian Enhancement (CRRE) are amended, grazing will continue at baseline conditions. Managed grazing guided by a future grazing management plan developed as recommended by the Draft LMP is expected to have a beneficial impact on the biological resources of the CPER by reducing exotic species and enhancing the habitat and population of special-status species. The Draft LMP recommends excluding livestock from riparian, wetland, and pond resources except where necessary to maintain appropriate habitat for pond-breeding species, including open conditions for western spadefoot toad and woody structure required by western pond turtle. Although suitable habitat for certain special-status species exists within the area recommended for the continuation of managed grazing, between 16,300 to 18,300 acres of comparable habitat on the CPER will remain ungrazed, providing suitable habitat for species adapted to ungrazed conditions. The continuation of managed livestock grazing following adoption of the Draft LMP will not result in the "take" of state-listed threatened or endangered species within the definition prescribed by the California Endangered Species Act (Cal. Fish & Game Code §§2050 et seq.) because of the implementation of management actions and BMPs included in the Draft LMP.	
5.4-3	The use of prescribed burning as a vegetation management tool, as recommended by the Draft LMP, may adversely impact habitat species identified as a candidate, sensitive, or	Potentially significant	BMPs BIO-6 through BIO-15 also apply to this impact. BMP AQ-7	Less than significant (Class III)

Table 2: Summary of Impacts and Mitigation Measures

Impact Number	Description	Level of Significance Before BMPs	Best Management Practices	Level of Significance After BMPs
	special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or the U.S. Fish and Wildlife Service.			
5.4-4	Management actions to control exotic species, as recommended by the Draft LMP, may adversely impact habitat for species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or the U.S. Fish and Wildlife Service.	Potentially significant	BMPs BIO-16 through BIO-19 also apply to this impact. BMP HZ-2, HZ-3, HZ-4, HZ-5, HZ-6	Less than significant (Class III)
5.4-5	The removal or maintenance, repair and/or removal of infrastructure on the CPER, as recommended by the Draft LMP, may adversely impact habitat for species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or the U.S. Fish and Wildlife Service.	Less than significant.	Based on the standards of significance, the maintenance, repair and/or removal of infrastructure as may occur under the Draft LMP will have a less than significant effect (Class III), either directly or indirectly through habitat modifications, on special species because management actions and BMPs recommended by the Draft LMP will be applied to ensure maintenance and repair activities do not adversely impact special-status species.	Less than significant (Class III)
5.4-6	Increased recreational use of the CPER under the Draft LMP may adversely impact habitat for species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or the U.S. Fish and Wildlife Service.	Less than significant	The majority of the increased use of the CPER following adoption of the Draft LMP will be associated with research and monitoring which will be necessary for the ongoing management of the Reserve. The increase in average daily recreational use from two persons per day to three persons represents an insignificant increase.	Less than significant (Class III)
5.4-7	Management actions recommended by the Draft LMP may adversely impact riparian habitat, wetlands (as defined by Section 404 of	Potentially significant	The BMPs listed under impacts 5.3-1 and 5.3-2 will help ensure management actions of the Draft LMP will have a less-than-significant impact on sensitive natural	Less than significant (Class III)

Table 2: Summary of Impacts and Mitigation Measures

Impact Number	Description	Level of Significance Before BMPs	Best Management Practices	Level of Significance After BMPs
	the Clean Water Act) or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or US Fish and Wildlife Service and adversely impact federally protected wetlands.		communities. The Draft LMP incorporates many goals and management actions designed to enhance conditions in these communities.	
5.4-8	Management actions recommended by the Draft LMP may interfere with the movement of native resident or migratory fish or wildlife species.		BMP BIO-37 BMP DC-3, DC-4 The Draft LMP recommends management actions to maintain and improve landscape permeability and connectivity within the CPER and between the Reserve and surrounding lands.	Less than significant (Class III)
5.4-9	Management actions recommended by the Draft LMP are expected to have a beneficial impact (Class IV) on pronghorn.	Less than significant	The Draft LMP recommends management actions to protect pronghorn and other focal species (Draft LMP Section 4.2.3.2), including: • Design and implement habitat management and restoration projects that address anthropogenic factors that unnaturally limit tule elk, pronghorn, and mule deer populations; • Manage grazing to maintain areas of tall grasslands during the spring to provide cover for fawns; • Design and implement enhancement projects to improve habitat conditions; • Coordinate management efforts as part of the larger state-wide management plans; and • Conduct and support research to inform management decisions relating to pronghorn and other focal species. BMP DC-3	Beneficial impact (Class IV)

Table 2: Summary of Impacts and Mitigation Measures				
Impact Number	**Description**	**Level of Significance Before BMPs**	**Best Management Practices**	**Level of Significance After BMPs**
5.4-10	Implementation of the management actions recommended by the Draft LMP, when added to other closely related past, present, and reasonably foreseeable future projects in the region, will result in the permanent loss of habitat for special-status species on the CPER and in the region.	Potentially significant	The CPER consists of almost 40,000 acres of land that is permanently protected and managed to provide habitat for special-status species and other important species such as pronghorn, mule deer, and tule elk. Given the scale of habitat loss in the region, the importance of the CPER as a refuge for special-status plants and animals is expected to increase over time. As discussed under impacts 5.4-1 through 5.4-8, above, implementation of the management actions and BMPs recommended by the Draft LMP is expected to have a less than significant to overall beneficial impact on special-status species as the habitats and vegetation communities of the CPER are maintained, restored, and enhanced. The Draft LMP recommends a range of management actions and BMPs to ensure implementation of the Draft LMP protects and enhances the biological resources of the CPER.	Less than cumulatively considerable (Class III)
5.4-11	Implementation of the vegetation management actions recommended by the Draft LMP, when added to other closely related past, present, and reasonably foreseeable future projects in the region, may adversely impact habitat for special-status species on the CPER and in the region.	Potentially significant	The Draft LMP recommends a range of management actions and BMPs to ensure that vegetation management activities enhance the biological resources of the CPER. Therefore, the contribution of the Draft LMP to the cumulative impact on biological resources from the vegetation management actions recommended by the Draft LMP is considered less than cumulatively considerable (Class III).	Less than cumulatively considerable (Class III)
5.4-12	Management actions recommended by the Draft LMP, when added to other closely related past, present, and reasonably foreseeable future projects in the region, may adversely impact riparian habitat or other sensitive natural communities identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or US Fish and Wildlife Service.	Potentially significant	Implementation of the management actions recommended in the Draft LMP aimed at protecting and enhancing native vegetation are expected to continue to have a positive impact on blue oak recruitment on the CPER.	Less than cumulatively considerable (Class III)

Table 2: Summary of Impacts and Mitigation Measures				
Impact Number	**Description**	**Level of Significance Before BMPs**	**Best Management Practices**	**Level of Significance After BMPs**
5.4-13	Management actions recommended by the Draft LMP, when added to other closely related past, present, and reasonably foreseeable future projects in the region, may interfere with the movement of native resident or migratory fish or wildlife species.	Potentially significant	Management actions and BMPs recommended by the Draft LMP will ensure that the management of the CPER will complement the efforts of federal and other land owners in the area to facilitate the movement of wildlife through the CPER and onto surrounding habitat.	Less than cumulatively considerable (Class III)
5.4-14	Management actions recommended by the Draft LMP, when added to other closely related past, present, and reasonably foreseeable future projects in the region, may adversely impact pronghorn.	Potentially Significant	The Draft LMP recommends a range of management actions aimed at improving conditions favorable to the continued survival of pronghorn on the CPER and on the Carrizo Plain (Draft LMP Section 4.2.3.2). These efforts complement the efforts of BLM for the CPNM. By providing permanent pronghorn habitat and implementing management actions to maintain and improve that habitat, the cumulative impact on pronghorn associated with adoption of the Draft LMP is expected to be beneficial.	Less than cumulatively considerable (Class III)
5.4 Cultural Resources				
5.5-1	Ground-disturbing activities that may result from construction or maintenance activities following adoption of the Draft LMP have the potential to adversely impact existing cultural resources and previously-undiscovered resources.	Potentially significant	BMP CR-1, CR-2, CR-3, CR-4, CR-5, CR-6	Less than significant (Class III)
5.5-2	The Draft LMP recommends the use of prescribed burning as a vegetation management tool. Prescribed burning has the potential to adversely impact surface and sub-surface cultural resources as well as historic sites and structures.	Potentially significant	BMP CR-10 To accomplish the desired biological objectives of the Draft LMP, a small total area of the CPER will be subject to prescribed burning (about 625 acres, or less than 2% of the CPER). Reducing the fuel load by prescribed burning is expected to reduce the number, size, and intensity of wildfires on the CPER and the associated impacts of such fires on cultural resources.	Less than significant (Class III)

Table 2: Summary of Impacts and Mitigation Measures				
Impact Number	**Description**	**Level of Significance Before BMPs**	**Best Management Practices**	**Level of Significance After BMPs**
5.5-3	Management actions recommended by the Draft LMP may adversely impact historic structures.	Potentially significant	BMP CR-7, CR-8	Less than significant (Class III)
5.5-4	Management actions recommended by the Draft LMP could result in the disturbance of paleontological resources (i.e., fossils and fossil formations).	Potentially significant	BMP CR-9	Less than significant (Class III)
5.5-5	Implementation of the management actions recommended by the Draft LMP when added to other closely related past, present, and reasonably foreseeable future projects in the region could contribute to further disturbance of cultural resources (i.e., prehistoric sites, historic sites, and isolated artifacts and features), paleontological resources and human remains.	Potentially significant	The Draft LMP includes a range of management actions and BMPs aimed at ensuring the protection of cultural resources on the CPER. Compliance with the cultural resources protection provisions of CEQA, together with implementation of the management actions and BMPs included in the Draft LMP, is expected to reduce impacts to cultural resources associated with the Draft LMP to a less than significant level.	Less than cumulatively considerable (Class III)
5.5 Geology and Soils				
5.6-1	Ground-disturbing activities that may result from the construction of new facilities recommended by the Draft LMP have the potential to adversely impact soils and result in soil erosion.	Potentially significant	BMP G-1, G-2, G-3, GEO-1, GEO-2, WQ-1, WQ-2, WQ-3, WQ-4, WQ-5, DC-1, DC-2	Less than significant (Class III)
5.6-2	The Draft LMP recommends the use of managed livestock grazing as a vegetation management tool. Managed livestock grazing has the potential to adversely impact soils and result in the loss of soil from erosion.	Potentially significant	The BMPs listed above for impact 5.6-1 also apply to this impact. BMP BIO-10, BIO-20, BIO-21. BIO-22, BIO-23	Less than significant (Class III)
5.6-3	The Draft LMP recommends the use of prescribed burning as a vegetation management tool. Prescribed burning has the potential to	Potentially significant	BMP G-1, G-2, G-3, AQ-7	Less than significant (Class III)

Table 2: Summary of Impacts and Mitigation Measures				
Impact Number	**Description**	**Level of Significance Before BMPs**	**Best Management Practices**	**Level of Significance After BMPs**
	adversely impact soils and result in the loss of soil from erosion.			
5.6-4	Implementation of the management actions recommended by the Draft LMP, when added to other closely related past, present, and reasonably foreseeable future projects in the region, could contribute to cumulative impacts associated with soil erosion impacts.	Potentially significant	The Draft LMP includes a range of management actions and BMPs to ensure that activities undertaken on the CPER following adoption of the Draft LMP will fully mitigate their impact on soil erosion. Therefore, the contribution of the Draft LMP to the cumulative impacts of soil erosion is considered less than cumulatively considerable.	Less than cumulatively considerable (Class III)
5.7 Hazards				
5.7-1	Management actions recommended by the Draft LMP could result in an increased risk of wildland fires.	Potentially significant	Mitigation Provided by Compliance with Existing Regulations: SLO APCD Rule 502 and Section 4423(b) of the Public Resources Code set forth the requirements for prescribed burning. BMP G-1, G-2, G-3, AQ-7, HZ-13, HZ-14, HZ-15, HZ-16	Less than significant (Class III)
5.7-2	The construction of new facilities recommended by the Draft LMP has the potential to result in a hazard to the public or the environment by mobilizing disease vectors that may be present in the soils of the CPER.	Potentially significant	BMP AQ-1, AQ-2 AQ-4, HZ-9, HZ-10, HZ-11	Less than significant (Class III)
5.7-3	The construction of new facilities recommended by the Draft LMP has the potential to expose construction workers and CDFW staff to potentially hazardous concentrations of environmentally persistent pesticides and herbicides.	Potentially significant	BMP HZ-12	Less than significant (Class III)
5.7-4	The construction of new or expanded parking areas along Highway 166 or Soda Lake Road could result in a safety hazard to motorists entering or leaving the parking area, and a hazard to traffic on these roads.	Potentially significant	BMPs listed under impact 5.7-1 apply to this impact. BMP DC-2	Less than significant (Class III)

Table 2: Summary of Impacts and Mitigation Measures				
Impact Number	**Description**	**Level of Significance Before BMPs**	**Best Management Practices**	**Level of Significance After BMPs**
5.7-5	Implementation of the management actions recommended by the Draft LMP, when added to other closely related past, present, and reasonably foreseeable future projects in the region as well as the management actions on surrounding federal lands, may contribute to a cumulative increased risk from fire.	Potentially significant	Activities allowed on federal lands surrounding the CPER managed by the United States Forest Service (USFS) and the BLM have the potential to result in human-induced wildfires, in addition to those starting from natural causes. However, each agency has adopted policies and implementation measures to help ensure the risk associated with wildfires is being minimized to the extent feasible. Implementation of the management actions and BMPs discussed above under impacts 5.7-1 through 5.7-4 will ensure that the contribution of the Draft LMP to this cumulative risk is less than cumulatively considerable.	Less than cumulatively considerable (Class III)
5.7-6	The construction of new facilities recommended by the Draft LMP, together with construction associated with previously approved and reasonably foreseeable development in California Valley and western Kern County, may contribute to a cumulative increase in the hazard to the public and the environment from the mobilization of disease vectors.	Potentially significant	By implementing the management actions and BMPs described above under impact 5.7-2, the contribution of the Draft LMP to the cumulative impact is considered less than cumulatively considerable.	Less than cumulatively considerable (Class III)
5.7-7	The construction of new facilities recommended by the Draft LMP, together with construction activities associated with previously approved and reasonably foreseeable development in California Valley and western Kern County, may contribute to a cumulative increased risk from environmentally-persistent pesticides and herbicides.	Potentially significant	The construction of visitor-serving facilities, such as trails and wildlife viewing platforms, is expected to result in small areas of surface disturbance which in turn will help minimize potential exposure associated with more widespread use. In addition, implementation of the management actions and BMPs recommended for impact 5.6-3 will ensure that potential impacts associated with the Draft LMP are less than cumulatively considerable.	Less than cumulatively considerable (Class III)
5.8 Hydrology and Water Quality				

Table 2: Summary of Impacts and Mitigation Measures				
Impact Number	**Description**	**Level of Significance Before BMPs**	**Best Management Practices**	**Level of Significance After BMPs**
5.8-1	Ground-disturbing activities that may result from the construction of new facilities recommended by the Draft LMP have the potential to adversely impact surface water quality.	Potentially significant	BMP G-1, G-2, G-3, GEO-1, GEO-2, WQ-1, WQ-3, WQ-4, WQ-5	Less than significant (Class III)
5.8-2	The Draft LMP recommends the use of prescribed burning as a vegetation management tool. Prescribed burning has the potential to expose soils, which in turn could result in the degradation of surface water quality.	Potentially significant	BMP G-1 through BMP G-3 apply to this impact. BMP AQ-7	Less than significant (Class III)
5.8-3	Construction activities could result in the discharge of polluted and/or sediment-laden runoff potentially degrading groundwater quality.	Potentially significant	The BMPs described under impact 5.8-1 apply to this impact. BMP WQ-6	Less than significant (Class III)
5.8-4	The Draft LMP recommends the continued use of grazing as a vegetation management tool. Grazing has the potential to adversely impact soils and result in the loss of soil from erosion, which in turn may adversely impact surface water quality.	Potentially significant	The BMPs described above under impact 5.8-1 apply to this impact. BMP BIO-10, BIO-20, BIO-21, BIO-22, BIO-23	Less than significant (Class III)
5.8-5	Management actions recommended by the Draft LMP when added to other closely related past, present, and reasonably foreseeable future projects in the region could contribute to a cumulative degradation of water quality.	Potentially significant	Management actions and BMPs described above for impacts 5.8-1 through 5.8-4 will ensure that activities undertaken on the CPER following adoption of the Draft LMP will mitigate their impact on water quality. Therefore, the contribution of the Draft LMP to the cumulative degradation of water quality is considered less than cumulatively considerable.	Less than cumulatively considerable (Class III)
5.9 Public Services				
5.9-1	Increased use of the CPER by visitors, CDFW staff, researchers, and attendees of special events, combined with activities associated with the management actions recommended by the	Potentially significant	Mitigation Provided by Compliance with Existing Regulations: Compliance with SLO APCD Rule 502, and CalFire Burn Permit requirements will address this impact.	Less than significant (Class III)

Table 2: Summary of Impacts and Mitigation Measures				
Impact Number	**Description**	**Level of Significance Before BMPs**	**Best Management Practices**	**Level of Significance After BMPs**
	Draft LMP, could generate the need for additional fire-protection facilities, the construction of which could result in an adverse physical impact on the environment.		BMP G-1, G-2, G-3, AQ-7, HZ-13, HZ-14, HZ-15, HZ-16	
5.9-2	Increased use of the CPER associated with implementation of the Draft LMP, when added to other closely related past, present, and reasonably foreseeable future projects in the region, and activities on surrounding federal lands could generate the need for additional fire protection facilities the construction of which could have a cumulative adverse physical impact on the environment.	Potentially significant	The demand for additional fire protection facilities associated with the Draft LMP is expected to be slight and is not expected to result in the need for the construction of new or expanded fire protection facilities, based on the comments of the respective fire protection providers serving the CPER. Thus, the contribution of the Draft LMP to the cumulative demand for fire protection facilities is considered less than cumulatively considerable.	Less than cumulatively considerable (Class III)

3 Project Description

3.1 Introduction

The CEQA Guidelines [§15124] require that a sufficiently detailed project description be provided in an EIR to allow meaningful analysis of the project's impacts. The project being evaluated by this Draft EIR is the Draft Land Management Plan (Draft LMP) for the Carrizo Plains Ecological Reserve (CPER; CDFW 2018). In accordance with CEQA Guidelines [§15124], the project description includes the following:

- Location and boundaries of the project shown on a detailed topographic and regional map (Figures 1 and 2);
- A statement of objectives, including the purpose of the project (Section 3.7);
- A general description of technical, economic, and environmental characteristics, including supporting public service facilities, as applicable (Section 3.8, 3.9, 3.10); and
- A statement of the EIR's intended use, including a list of agencies expected to use the EIR in decision making, a list of permits and other approvals required to implement the project, a list of related environmental review and consultation requirements, and a list of the Department's decisions required, in order of occurrence, needed to implement the Draft LMP (Sections 3.2 and 3.3).

The project description also contains relevant contextual information, including a description of the Draft LMP development process.

The level of detail contained in the project description is guided by §15124, which states that the description should include all of the items listed above, "*…but should not supply extensive detail beyond that needed for evaluation and review of the environmental impact*." The project description, therefore, need not be exhaustive, but should be accurate, stable and finite, to the best of the lead agency's ability.

3.2 Uses of this EIR

This EIR will be used by the Department, the public, and other interested parties to evaluate the significant environmental impacts of adopting and implementing the LMP. Following certification, this EIR will be used to inform and focus the scope of environmental review for future management activities, which may be tiered from this EIR, pursuant to CEQA Guidelines Section 15152. Responsible agencies (Section 1.3) will rely on this EIR for permitting or approval authority for any project-specific action to be considered as future development is proposed within the jurisdiction of the Plan.

3.3 Other Agency Approvals that May Be Required

The Department of Fish and Wildlife has the sole discretionary approval authority for the LMP. However, other agencies may have discretionary authority over certain aspects of subsequent management activities that would be implemented under the Plan. The following paragraphs cover permits and authorizations which may potentially apply to subsequent projects.

San Luis Obispo Air Pollution Control District (SLO APCD)

The SLO APCD exercises permit authority over certain construction activities and the use of certain types of equipment such as gasoline-powered equipment with a horsepower rating of 50 horsepower or higher. The SLO APCD also issues burn permits for prescribed fires that may be conducted following adoption of the Draft LMP.

San Luis Obispo County

The County may issue encroachment permits for construction within County rights-of-way.

Caltrans

The California Department of Transportation exercises approval authority for roadway improvements involving state highways such as State Highway 166.

U.S. Army Corps of Engineers — Section 404 Permit

Section 404 of the Clean Water Act is administered by the U.S. Army Corps of Engineers (ACOE), and requires a permit before any excavated, dredged, or fill material is discharged into wetlands or waters of the United States. The CDFW must obtain a Section 404 permit if future management activities require filling or developing of wetlands or waterways.

Regional Water Quality Control Board (RWQCB)

Future projects associated with the LMP may require federal permits or licenses for activities which result in discharges to water bodies. Section 401 under the Clean Water Act requires applicants to obtain State Water Quality Certification from the RWQCB that the proposed project will comply with state water quality standards.

California Water Code Section 13260 requires a report of waste discharge from any person or agency proposing to discharge waste or construct an injection well. The Regional Water Quality Control Board imposes waste discharge requirements, which impose restrictions per discharge to protect the beneficial uses of water in the state.

The National Pollutant Discharge Elimination System (NPDES) permit program is implemented by the RWQCB and controls water pollution by regulating point sources that discharge pollutants into waters of the United States. Point sources are discharge locations such as pipes or ditches. Under this permit program, discharges are required to meet certain water quality standards. Stormwater systems might also require a NPDES permit in some instances. Any future discharges of pollutants from specific projects into U.S. waters will require an NPDES permit. The implementation of management actions that discharge effluent into waters of the United States and involve ground disturbance of greater than one acre must prepare a Storm Water Pollution Prevention Plan (SWPPP) as well as obtain a construction permit.

U.S. Fish and Wildlife Service (USFWS) — Section 6 of the Endangered Species Act

The Department has entered into a cooperative agreement with the USFWS in accordance with Section (6)(C) of the federal Endangered Species Act, which defines the working relationship between the USFWS and the Department for the conservation of federally-listed species within the State. Under the terms of the

cooperative agreement, the USFWS is authorized to provide financial assistance to the Department for the development and implementation of programs for the conservation of federally listed species. The agreement also authorizes the Department to undertake investigations to determine the status and requirements for survival of resident species of federally listed fish and wildlife without the issuance of a take permit from the USFWS, so long as such activities are undertaken in accordance with the Department's program for the conservation of such species.

U.S. Fish and Wildlife Service (USFWS) — Section 7 of the Endangered Species Act

Section 7 of the Endangered Species Act requires all federal agencies to consult with the USFWS to ensure that their actions do not jeopardize endangered or threatened species or critical habitat. Section 7 would also apply where a project would require a Section 404 permit under the Clean Water Act (discussed above). In this case, the required consultation of ACOE with USFWS could result in the issuance of a biological opinion by the USFWS subsequent to consultation regarding endangered or threatened species and/or critical habitat.

Section 106 Compliance (National Historic Preservation Act of 1966)

Section 106 of the National Historic Preservation Act seeks to protect historical and archaeological resources associated with federal projects and projects funded with federal monies. The Advisory Council on Historic Preservation is offered a reasonable opportunity to comment about proposed federal projects. At the state level, the California Office of Historic Preservation (COHP) reviews projects for compliance with Section 106 and CEQA, as well as Section 5024 of the Public Resources Code regarding historic resources on state-owned property. Following adoption of the Draft LMP, management actions on the CPER affecting historical or archaeological resources may require the review of the COHP in accordance with the provisions of Section 106.

Section 1602 Permit (CDFW)

The Department regulates projects that would divert or obstruct the natural flow or substantially affect resources associated with rivers, streams and lakes. Section 1602 requires public projects to obtain a Lake or Streambed Alteration Agreement from the Department before altering a lake or stream. This requirement may apply to projects located within the 100-year floodplain of a stream or its tributaries, such as along certain sections of the Cuyama River.

3.4 Approval and Implementation of the Land Management Plan

The following are the remaining steps involved in approving and implementing the Land Management Plan:

1. Department certifies the Final EIR;
2. Department approves the final Land Management Plan; and
3. Management actions are undertaken by the Department following project-specific CEQA compliance (as needed) and following the issuance of permits required by Responsible agencies (Section 1.4).

3.5 Project Title, Lead Agency Contact

Land Management Plan for the Carrizo Plains Ecological Reserve

Lead Agency Name and Address

Department of Fish and Wildlife
Central Region
Attn: Regional Manager
1234 E. Shaw Ave.
Fresno, CA 93710

Contact Person and Phone Number

Bob Stafford
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3196 S. Higuera, Suite A
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(805) 542-4666

3.6 Local and Regional Setting

3.6.1 Regional Context

The Carrizo Plains Ecological Reserve (CPER) is located within, and immediately west of, the Carrizo Plain—a large inland valley within the Inner Coast Range Mountains in southeastern San Luis Obispo County, central California. The approximately 50-mile-long, 15-mile-wide Carrizo Plain is bounded by the Temblor Range to the east and the Caliente Range to the west, while the Transverse Range separates the Carrizo Plain region from southern California (Figures 1 and 2).

The CPER links federal land managed as part of the two-million-acre Los Padres National Forest (LPNF), to the west, and public lands within the 250,000-acre Carrizo Plain National Monument (CPNM) to the east, which are managed by the Bureau of Land Management (BLM) in cooperation with the Department and The Nature Conservancy. Lands within the CPER have been identified as part of an essential landscape linkage connecting the Coast Range Mountains to the San Joaquin Valley (Spencer et al. 2010).

Regional access to the CPER is provided by Highway 166 which crosses the southerly portion of the Reserve and provides public access to the South Chimineas Unit via Chimineas Ranch Road 36 miles east of Santa Maria (approximately 100,000 inhabitants based on census bureau 2010 census data) in Santa Barbara County, and 50 miles west of Taft (approximately 9,300 inhabitants) in Kern County. Highway 58 traverses the northern portion of the Carrizo Plain and provides access to the Reserve from the north from Highway 101 in San Luis Obispo County and Highway 5 in Kern County (Figure 3).

County roads provide the primary local access to the CPER. The main access route bringing visitors to the Carrizo Plain, Soda Lake Road, connects Highway 58 near California Valley to Highway 166 just west of Maricopa. Soda Lake Road traverses the western portion of the Carrizo Plain and the northeast portion of

Figure 1: Regional Location

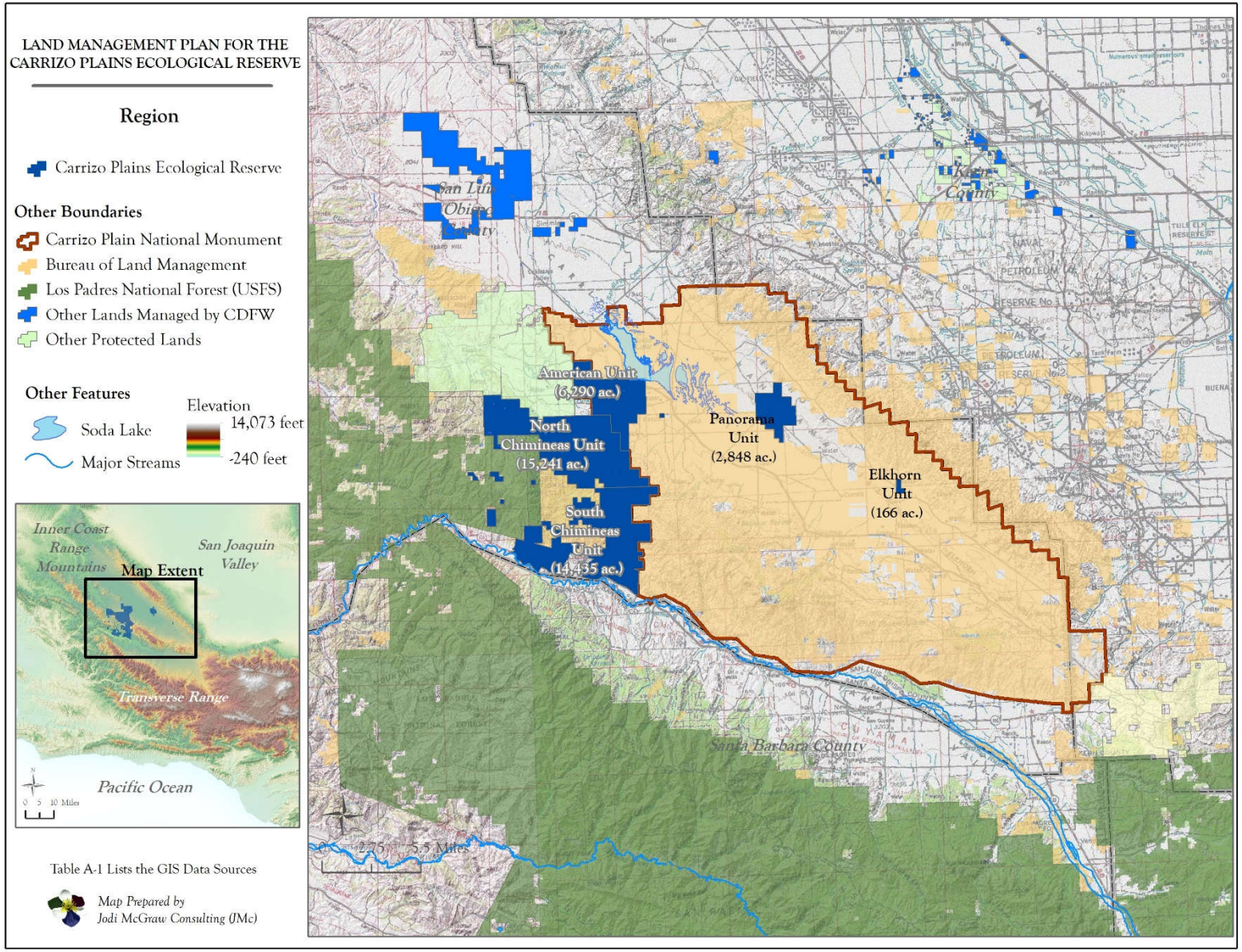


Figure 2: Regional Setting

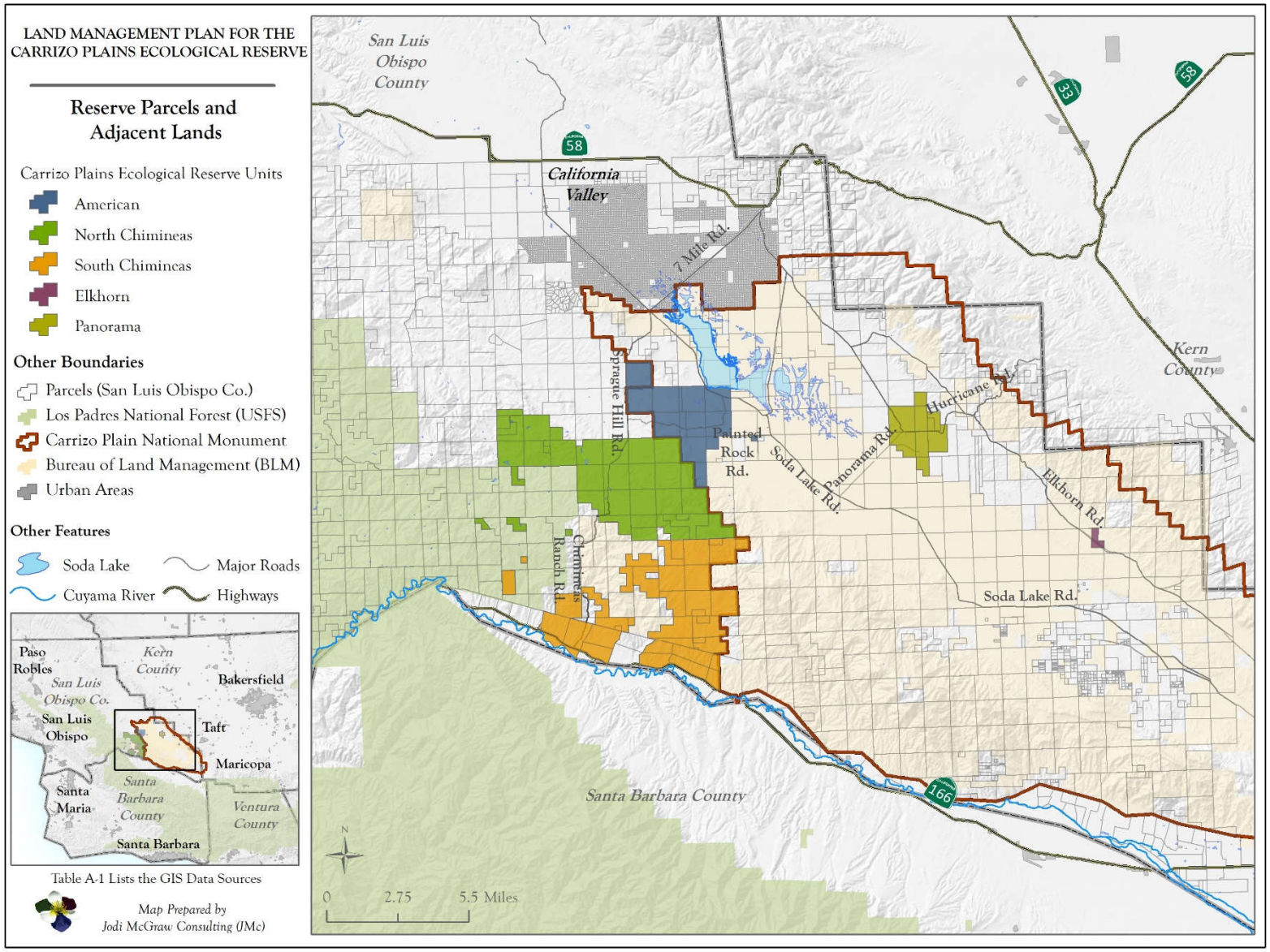


Figure 3: Units of the Carrizo Plains Ecological Reserve

the American Unit. It provides access to the Department's Painted Rock Ranch via Painted Rock Ranch Road. From Soda Lake Road, the North Chimineas Unit and the western portion of the American Unit can be accessed via Sprague Hill Road.

On the eastern side of the Carrizo Plain, Elkhorn Road, which traverses the foothills the Temblor Range, provides access to the Elkhorn Unit from State Highway 58 to the north and State Highway 166 from the south. Elkhorn Road also provides access to the eastern portion of the Panorama Unit, which can also be reached from Soda Lake Road via Panorama Road (Figure 3).

A series of smaller roads developed for use as part of the historic ranching operations on the CPER lands provide additional access for official use, with access limited by locked gates.

3.6.2 Units of the CPER

The CPER consists of five units. The two smaller units, Elkhorn (166 acres) and Panorama (2,897 acres), are situated within the Carrizo Plain. The American Unit (6,341 acres) is in the northern foothills of the Caliente Range. The North Chimineas Unit (15,241 acres) borders the American Unit and extends southwest over the Caliente Range, and then west towards the base of the La Panza Range. The South Chimineas Unit (14,409 acres) extends north from the Cuyama River, which separates Santa Barbara and San Luis Obispo counties, to the southern edge of the North Chimineas Unit.

The Elkhorn Unit

The Elkhorn Unit is the easternmost unit of the CPER, situated on relatively flat ground in the Elkhorn Plain at approximately 2,300 feet elevation. The hills of the Elkhorn Scarp lie to the southwest and the foothills of the Temblor Range are to the northeast; the northern part of the unit sloping gradually to the southwest. It is flat except for two approximately 10-foot-deep channels carved by ephemeral drainages that converge just southwest of Elkhorn Road.

The Panorama Unit

The Panorama Unit is located on the eastern portion of the Carrizo Plain. It abuts CPNM lands along its southwestern boundary and its northernmost edge, while on its northwest and southeast sides, the unit abuts private land used primarily for cattle grazing. Elevations range from approximately 1,900 to 2,300 feet above sea level. This unit is relatively flat except where it is bisected by the San Andreas Fault.

The American Unit

The American Unit is approximately seven miles due west of the Panorama Unit across the Carrizo Plain. The northeastern portion of the unit lies on the plain itself and includes a portion of Soda Lake. Much of the remainder of the unit features the rolling foothills of the Caliente Range. Elevations range from roughly 1,900 feet within Soda Lake to 2,700 feet near the unit's southernmost edge where it adjoins the North Chimineas Unit. The American Unit also features the disjunct 40-acre Painted Rock Ranch parcel: this is an area of flat terrain that is located one mile to the east on the Carrizo Plain at 1,960 feet elevation.

The northern and eastern edges of the American Unit are bordered by federal lands managed by the BLM as part of the CPNM while the western edge abuts two private ranches both of which are used primarily for cattle grazing. These same ranches border the North Chimineas Unit.

North Chimineas Unit

The North Chimineas Unit extends from the northern end of the Caliente Range to the eastern edge of the La Panza Range. It is bordered by the American Unit to the east/northeast and to the south by the South Chimineas Unit, BLM lands, and the Los Padres National Forest (Figure 3). Three private ranches border this unit to the north. Elevations range from 3,623 feet on Saltos Peak in the Caliente Range to just over 2,000 feet in the San Juan Creek drainage. Precipitation is higher and topography is less extreme compared to the South Chimineas Unit.

South Chimineas Unit

The South Chimineas Unit is the CPER's southernmost unit and borders the North Chimineas Unit. It extends south along the western slopes of the Caliente Range and down to the Cuyama River, which defines the unit's southern extent. The terrain of the South Chimineas Unit is generally steep and rugged. Elevations range from over 3,500 feet just south of the summit of Saltos Peak to approximately 1,500 feet along the Cuyama River.

The eastern boundary of the South Chimineas Unit borders the CPNM managed by BLM. The western boundary abuts federal lands managed by either BLM or the U.S. Forest Service (USFS) as part of the Los Padres National Forest. The southern portion of the South Chimineas Unit is adjacent to private land.

3.7 Project Objectives

Land within the CPER was acquired by the Department and designated as an ecological reserve to "*protect threatened or endangered native plants, wildlife, or aquatic organisms or specialized habitat types, both terrestrial and nonmarine aquatic, or large heterogeneous natural gene pools for the future use of mankind*" (§1580 of the Fish and Game Code). Generally speaking, the CPER acquisitions were designed to protect threatened and endangered species, and upland and grassland habitats. Specific objectives of protecting and managing the lands within the CPER included:

1. Protecting habitat required by the state- and federally-listed species of the San Joaquin Valley upland habitats, including San Joaquin kit fox, giant kangaroo rat, blunt-nosed leopard lizard, San Joaquin antelope squirrel, and San Joaquin woolly-thread and others occurring in the region, including sandhill crane (*Grus canadensis*), and California condor (*Gymnogyps californianus*);
2. Preserving the intact biological communities in the region including grassland, blue oak woodland, coastal scrub, chaparral, desert scrub, wetlands, ponds, and riparian, which provide important habitat for numerous other special-status species including western pond turtle (*Emys marmorata*), California red-legged frog (*Rana draytonii*), grasshopper sparrow (*Ammodramus savannarum*), short-eared owl (*Asio flammeus*), mountain plover (*Charadrius montanus*), and tricolored blackbird (*Agelaius tricolor*);
3. Protecting habitat utilized by tule elk (*Cervus elaphus nannodes*) and pronghorn (*Antilocapra americana*), which the Department reintroduced to the region during the mid-1980s;
4. Maintaining habitat connectivity between the federal land within the Los Padres National Forest and the Carrizo Plain National Monument;
5. Providing limited, quality, wildlife-dependent recreational opportunities that are compatible with the biological resource protection objectives, including hunting and wildlife observation; and

6. Providing interpretive and educational programs for the natural history of the region, which is a replica of the San Joaquin Valley prior to its widespread settlement.

The purpose of the LMP is to outline the goals, objectives, and actions for management of the Department's lands within the Carrizo Plains Ecological Reserve. The overall goal of management of the Reserve is to protect the natural habitats that contribute to and help sustain the overall ecosystem health of the region. The specific purposes of the LMP are:

1. To guide the adaptive management of habitats, species, and programs described herein to achieve the Department's mission to protect and enhance wildlife values;
2. To serve as a guide for appropriate public uses of the property;
3. To serve as a descriptive inventory of the species and habitats which occur on or use this property;
4. To provide an overview of the property's operation and maintenance, and personnel requirements to implement management goals, and aid budget planning; and
5. To provide a description of potential and actual environmental impacts and subsequent mitigation that may occur during management, and provide the environmental documentation to comply with state and federal statutes and regulations.

3.8 Organization of the Draft LMP

Section 1 – Introduction: provides an overview of the CPER and the Plan, and describes the purpose and history of the Reserve's acquisition.

Section 2 – Property Description: describes the historic and current land use and the abiotic (non-biological) conditions including geology, hydrology, cultural resources, infrastructure and facilities, and current uses of the Reserve lands;

Section 3 – Habitat and Species Description: describes the biological resources, including the plant communities (i.e., vegetation) and species, animals, and rare species;

Section 4 – Management Goals and Tasks: outlines the management goals for the Reserve, including the steps that will be taken to manage the biological and cultural resources, while providing for compatible public uses and maintaining the facilities.

Section 5 — Operations and Maintenance: assesses the resources needed to implement the Plan, including personnel and direct costs.

References: lists the sources of information used and cited in the LMP.

Appendices: provide more detailed information used to develop the LMP, which can also facilitate its implementation, including:

- **Geographic Information System (Appendix A):** A list of the spatial data layers used to prepare maps and conduct spatial analyses presented in the Plan;
- **Plant Communities (Appendix B):** Detailed descriptions of the plant communities within the CPER, based on the Department's site-specific classification and mapping study (CDFW 2010b);

- **Plant Species (Appendix C):** A plant species list for the Reserve, which notes their status and relative abundance within each of the Reserve units (Butterworth 2016);
- **Animal Species (Appendix D):** A list of the vertebrate species, which notes their status and relative abundance within each of the Reserve units (Stafford 2016);
- **Special-Status Species Profiles (Appendix E):** Profiles for the rare, threatened, or endangered species known or likely to occur within the Reserve;
- **Cultural Resources Report (Appendix F):** A report prepared to assess the cultural resources within the Reserve (Whitley 2011)[1];
- **Personnel Needs to Implement the Plan (Appendix G):** A table used to estimate the personnel time required to implement the elements (Section 4), which was used to summarize the new positions required (Section 5);
- **Public Input from the Plan Visioning Meeting (Appendix H):** An overview of the public meeting held to obtain input on management of the CPER, and the feedback received;
- **Best Management Practices (Appendix I):** Measures to be taken during implementation of the LMP, to limit impacts to the natural environment and cultural resources;
- **Environmental Impact Report (Appendix J):** this report prepared as part of the environmental review process for the LMP, under CEQA.

Section 4 of the Draft LMP identifies the goals and actions for management of the CPER, which are broadly designed to protect biological and cultural resources while providing for wildlife-dependent public use. Management is outlined in three hierarchical levels: elements, goals, and tasks. The elements are the management categories or considerations; the goals identify the conditions management is designed to achieve; and tasks are the steps that will be taken to attain the goals.

Section 4 is further organized by topical elements, as follows:

- **Biological Elements:** These elements consist of species, habitats, or landscapes for which specific management goals have been developed within the plan.
- **Scientific Research, Monitoring, and Adaptive Management Elements:** These elements describe how scientific research and monitoring can be used as part of an adaptive management framework to promote long-term effectiveness of management at attaining the goals of the other elements.
- **Vegetation Management Elements:** These elements identify how fire, grazing, and exotic plants can be managed to maintain or enhance the condition of the vegetation to attain the biological goals of the plan.
- **Public Use Elements:** Public use elements are recreational and other public use activities appropriate to and compatible with the purposes for which the property was acquired.
- **Cultural Resources Elements:** Cultural resource elements pertain to preservation of cultural resources.
- **Facility Maintenance Elements:** This is a general-purpose element describing the maintenance and administrative program, which helps maintain orderly and beneficial management of the area.

[1] The cultural resources report contains sensitive information and is not included in the public document.

- **Management and Monitoring Coordination Elements:** These elements include activities related to the coordination of management and monitoring in adjacent and regional protected lands.

3.9 Management Strategies of the Draft LMP

The CPER will be managed through an adaptive management framework, in which monitoring is used to evaluate the effectiveness of management, which is then adjusted as necessary to enhance the ability to achieve the goals of the Plan. Through adaptive management, monitoring is used to increase understanding of the systems, which is needed to inform effective management but is inevitably incomplete at the outset. By conducting habitat management as an explicit experiment, in which hypotheses about the system are tested by comparing (replicated) treated areas to untreated areas, active adaptive management can be used to learn by doing management (Walters and Holling 1990).

In an adaptive management framework, scientific research and other new information are also used to update management actions. In addition, management is adjusted based on changes in conditions over time. The overall goal of management within the CPER is to maintain or enhance the biodiversity of the site and protect and recover populations of rare, endangered, threatened, or other special-status species. The specific biological goals and actions are organized within elements that address three levels at which management is designed to achieve the overall goal:

- *Landscape*: maintain or promote diversity at the landscape level, by addressing the diversity of communities or habitats, and their context within the landscape, including their connectivity;
- *Habitats*: maintain or enhance the structure and species composition of the various communities (i.e., vegetation types or communities);
- *Species*: address specific management needs of species including rare and managed populations for which landscape and community-level management alone may not be sufficient.

Since the Department's current management objectives are ecosystem or multi-species oriented, the goals emphasize a habitat approach to management.

To achieve the biological goals outlined above, the elements of the Draft LMP sets forth an integrated adaptive management utilizing vegetation management, exotic plant management, restoration, research, and monitoring. The following sections summarize these components, which are described in greater detail in Section 4 of the LMP.

3.9.1 Vegetation Management Using Fire and Grazing

Fire promotes establishment of many plants and creates and maintains habitat required by many animals. Fire can also have deleterious effects, particularly in systems where frequent fire is not a part of the disturbance regime, such that vegetation management is required to protect these communities.

Within the CPER, fire plays an important role in creating the diverse mosaic of communities of various successional (seral) stages, and thus greatly contributes to the CPER's native species diversity. Fire is a major component of the natural disturbance regime of many of the CPER's communities, including the chaparral and oak woodlands, and creates and maintains habitat for many native species, including mule deer. As a result, fire can be an effective landscape-level vegetation management tool for attaining the biological goals of the CPER.

At the same time, several of the CPER's plant communities (e.g., juniper woodland) and species (e.g., *Atriplex* spp.), can be harmed by fire. Even in fire-adapted communities, fire can promote the invasion and spread of non-native plants, which can in turn facilitate too-frequent fire that has the potential to convert shrublands and woodlands. Unnatural fire ignitions associated with human activities, particularly along Highway 166 and other roads, may be negatively impacting the biological systems, cultural resources, and facilities of the CPER, as well as threaten public safety and property.

Due to the proximity to human development, and thus threat to lives and property, fire protection agencies responsible for land within the CPER are likely to actively suppress wildfires. Given the complex nature of the landscape-scale process and the uncertainties regarding fire effects, adaptive management will be essential to the effective use of fire to attain the goals for the CPER. Fire management in the CPER will be guided by a focused fire management plan developed based on the biological and vegetation management goals outlined in the Draft LMP, by biologists and fire practitioners familiar with regional experience, and in coordination with fire protection agencies and with input from adjacent landowners.

Like fire, managed livestock grazing is an important landscape-scale vegetation management tool for attaining the biological goals for the CPER. Ungulate grazing is an important natural process in grassland ecosystems, and is well recognized as an effective tool in herbaceous-dominated communities, including grasslands and oak woodlands, to manipulate plant community structure and species composition, decrease fuels and reduce the risk of fire, control exotic plant species, and create and maintain habitat for native animals. When managed improperly, grazing can also harm biological systems, degrade water quality, and cause soil erosion and loss.

As outlined in the respective habitat elements and described in greater detail in the habitat descriptions within the Draft LMP, grazing management within the CPER will continue to be used to create and maintain areas of short-structured grassland required by several native species, enhance native plant cover and richness in grasslands, blue oak woodlands, and coastal scrub, and control non-native herbaceous plant species to reduce their competitive effects on native plants and the potential for type conversion of shrublands to grassland via the grass-fire cycle. The Department currently uses grazing management within the Chimineas units of the CPER to maintain habitat conditions required by, or conducive to, several focal management species, including those that require short-statured grasslands.

As with other components of vegetation management, managed grazing will be conducted within an adaptive management framework described in a grazing management plan, based on the goals in the Draft LMP.

3.9.2 Restoration

Habitat restoration will be used to complement the vegetation management strategies outlined above, to increase the diversity of plant and animal species within the CPER, and to address anthropogenic factors that might unnaturally limit special-status species populations within the CPER, including controlling and eradicating, where feasible, non-native plants and animals (discussed below). Restoration may include seeding or planting native plants in areas where their abundance has been reduced by too-frequent fire, prior cultivation, or other land use.

3.9.3 Removal and Control of Exotic and Invasive Species

Exotic plants negatively impact the CPER through a variety of mechanisms including by outcompeting native plants, changing the structure of the communities and degrading habitat for native animals, altering the hydrology of ponds and streams, and promoting fire including in non-fire adapted systems. As elsewhere, the invasion and spread of non-native species is ongoing and new, potentially more detrimental, species will likely invade the CPER during the period of management covered by the Draft LMP.

The Draft LMP includes exotic plant management strategies developed in consideration of the ecology of the exotic species (or guilds of species, such as annual grasses) and the systems in which they occur. Given the current extent of exotic species the CPER, exotic plant management will be strategic and need to be conducted in coordination with other vegetation management components and, where feasible, adjacent landowners. As with other aspects of management, exotic plant management will be conducted within an adaptive management framework to enhance long-term effectiveness.

3.9.4 Research and Monitoring

Though much scientific research has been conducted on the biological systems and species found within the CPER, including some studies conducted on site or in the Carrizo Plain region, additional information would assist in understanding their ecology to inform management. In addition, the inherent complexity of ecological systems renders it difficult to predict the ultimate effectiveness of ongoing management and specific projects on individual species and communities. Scientific research can help provide critical data to inform the need for management, to design management strategies, and to evaluate the effects of prior management activities. Studies conducted by academic and other research institutions can help bridge the gap between the list of desired studies to inform management and the Department's resources for monitoring.

3.10 Specific Actions of the LMP

The following is a summary of the management actions that may be undertaken following adoption of the Draft LMP. The complete description of management goals and actions is provided in Chapter 4 of the Draft LMP. This summary is provided by topical element to illustrate the project. The overall objective will be to maintain or enhance biodiversity within the CPER over the life of the LMP.

3.10.1 Biological Elements

The goal of the LMPs is to maintain or enhance habitat within the Reserve, which has been broadly categorized into nine different habitat elements:

- grassland;
- oak woodland;
- juniper woodland;
- coastal scrub;
- chaparral;
- desert scrub;

- riparian and riverine;
- wetlands and ponds; and
- cliffs and rock outcrops.

The LMP proposes that water sources be maintained or established within every square mile around the western units (North Chimineas, South Chimineas, American) to promote populations of tule elk, mule deer, pronghorn, and other wide-ranging species. Many water sources already exist in the form of springs, creeks, ponds, and water troughs.

Scientific Research, Monitoring, and Adaptive Management Elements

These elements describe how scientific research and monitoring can be used as part of an adaptive management framework to promote long-term effectiveness of management at attaining the goals of the other elements.

Vegetation will be monitored every eight to fifteen years. Within each habitat element, populations of the following focal species will be monitored to gauge condition of the natural communities:

Grasslands: Giant kangaroo rat, San Joaquin kit fox, burrowing owl, showy madia, and San Joaquin woolly-threads for short-statured grasslands; and tule elk and grasshopper sparrow for tall-statured grasslands;

Coastal Scrub: Blainville's horned lizard, Lemmon's jewelflower, La Panza mariposa lily, and Costa's hummingbird;

Desert Scrub: Pale yellow layia, blunt-nosed leopard lizard, and LeConte's thrasher;

Chaparral: Wrentit, California thrasher, and western spotted skunk;

Juniper Woodland: Long-eared owl, showy madia, and Kern mallow;

Oak Woodland: Mule deer, lark sparrow, yellow-billed magpie, and blue oak;

Riparian: Yellow warbler, and red bat; and

Ponds/Wetlands: Western pond turtle, western spadefoot toad, tricolored blackbird, and Yuma myotis.

Cliffs and Rock Outcroppings: western mastiff bat and canyon bat.

The species were selected based on the following criteria:

- are characteristic of the vegetation type;
- reflect overall habitat conditions in that vegetation type;
- have a sufficient population size for monitoring; and
- can be effectively and efficiently monitored over the life of the LMP.

3.10.2 Vegetation Management

These elements identify how fire management, mechanical vegetation treatments, managed grazing, and exotic plant management may be used to maintain or enhance the condition of the vegetation to attain the biological goals of the Draft LMP. Fire, and mechanical vegetation management treatments which mimic the beneficial effects of fire, may be used to increase the diversity of successional stages of vegetation as well as to prevent catastrophic fires from destroying fire-sensitive communities such as juniper woodland and desert scrub. Potential prescribed burns will be guided towards the fire-adapted chaparral communities, some of which have not burned in almost 100 years. For purposes of this analysis, at least 625 acres of the chaparral community (approximately 50 percent) may be subject to a prescribed burn over the next 25 years. This goal may be accomplished either by prescribed burn or wildfire. On the opposite end of the scale, the proposed goal for fire sensitive communities (desert scrub, juniper woodland) will be to prevent or limit the extent of wildfires.

Livestock grazing will continue to be employed on portions of the CPER to maintain or enhance biological resources by creating appropriate vegetative structure, limiting competition from non-native plants, and reducing fire hazards in non-fire adapted communities. The proposed management strategies for the various vegetative communities are as follows:

Grasslands: Maintain between 3,000 and 5,000 acres of short-statured grasslands (less than or equal to 4") for giant kangaroo rat, San Joaquin kit fox, burrowing owl, blunt-nosed leopard lizard, mountain plover and other short-grass-dependent species. In areas where giant kangaroo rats are present (approximately 2,500 acres), use of livestock will not be necessary except under extreme circumstances (several back to back years of heavy rainfall, precipitous declines in giant kangaroo rat numbers). Maintain between 8,000 and 10,000 acres of tall grasslands (greater than or equal to 12") for tule elk, grasshopper sparrows, and other tall-grass-dependent species. The proposed management action in these areas will be to restrict livestock from these areas through existing fencing.

Oak Woodlands: Maintain current blue oak recruitment levels and the diversity of native plant species in the understory through light to moderate intensity livestock grazing. Future prescriptions may change if monitoring detects significant declines in blue oak recruitment levels.

Juniper Woodlands: Maintain a mosaic of herbaceous cover within the juniper woodlands to reduce the chances for stand replacing wildfires. Shorter herbaceous cover will be maintained by grazing 1,400 to 1,600 acres within the juniper woodlands. Taller annual vegetation will be maintained by restricting livestock grazing within 1,400 to 1,600 acres.

Desert Scrub: Maintain the extent of desert scrub by reducing the chances for stand-replacing fires, especially along Highway 166 which is the primary ignition source for fires in this area. Allow periodic grazing on between 700 to 1,500 acres in this community (approximately 33%) depending upon fuel loads. Restrict grazing from the remaining two-thirds of the desert scrub.

Coastal Scrub: Maintain a mosaic of herbaceous plant cover within this community to enhance overall biodiversity and to reduce the chances for stand replacing fire events. Livestock would be used to remove annual vegetation on between 2,000 to 3,000 acres while livestock would be restricted from between 2,000 to 3,000 acres.

Chaparral: Maintain a variety of successional stages within this community. This will primarily be accomplished through fire as outlined above.

Riparian: Enhance riparian vegetation by installing and maintaining fences to regulate livestock access to riparian systems. The primary activity associated with this action will be to install livestock fencing around the remaining unfenced riparian corridors.

Wetlands/Ponds: Enhance wetland/pond resources by maintaining and enhancing the physical conditions that promote the special-status resources at each location. In most cases, this will entail restricting livestock use from an area. However, some ponds have specific resources (western spadefoot toad, several bat species, tricolored blackbird colonies) that benefit from the reduction of vegetation around the water source. If native species (tule elk) are not reducing the vegetation around these ponds, periodic livestock use may be necessary to maintain these conditions. Lastly, while livestock have been excluded from most of the ponds with western pond turtles, the pond with the best pond turtle recruitment rates has been, and is currently, accessible to livestock. Monitoring of pond turtle populations will be used to inform future management strategies for this species.

Cliffs and Rock Outcrops: Protect these features from impacts associated with human activities, including erosion.

The Draft LMP also proposes to restore riparian habitats, portions of the previously tilled grasslands, and burned areas of desert scrub, through native seeding/planting. The creation of up to 10 vernal pools may also be proposed in these areas.

The Draft LMP proposes the use of herbicides to control or eliminate populations of invasive plants, particularly yellow-star thistle and tamarisk. All herbicide application will be conducted by licensed individuals in accordance with all applicable regulations.

3.10.3 Public Use

Public use elements are any recreational, scientific, or other public use activity appropriate to and compatible with the purposes for which the property was acquired. General public recreational access will continue to be directed towards restricted wildlife-dependent recreation, which includes hunting, bird watching, wildflower observation, and nature study. Additional emphasis will be to encourage scientific research by universities and associated entities.

3.10.4 Cultural Resources

Cultural resource elements pertain to the preservation of cultural resources. The primary activities associated with this element will be conducting further assessments of cultural resources and restricting public access in the vicinity of known or likely resources. Additional potential activities include capping of sites which are vulnerable to erosion and fencing of cultural sites from livestock.

3.10.5 Facility Maintenance

This is a general-purpose element describing the maintenance and administrative program, which helps maintain orderly and beneficial management of the area. Facility maintenance will include the upkeep of

the various existing housing and educational facilities. It will also include maintaining the existing dirt road infrastructure, fences, water sources and distribution lines and power sources. No new roads are proposed. Regarding power, the proposed long-term goal will be for the CPER to use small-scale, renewable energy for all of its electrical needs.

3.10.6 Management and Monitoring Coordination

These elements include activities related to the coordination of management and monitoring efforts in adjacent and regional open space lands. The proposed actions in the LMP will include continuing coordination with the managing partners of the CPNM, continuing resource monitoring on adjacent BLM and USFS lands and exchanging pertinent data with these agencies, coordinating monitoring efforts on newly acquired Department lands associated with the Topaz solar farm, and coordinating monitoring efforts with the owners of the California Valley Solar Ranch (CVSR) mitigation lands.

3.11 Assumptions

The LMP is designed to guide all aspects of management of the Reserve over an estimated 20-year period. Because details of each management activity are not available, this program EIR was developed based on a series of assumptions which enabled assessment of potential impacts associated with adoption and implementation of the Draft LMP.

3.11.1 Managed Livestock Grazing

Following adoption of the Draft LMP, managed livestock grazing will continue to be used as a vegetation management tool to achieve the biological objectives of the CPER. Managed livestock grazing activities will not be authorized by the Department except through the execution of a grazing lease permit following adoption of a grazing management plan which will contain the components recommended by the LMP. Adoption of the grazing management plan and the issuance of a grazing lease will be subject to separate, project-specific environmental review.

3.11.2 Staffing and Facility Use

Table 3 provides a summary of present daily use of the CPER, and that which is expected following implementation of the LMP. Use of the CPER is expected to increase from an average of 14 persons per day to about 24 persons per day by 2032.

3.11.3 Managed Hunting Programs

Managed hunting programs are expected to continue within the CPER, as described in Section 4 Environmental Setting and Baseline Conditions. Current restrictions on species that may be hunted will continue. Only non-lead ammunition may be utilized for hunting on Department lands (Sections 551, 552, and 630, Title 14, CCR).

Table 3: Present and Future Average Daily Staffing and Facility Use of the CPER

Staffing/Use	2018	2038
CDFW Staff	3	5
Researchers	2	11
Grazing	1	2
Volunteers	2	3
Average Daily Recreation Use	2	3
Sub-Total Staffing, Research, Grazing, Volunteers and Recreation Use	10	24
Special Events	34	30
Total Including Special Events	**44**	**54**

3.11.4 Prescribed Burning

Prescribed burning will be used as a vegetation management tool and will be concentrated in the chaparral vegetative community. It is assumed for this report that one prescribed burn will be conducted at some point over the next 25 years covering an area of about 625 acres. Figure 4 illustrates where a prescribed burn might be undertaken.

3.11.5 New or Expanded Facilities

Table 4 provides a summary of assumptions for new construction following adoption of the Draft LMP. This estimates represents a reasonable worse case estimate of land for new construction. No new roads or structures for human occupancy are proposed at this time. If any additional facilities are proposed, they will be subject to additional CEQA compliance.

Table 4: Assumptions for New Construction

Facility	Quantity	Estimated Area (Acres)
Trails	4 miles	1.10
Parking	4 new spaces	0.07
Wildlife Viewing Platforms	4	0.07
Water Tanks	21	0.05
Pipelines and Water Delivery Facilities	2 miles	0.40
Road Relocations/Modifications to Protect Cultural Resources	1	0.01
	Total	**1.7**

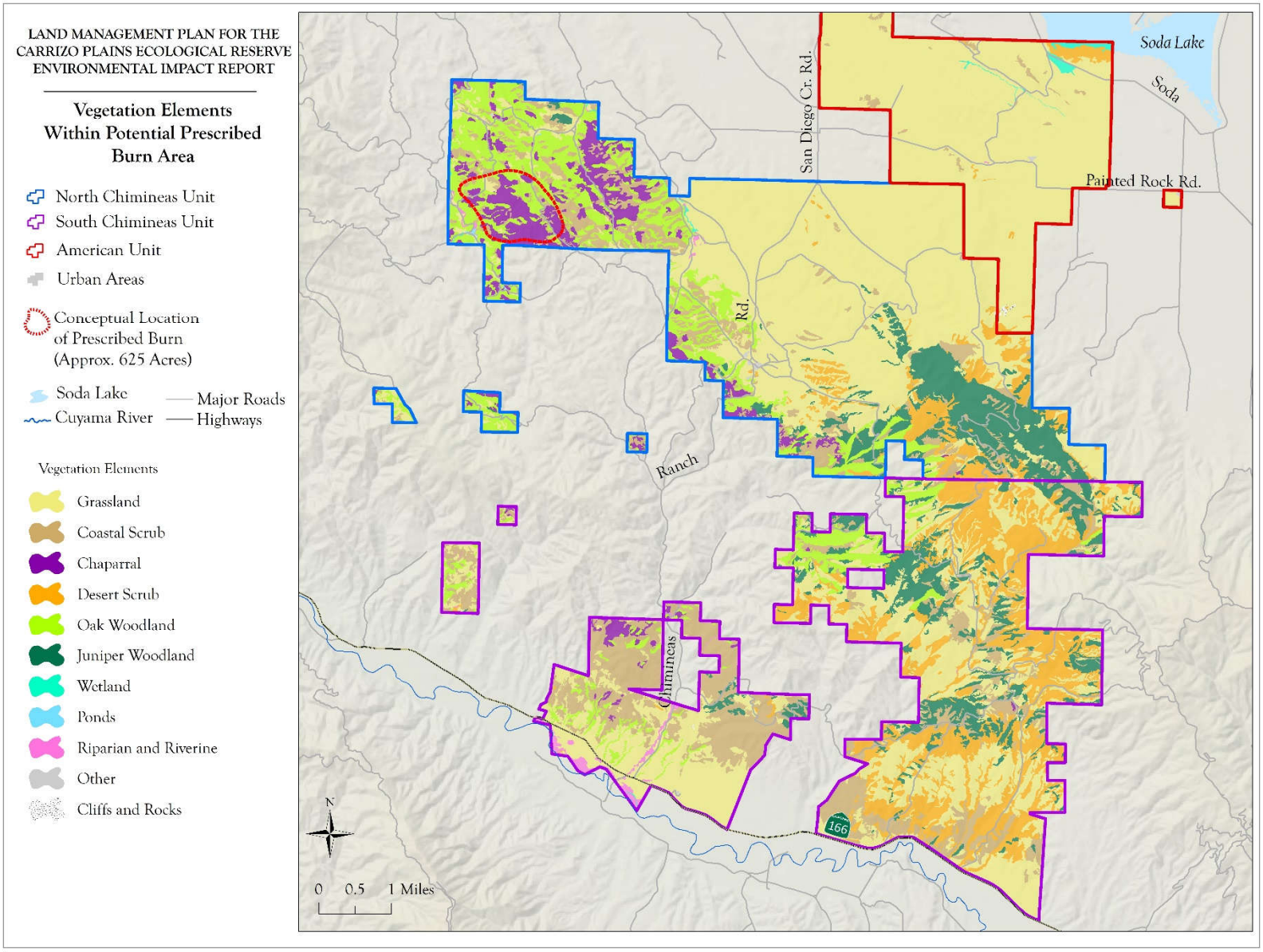


Figure 4: General Location of a Potential Prescribed Burn

For purposes of the analysis:

- A typical water tank is 5,000 gallons, 10 feet in diameter and 10 feet tall and placed at a density, on average, of one every square mile in areas underserved by water sources. For purposes of this analysis an area that is underserved by water is assumed to be a one square mile portion of the CPER that lacks both a source of water and sufficient storage (a water tank, pond or spring) to provide a year-round supply.
- A wildlife viewing platform will have a footprint of about 400 square feet (20 feet x 20 feet).

4 Environmental Setting and Baseline Conditions

Section 15125(a) of the CEQA Guidelines requires that an EIR include a description of the physical environmental conditions in the vicinity of a project as they exist at the time the Notice of Preparation is published[2]. The CEQA Guidelines also specify that this description should serve as the baseline physical conditions by which a lead agency determines whether the impacts of a project are considered significant. A key aspect of the baseline conditions includes consideration of the previously approved and reasonably-foreseeable development and previously adopted management plans that will contribute to the cumulative impacts (Sections 4.4 and 4.5).

The environmental setting/baseline conditions of the CPER are described in each of the topical sections of this EIR (Sections 5.2 through 5.9) and summarized below. In general, these sections describe the conditions as they existed when the Notice of Preparation for the project was released on November 21, 2012.

4.1 Baseline Environmental Conditions

4.1.1 Overview

The Reserve has experienced a suite of historic uses, which are reflected in the current conditions of the site and will influence its effective management. It is not possible to reconstruct the pre-human or even pre-settlement landscape or definitively link current conditions to prior activities. However, certain activities are likely to have caused impacts that must be considered in designing and implementing successful management programs and in assessing adverse changes to the environment that could result from implementation of the Draft LMP.

Specifically, cultivation of the flat and rolling terrain altered the soil profile and biota, as well as vegetation through tillage and seeding which displaced native plant species directly, and reduced their populations indirectly by promoting the invasion and spread of non-native plants. In these cultivated areas, as well as steeper more densely vegetated areas accessible by sheep and cattle, livestock grazing of shrubs may have promoted the invasion and spread of non-native plants which, in turn, have reduced the cover and richness of native plants.

Development of water to support livestock in the xeric (dry) region altered the natural hydrological systems. Seeps and springs were developed and drainages impounded to provide water, altering the species composition and structure of these systems in ways that likely negatively impacted certain species, while promoting other species such as amphibians and reptiles that occupy the created ponds. Development of other infrastructure including roads and buildings has also altered hydrology and vegetation. Meanwhile, harvesting of trees for fences and fuel wood may have affected the structure in the woodlands (CDFW 2018).

[2] In *Communities for a Better Environment v. South Coast Air Quality Management District* (No. S161190, March 15, 2010) the California Supreme Court ruled that the analytical baseline against which project effects are measured should generally be the physical conditions existing at the time of the analysis.

4.1.2 Current and Previous Land Use

4.1.2.1 Elkhorn Unit

There is no available information about the historic use of the Elkhorn Unit, which was acquired by the Department in 1983. Based on the historic pattern of land use in the area, it was likely grazed by livestock including cattle and sheep as part of the wide-ranging livestock operations in the 19th and 20th centuries. There is no evidence of recent cultivation, such as infrastructure or furrows indicating tillage. Since acquired by the Department, the Elkhorn Unit has been used primarily for scientific research and to a lesser extent, upland game hunting. The Department fenced the property to exclude cattle that graze the adjacent land managed by the BLM. As a result, the Elkhorn Unit has served as a control (ungrazed) site for regional studies examining the effects of grazing on the populations of the endangered San Joaquin Valley upland species. This unit is open to unrestricted public access.

The primary management objective for the Elkhorn Unit has been to provide habitat for the suite of San Joaquin Valley species, which include giant kangaroo rat, blunt-nosed leopard lizard, San Joaquin kit fox, and San Joaquin antelope squirrel. Given the low productivity of vegetation within this unit, vegetation management has not been necessary to maintain or enhance habitat for these resources.

4.1.2.2 Panorama Unit

When the Department acquired the Panorama Unit in 1989, the property was under cultivation and regional mapping conducted by the BLM suggests that 2,390 acres of the 2,840-acre unit was being cultivated in the 1980s. Irrigation line left in the shed suggests that the cultivated land was also irrigated.

Prior to cultivation, land within the Panorama Unit was likely grazed by livestock which ranged throughout much of the region. Following acquisition of the Panorama Unit in July 1989, cattle were excluded from moving onto the property from the BLM's adjacent KCL and North Temblor allotments and the private cattle operation through existing fencing. The Panorama Unit has been used for research, wildlife viewing, and some upland game hunting. This unit is open to unrestricted public access.

The primary management objective for the Panorama Unit has been to provide habitat for the suite of San Joaquin Valley species as well as mountain plover. Low precipitation combined with a very dense population of giant kangaroo rats has thus far made vegetation management unnecessary in this unit.

The 11-mile perimeter of the property is fenced with four-strand barbed wire. In addition, a chain link fence surrounds the buildings at the former RC Farm headquarters. Additional infrastructure associated with prior landowners' farming and livestock operations remains, and has not been maintained and is in generally poor condition. This includes:

- 1 old residence constructed of pumice blocks, which is in disrepair;
- a 7,200 ft^2 (60 feet x 120 feet) metal storage shed with a dirt floor;
- 6 grain storage tanks;
- a steel pipe corral (150 feet x 150 feet);
- one trough;
- one water tank; and

- a 250-foot-deep water well with 2 horsepower submersible pump.

Recent use of the Panorama Unit include wildflower viewing, as displays can be spectacular in appropriate rainfall years, and low frequency of hunting, particularly for upland game (R. Stafford, pers. comm. 2017).

4.1.2.3 American Unit

Land within the American Unit was formerly part of the privately owned American Ranch. Little detailed information is available about its history. However, the site was in cultivation for dry-land barley when it began to be acquired by The Nature Conservancy in 1988. BLM mapping indicates that 4,300 acres of the 6,341-acre unit was in cultivation in the 1980s. The estimated 68% of the unit that was cultivated excludes the central area around the historic ranch headquarters, and the southernmost portion of the unit which is in steep terrain. Livestock grazing, particularly by cattle, likely occurred on the land within the American Unit since the 1800s.

As land within the American Unit was incorporated into the CPER between 1988 and 2003, it was taken out of cultivation and remained ungrazed by livestock. In the 2000s, the Department enhanced habitat for wildlife by removing the interior fencing to facilitate movement and creating ponds to supply water.

The primary management objective for this unit has been to provide habitat for species adapted to tall-statured grasslands, particularly tule elk and grasshopper sparrows. Based upon the scientific knowledge of these resources, vegetation management was best accomplished by excluding livestock from this unit.

The American Unit is used for both upland game and big game hunting (i.e., tule elk, wild pig, and mule deer). In general, this unit is open to unrestricted public access. However, roads in this unit are closed to vehicular traffic.

The main portion of the American Unit features infrastructure primarily associated with farming and livestock operations as part of the former American Ranch. This infrastructure, much of which has not been maintained, includes:

- five dilapidated structures at the former ranch headquarters (houses, trailers, etc.);
- three grain storage tanks just west of the former ranch headquarters;
- 3 water wells, two of which feature windmills;
- 8 water tanks; and
- 7 troughs.

Power transmission lines enter the American Unit near its southwestern boundary with the North Chimineas Unit, and exit the American Unit at the road providing access to Painted Rock Ranch parcel.

The 40-acre Painted Rock Ranch parcel contains infrastructure associated with the former ranch as well as current facilities maintained and used by the Department for its operations. Located within the approximately 2.5 acre developed portion of the property in the northeast corner, adjacent to the BLM's Goodwin Education Center, the Painted Rock Ranch Headquarters infrastructure includes:

- one mobile home;
- three small outbuildings (e.g., storage sheds);

- one water well; and
- one water trough.

4.1.2.4 Chimineas Units

The North and South Chimineas units of the CPER are part of a former cattle ranch (the Chimineas Ranch) which was acquired by the Department between 2002 and 2004. Livestock grazing was the primary land uses on the historic Chimineas Ranch since at least the 1860s. Exact figures on the number of cattle using the ranch are unavailable for the early years. However, beginning in the 1940s and up until 1995, the base operation was reported to be between 1,000 and 1,200 cattle year round (Ross Nyswonger pers. comm.). These estimates of the historic size of the base herd appear to be conservative since records for the entire 55,000-acre Chimineas Ranch, which includes adjacent federal land leases areas, and associated documents from the 1940s through 1970 indicate from 1,150 to "several thousand" head of cattle were kept on the ranch each year during this period (Mike Post pers. comm.). Additionally, the ranch was advertised as being able to carry 1,500 cows on an average year when it sold in 1998. The prior ranch owner, Dr. Neil Dow, historically maintained a cow-calf herd of approximately 600 animals between 1998 and 2004.

Since acquiring the Chimineas units beginning in 2002 (southern 14,314 acres) and 2004 (northern 15,882 acres), the Department has continued to graze those portions of the Chimineas units which were utilized by livestock at the time of CDFW acquisition. The purpose of grazing is to maintain habitat conditions that support several rare and endangered species for which the property was acquired, including San Joaquin kit fox and burrowing owl. The Department has installed fences to exclude cattle from sensitive communities, including the riparian systems and ponds within the San Juan Creek drainage. The Department has also conducted a suite of other management activities to promote wildlife including installation of additional water sources (e.g., ponds and troughs) that support wildlife including tule elk and mule deer.

In addition to fences, the Chimineas units feature other infrastructure associated with the former livestock operation, some of which is maintained by the Department to utilize cattle grazing for vegetation management. Based on the existing inventory, the grazing infrastructure located within the Department's lands includes:

- Corrals: Holding pens for cattle are in four locations near the Chimineas Unit Headquarters, in the Taylor management unit, between the Garcia and Garcia Farming management units, and in the Feed Lot management unit.
- Water Wells: The Chimineas units features nine water wells, six of which are powered by windmills.
- Water lines: An estimated 47 miles of pipes convey water for its sources in springs and wells to tanks and its ultimate destination, typically troughs and buildings, in the eastern portion of the units.
- Water tanks: There are an estimated 23 water tanks scattered throughout much of the units
- Troughs: There are approximately 24 troughs distributed throughout the units.

There are three dilapidated trailers parked adjacent to the corral in the Feed Lot Management Unit on the southern portion of the South Chimineas Unit. There are also two train cars at this location; one is used for storage, while the other is empty but occupied by roosting pallid bats (R. Stafford, pers. comm. 2017).

High-voltage electric transmission lines between Highway 166 and the Temblor Range traverse the northern portion of the disjunct Gifford Ranch parcel of the North Chimineas Unit, and then traverse the northern portion of the unit between the 1,000 acre and Unit 32 management units. From there, the power lines following the border of the section lines and occur along the northern border of the North Chimineas Unit and then cross the American Unit.

Unmapped utility lines along Chimineas Ranch Road, which ascends Carrizo Canyon, supply the Chimineas Unit Headquarters with power and telephone service from Highway 166.

4.1.2.4.1 South Chimineas Unit

Historically, the lands within the South Chimineas Unit have been grazed for at least the last 100 years. Grazing has continued to be used in approximately 30 percent of the unit to promote native, late season annual vegetation for upland game. Given the large size, complex assemblage of vegetation, and relative abundance of non-fire adapted plant communities in this unit, the primary management objective is to maintain the existing mosaic of habitat conditions to conserve the overall biodiversity of the unit. Vegetation management was geared towards reducing the chances for catastrophic fires, especially along Highway 166.

General public vehicle access through the South Chimineas Unit is only available under special conditions when Department employees are present. However, walk-on access from Highway 166 is allowed with a free permit. Over the past 10 years, public use of this unit has been approximately 350 user days per year. Hunting has been the most popular recreational pursuit by far. Hunting is allowed on the South Chimineas Unit approximately 75 days each year.

4.1.2.4.2 North Chimineas Unit

Dry land farming for grain (wheat and barley) occurred on the flat and rolling hills in the northern part of this unit. As mapped by the BLM, an estimated 6,585 acres of this unit were in cultivation in the 1980s. Cultivation on some of these lands ceased in 1987, when over one half of the previously farmed lands were enrolled in the federal Conservation Reserve Program (CRP). Cultivation ceased on the remaining portions of the ranch in the mid-1990s. The CRP lands have not been utilized for grazing since their enrollment in the program.

With several small exceptions, other portions of the North Chimineas Unit have been continually grazed by livestock for at least the last 120 years. The primary objectives for grazing these lands are to provide habitat for short-grassland dependent-wildlife species, maintain blue oak recruitment which has occurred under the prior grazing regimes, and to reduce the potential for catastrophic fires by reducing fine fuel loads in habitat types which are not adapted to fire (juniper woodlands). The Department excluded livestock from most of San Juan Creek and several ponds to enhance riparian vegetation after the acquisition of the property. Vegetation is managed by livestock on approximately 75 percent of the North Chimineas Unit.

Public access on the North Chimineas Unit has been limited to Department-sponsored research projects and professional biological workshops. There are also tightly controlled hunting opportunities for upland game, wild pigs, mule deer, and tule elk. In total, these activities account for approximately 250 user days per year. Approximately 75 percent of this use is associated with research and workshops while the remaining 25 percent is associated with hunting. All public access outside of these events, including access

by vehicles, bicycles, horses, or pedestrians, has been prohibited since the lands were first acquired. Hunting is allowed on this unit approximately 49 days each year.

4.2 Facility Use

The CPER contains facilities at two locations which are used to enhance the effectiveness of the Department's management and public use opportunities: Painted Rock Ranch Headquarters (American Unit), near the Goodwin Nature Center within Carrizo Plain, and the Chimineas Units Headquarters, which is in the northern portion of the North Chimineas Unit.

The Painted Rock Headquarters, which features a small mobile home and associated buildings, is primarily used by one to three individuals, typically Department staff, when working within the American, Elkhorn, and Panorama units. The facilities of the Chimineas Units Headquarters, which are more expansive and can accommodate larger groups (up to 30 people) are used not only to facilitate management of the Chimineas units, but also to host Department programs. Owing to its remote location (i.e., the CPER is more than a 45-minute drive from the nearest accommodations in Maricopa), over-night stays are often required of staff and members of the public who are visiting the CPER.

Table 5 provides a summary of overnight use of the Chimineas Units Headquarters building from 2005 to 2011 in "user nights" per year by topic. The use of the headquarters building has averaged about 575 user nights since 2005, which have increased significantly since 2006.

Table 5: Annual Use of the Chimineas Unit Headquarters of the Carrizo Plains Ecological Reserve

	User Nights Per Year in Fiscal Year (July-June)						
Reason	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**
Resource Assessment Program	51	63	150	80	113	203	72
Wildlife Management	10	2	7	0	0	6	18
Wildlife Protection	0	29	23	7	6	11	3
Facilities Management	65	75	40	72	81	89	100
Chimineas Ranch Foundation	0	0	0	97	70	59	102
Meetings	31	23	57	132	196	55	135
Research	18	16	92	133	9	20	0
Education	47	0	0	17	2	150	62
Hunts	64	64	109	84	107	103	50
Other Non-Game Use	89	137	137	158	16	9	0
Total	**375**	**409**	**615**	**780**	**600**	**705**	**542**

Source: CDFW 2018

In addition, the headquarters building is used for several special events, meetings, and fundraising activities associated with the CPER. These events average about six per year and have about 30 attendees. Recreational use of the North and South Chimineas units of the CPER between 2003 and 2012 is summarized on Table 6. Total visitor days for all activities allowed on the Chimineas units has averaged about 510 visitor days per year for non-hunting recreation. Hunting accounts for the majority of total user days on the Unit, and the majority of those days are spent on upland game hunting.

Table 6: Hunting and Recreational Use of the Chimineas Units of the Carrizo Plains Ecological Reserve

	Hunting (Hunter Days)[1]						Recreation (User Days)[2]				All
Year	All Hunting[1]	Quail	Dove	Pig	Deer	Elk	Horse Riding	Hiking	Cycling	Total	Visitor Days[3]
2003	507	381	120	166	0	12	3	26	2	31	526
2004	327	198	93	76	0	14	29	16	1	46	359
2005	464	320	144	121	2	11	39	20	1	60	511
2006	558	369	196	120	5	13	37	22	3	62	602
2007	499	225	258	111	5	9	66	38	0	104	589
2008	540	356	270	72	4	10	57	39	0	96	622
2009	317	161	158	59	4	9	29	27	2	58	362
2010	530	185	282	53	5	5	17	7	0	24	554
2011	487	233	232	11	3	8	7	14	3	24	511
2012	391	153	186	40	3	9	7	17	8	32	423

Source: CDFW 2018

Notes:

1. Data for quail, dove and pig represent combined hunter days for both the North and South Chimineas units. Data for tule elk and mule deer are for the North Chimineas Unit, only.
2. Recreation uses exclusive to the South Chimineas Unit.
3. Visitors to the CPER often pursue more than one activity, or hunt for more than one species, on a given day. The totals for All Hunting Days and All Visitor Days do not double-count these days for a given year, but instead reflect the number of individuals, only.

4.2.1 Staffing

Current staffing of the CPER includes Department environmental scientists, game wardens, scientific aides and habitat assistants, and management of the grazing operations. In addition, research is conducted by scientists from a variety of institutions and organizations as summarized in Table 7.

4.2.2 Water Demand

Assuming 80 gallons per person, per day of potable water use and average daily use of the CPER of about 14 persons per day (including staff, researchers, grazing managers, volunteers, and recreators), six overnight events per year with 30 people attending for two days, 40 gallons per day for wildlife watering, 50 gallons per day per head of livestock during the summer months, and 25 gallons per day per head in the winter months, average water demand on the CPER is about 5.8 million gallons per year, or about 17.8 acre-feet per year. Peak demand is during special events which occur about six times per year with about 30 total attendees.

Table 7: Staffing and Other Personnel

Staffing/Use	Persons	Hours Per Week
CDFW Staff	5	20 - 40
Researchers	4	20 - 30
Grazing	1	40
Volunteers	2	20
Average Daily Recreation Use	2	—
Sub-Total Staffing, Research, Grazing, Volunteers and Recreation Use	14	—
Special Events	30	—

Source: CDFW 2012c

4.2.3 Traffic

Assuming a total of 14 total people on the CPER on an average day, including staff, researchers and recreation visitors, the CPER generates about 14 total vehicle trips per day. On days with special events, which occur approximately six times per year, total trip generation can be as high as 44 trips.

4.2.4 Solid Waste Generation and Disposal

Assuming an average of 12 pounds of solid waste per person per day, the CPER would generate about:

14 persons per day x 12 pounds per person = 96 pounds of solid waste per day.

For a special event, total occupancy could be as high as 44 persons (attendees plus staff, researchers and recreation users) which would generate about:

44 pounds per day x 12 pounds per person = 528 pounds of solid waste per day.

4.3 Previous and Ongoing Management Activities

The Department conducts management activities within the Reserve including:

- Managed cattle grazing, to maintain habitat required by special-status species, control exotic plants, and reduce fine fuels that can promote wildfire;
- Installation of fencing along creeks and around springs to regulate cattle access to riparian, wetland, and pond areas:
- Removal of fences in ungrazed areas, to reduce barriers to animal movement;
- Ongoing research and monitoring of various species (Section 5.4.5);
- Efforts to control exotic species; and
- Creation of new water sources to promote wildlife.

4.4 Previous Approvals and Environmental Review

4.4.1 Grazing Lease 2011 - 2014

In November 2011, the Department adopted a Mitigated Negative Declaration (MND) and approved a lease agreement authorizing continued managed grazing of about 12,000 acres on portions of the North and South Chimineas units (Figure 5; CDFW 2011b). Under the terms of the lease, grazing activities would be subject to a range of restrictions, standards, monitoring and remediation activities. The lease agreement set specific standards for biomass and residual dry matter (RDM) to be maintained in all grazed areas, to protect the soil and create and maintain desired habitat conditions for the special-status animal species.

The lease agreement established a maximum number of animal unit months (AUMs) to be available on an annual basis on the lease premises. The AUM standard was based on the carrying capacity of the lease premises derived from the work of Mr. Keith Gunther, a certified range manager with extensive experience evaluating rangelands in the project area. Under the terms of the lease agreement, grazing activities would be subject to ongoing monitoring to ensure that these standards are achieved and maintained. Exhibit B of the Lease Agreement describes the methodologies to be used for such monitoring and for reporting the results to the Department (CDFW 2011b). In the event monitoring reveals that the standards for RDM may not be achieved, remedial actions are required.

The MND concluded that managed grazing in accordance with the terms of the lease agreement would have a less-than-significant impact on the resources of the CPER. As part of the grazing lease approval, the MND analyzed the potential impacts of establishing additional livestock watering areas within the grazing premises.

4.4.2 Cuyama River Riparian Enhancement

In 2005 the Department entered a cooperative agreement with the Cachuma Resource Conservation District and the owner of the ranch that borders the South Chimineas Unit (the Russell Ranch) to enhance riparian habitat along a four-mile portion of the Cuyama River along boundary of the two properties. Known as the Cuyama River Riparian Enhancement (CRRE), the project consisted of the installation of four miles of fencing on both the north and south sides of the river to exclude cattle from the riparian vegetation (CRCD 2005). In exchange for excluding grazing along the river, the agreement allows the property owner to graze approximately 200 acres of the South Chimineas Unit when feed-stock is low on the remaining portions of their ranch. The agreement includes a management plan which sets forth stocking levels, standards for residual dry matter, and stock rotation.

The project was designed to benefit approximately 375 acres, including an estimated 150 acres of riparian and riverine vegetation dominated by Fremont cottonwood and willows, 150 acres of riparian shrubland featuring willows, mulefat, and arrowweed, and 50 acres of fresh emergent wetland featuring cattail and bulrush. The remaining approximately 25 acres will remain as either open water or open sand.

The grazing management portion of the plan provides for a simple five-pasture rotation system. Under this plan, the private owner may rotate their cow herd, consisting of 140 cow/calf pairs, through the five pastures for the maximum number of days of available forage as shown on Table 8; the agreement does not otherwise limit the seasonality or duration of use. Monitoring is required by taking RDM measurements

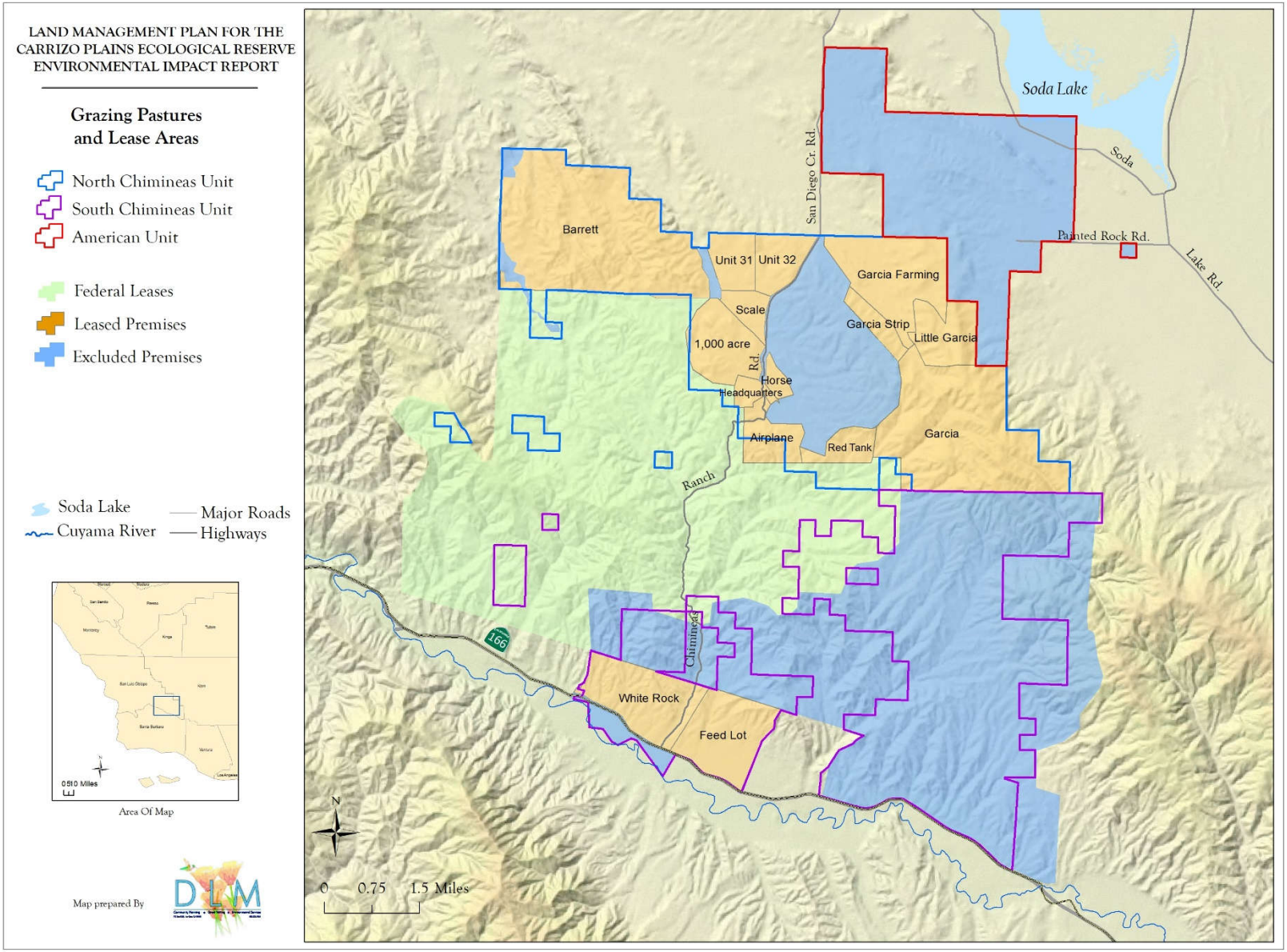


Figure 5: Grazing Pastures and Lease Areas of the Chimineas Units

Table 8: Grazing Prescriptions for the Russell Ranch Portion of the CRRE during a Normal Year

				Grazing Period	
Pasture	Acres	Animal Unit Months	Animal Units	Months	Days
1	200.0	140.0	137	1.0	31
2	223.5	156.0	137	1.1	34
3	81.5	57.0	137	0.4	13
4	1,069.0	748.0	137	5.5	164
5	811.6	569.1	137	4.1	124
Total	**2,385.6**	**1,669.5**	**137**	**12.2**	**366**

Source: Cuyama River Riparian Enhancement 2005

at the end of the grazing season, between October 1 and November 1 each year. Target RDM levels are 800 pounds of air-dry residue per acre.

Baseline studies of vegetation composition and condition and bird species diversity were conducted within the cooperative agreement management area by students from California Polytechnic University, San Luis Obispo in the fall of 2003. Comparable surveys are conducted at five-year intervals by either the Department or university students to assess project success. Additionally, special-status-species surveys will be conducted by the Department annually as part of the ongoing management of the CPER.

The placement of the fencing in the CREP was determined by the Department to be Categorically Exempt from the California Environmental Quality Act in accordance with Section 15304 (minor alteration to land). No further environmental review was required.

4.4.3 Grazing Allotments Approved on Surrounding Federal Lands

4.4.3.1.1 Grazing Allotments on the Los Padres National Forest

Grazing allotments in the adjacent Los Padres National Forest (LPNF) adjoin the CPER (Figure 5) and are governed by grazing permits issued by the United States Forest Service (USFS). The Rescission Act of 1995 (PL 104-19, Section 504) addresses compliance with the National Environmental Policy Act (NEPA) for all grazing allotments in the LPNF. Under the Rescission Act, the USFS is required to develop and implement decisions on re-issuing term grazing permits in accordance with NEPA. As of 2011, LPNF had established a schedule for NEPA compliance and is proceeding to prepare NEPA compliance documents for the grazing allotments (G. Montgomery, pers. comm.). However, NEPA compliance for the grazing allotments that adjoin the CPER has not been completed.

In accordance with Item b of the Rescission Act, grazing activities may continue on allotments for which NEPA compliance has not occurred subject to the same terms and conditions in effect prior to expiration. The current grazing permit was issued in July, 2009 and is effective to December 31, 2018. The permit authorizes the grazing of a total of 308 cow-calf pairs between February 1 and June 15 of each year. The lease includes restrictions and standards for grazing activities designed to maintain range health in accordance with adopted management policies of the USFS. Livestock utilization standards are governed by the following section of the permit and summarized on Table 9:

S56: Livestock Grazing Utilization Standards: Retain the following: average amounts of residual dry matter (RDM) until the onset of the rainy season; percent utilization; and percent streambank alteration on grazed rangelands. Precipitation is based on long-term averages. Streambank alteration is defined as alteration and displacement of rooted plants and physical soil structure by livestock per stream reach in wet montane meadows and Rosgen C3 channels. Percent woody browse is based on current year's growth of shrubs, unless required to meet other vegetation management objectives. Livestock will be moved from grazing units when thresholds are met as determined by established protocols.

Table 9: Livestock Utilization Standards of the Los Padres National Forest July 2009 Grazing Lease

Location	Habitat Grouping	Residual Dry Matter (RDM) (lbs./acre)	Woody Browse % Allowable Use	Perennial Grass and Grass-Like Plants % Allowable Use	Streambank Alteration by Livestock % Allowable Use
Least Bell's Vireo/Southwestern Willow Flycatcher Occupied Habitat	Nesting Season	No Grazing During Occupancy			
	Suitable Habitat Non-Nesting Season/No Occupancy	N/A[1]	35	35	<10
Riparian Areas	N/A	N/A	40	35	<20
Wet Montane Meadows	N/A	N/A	40	4 - 6" Stubble Height (based on condition)	< 20
Uplands	Annual grasslands and oak woodlands with >10 inches annual precipitation	700	40 (20 on advanced oak tree regeneration)	50	N/A
	Annual grasslands and oak woodlands with <10 inches annual precipitation	400			
	Annual grassland/pinyon	200 - 400	40	50	
	Mixed conifer forests	600			
	Chaparral/desert scrub	200 - 400			
Wildland Urban Interface/Fuel breaks	N/A	600	N/A	N/A	N/A

Source: G. Montgomery, pers. comm.

Notes: 1. NA = Not applicable.

In addition, all project decisions must be consistent with the 2005 Los Padres Forest Land Management Plan (LPNF LMP; USDA 2005a). Under the LPNF LMP, it is USFS policy (FSM 2203.1) to make forage available to qualified livestock operators from lands that are suitable for livestock. The LPNF LMP desired condition for rangeland management is that livestock grazing opportunities are maintained and managed for sustainable, healthy rangelands that contribute to improving watershed conditions towards a fully functional and productive condition.

4.4.3.1.2 Bureau of Land Management Grazing Allotments

The BLM administers grazing allotments on lands adjoining the CPER (Figure 5). In August 2010, BLM adopted a Finding of No Significant Impact (environmental assessment, #C060-2010-0177-EA) in accordance with NEPA and approved a grazing lease for the Northern Chimineas Allotment consisting of 3,949 acres adjoining the CPER to the west (Figure 5). The lease authorizes managed grazing of 155 cattle from July, 2011 to November 2011 subject to several conditions, including the following, which speak to the issue of rangeland health and consistency with previously adopted standards (BLM 2012, page. 54):

C. Allotment Specific Terms and Conditions supporting Rangeland Health or the Land Use Plan

1. Livestock will only be allowed to utilize public lands within this allotment(s) during the authorized period of use and when at least 500 lbs./acre of annual residual dry matter is present and 2" of green growth has occurred on annual plants, or when at least 700 lbs./acre of annual residual dry matter is present when green growth is not yet present on annual plants.
2. The Permittee or Lessee will remove livestock from public lands within this allotment(s) prior to reaching a minimum level of 500 lbs./acre of residual dry matter, regardless of calendar date.
3. Maximum perennial plant utilization of species such as *Atriplex spp.* and *Poa secunda* will be 25% to 40% of current annual growth (Guideline 5; Table A; 4-10 inches of precipitation, California annual grasslands: Central California's Standards for Rangeland Health and Guidelines for Livestock Grazing Management ROD approved July 13, 2000) or meets comparable form class, foliage density and reproductive uniformity criteria for *Atriplex spp.*

4.5 Regional Development Patterns and Land Use Management Plans

Land uses within the region include resource conservation, dry-land farming, oil and gas exploration and production, camping, hunting and cattle grazing. Energy development projects in the form of photovoltaic solar arrays for the generation of electricity are in various stages of entitlement, construction, and operation in the California Valley and western Kern County. Section 4.5.3 discusses previously approved and reasonably foreseeable large-scale development projects as well as adopted plans governing land use in the region.

4.5.1 Federal Land Management Plans

The CPER is adjacent, or near to, federal land managed for a variety of uses including resource conservation, livestock grazing, and oil and gas exploration and production, as well as recreation (Table 10).

Table 10: Summary of Land Use Management Plans Affecting the CPER Region

Project	Description	Jurisdiction	Acres	Status
Resource Management Plan for the Carrizo Plain National Monument	Resource management plan	US Department of Interior, Bureau of Land Management	246,817[1]	Adopted April, 2010[1]
Bakersfield Proposed Resource Management Plan (2014)	Resource management plan	US Department of Interior Bureau of Land Management	400,000[2]	Adopted December, 2014[2]
Land Management Plan for the Los Padres National Forest	Land management plan	US Department of Agriculture, US Forest Service	1.78 million	Adopted April, 2006[5]
Bitter Creek National Wildlife Refuge	Comprehensive Conservation Plan	US Department of Interior, US Fish and Wildlife Service	14,094	Adopted September, 2013[4]
Shandon Community Plan	Community plan for the unincorporated community of Shandon	San Luis Obispo County	2,081	Approved by San Luis Obispo County in April, 2012[5]

Sources:

1. BLM 2010
2. BLM 2014
3. USDA 2005a
4. USFWS 2013
5. SLO County 2012a

4.5.1.1 Carrizo Plain National Monument Resource Management Plan

The Carrizo Plain National Monument (CPNM) consists of 246,817 acres stretching from Soda Lake on the north to Highway 166 on the south. In April 2010, BLM adopted a Final Environmental Impact Statement (FEIS) and approved a Resource Management Plan (RMP) for the CPNM (BLM 2010). Uses and activities allowed on the CPNM include:

- Recreation, including hiking, camping, hunting, wildlife viewing, wildflower viewing, equestrian and bicycle riding, picnicking, auto touring, and cultural resources viewing;
- Fire and fuel management, including prescribed burning and grazing;
- Mineral exploration and development; and
- Research and monitoring.

The RMP sets forth a management structure for the CPNM similar to that recommended by the Draft LMP (CDFW 2018), including the use of an adaptive management and monitoring process as well as management strategies that emphasize vegetation/habitat management through livestock grazing and fire management. The RMP contains objectives for management outcomes or "desired future conditions" of the various resources and lists a suite of initial actions that will be taken to restore and manage ecosystems to meet the RMP objectives. Some of these actions are listed in the plan itself, while others are contained in a Conservation Target Table—a planning tool that identifies targets for specific resources. Monitoring is an important component of RMP implementation and will be used to gauge the effectiveness of actions at achieving objectives.

The FEIS identified moderate benefits on habitat structure from prescribed fire and livestock grazing as a vegetation management tool by expanding the amount of suitable habitat, and enlarging the effective size of the core areas when such management might be critical to maintaining viable populations with the CPNM. Restoration activities to reintroduce native plants are expected to improve native plant species composition.

4.5.1.2 Los Padres National Forest Land Management Plan

In September 2005, the US Forest Service adopted a Land Management Plan (LMP) for the Southern California National Forests which include Angeles, Cleveland, and San Bernardino national forests, as well as the LPNF which adjoins the CPER to the west (USDA 2005a). The LPNF LMP (USDA 2005a) addresses the priority goals for the Forest Service provided in the Forest Service Strategic Plan (USDA 2007):

Goal 1 - Reduce the risk from catastrophic wildland fire;

Goal 2 - Reduce the impacts from invasive species;

Goal 3 - Provide outdoor recreation opportunities;

Goal 4 - Help meet energy resource needs;

Goal 5 - Improve watershed conditions; and

Goal 6 – Mission-related work in addition to that which supports the agency's goals.

Part 2 of the LPNF LMP provides the recommended management strategies for the LPNF which emphasize the protection and enhancement of biological resources within the forest. According to the Final

Environmental Impact Statement (FEIS), implementing the actions described in the plan could result in a high likelihood of maintaining the presence and viability of the biological resources within the LPNF.

The LPNF LMP incorporates an adaptive management approach in which the broad parameters for management are defined, but with sufficient flexibility to adapt decisions to accommodate rapidly changing conditions. The emphasis on adaptive management is expected to be beneficial to the protection of biodiversity as demand for use of National Forest System lands increases, especially adjacent to urban development. Implementation of the LPNF LMP is expected to result in less than cumulatively considerable adverse impacts with respect to at-risk plants and invertebrates within the National Forests (USDA 2005a). The FEIS provides an assessment of cumulative impacts for management indicator species (MIS). The management strategies recommended by the LPNF LMP are expected to have a generally beneficial impact on habitat conditions for the MIS (USDA 2005b). It should be noted that not all of the indicator species occur in the LPNF in the vicinity of the CPER. Nonetheless, the analysis suggests a generally-positive cumulative impact on these species.

According to the FEIS, through implementation of actions described in the LPNF LMP and consideration of all the impacts arising outside the national forests, the general habitat quality trend on the Southern California National Forest System lands, including the LPNF, is likely to be stable in the long term. Throughout the forest most species and their associated habitats are expected to remain within expected ranges of variability under current climatic conditions. Species at risk with a majority of their habitat on private land would most likely decline substantially at the current rate of land development, which could result in substantial population effects on National Forest System lands.

4.5.1.3 Bureau of Land Management Bakersfield Field Office Resource Management Plan

The Bakersfield Field Office of the Bureau of Land Management administers 400,000 acres of public land throughout Kings, San Luis Obispo, Santa Barbara, Tulare, Ventura, Madera, eastern Fresno, and western Kern counties, including lands adjacent to the CPER. A wide range of recreation, resource extraction and other uses are allowed on these lands including camping, hunting, oil and gas exploration and extraction, and grazing.

Prior to adoption of the plan in 2014, the BLM-administered lands near the CPER were managed according to the 1997 Caliente RMP (BLM 1997). The planning area for the 2014 update consists of about 17 million acres; land within the Carrizo Plain National Monument (described above) is covered by a separate land management plan. The updated RMP guides the management of the 400,000 acres managed directly by the Bakersfield Field Office (the Decision Area) that is not covered by the RMP for the Carrizo Plain National Monument (Figure 6).

The purpose of the RMP is to ensure lands administered by the BLM are managed in accordance with the Federal Land Policy and Management Act (FLPMA) and the principles of multiple use and sustained yield (BLM 2014). The reason for revising the existing plan is to address the changes occurring in the planning area and to select a future management strategy that best achieves a combination of the following elements:

- Employ a community-based planning approach to collaborate with federal, state, and local agencies;
- Establish goals and objectives for managing resources and resource uses in the approximately 400,000 surface acres and 1.2 million acres of federal mineral estate in the Decision Area in accordance with the principles of multiple use and sustained yield;

Figure 6: Bureau of Land Management Bakersfield Field Office Resource Management Plan Area

- Identify land-use plan decisions to guide future land-management actions and subsequent site-specific implementation decisions;
- Identify management actions and allowable uses anticipated to achieve the established goals and objectives and reach desired outcomes;
- Provide comprehensive management direction by making land-use decisions for all appropriate resources and resource uses administered by the Bakersfield Field Office;
- Provide for compliance with applicable tribal, federal, and state laws, standards, and implementation plans, and BLM policies and regulations;
- Recognize the Nation's need for domestic sources of minerals and renewable energy, and incorporate requirements of the Energy Policy Act of 2005 (Public Law 109-58);
- Retain flexibility to adapt to new and emerging issues and opportunities and to provide for adjustments to decisions over time based on new information and monitoring; and
- Strive to be compatible with the plans and policies of adjacent local, state, tribal, and federal agencies and consistent with federal law, regulations, and BLM policy.

As part of the public scoping process several issues were identified regarding the management of BLM lands within the planning area. These include the following:

- Adequately address the need for access to, and continued availability of, public lands for multiple recreational uses and open spaces;
- Establish a balance between the extent of the travel network and the protection of natural and cultural resources including an appropriate allocation of routes to the various modes of transport;
- Ensure appropriate protection for threatened and endangered species, critical habitat, other biological resources, and cultural and paleontological resources in a multiple-use environment;
- Continue to appropriately manage livestock grazing to provide for economic benefit, rural lifestyles and vegetation management while protecting other resources;
- Balance the demand for energy development (including oil and gas, wind, and solar energy) and other land use authorizations (such as road and transmission corridor rights-of-way) with other resource values; and
- Address the impacts of climate change on the management of public lands, including strategies that will reduce impacts and incorporate appropriate monitoring.

Five alternatives were considered, including the No-Action Alternative (continued management under the 1997 Caliente RMP) and the Preferred Alternative which balances resource conservation and ecosystem health with the production of commodities and public use of the land. The Preferred Alternative provides opportunities to produce commodities from natural resources and to use the land for public purposes on a sustainable basis while maintaining important ecological, cultural, and recreational values (BLM 2014).

Subsurface mineral rights under the ownership of the federal government and administered by BLM underlie a portion of the South Chimineas Unit of the CPER. In this situation, mineral rights are considered the dominant estate, meaning they take precedence over other rights associated with the property, including those associated with owning the surface. However, the mineral owner must show due

regard for the interests of the surface estate owner and occupy only those portions of the surface that are reasonably necessary to develop the mineral estate.

The RMP for the Bakersfield Field Office contains the following Controlled Surface Use (CSU) stipulations regarding the development of mineral rights underlying the Chimineas units:

> **Stipulation:** This lease is within the boundaries of, or adjacent to, the State of California's Chimineas Unit (units) of the Carrizo Plains Ecological Reserve, an area that contains unique or significant natural or cultural values. Prior to the authorization of any surface disturbing activities, a preliminary environmental review will be conducted to identify the potential presence of natural or cultural values. Authorizations may be delayed until completion of the necessary surveys during the appropriate time period for these resources. Surface disturbing activities may be prohibited on portions or the entire lease, and some activities may be prohibited during seasonal time periods.
>
> **Objective:** To prevent or reduce disturbance to unique or significant natural or cultural values from fluid mineral development.
>
> **Exception:** The Authorized Officer may grant an exception if, after coordination with CDFG (CDFW), an environmental review determines that the activity, as proposed or conditioned, would not impair the values present and is consistent with the management of the ecological reserve.
>
> **Modification:** The Authorized Officer may modify this stipulation to further restrict surface use on a portion of or the entire lease if a more stringent requirement is deemed necessary to protect resource values following an environmental review.
>
> **Application:** The CSU–Chimineas Ranch stipulation would be applied to lands adjacent to, or within the boundaries of the California Department of Fish and Wildlife's Chimineas Units of the Carrizo Plains Ecological Reserve, where the surface is managed by BLM. Split-estate land, where the surface is managed by the California Department of Fish and Game (Wildlife), would be subject to the No Surface Use-Existing Surface Use/Management stipulation.
>
> **Review Process:** Generally, the following process would be used to approve surface disturbing activities on leases with the CSU–Chimineas Ranch stipulation. The proposed activity would be reviewed to determine if the values for which the area was recognized would be affected. This review may involve site-specific surveys for plant and animal species, conducted according to established methodologies which may specify certain seasons or other conditions. In some cases, this may mean that a survey cannot be completed until the next growing season for some plants or after seasonal appearance for some animal species.
>
> If the review determines that the values for which the area was recognized may be adversely affected, then surface disturbing activities may be prohibited on all or portions of the lease and certain activities may be prohibited during seasonal periods.

4.5.1.4 Bitter Creek National Wildlife Refuge

The Bitter Creek National Wildlife Refuge (BCNWR) was established in 1985 and covers an area of about 14,000 acres located southeast of the CPER in parts of San Luis Obispo, Kern, and Ventura counties. The BCNWR features open grasslands, which are valuable foraging habitat for California condors. Smaller areas

of habitat consist of juniper brush land, oak savannah, and pinyon pine/juniper/oak communities. Several springs are found within the refuge boundaries and creeks flow intermittently, depending upon rainfall. Bitter Creek Canyon contains a riparian corridor. The BCNWR also protects the habitat of a variety of plants and animals, including the golden eagle, prairie falcon, and three federally-endangered species, San Joaquin kit fox, blunt-nosed leopard lizard and Kern mallow.

The BCNWR was established primarily to provide safe roosting and foraging for condors, and is also used as a release site for condor reintroductions. Management activities undertaken on the BCNWR include monitoring of condor behavior, surveys of other biological resources, and wetland restoration and enhancement. No hunting is allowed. Fire and fuel management including the maintenance of a fuel break adjacent to Cerro Noroeste Road and Highway 33 are also undertaken on the BCNWR.

In 2009, the US Fish and Wildlife Service prepared a draft Grassland Habitat Management and Restoration Plan for the BCNWR accompanied by an Environmental Assessment as required by NEPA. The plan was integrated into the comprehensive conservation plan for the Hopper Mountain, Bitter Creek, and Blue Ridge National Wildlife Refuges (USFWS 2013).

4.5.1.5 Recovery Plan for Upland Species of the San Joaquin Valley, California

Section 4(f) of the Endangered Species Act (ESA) of 1973, directs the Secretary of the Interior and the Secretary of Commerce to develop and implement recovery plans for species of animals and plants listed as endangered or threatened. Recovery is the process by which the decline of an endangered or threatened species is arrested or reversed, and threats to its survival are neutralized, so that its long-term survival in nature can be ensured. The CPER lies within the area addressed by the Recovery Plan for Upland Species of the San Joaquin Valley, California (USFWS 1998) which provides recovery strategies for 11 species federally-listed as endangered or threatened (Table 11).

Table 11: Species Addressed in the Recovery Plan for the Upland Species of the San Joaquin Valley

Species	Status[1]
California jewelflower (*Caulanthus californicus*)	FE, CE
Palmate-bracted bird's-beak (*Cordylanthus palmatus*)	FE, CE
Kern mallow (*Eremalche kernensis*)	FE
Hoover's woolly-star (*Eriastrum hooveri*)	FT
San Joaquin woolly-threads (*Lembertia congdonii*)	FE
Bakersfield Cactus (*Opuntia basilaris var. treleasei*)	FE, CE
Giant kangaroo rat (*Dipodomys ingens*)	FE, CE
Fresno kangaroo rat (*Dipodomys nitratoides exilis*)	FE, CE
Tipton kangaroo rat (*Dipodomys nitratoides nitratoides*)	FE, CE
Blunt-nosed leopard lizard (*Gambelia sila*)	FE, CE
San Joaquin kit fox (*Vulpes macrotis mutica*)	FE, CT

Source: UFWS 1998

Notes:

1. FE and FT - Federal Endangered and Threatened
   CE and CT - California Endangered and Threatened

4.5.2 Background Growth and Development Accommodated by County General Plans

Each city and county in California is required to adopt a general plan to govern land use within its jurisdiction in accordance with Section 65300 of the California Government Code. Land use on private property surrounding the CPER is governed by the general plans of San Luis Obispo, Santa Barbara, and Kern counties.

Background growth refers to the increase in traffic volumes and patterns on state highways (e.g., Highways 58 and 166), background air quality conditions, and other associated environmental conditions that occur within the region, both within and outside of the CPER. Included in this category is the consideration of the effect of major land use activities in the region, ongoing agricultural and livestock ranching activities, and the conversion of open space and agricultural lands resulting from development patterns established by the three county general plans.

4.5.2.1 San Luis Obispo County

The CPER is located entirely within San Luis Obispo County in an area governed by the Shandon-Carrizo Area Plan (Area Plan; SLO County 2012a). The Area Plan contains policies to guide land use and development consistent with the rural character of the area. All of the parcels surrounding the CPER are designated either Agriculture or Rural Lands by the Area Plan (Figure 7). These designations allow for a wide range of activities and uses subject to varying levels of permits issued by the County. These uses include crop cultivation, livestock operations, grazing, recreation, electricity generation, petroleum extraction, sand and gravel extraction, certain types of manufacturing, camping, hunting and fishing, waste disposal sites and public utilities.

Population Growth. In April 2012, the County adopted the Shandon Community Plan (Community Plan). Shandon is an unincorporated community of about 1,200 residents located about 18 miles east of the City of Paso Robles on Highway 46 at the north end of the California Valley. The Community Plan covers an area of about 2,000 acres and will guide development over the next 25 years. The Community Plan designates additional land for residential and commercial development. Under the Community Plan, Shandon's population is expected to grow to about 5,260 residents over a 25-year period.

According to the 2001 San Luis Obispo County Clean Air Plan (SLO County 2011d), the population of the Shandon-Carrizo Planning Area is expected to increase from about 3,000 residents in 2010 to about 3,255 residents in 2015, or about 1.5% per year. The additional population, including population accommodated by the Shandon Community Plan, is expected to have a negligible impact on background air quality.

Traffic. Traffic volumes are expected to increase on Highway 58 near the CPER in part because of two large-scale solar projects (Section 4.5.6) as well as truck traffic generated by an aggregate mine and additional small-scale residential development expected in the region. Truck traffic on Highway 58 could increase by as much as 24 one-way trips during the 20- to 30-year life of the project (SLO County 2012b). New development is required to pay development impact fees adopted by San Luis Obispo County in accordance with Section 66000 of the California Government Code. The purpose of the fee is to pay for roadway improvements required to serve new development.

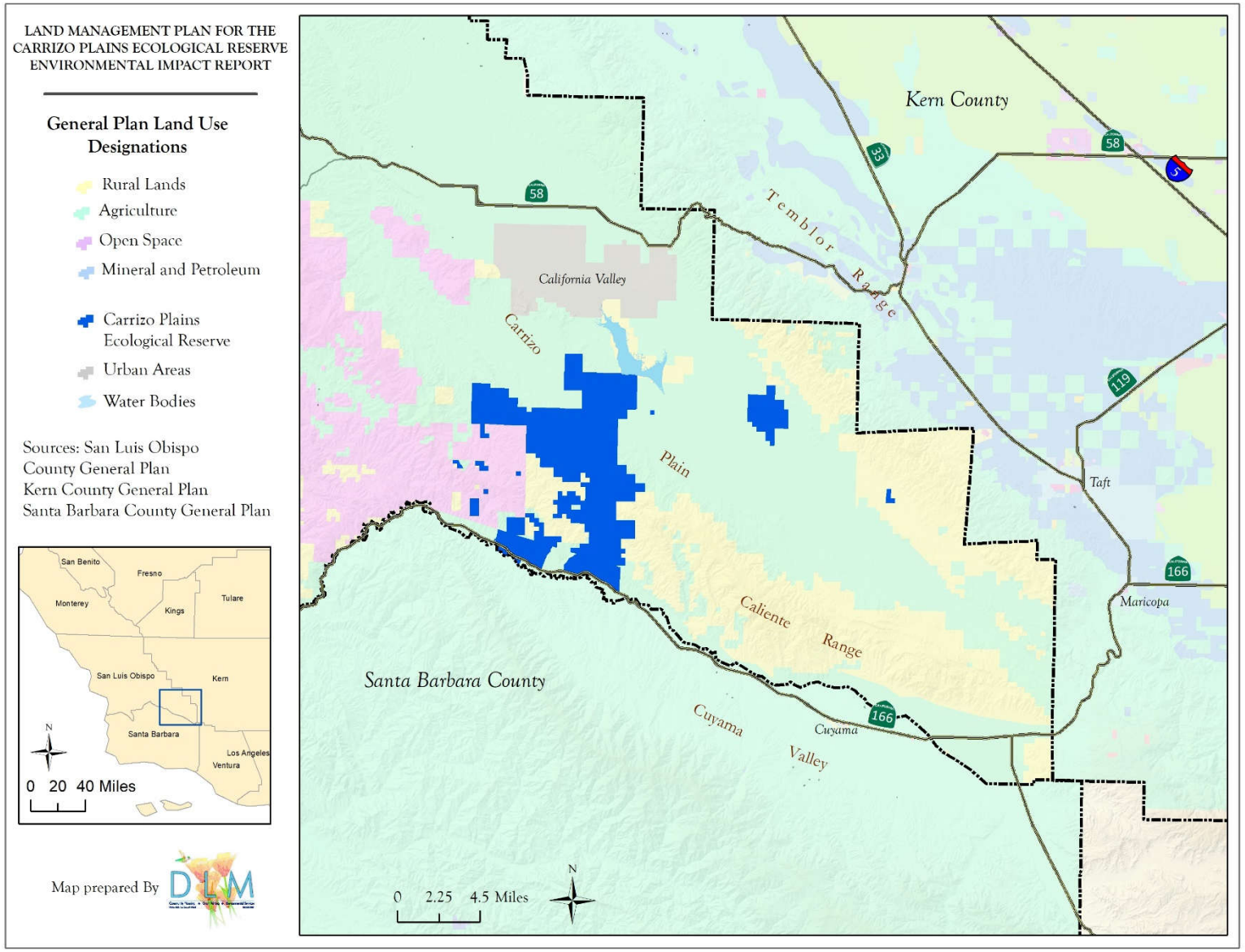


Figure 7: Land-Use Designations in the Region

Policies of the Conservation and Open Space Element. In May, 2010 San Luis Obispo County adopted the Conservation and Open Space Elements (COSE) of the General Plan as a combined element (SLO County 2010a). The COSE addresses issues relating to the conservation, development, and utilization of natural resources including:

- Water and its hydraulic force;
- Forests;
- Soils;
- Rivers and other waters;
- Harbors;
- Fisheries;
- Wildlife;
- Minerals; and
- Other natural resources.

The COSE addresses the preservation of natural resources, resource management, managed production of resources, outdoor recreation, and public health, and safety. The COSE contains goals, policies, and implementation measures to achieve the objectives set forth for each of these resources. The policies of the COSE are guided by strategic growth principles, including:

- Strengthen regional cooperation;
- Preserve open space, scenic, natural beauty, and natural resources;
- Conserve energy;
- Protect agricultural land and resources;
- Strengthen and direct development toward existing and strategically planned communities;
- Foster distinctive, attractive communities with a strong sense of place;
- Provide a variety of transportation choices;
- Create a range of housing opportunities and choices;
- Encourage mixed land uses;
- Create walkable neighborhoods and towns;
- Take advantage of compact building design;
- Make development decisions predictable, fair and cost effective; and
- Encourage community and stakeholder collaboration.

4.5.2.2 Santa Barbara County

Land in Cuyama Valley that borders the CPER to the south is governed by the Santa Barbara County General Plan (Figure 7). Land within the entire Cuyama Valley outside the rural communities of New

Cuyama and Cuyama are designated Agriculture by the general plan, with minimum lot sizes that range from 5 acres to 320 acres (Santa Barbara County 2009). Allowable uses in the Agriculture designation include crop cultivation, animal keeping, mining oil and gas exploration, wineries, grazing, recreation, certain residential uses, and utilities and public facilities. Form some activities, a use permit is required.

The general plan contains policies for the Cuyama Valley aimed at preserving productive agricultural land and groundwater resources. The General Plan anticipates minimal additional development in the area.

According to the Santa Barbara County Association of Governments Regional Growth Forecast 2005 – 2040 (SBCAG 2007), growth in Santa Barbara County is projected at 18% between 2005 and 2040. The population of the Cuyama Valley is expected to grow from about 1,500 in 2010 to about 2,700 in 2040 (SBCAG 2007). Development in the area is expected to contribute only minimally to the background growth in traffic and to background levels of air pollution. Traffic on Highway 166 is expected to grow as additional development occurs in the urban areas of Santa Maria and the southern San Joaquin Valley.

Santa Barbara County has also adopted an Open Space Element that promotes the protection of agricultural and habitat resources and contains specific policies aimed at preserving habitat for special-status plants and animals.

4.5.2.3 Kern County

Kern County lies east of the CPER and the Temblor Range. The Kern County General Plan designates the area in the western portion of the county nearest the CPER primarily for Extensive Agriculture and Intensive Agriculture (Kern County 2009). Other areas are designated for Mineral and Petroleum development, Resource Management, and Resource Reserve. The western portion of the county has historically been dry farmed and used for oil and gas development. In more recent years, the area has been transitioning with the approval and development of solar electric generating facilities using photovoltaic arrays.

According to the Kern Council of Governments 2014 Preliminary Regional Transportation Plan (KRTP), the population of Kern County is projected to grow at an average annual rate of 1.8% between 2010 and 2035 (KCG 2014). The KRTP does not break down the forecast by region; however, the Bakersfield metropolitan area is expected to absorb the majority of new residents. Air quality is expected to continue to be unhealthful as population and associated traffic continue to grow.

4.5.3 Large-Scale Solar Energy Development

Historically, the predominant land use in the region surrounding the CPER has been agriculture and grazing. However, abundant sunshine combined with the recent enactment of federal and State incentives for the development of alternative energy sources have led to considerable interest in the Carrizo Plain and western Kern County for the development of large scale photovoltaic (PV) electrical generating stations (Table 12). Existing and proposed solar arrays vary in size from a few tens of acres to several thousand acres and represent the single most significant type of large-scale development affecting the region.

Table 12: Previously Approved and Reasonably Foreseeable Future Large-Scale Development Projects

Project	Description	Jurisdiction	Acres	Status
California Valley Solar Farm (Sunpower)	250-megawatt solar generating plant, electric sub-station, maintenance facilities and 2.8-mile transmission line	San Luis Obispo County	2,000[1]	Completed 2012[1]
Topaz Solar Farm	550-megawatt photovoltaic solar power plant	San Luis Obispo County	4,100[2]	Completed 2013[2]
Maricopa Sun Solar Complex	700-megawatt photovoltaic solar power plant	Kern County	6,046	Approved March, 2011[3]
Lost Hills Solar	33-megawatt photovoltaic solar power plant	Kern County	307	Approved October 2010, construction to begin in 2013[3]
Elk Hills Solar	7-megawatt photovoltaic solar power plant	Kern County	47	Approved December 2011, Approved December 2011, construction pending[3]
Pumpjack & Rio Bravo	125-megawatt photovoltaic solar power plant	Kern County	125	Draft EIR circulated in November, 2012[3]
SunGen Solar	398-megawatt photovoltaic solar power plant	Kern County	31	Approved for processing April 2011[3]
Kern Solar Ranch	1,000-megawatt photovoltaic solar power plant	Kern County	6,100	EIR being prepared[3]

Sources:
1. SLO County 2011a
2. SLO County 2011b
3. Kern County 2012

Conditions of approval for the California Valley Solar Project and the Topaz Solar Project require each project to compensate for permanent and temporary impacts to biological resources (Table 13). In most cases compensation consists of the permanent preservation of a certain ratio of land for each acre impacted by the projects, where "preservation" refers to the acquisition or dedication of a permanent open space easement over land of appropriate habitat value elsewhere in the Carrizo Plain. In some cases, portions of each project site may provide suitable mitigation land. The conditions of approval also require each developer to prepare and fund a habitat management plan to ensure the objectives of the conditions are satisfied. As a result, about 15,000 total acres of mitigation lands has been permanently preserved in the Carrizo Plain area as part of these projects (Table 13).

Table 13: Summary of Mitigation Requirements for Impacts to Biological Resources, California Valley Solar Ranch and Topaz Solar Project				
Mitigation Measure	**Mitigation Ratio[1]**	**Conservation Method**	**Approximate Acreage to be Preserved**	**Location Requirements**
California Valley Solar Ranch				
MM AG-1.1 - Mitigate the loss of farmland through permanent preservation of farmlands. Prior to the issuance of construction permit,	1:1	Acquire open space easement or other farmland conservation mechanism acceptable to the County.	At least 1,500	Within San Luis Obispo County within reasonable proximity
MM BR-1.4 - Compensate for permanent impacts to vegetative communities.	1:1	Acquire permanent open space easement on land not already under resource protection. May be combined with lands protected for giant kangaroo rat, San Joaquin kit fox or San Joaquin antelope squirrel, and listed or rare plants.	4,386 in Carrizo Plain, 1,462 in the region	Within the Carrizo Plain Grazing may be allowed; dry-land farming prohibited
MM BR-7.2 - Compensate for impacts to State and Federally Threatened, Endangered, Proposed, Petitioned, and Candidate plants.	Permanent impacts: 1:1 temporary impacts 0.5:1			
MM BR-16.2 - Compensate for permanent impacts to giant kangaroo rat, San Joaquin kit fox and San Joaquin antelope squirrel.	Permanent impacts: 4:1, including at least 3:1 of occupied habitat, and 1:1 of created habitat	Acquire permanent open space easement.		Occupied habitat: within the Carrizo Plain or other agency-approved area with potential to contribute to habitat connectivity with other preserve lands. Created habitat: within the Carrizo Plain or other agency-approved area with potential to contribute to habitat connectivity with other preserve lands; and consisting of actively dry-farmed land or other disturbed areas (with the approval of the County, CDFW, and USFWS). Managed grazing may be allowed to complement reestablishment of sensitive biological resources.
MM BR-19.2 - Compensate for impacts to special-status plant species.	Permanent impacts: 1:1; temporary impacts 0.5:1	Acquire permanent open space easements or other conservation mechanism acceptable to the County. May be combined with lands protected for giant kangaroo		Within the Carrizo Plain

Table 13: Summary of Mitigation Requirements for Impacts to Biological Resources, California Valley Solar Ranch and Topaz Solar Project				
Mitigation Measure	**Mitigation Ratio[1]**	**Conservation Method**	**Approximate Acreage to be Preserved**	**Location Requirements**
		rat, San Joaquin kit fox or San Joaquin antelope squirrel.		
MM BR-9 - Compensate for impacts to *Camissonia*/sphinx moth.	3:1 of which at least 2:1 of the total 3:1 mitigation required must be habitat occupied by known larval host plants	Acquire permanent open space easements.		Within the Carrizo Plain
		Total	**5,848 acres**	
Topaz Solar Project				
MM AG-2.1 – Mitigate the loss of farmland through permanent preservation of farmlands.	1:1	Permanent open space easement or other conservation mechanism suitable to the County	3,500 May be combined with mitigation for impacts to biological resources.	Within San Luis Obispo County within reasonable proximity Grazing may be allowed
MM BR-1.4: Compensation for permanent and temporary impacts to vegetative communities.	1:1	Acquire permanent open space easements or other conservation mechanism acceptable to the County. May be combined with lands protected for giant kangaroo rat, San Joaquin kit fox or listed and rare plants.		Within the Carrizo Plain.
MM BR-7.2: Compensate for impacts to state and federally threatened, endangered, proposed, petitioned and candidate plants.	Permanent impacts: 1:1; temporary impacts 0.5:1	Acquire permanent open space easements or other conservation mechanism acceptable to the County. May be combined with lands protected for San Joaquin kit fox or listed and rare plants.		Within the Carrizo Plain
MM BR-9.2: Compensate for impacts to Kern primrose sphinx moth.	3:1 for permanent impacts, 2:1 for temporary impacts;	Acquire permanent open space easement.		Within the Carrizo Plain

Table 13: Summary of Mitigation Requirements for Impacts to Biological Resources, California Valley Solar Ranch and Topaz Solar Project				
Mitigation Measure	**Mitigation Ratio[1]**	**Conservation Method**	**Approximate Acreage to be Preserved**	**Location Requirements**
	1:1 of 3:1 may include restored lands.			
MM BR-10.2: Compensate for impacts to occupied blunt-nosed leopard lizard habitat.	3:1	Acquire permanent open space easement. May be combined with lands protected for San Joaquin kit fox or listed and rare plants.		Within the Carrizo Plain or other agency approved areas with suitable habitat
MM BR-16.2: Compensate for permanent impacts to giant kangaroo rat and San Joaquin antelope squirrel.	At least 4:1	Acquire permanent open space easement.		Locations to be developed with approval of CDFW and USFWS
MM BR-17.2: Compensate for permanent impacts to San Joaquin kit fox.	At least 4:1	Acquire permanent open space easement.		Locations to be developed with approval of CDFW and USFWS
MM BR-19.2: Compensate for impacts to special-status plant species.	Permanent impacts: 1:1 Temporary impacts 0.5:1	Acquire permanent open space easement.		Within the Carrizo Plain
MM BR-22.2: Compensate for impacts to burrowing owl.	6.5 acres per pair	Acquire permanent open space easement. May be combined with lands protected for San Joaquin kit fox or listed and rare plants		Within the Carrizo Plain
		Total	**9,000 – 11,400**	

Sources:

1. SLO County 2011b
2. SLO County 2011a
3. HT Harvey 2011

Notes:

1. Ratio of acres preserved for each acre impacted.

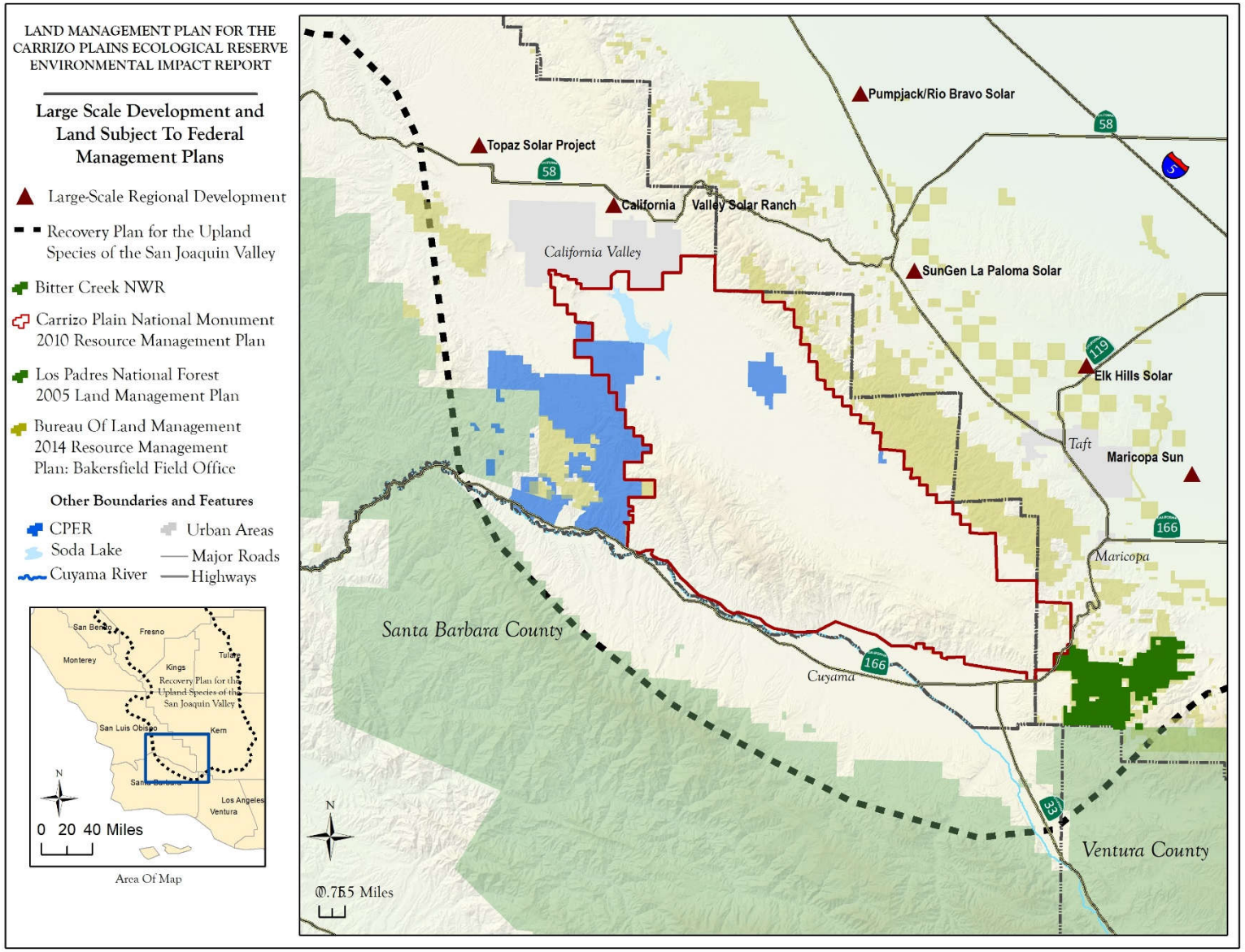


Figure 8: Large-Scale Regional Development and Land Subject to Federal Land Management Plans

4.5.3.1 Topaz Solar Farm (First Solar/Optisolar)

The Topaz Solar Farm consists of a 550 megawatt (MW) photovoltaic (PV) solar plant on approximately 3,500 acres north of California Valley (Figure 8). The project is located on both sides of Highway 58 just west of the intersection of Highway 58 and Soda Lake Road and north of the village of California Valley (Figure 8). The project features 20 parcels (totaling approximately 6,370 acres, or 9.9 square miles) and includes the following components:

- Approximately 460 arrays, and associated electrical equipment (e.g., Power Conversion Stations, PV Combining Switchgear houses);
- Approximately 8 to 12 miles of above ground medium-voltage collector lines;
- Approximately 14 to 22 miles of on-site access roads;
- A substation;
- A Solar Energy Learning Center (900 square feet);
- A Monitoring and Maintenance (M&M) facility (11,250 square feet); and
- Restoration of portions of the main on-site drainage.

The project was approved by the San Luis Obispo County Board of Supervisors on July 12, 2011, which authorized Pacific Gas and Electric Company (PG&E) to install the solar array as well as a connecting switching station, as well as upgrading the existing 230 kilovolt transmission line to the east.

The Final Environmental Impact Report (FEIR) concluded that the project will have significant and unavoidable adverse impacts relating to aesthetics, agricultural resources, biological resources, noise and transportation. The FEIR concludes that cumulative impacts relating to the permanent loss of habitat for special-status plants and animals are cumulatively considerable and significant and unavoidable.

4.5.3.2 California Valley Solar Ranch (Sunpower)

On April 19, 2011, the San Luis Obispo County Board of Supervisors certified a final environmental impact report and approved the California Valley Solar Ranch (CVSR) located on the north and south sides of Highway 58 immediately north of California Valley and east of Soda Lake Road (Figure 8). The project includes construction and operation of a 250-megawatt photovoltaic solar power plant on land zoned Agriculture in California Valley. The CVSR Project includes the following components:

- Solar Generation Facility: Solar arrays on nearly 1,900 acres, including an electric substation, operations and maintenance facilities, public viewing areas;
- Generation Interconnection Tie Line (Gen-Tie Line): An approximately 2.8-mile 230 kV generation;
- Intertie line;
- Caliente Switching Station: A switchyard to connect to PG&E's transmission system; and
- Transmission Upgrades: Upgrades to PG&E's existing 230-kV transmission line.

The FEIR concludes that the project would result in impacts to special-status species that are cumulatively considerable and significant and unavoidable. In addition, the FEIR concludes that the project would result in impacts relating to the connectivity of suitable habitat for special-status animal species that are cumulatively considerable and significant and unavoidable.

4.5.3.3 Kern Solar Ranch Project

The Kern Solar Ranch project proposed the development of about 14,400 acres in western Kern County with a one gigawatt solar power generating facility. The solar collection panels would be constructed on about 6,100 acres. The project is located about two miles south of the unincorporated community of Blackwell's Corner, west of the towns of Lost Hills and Buttonwillow (Figure 8), and was expected to be constructed in phases over a 5- to 10-year timeframe beginning in 2014. This project was no longer being proposed by the end of 2017 but potentially adverse impacts were identified for the following topical areas:

Aesthetics	Agricultural and Forest Resources	Air Quality
Biological Resources	Cultural Resources	Geology and Soils
Greenhouse Gas Emissions	Hazardous and Hazardous Materials	Hydrology and Water Quality
Land Use and Planning	Noise	Public Services
Transportation	Utilities and Services	

4.5.3.4 Maricopa Sun Solar Project

The Maricopa Solar Farm project consists of a 700-megawatt solar power generating station on a 6,047-acre site in western Kern County between the City of Taft and Interstate 5. The project was approved in March 2011. The Final EIR certified for the project concluded that impacts to aesthetics, the permanent conversion of agricultural land, air quality and biological resources cannot be reduced to a level of less than significant (Kern County 2010). The project also includes 910 acres of mitigation land voluntarily conserved by way of an on-site conservation easement. In addition, on-site habitat enhancements are required to benefit certain special-status species

5 Impact Analysis

5.1 Impact Analysis Introduction

5.1.1 Impact Analysis Sections

Based on the conclusions of the Initial Study (Appendix B), the following topics are assessed in this EIR:

5.2 Aesthetic and Visual Resources
5.3 Air Quality and Climate Change
5.4 Biological Resources
5.5 Cultural Resources
5.6 Geology and Soils
5.7 Hazards
5.8 Hydrology and Water Quality
5.9 Public Services – Fire Protection
6.0 Growth Inducing and Other Impacts
7.0 Cumulative Impacts
8.0 Alternatives

Additional information is provided in the initial study (Appendix B).

5.1.2 Environmental Analysis and the Characterization of Impacts

Within the topical sections of this EIR, impacts are categorized according to their impact and level of significance (Table 14).

Table 14: Impact Categories based on their Significance

Impact Category	Definition and Criteria
Significant and Unavoidable/ Cumulatively Considerable (Class I)	These impacts cannot be mitigated to a less than significant level. To approve a project resulting in one or more significant and unavoidable impacts, the CEQA Guidelines require decision makers to make findings of overriding consideration that "*…specific legal, technological, economic, social, or other considerations make infeasible the mitigation measures or alternatives identified in the EIR…*".
Potentially Significant (Class II)	These impacts can be mitigated to a level of insignificance by measures identified in this EIR and the project description. When approving a project with significant but mitigable impacts, the decision makers must make findings that changes or provides alternatives to the project which have been incorporated to reduce the impacts to a less than significant level.
Less than Significant (Class III)	Less than significant impacts may be adverse but are not significant because of management actions and Best Management Practices incorporated into the project description of the Draft LMP that reduce the impact to a less than significant level.
Beneficial Impacts (Class IV)	Beneficial impacts are the environmental impacts of the Draft LMP that would result in one or more positive changes to the environment.

5.1.3 Organization of the Topical Discussions

Each topical section of this EIR features the following subsections:

Introduction
Provides an introduction to the topic along with a reference to relevant supporting studies.

Sources Used in the Analysis
Lists references for key sources.

Scoping Issues
Provides a summary of issues arising from the 30-day public review of the Notice of Preparation which occurred from November 21, 2012 to December 21, 2012, and from the scoping meeting conducted December 3, 2012.

Environmental Setting
Provides a description of the physical conditions associated with the particular area of discussion, consistent with State CEQA Guidelines Section 15125. As discussed above, the existing setting is based on baseline conditions as they existed when the NOP was released on November 21, 2012.

Applicable Regulations, Plans and Policies
This subsection identifies applicable federal, state, regional, and local plans, policies, laws, and regulations that apply to the particular area of discussion.

Standards of Significance
Standards of significance are identified and utilized to determine whether identified environmental effects are considered significant and require the application of mitigation measures. Appendix F of the CEQA Guidelines is the primary source of significance standards (or "thresholds") for the analysis of each impact. In some cases, other pertinent standards or thresholds were used (e.g., Air Quality thresholds administered by the San Luis Obispo Air Pollution Control District).

Impacts Found to Be Less Than Significant
Each topical section provides a summary of impacts that were determined to be less than significant and are therefore not analyzed further in the EIR. Information supporting these conclusions is provided in the initial study (Appendix B).

Project Impacts and Mitigation Measures
The Project Impacts and Mitigation Measures subsection identifies direct, indirect, and cumulative environmental effects associated with implementation of the Draft LMP. Each environmental impact is identified numerically (e.g., Impact 5.1.1—Division of Established Communities).

Previous Environmental Review
This section discusses previous approvals and environmental review for previous projects affecting the CPER.

Methodology
The methodologies used to assess project impacts are provided prior to the discussion of individual impacts and mitigation measures. Following each impact is a discussion of the management actions and

best management practices recommended by the Draft LMP that serve to mitigate the particular impact identified.

Where the analysis concludes that additional mitigation is required beyond that provided by the Draft LMP, additional feasible management actions and/or best management practices are recommended after which the impact discussion notes whether the impact has been mitigated to a less than significant level or is significant and unavoidable.

Cumulative Setting, Impacts, and Mitigation Measures
This subsection provides an analysis of the Draft LMP's contribution to cumulative impacts to the environment, which focuses on whether the Draft LMP's contribution is cumulatively considerable as defined by State CEQA Guidelines Section 15130. A cumulative impact occurs from the change in the environment that results from the incremental impact of the project when added to other closely-related past, present, and reasonably foreseeable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time (CEQA Guidelines Section 15355(b)). Accordingly, the cumulative setting includes related past, present, and reasonably-foreseeable projects in the region. The approach to the consideration of cumulative impacts is provided in greater detail below.

Conclusions
Conclusions regarding the significance of the impacts after application of the management actions and best management practices are provided after the discussion of project-specific and cumulative impacts.

5.1.4 Approach to the Consideration of Cumulative Impacts

This portion of the analysis focuses on whether the Draft LMP's contribution is *cumulatively considerable* as defined by State CEQA Guidelines Section 15130). A cumulatively considerable impact may occur from the change in the physical environment that results from implementation of the Draft LMP when added to other closely related past, present, and reasonably foreseeable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time (CEQA Guidelines Section 15355(b)). Accordingly, the cumulative setting includes related past, present, and reasonably foreseeable projects in the area with the potential to adversely impact visual resources.

5.1.4.1 Introduction

The California Environmental Quality Act (CEQA) requires that an EIR contain an assessment of the cumulative impacts that could be associated with the proposed project. According to State CEQA Guidelines Section 15130(a):

> "*an EIR shall discuss cumulative impacts of a project when the project's incremental effect is cumulatively considerable*."

"Cumulatively considerable" means that the incremental effects of an individual project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects (as defined by Section 15130).

As defined in State CEQA Guidelines Section 15355, a cumulative impact consists of an impact that is created as a result of the combination of the project evaluated in the EIR together with other projects causing related impacts. A cumulative impact occurs from:

> *…the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time.*

In addition, Section 15130(b) sets forth the following elements for an adequate cumulative analysis:

1. *Either:*
    a. *A list of past, present, and probable future projects producing related or cumulative impacts, including, if necessary, those projects outside the control of the agency; or,*
    b. *A summary of projections contained in an adopted general plan or related planning document, or in a prior environmental document which has been adopted or certified, which described or evaluated regional or area-wide conditions contributing to the cumulative impact. Any such planning document shall be referenced and made available to the public at a location specified by the lead agency.*
2. *A definition of the geographic scope of the area affected by the cumulative effect and a reasonable explanation for the geographic limitation used;*
3. *A summary of the expected environmental effects to be produced by those projects with specific reference to additional information stating where that information is available; and*
4. *A reasonable analysis of the cumulative impacts of the relevant projects. An EIR shall examine reasonable, feasible options for mitigating or avoiding the project's contribution to any significant cumulative effects.*

Where a lead agency is examining a project with an incremental effect that is not "*…cumulatively considerable…*," a lead agency need not consider that effect significant, but shall briefly describe its basis for concluding that the incremental effect is not cumulatively considerable.

The analysis of cumulative impacts should highlight past actions that are closely related either in time or location to the project being considered, catalogue past projects and discuss how they have harmed the environment and discuss past actions even if they were undertaken by another agency or another person. Both the severity of impacts and the likelihood of their occurrence are to be reflected in the discussion,

> *"but the discussion need not provide as great detail as is provided for the effects attributable to the project alone. The discussion of cumulative impacts shall be guided by standards of practicality and reasonableness, and shall focus on the cumulative impact to which the identified other projects contribute rather than the attributes of other projects which do not contribute to the cumulative impact."* 14 Cal Code Regs §15130(b).

The analysis of cumulative impacts must be of sufficient detail to be useful to the decision maker in deciding whether, or how, to alter the program to lessen cumulative impacts.

5.1.4.2 Definition of the Cumulative Setting

A lead agency has a duty to use reasonable efforts to discover, disclose, and discuss related projects which are under the administrative jurisdiction of other city, state, and federal agencies. (See id. § 15130(b)(1)(A); San Franciscans for Reasonable Growth v. City & County of San Francisco (1984) 151 Cal.App.3d 61, 74, n.13.) With respect to cumulative impacts, a lead agency must evaluate related impacts from other past, present, and reasonably-foreseeable probable future projects," *and must identify feasible, enforceable, mitigation measures that could avoid or minimize the potentially significant impacts of a project, including cumulative impacts*" (CEQA Guidelines, §§ 15126.4, 15355.).

In general, the cumulative setting considered in this EIR is based on the following:

- **Local Adopted General Plans**: The existing land use plans in the region.
- **Large-Scale Development Projects**: Consideration of large-scale proposed and approved development projects (Table 12). This list is intended to describe large-scale projects from the recent past, present, and reasonably foreseeable future development activities in the region that, when considered with the Draft LMP, have the potential to have cumulatively considerable impacts. It is not intended to be an all-inclusive list of projects in the region.
- **Land Management Plans of federal lands.** Management actions undertaken on federal lands surrounding the CPER are subject to Resource Management Plans and Land Management Plans (Table 10; Section 4.5.1)
- **Background Growth**. Consideration of background traffic volumes and patterns on state highways (e.g., Highways 58 and 166), background air quality conditions, and other associated environmental conditions that occur within the region, both within and outside the CPER (Section 4.5.2). Included in this category is the consideration of the effect of major land use activities in the region, ongoing agricultural activities, and the conversion of open space and agricultural lands resulting from existing development patterns.

Each topical section of this EIR includes a description of the geographic extent of the cumulative setting based on the characteristics of the environmental issue under consideration as set forth in Section 15130(b) of the State CEQA Guidelines. The area within which a cumulative effect can occur varies by resource. For example, air quality impacts tend to disperse over a large area, while traffic impacts are typically more localized. For this reason, the geographic scope for the analysis of cumulative impacts is identified for each resource area.

5.1.5 Other Environmental Documents

This EIR uses information and analyses derived from prior EIRs and adopted environmental compliance documents that are relevant to the consideration of environmental effects of the Draft LMP. The use of prior environmental documents is supported by Section 15148 of the State CEQA Guidelines regarding the use of citations and 15150 regarding incorporation by reference. In addition to materials cited, other environmental compliance documents have been used in this EIR and are incorporated herein by reference as if set forth in their entirety (Section 1.8).

5.1.6 Activities Undertaken Following Adoption of the LMP

The Draft LMP recommends specific management actions to be implemented over the timeframe of the Plan, which is approximately 20 years. Although the precise timeframe and site-specific nature of these management actions is unknown, the range of potential subsequent activities that may be expected to occur following adoption of the Draft LMP includes the following:

- Preparation and adoption of a grazing management plan and a fire management plan;
- Execution of subsequent grazing permits leases;
- Construction of trails, wildlife viewing facilities, educational facilities, and parking spaces;
- The implementation of one prescribed burn;
- Restoration activities; and
- Monitoring and research.

It should be noted that subsequent discretionary activities with the potential to adversely impact the environment will be subject to project-specific environmental review as required by CEQA.

5.2 Aesthetic and Visual Resources

5.2.1 Introduction

This section addresses impacts to aesthetic and visual resources associated with implementation of the management actions recommended by the Draft LMP. It describes the existing environmental conditions on the CPER and in the area, identifies and analyzes environmental impacts relating to visual resources, and recommends measures to reduce or avoid adverse impacts anticipated from management actions included in the Draft LMP. In addition, it describes existing laws and regulations relevant to the protection of aesthetic and visual resources and notes where compliance with these statutes would serve to reduce or avoid certain impacts that might otherwise occur with the implementation of the projects. Finally, this section discusses the cumulative impacts related to aesthetic and visual resources.

5.2.2 Sources Used in This Analysis

This analysis is based on a review of applicable law, local planning documents, and publications including:

- Draft Land Management Plan for the Carrizo Plains Ecological Reserve (CDFW 2018);
- Mitigated Negative Declaration for Grazing Lease Allotment Carrizo Plains Ecological Reserve (Chimineas Ranch), San Luis Obispo County, (CDFW 2011b);
- Ecological Effects of Prescribed Fire Season: A Literature Review and Synthesis for Managers (Knapp et al. 2009); and
- California Energy Commission Building Energy Efficiency, Nonresidential Compliance Manual (CEC 2005).

It also reflects site visits within the CPER.

5.2.3 Scoping Issues for Aesthetic and Visual Resources

During the 30-day public review period for the Notice of Preparation, written and oral comments were received from agencies, organizations, and the public. The following issues relating to aesthetic and visual resources were raised during the scoping process and are addressed in this section:

- The placement of new water tanks could result in a significant impact to visual and aesthetic resources; and
- Highway 166 is eligible for designation as a scenic highway (Caltrans 2013) and new construction along the highway could adversely impact that eligibility (Caltrans).

5.2.4 Environmental Setting

The Carrizo Plain is surrounded by foothills and mountains. To the east are the Temblor Range (3,000 to 4,500 feet elevation) and the San Andreas Fault. To the west are the La Panza Range and Caliente Range (3,000 to 5,000 feet elevation). These mountains separate the plain from the San Joaquin Valley to the east and the Pacific Coast to the west. Parcels sizes are generally large and development is very limited. Structures from historic and present-day ranching operations are integral parts of this pastoral landscape.

The Carrizo Plain is noted for its natural features, including Soda Lake— a 3,000-acre ephemeral alkaline lake that fills with water in winter and spring that evaporates during the hot dry summer and fall. During the winter, it stands out as a large lake in the flat landscape. In the summer, it appears as a large white feature. The CPNM is also noted for its archeological sites, wildlife and other natural resources (BLM 2010).

A two-lane highway, Highway 58, is the major east-west transportation route across the Carrizo Plain and affords travelers expansive views of the surrounding ranchlands and mountains. Following the winter wet season, the Carrizo Plain can provide an impressive display of wildflowers, including lupines, poppies, goldfields, thistle sage, primroses, and scores of other flowering plants. This annual spring event varies in duration and intensity depending on weather, and can attract visitors who come to enjoy this natural display.

The Carrizo Plain's level topography, extending for miles and lacking any substantial vertical elements (e.g., trees or buildings) to obstruct views. Unlike larger valleys, such as the San Joaquin and Sacramento valleys, where views extend across long distances that are minimally enclosed, the mountains surrounding the Carrizo Plain provide a sense of enclosure to the view. In the southern part of the Carrizo Plain near the CPER, the infrequency of structures and lack of extensive cultivation enhances a sense of a landscape that would have been experienced in the historic and prehistoric past.

The level geography of the Carrizo enables a viewer to see and be seen over great distances, as compared to locations where views are limited by topography, tall vegetation, or structures. Experiencing panoramic views in the Carrizo Plain is further enhanced when an observer is atop even a modest rise in topography, whether on the plain itself or at its periphery.

5.2.4.1 Aesthetic and Visual Features of the Carrizo Plains Ecological Reserve

The following sections describe the Reserve Units in terms of aesthetic and visual features; aspects of these features, including public access, topography, and existing infrastructure, are illustrated in Figures 9 – 13.

5.2.4.1.1 Elkhorn Unit

The 166-acre Elkhorn Unit is situated on relatively flat ground in the Elkhorn Plain consisting predominantly of grassland and desert scrub (Section 5.4) The hills of the Elkhorn Scarp lie to the southwest and the foothills of the Temblor Range provide a visual backdrop to the northeast. Terrain within the unit is generally flat except for two approximately 10-foot-deep channels carved by ephemeral drainages that converge just south west of Elkhorn Road.

Elkhorn Road, a publicly accessible road, passes through the Elkhorn Unit. Other anthropogenic features visible within this unit include cattle guards in Elkhorn Road and perimeter fencing.

Land surrounding the Elkhorn Unit is managed by BLM as part of the CPNM. There are no buildings or other structures on land surrounding the Elkhorn Unit.

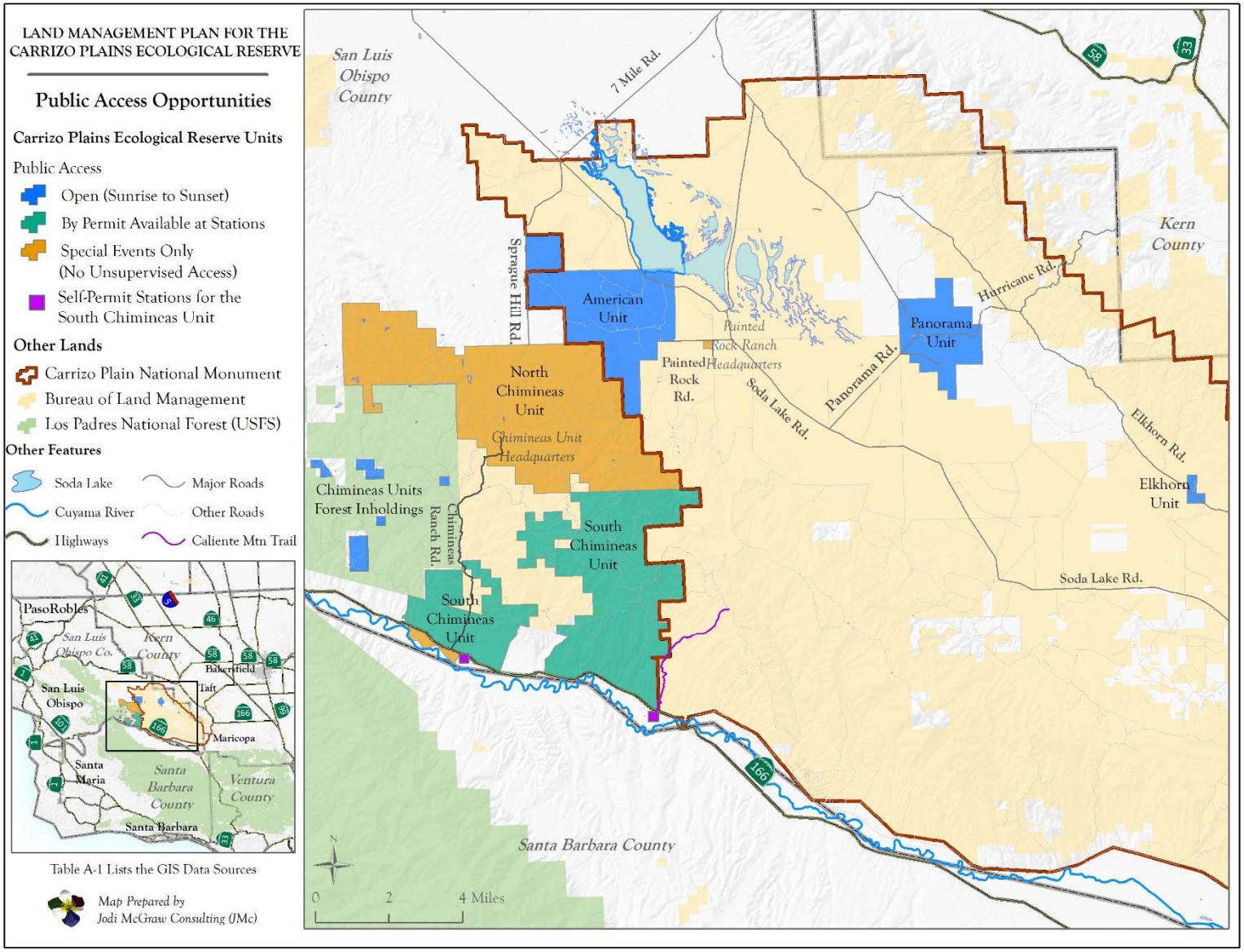


Figure 9: Public Access Opportunities and Existing Trails and Parking Areas

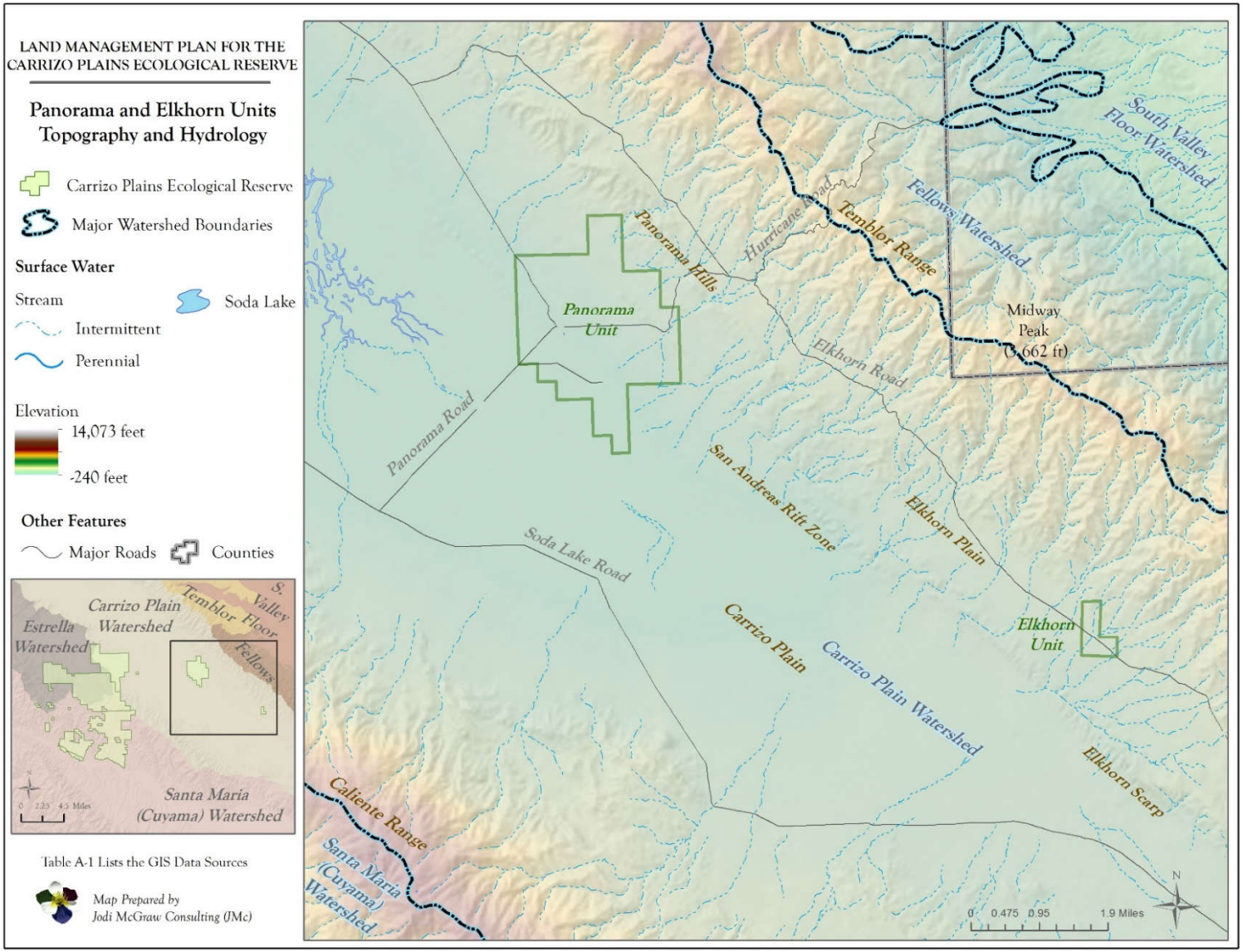


Figure 10: Topography and Hydrology of the Panorama and Elkhorn Units

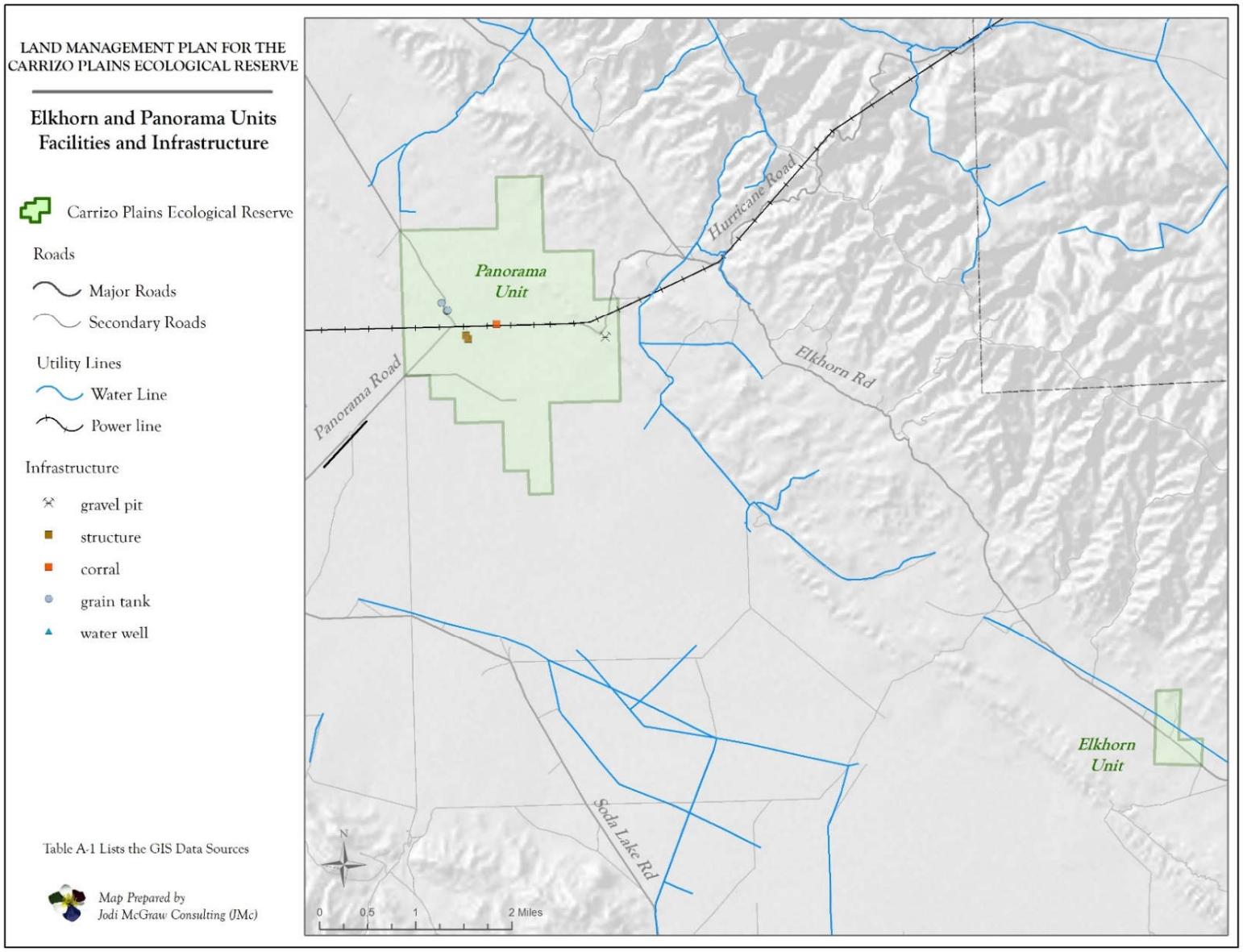


Figure 11: Facilities and Infrastructures of the Panorama and Elkhorn Units

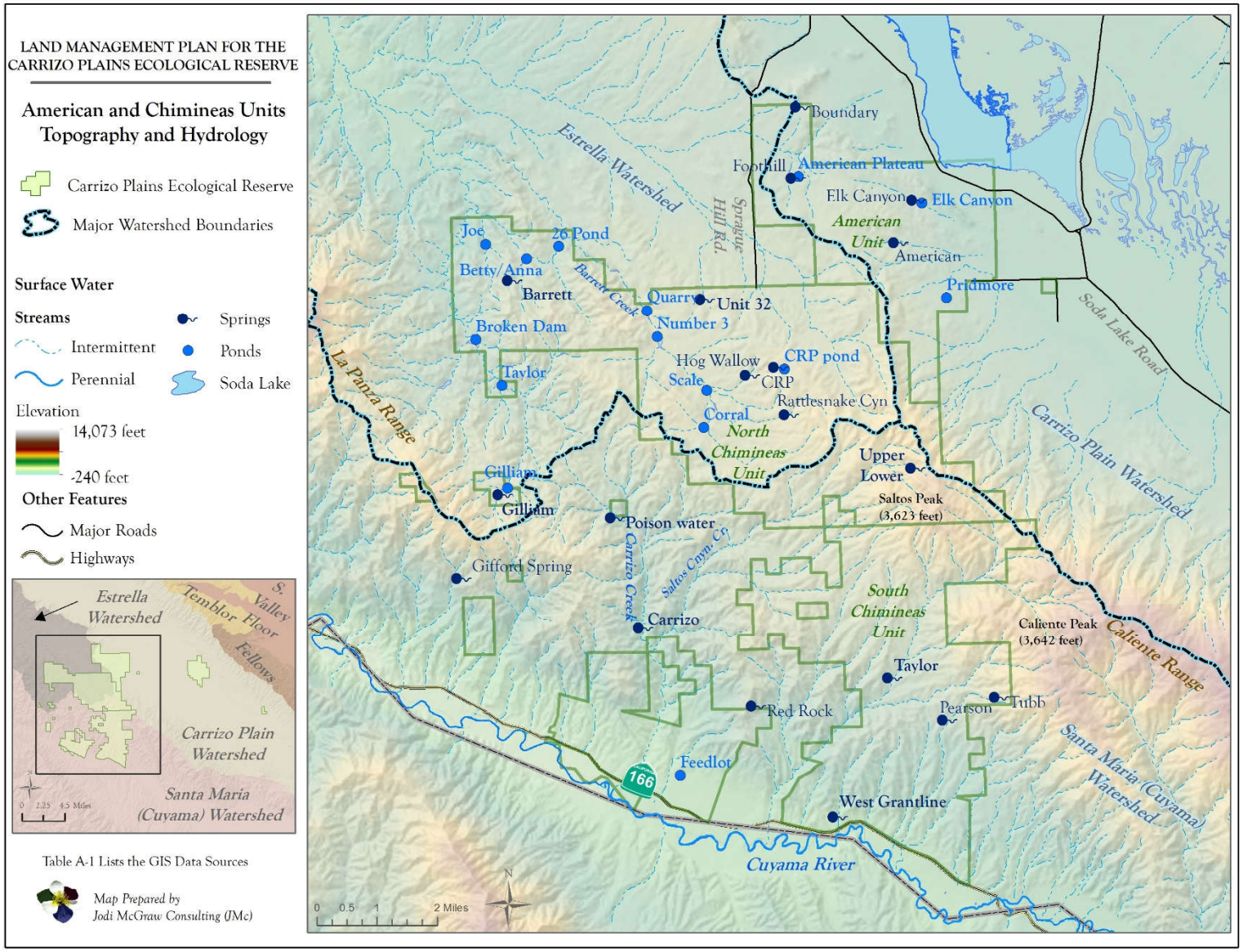


Figure 12: Topography and Hydrology of the American and Chimineas Units

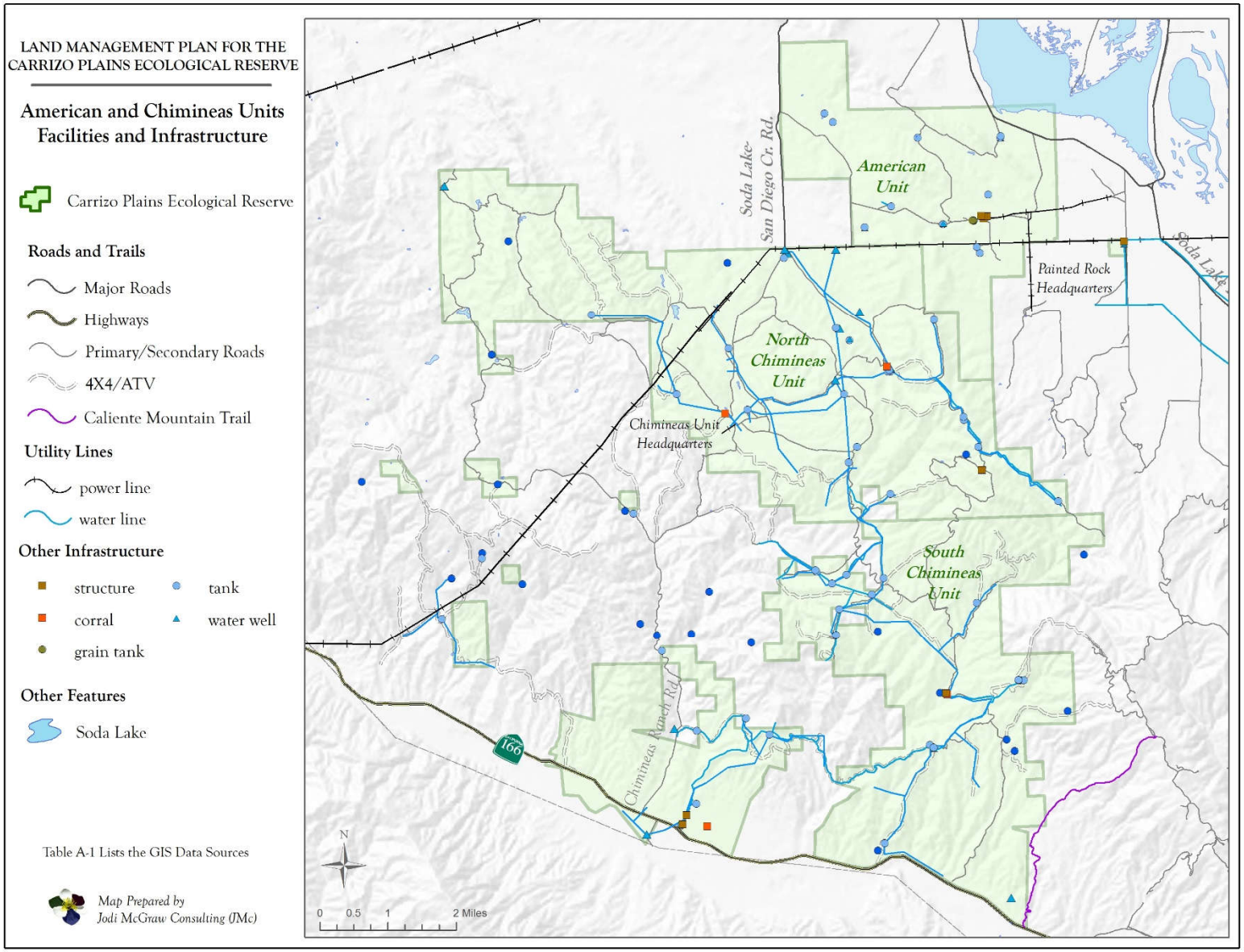


Figure 13: Infrastructure and Facilities of the American and Chimineas Units

5.2.4.1.2 Panorama Unit

The Panorama Unit is situated largely on gently sloping land on the eastern edge of the Carrizo Plain (Figure 10) which affords unobstructed views in all directions. The Panorama Unit is covered almost entirely with grassland that is visually indistinguishable from surrounding land on the CPNM (Section 5.3).

Improvements on the Panorama Unit include a portion of Elkhorn Road, which traverses the unit from west to east as well as additional unimproved roads that provide access to the north and west property boundaries. Power transmission lines that traverse Carrizo Plain largely follow Elkhorn Road through the Panorama Unit. The perimeter is fenced; in addition, a chain link fence surrounds the buildings at the former RC Farm headquarters. Additional infrastructure associated with the farming and livestock operations of prior landowners remains (Figure 11; Section 4.1.1.2).

5.2.4.1.3 American Unit

The northeastern portion of the American Unit lies on the Carrizo Plain and includes the western margin of Soda Lake (Figure 12). Much of the remainder of the unit features the rolling foothills of the Caliente Range which provides elevated views of the Carrizo Plain and the Temblor Range to the east. The American Unit contains mostly grassland with a small amount of coastal scrub, desert scrub, juniper, and wetland habitat elements (Section 5.4).

The American Unit includes a 1.1-mile section of Soda Lake Road, and natural surface roads within the fenced portion of the property. Power transmission lines enter the American Unit near its southwestern boundary with the North Chimineas Unit, and exit the American Unit at the road providing access to the Painted Rock Ranch parcel.

The main portion of the American Unit features infrastructure primarily associated with farming and livestock operations as part of the former American Ranch (Figure 13, Section 4.1.1.3) which is not visible from a public vantage.

The American Unit also features the disjunct 40-acre Painted Rock Ranch parcel: an area of flat terrain that is located one mile to the east on the Carrizo Plain. The Painted Rock Ranch parcel contains infrastructure associated with the former ranch as well as current facilities maintained and used by the Department for its operations (Figure 13, Section 4.1.1.3).

5.2.4.1.4 Chimineas Units

The Chimineas units of the CPER stretch north to south across the Caliente Range to the Cuyama Valley, an area featuring cultivated fields, orchards, ranch roads and associated ranch and farming structures. The Sierra Madre Range of the Los Padres National Forest forms the southern side of the valley and provides a visual backdrop when viewed from the South Chimineas Unit. Vegetation on the higher, north facing slopes of the Sierra Madre is dense and consists of varying shades of green; the exposed soils of the gently-sloping foothills are brown most of the year following winter rains. Views from the higher elevations of the South Chimineas Unit are expansive across the Cuyama Valley to the mountains beyond. Depending on one's location within the Carrizo Plain, views of the Chimineas units from lower elevations would be truncated by intervening rises in topography.
The Chimineas units both feature perimeter and interior fencing installed as part of the livestock operations. In addition to fences, the Chimineas units feature other infrastructure associated with the

former livestock operation, some of which is maintained by the Department in order to utilize cattle grazing for vegetation management. Additional facilities that support the current grazing operation also occur within the adjacent federal allotments, including waterlines, water tanks, water wells, and troughs.

North Chimineas Unit

The North Chimineas Unit abuts the American Unit along the border of its northeastern corner. From this shared edge, it extends south and southwest, rising over the Caliente Range (Figure 12). Except for the rolling hills of the Caliente Range in the northeast, the terrain of the North Chimineas Unit is generally steep and rugged (Figure 12).

The North Chimineas Unit is only remotely visible from public roadways. Public access to the North Chimineas Unit is limited to hunting programs conducted by the Department and for special events held at the headquarters building (Section 4.2).

The North Chimineas Unit features an extensive network of unpaved roads as well as power transmission lines, which traverse the northern portion of the unit. In addition, the Chimineas Unit Headquarters is located on the North Chimineas Unit and consists of an approximately 10-acre developed area that features buildings and associated infrastructure created by prior owners of the Chimineas Ranch. Though the headquarters building is said to encompass the original 1880s-era adobe, renovations to the house by prior landowners have eliminated any evidence of this earlier construction. The headquarters is not visible from a public vantage.

South Chimineas Unit

The South Chimineas Unit is visible along Highway166. Public access is allowed on this unit, and visitation is relatively low. The southeast corner of the South Chimineas Unit features a 1.25-mile-long segment of the Caliente Mountain Trail, which provides access from Highway 166 to the namesake peak via Caliente Mountain Road to the east of the CPER. The Caliente Trail affords expansive views of the Carrizo Plain and surrounding mountains.

5.2.5 Regulatory Setting

5.2.5.1 State Regulations

5.2.5.1.1 State Scenic Highway Program

In 1963, the California legislature created the Scenic Highway Program to preserve and protect scenic highway corridors from changes that would diminish the aesthetic value of lands adjacent to state highways. The state regulations and guidance governing the Scenic Highway Program are found in the Streets and Highways Code, Section 260 et seq. A highway may be designated scenic depending on how much of the natural landscape can be seen by travelers, the scenic quality of the landscape, and the extent to which development intrudes upon the traveler's enjoyment of the view. Scenic corridors consist of land that is visible from the highway right of way, and is comprised primarily of scenic and natural features. Topography, vegetation, viewing distance, and/or jurisdictional lines determine the corridor boundaries. The city or county must also adopt ordinances, zoning and/or planning policies to preserve the scenic quality of the corridor or document such regulations that already exist in various portions of local codes.

There are no designated scenic highways near the CPER; however, Highway 166, which crosses the South Chimineas Unit, is eligible to be so designated (Caltrans 2013).

5.2.6 Standards of Significance

Adoption of the Draft LMP would result in a significant adverse impact to aesthetic and visual resources if it would result in any of the following:

- Have a substantial adverse effect on a scenic vista;
- Substantially affect scenic resources or scenic views, including trees, rock outcroppings, or historic buildings within a state scenic highway, designated scenic roadway, scenic river corridor, roadway eligible for listing as a scenic roadway/highway or other public vantage point or scenic vista locally known for its scenic qualities;
- Substantially degrade the existing visual character or quality of the CPER and its surroundings; and/or,
- Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area.

5.2.7 Impacts Found to be Less Than Significant

Based on the supporting evidence provided in the initial study (Appendix B), the following impacts have been determined to be less than significant:

- Adoption and implementation of the Draft LMP will not result in substantial damage to scenic resources such as trees, rock outcroppings, historic buildings or other elements within a state-designated scenic highway; and
- Adoption and implementation of the Draft LMP will not result in the creation of substantial new sources of light or glare that adversely affect day- or nighttime views in the area.

Supporting information for these conclusions is provided in the Initial Study (Appendix B).

5.2.8 Project Impacts and Mitigation Measures

The management actions recommended by the Draft LMP will preserve and enhance the natural, rural character of the CPER by managing and enhancing biological habitats and associated physical features, protecting of cultural and historic resources, maintaining existing facilities, and removing trash and dilapidated structures. Table 15 lists the LLMP management goals and actions that address the visual resources of the CPER. Overall, the management actions recommended by the Draft LMP are intended to maintain and improve the aesthetic and visual resources of the CPER. However, implementation of the recommended vegetation management actions and the construction of new facilities have the potential to adversely impact the visual qualities of the CPER either temporarily or permanently if not managed appropriately.

Table 15: LMP Management Goals and Actions that Address Aesthetic and Visual Resources

LMP Section	Topic	Goals[1]	Management Actions[1]	Summary/ Relevance to Protection of Aesthetic and Visual Resources
4.2.1.1	Disturbance Regimes	B1	B1.1, B1.2, B1.3	Recommends support for research to inform fire management to maintain and enhance natural communities which contribute to visual qualities of the CPER.
4.2.2.1	Grassland Habitat Element	B3a, B3b	B3.1	Provides management strategies for vegetation within the CPER, which will contribute to the enhancement of its visual qualities.
4.2.2.2	Coastal Scrub Habitat Element	B6a, B6b	B6.1,	
4.2.2.3	Chaparral Habitat Element	B8a, B8b, B9	B8.1	
4.2.2.4	Desert Scrub Habitat Element	B10a, B10b,	B10.1	
4.2.2.5	Oak Woodland Habitat Element	B12a, B12b, B12c	B12.1,	
4.2.2.6	Juniper Woodland Habitat Element	B14a, B14b, B14c	B14.1	
4.2.3.1	Special-status species	B24, B25	B24.1, B24.2, B24.3, B24.4, B24.5, B25.1, B25.2, B25.3, B25.4	Recommends management strategies for special-status species habitat, which will contribute to the visual qualities of the CPER.
4.3.1	Scientific Research Element	S1	S1.1,	Aimed at fostering informed management and monitoring of management effectiveness, which will help ensure protection of the visual qualities of the CPER resources.
4.3.2	Monitoring Element	S2	S2.2, S2.3, S2.4, S2.5, S2.6	
4.3.3	Adaptive Management Element	S3	S3.1, S3.2, S3.3, S3.4	
4.4.1	Fire Management Element	V1	V1.1, V1.2, V1.3	Vegetation management through prescribed burning, grazing, and the control of exotic species is intended to maintain and enhance natural communities which contribute to visual qualities of the CPER.
4.4.2	Grazing Management Element	V2	V2.1, V2.2, V2.3, V2.4, V2.5	
4.5	Exotic Plant Management Element	V3	V3.1, V3.2, V3.3, V3.4, V3.5, V3.6, V3.7, V3.8	
4.6.2	Wildlife Observation Element	P2	P2.2	Recommends providing opportunities for the public to view and enjoy the aesthetic resources of the CPER.

Table 15: LMP Management Goals and Actions that Address Aesthetic and Visual Resources

LMP Section	Topic	Goals[1]	Management Actions[1]	Summary/ Relevance to Protection of Aesthetic and Visual Resources
4.6.5	Public Access Element	P8	P8.1, P8.2, P8.3, P8.4	Recommends actions aimed at facilitating public use and enjoyment of the CPER.
4.8	Facilities Maintenance Element	F1, F2	F1.1, F1.2, F1.3, F1.4, F1.5, F2.1, F2.2, F2.3	Recommends actions to improve, maintain, and expand facilities on the CPER and to remove old and dilapidated structures, which will improve the scenic values of the CPER.

Notes:
1. The complete text of management goals and actions is provided in Section 4 of the Draft LMP (CDFW 2018).

5.2.8.1 Previous Environmental Review

Impacts to aesthetic and visual resources associated with the grazing lease executed in 2011 were assessed by previous environmental review and found to have a less-than-significant impact (Section 4.4.1). Because the lease was in effect at the time the Notice of Preparation was circulated, managed grazing and its effects on aesthetic and visual resources is considered part of the baseline conditions.

The Draft LMP recommends using grazing management to create and maintain areas of short-statured grassland required by several special-status species; enhance native plant cover and richness in grasslands, blue oak woodlands, and coastal scrub; and control non-native herbaceous plant species in order to reduce their competitive effects on native plants and the potential for type conversion of shrublands to grassland via the grass-fire cycle (CDFW 2018).

Managed grazing guided by the grazing management plan recommended by the Draft LMP is expected to have a beneficial impact on aesthetic and visual resources of the CPER by removing exotic species and enhancing the habitat and population of special-status species. Best Management Practice BIO-20 states that the authorization of new or expanded grazing activities will be preceded by the adoption of a grazing management plan following project-specific environmental review.

5.2.8.2 Methodology

The assessment of impacts to visual resources is based on a field investigation of the visual characteristics of the CPER and the changes to visual character likely to result from implementation of the management actions recommended by the Draft LMP.

In assessing the impacts of the Draft LMP on visual resources, the following factors were considered.

Factor 1 — The potential for, and frequency of, viewing by the general public: The aesthetic effects of management activities are more likely to be significant if they are highly visible to large numbers of the public over an extended period of time. For example, new construction occurring within sight of major roads such as Soda Lake Road and Highway 166 may impact the scenic quality for some people. Management actions implemented in remote portions of the CPER, or obscured by vegetation or

ridgelines are less likely to significantly impact visual resources. Changes to views that are seen by a limited number of people or for only limited duration would be found to be less than significant.

Factor 2 — The integrity and uniqueness of the existing scenic resource: The magnitude of change necessary to create a significant impact to visual resources is greater in a disturbed or non-unique environment than in a pristine or rare environment.

Factor 3 — The magnitude of the change: Management activities that are small in size or minimal in their physical changes to the environment are less likely to cause a significant impact to scenic qualities than activities that affect a larger area. Aesthetic changes associated with an individual project may appear significant, but in the context of the entire region may be relatively minor. Changes to visual character of the landscape where the change is minor may be found to be less than significant.

5.2.8.3 Construction of New or Expanded Parking Areas

Impact 5.2-1	**The construction of new or expanded parking areas could adversely alter the scenic qualities of the CPER. This impact is considered less than significant (Class III) because of mitigation provided by management actions and Best Management Practices incorporated into the project description.**

The Elkhorn and Panorama units allow unsupervised drive-on access for motor vehicles using existing unpaved roads. Hunters and hikers on these units can park anywhere along the unpaved road, provided that the road remains passable to other vehicles. Existing parking serving the South Chimineas Unit is provided at two locations along Highway 166 at mile marker 45 and at the Caliente Mountain trailhead (Figure 9). Both parking areas are unimproved and provide sufficient space to accommodate the peak demand for parking, which typically occurs on weekends during the hunting season. Parking for special events at the Chimineas Unit Headquarters within the North Chimineas Unit is provided in an unimproved area adjacent to the buildings.

The number of visitors to the CPER is currently small, an average of just 1.4 visitor days per day (Section 4.2). Following adoption of the LMP and the construction of additional visitor-serving facilities, the number of visitors is expected to increase slightly to about two visitor days per day. Thus the demand for new or additional parking is expected to be correspondingly small. New parking may be provided at trailheads and/or wildlife viewing facilities that would be on the order of two to four spaces which would require about 1,600 square feet (0.03 acres) for parking and back-up/turnaround area.

Because existing parking areas are sufficient to accommodate peak daily use and special events expected on the CPER in the future, the Draft LMP does not recommend the construction of new parking areas. However, the Department may provide additional parking at new wildlife viewing platforms and trails as a convenience to the public. New or expanded parking areas would consist of unpaved areas with signage and an entry gate as needed, comparable to those existing at present.

Impact 5.2-1— Discussion of Visual Impact Factors

Factor 1 — The potential for, and frequency of, viewing by the general public: The existing unpaved roads on the Panorama and Elkhorn units provide ample parking opportunities to accommodate future demand associated with trails and/or viewing facilities. New parking areas serving the American or Chimineas units

would by necessity be accessed from a public road such Soda Lake Road, or Highway 166. Accordingly, such parking areas could be visible to travelers along those public roadways. Traffic counts taken by San Luis Obispo County in 2008 (the most recent available) indicate that the average daily number of vehicle trips on Soda Lake is 202 trips per day, with 25 total trips occurring in the morning and afternoon peak hours (SLO County 2012b). Thus, the number and frequency of viewing of the CPER by the general public from this vantage point is low. There are no available traffic counts Sprague Hill Road, which provides access to the North Chimineas Unit and adjoining ranches. However, given the low intensity uses of properties served by this road, which terminates at the Reserve, traffic volumes are likely very low except on days of a special event at the CPER when as many as 30 vehicles may travel to Chimineas Unit Headquarters.

Highway 166 crosses the southern portion of the South Chimineas Unit for about seven miles and affords travelers views of the south-facing foothills of the Caliente Range. Traffic volumes on Highway 166 at Bell Road in 2012 were 4,100 average daily trips, with 570 trips during the peak hour (Caltrans 2012). Highway 166 is not a designated Scenic Highway, but is eligible to be so designated. New or expanded parking areas along this route could be visible briefly to travelers as they pass. The placement of new or expanded parking could adversely impact the eligibility of Highway 166 for Scenic Highway designation.

Temporary use parking areas established on the interior of the CPER, such as near the Chimineas Unit Headquarters building within the North Chimineas Unit, would not be visible from a public vantage.

Factor 2 — The integrity and uniqueness of the existing scenic resource: Although the number and precise location of new or expanded parking areas is not known at this time, the expansion of existing parking areas would occur in areas where the integrity of scenic resources has already been compromised by existing parking. New parking areas could be located in areas where the integrity of the scenic resource is not currently impacted by parking or other facilities.

Factor 3 — The magnitude of the change: As discussed above, parking provided at new trailheads and/or wildlife viewing facilities would be on the order of two to four spaces which would require about 1,600 square feet (0.03 acres) for parking and back-up/turnaround area. Overall the magnitude of the change would be small.

Impact 5.2-1 — Best Management Practices Recommended in the Draft LMP to Mitigate Potential Impacts to Aesthetic and Visual Resources Associated with the Construction of New or Expanded Parking Areas

BMP G-1. The Department shall comply with relevant provisions of the California Environmental Quality Act (CEQA) prior to a decision to approve an activity with the potential to adversely impact the environment.

BMP AV-1. The design and location of wildlife viewing platforms, parking, water tanks, and other infrastructure on the Reserve shall:

- Maintain a profile below the ridgeline and conform to the natural slope wherever possible;
- Take advantage of natural topography, vegetation and other physical features to provide screening from public view;

- Avoid large, continuous walls or roof surfaces, or prominent foundation walls, poles, or columns;
- Minimize the need for grading;
- Use materials, colors, and textures that:
    - complement the rural character of the Reserve;
    - blend with the natural landscape;
    - avoid high color contrasts;
- Minimize or avoid exterior lighting; and
- Be located in areas with existing infrastructure and facilities wherever possible.

BMP AV-2. Where landscaping is conducted, plants shall be chosen that are compatible with native vegetation and which provide a visual transition from developed to open areas.

BMP DC-2. New or expanded parking areas shall:

- Be located and designed to provide adequate pullout and turnaround area, sight distance, and spacing between parking areas and other driveways to ensure public safety;
- Be consistent with all relevant Best Management Practices and consistent with the overall objectives of the Reserve;
- Incorporate signage and visitor information as necessary to inform visitors;
- Avoid sensitive resources;
- Be located at existing established parking areas and/or disturbed areas wherever possible;
- Minimizes ground surface disturbance, removal of vegetation, and grading;
- Incorporate a permeable surface to minimize erosion and to protect surface water quality; and
- Take advantage of natural topography, vegetation, and other physical features to provide screening from public view.

Impact 5.2-1 — Conclusions/Summary of Impact

The frequency with which new or expanded parking areas that may be established along Highway 166 could be viewed by the public is high, based on current traffic volumes. Traffic volumes on Soda Lake Road are currently low and the frequency with which new parking areas would be viewed is correspondingly low. New parking areas visible from Soda Lake Road could disrupt the integrity of the scenic qualities of the area However, the visual impact of new or expanded parking in these locations will be less than significant because:

- The relatively high speed at which travelers would view these facilities (40 – 55 MPH);

- The limited size of new parking areas, and the lack of paving, lighting, landscaping, and other features that would distinguish these areas from the visual backdrop provided by the natural landscape;
- The infrequency with which these parking areas would be occupied by vehicles; and
- New construction will be subject to project-specific CEQA compliance, which will identify the appropriate BMPs from the Draft LMP to ensure visual impacts associated with new or expanded parking areas do not detract from the visual character of the CPER.

For these reasons, this impact is considered **less than significant (Class III).**

Impact 5.2-1 — Additional Mitigation

None required.

5.2.8.4 Alteration of Scenic Qualities of The CPER — Trails

Impact 5.2-2 **The construction of new trails could adversely alter the scenic qualities of the CPER. This impact is considered less than significant (Class III) because of mitigation provided by management actions and Best Management Practices incorporated into the project description.**

Passive, wildlife-dependent trail use is allowed on the CPER for hikers except on the North Chimineas Unit. The CPER contains a single foot trail: the Caliente Mountain Trail located in the southeastern portion of the Chimineas Unit, which provides access from Highway 166 to the namesake peak via Caliente Mountain Road east of the CPER (Figure 13). The public can also utilize the tens of miles of natural surface roads to access the interior of the South Chimineas, American, Panorama, and Elkhorn units. These roads provide access to the CPER from public roads as well as from the adjacent federal lands managed by the Los Padres National Forest (USFS) and the BLM (Carrizo Plain National Monument and Caliente Resource Area). Access by vehicles is limited to established roads; unsupervised vehicle access is only allowed within the Elkhorn and Panorama units, except during the Department's hunt programs or by permit.

The Draft LMP recommends the creation of a trail system on the CPER based in part on the existing dirt roads to connect to public access points and adjacent properties such as the CPNM and LPNF. In some instances, trails may be improved to serve mobility-impaired visitors in accordance with the Americans with Disabilities Act (ADA[3]).

Impact 5.2-2 — Discussion of Visual Impact Factors

Factor 1 — The potential for, and frequency of, viewing by the public: The existing unpaved roads present opportunities to establish trails without the need for new construction that would adversely impact the visual qualities of the Reserve. In addition, the low traffic volumes on roads serving the Elkhorn and

[3] Title 42 U.S. Code Sections 12101 et seq.

Panorama units, and the opportunity to incorporate existing roadways as trails, suggests that the potential for, and the frequency of, viewing newly established trails on these units by the public would be low. The precise number and location of trails to be established on the CPER is unknown at this time. However, new trails established on the South Chimineas and American units would likely connect to existing parking areas where the trailhead would be visible to passing motorists on public roadways such as Highway 166 and Soda Lake Road. To the extent that new trails are constructed separate from existing unpaved roads on the South Chimineas and American units, a small portion of these trails could be visible to the passing public for brief periods of time. Trails extending into the CPER from trailheads located along public roadways, such as Highway 166 and Soda Lake Road, would be visible briefly to passing motorists, especially where trails employ surface modifications and/or vegetation removal.

Factor 2 — The integrity and uniqueness of the existing scenic resource: To the extent that new trails are established on existing roadways in the American and South Chimineas units, the establishment of new trails will have little effect on the visual integrity or uniqueness of the visual resource. New trails in areas where existing roadways are absent would result in some disruption of the visual integrity of the landscape through the removal of native vegetation and grade modifications.

Factor 3 — The magnitude of the change: The magnitude of change associated with new trails established on existing roadways would be insignificant. The construction of new trails separate from existing roadways would introduce a distinct linear feature that could be slightly visible as viewed by passing motorists, depending on the orientation of the trail with respect to the viewer. Trails that parallel the roadway, for example, would be visually indistinguishable from the surrounding terrain as a result of vegetation. In some cases, trail construction may require the removal of native vegetation and grade modifications which would result in a minor alteration of the scenic qualities of the CPER. The placement of signs and interpretive displays would also result in minor alterations of the visual character of the landscape. In addition, walkways could be established to access wildlife viewing areas that would be accessible in accordance with the Americans with Disabilities Act (ADA) design requirements for walkway surface, slope, handrails, and other features. Trails requiring grade modifications and the clearing of native vegetation would also result in a noticeable change to the scenic character of an area.

Impact 5.2-2 — Best Management Practices Recommended by the Draft LMP that Mitigate Potential Impacts to Aesthetic and Visual Resources Associated with the Construction of Trails

BMP G-1. The Department shall comply with relevant provisions of the California Environmental Quality Act (CEQA) prior to a decision to approve an activity with the potential to adversely impact the environment.

BMP DC-1. New trails within the Reserve shall:

- Be consistent with all relevant Best Management Practices and consistent with the overall goals and objectives of the Reserve;
- Be designed to avoid sensitive resources;
- Be located on existing unpaved roads wherever possible;
- Follow the natural topography wherever possible;
- Minimize ground-surface disturbance, removal of vegetation, and grading;
- Minimize or avoid the use of culverts, bridges, and retaining walls; and

- Incorporate connections to existing parking areas.

Impact 5.2-2 — Conclusions/Summary of Impact

New trails may in some instances be visible to the public and alter the scenic qualities of the CPER. However, the visual impact of new trails would be offset by the following factors:

- The relatively high speed at which travelers would view these facilities from adjoining roadways (40 – 55 MPH);
- The trail system would emphasize the use of existing roadways within the CPER to minimize construction-related impacts, which in turn would minimize visual impacts;
- The limited area of disturbance associated with new trails that are separate from existing dirt roads, the orientation of the trail with respect to the roadway, and the presence of topographic features and natural vegetation; and
- New construction will be subject to project-specific CEQA compliance, which will identify the appropriate BMPs from the Draft LMP to ensure visual impacts associated with the construction of a trail system do not detract from the visual character of the CPER.

For these reasons, this impact is considered **less than significant (Class III).**

Impact 5.2-2 — Additional Mitigation

None required.

5.2.8.5 Alteration of Scenic Qualities of the CPER – Construction of Wildlife Viewing Facilities

Impact 5.2-3 **The construction of new wildlife viewing and educational facilities could adversely alter the scenic qualities of the CPER. This impact is considered less than significant (Class III) because of mitigation provided by management actions and Best Management Practices incorporated into the project description.**

Wildlife viewing platforms and similar improvements to facilitate public enjoyment of the CPER may be constructed in strategic locations where wildlife congregate, consistent with the overall goals of the CPER. To be effective, some viewing platforms could be two stories tall (20 – 30 feet) to afford a wide field of view; such platforms could alter the visual qualities of the CPER.

Impact 5.2-3 — Discussion of Visual Impact Factors

Factor 1 — The potential for, and frequency of, viewing by the public: Because of the relatively flat topography, low-lying vegetation, and the absence of other taller features, the placement of viewing structures on the Panorama and Elkhorn units, and in some locations on the American unit could be visible to visitors and passersby. However, the low number of visitors and the traffic on roadways serving these units suggests that the potential for, and frequency of, viewing these structures would be slight. Wildlife structures located in the eastern portion of the American Unit could be visible briefly to motorists

passing by on Soda Lake Road. However, Soda Lake Road, which passes through the eastern portion of the American Unit, carries a low volume of daily traffic (an average of 25 trips during the peak hour). Viewing structures constructed on the South Chimineas Unit could be visible briefly to motorists passing by on Highway 166, which is well travelled.

Factor 2 — The integrity and uniqueness of the existing scenic resource: Wildlife viewing structures would be placed in areas where wildlife are known to congregate and where the integrity and uniqueness of the existing scenic resource would be largely intact. As a result, the placement of viewing structures could disrupt the intact and unique scenic qualities of portions of the CPER.

Factor 3 — The magnitude of the change: There are currently no wildlife viewing structures on any of the CPER Units. Although the precise number, location and design of wildlife viewing structures is unknown as present, the placement of these structures could result in a significant change in the scenic qualities of the CPER.

Impact 5.2-3 — Best Management Practices Recommended in the Draft LMP that Mitigate Potential Impacts to Aesthetic and Visual Resources Associated with the Construction of Wildlife Viewing Platforms

The BMPs listed under impact 5.2-1 provide mitigation for this impact.

Impact 5.2-3 — Conclusions/Summary of Impact

Although the construction of wildlife viewing structures and educational facilities may alter the visual qualities on the CPER, the visual impact will be less than significant because:

- Traffic volumes on Soda Lake Road are currently low and the frequency with which new wildlife platforms would be viewed is correspondingly low;
- The relatively high speed at which travelers would view these facilities from Soda Lake Road and Highway 166 (40 – 55 MPH);
- The presence of topographic features and natural vegetation along Highway 166 will help screen structures from view;
- The low volume of traffic and visitors passing by the Elkhorn and Panorama units; and
- New construction will be subject to project-specific CEQA compliance which will identify the appropriate BMPs from the Draft LMP to ensure visual impacts associated with the construction of wildlife viewing areas do not detract from the visual character of the CPER.

For these reasons, this impact is considered **less than significant (Class III).**

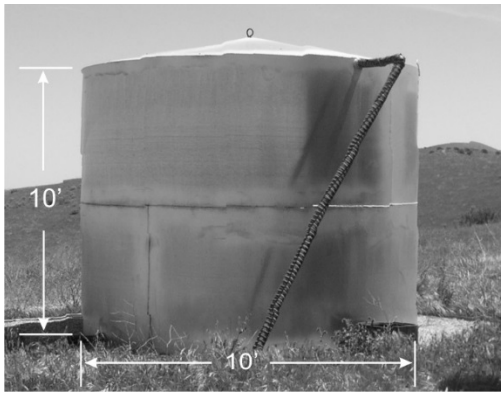
Impact 5.2-3 — Additional Mitigation

None required.

5.2.8.6 Alteration of Scenic Qualities of the CPER — Placement of Water Tanks

Impact 5.2-4: The placement of water tanks to provide supplemental water for animals could adversely impact the visual character of the CPER. This impact is considered less than significant (Class III) because of mitigation provided by management actions and Best Management Practices incorporated into the project description.

To achieve the biological objectives of the CPER, the Draft LMP recommends the placement of additional water sources for animals throughout the Chimineas and American units. Existing sources of water for wildlife are available throughout the American, North Chimineas and South Chimineas units (Figure 14) and include springs, ponds, water tanks and wells. For purposes of this analysis, an area that is underserved by water is assumed to be a one square mile portion of the CPER that lacks both a source of water (i.e., a spring, pond, or well) and sufficient storage to provide a year-round supply. To achieve the objective of providing a water source at a density of about one per square mile, as many as 21 additional water storage tanks could be provided.



Typical 5,000 Gallon
Water Tank

A typical water tank will hold 5,000 gallons and would be about 10 feet tall and about 10 feet in diameter. Water tanks can be constructed of metal or plastic; plastic tanks can be acquired in a variety of colors such as tan and dark green. If water tanks are placed on the Chimineas and American units, they would likely be placed on average about one tank per square mile. The placement of water tanks would alter the scenic qualities of the CPER and could be visible from public vantages.

Impact 5.2-4 — Discussion of Visual Impact Factors

Factor 1 — The potential for, and frequency of, viewing by the general public. As described under impact 5.2-1, the American and Chimineas units are visible from public vantage points along Highway 166 and Soda Lake Road. In addition, new water tanks would be visible to visitors of the South Chimineas Unit which allows unsupervised visitors.

If new water tanks are evenly distributed to each square mile of the American, North Chimineas, and South units, where existing water sources are currently not available (Figure 14), as many as seven water tanks could be provided on the South Chimineas Unit on the south-facing slopes of the Caliente Range and visible to travelers on Highway 166. Although the number of vehicles passing along Highway 166 in the vicinity of the South Chimineas Unit is high, the potential for new water tanks to be seen by travelers is low because of the high speed at which travelers would view these tanks (45 – 55 MPH), the presence of topographic features that block portions of the CPER as viewed from the highway and the distance from the highway to the water tanks. However, as the Cuyama Valley widens moving east, views of the CPER from the highway are expansive and of longer duration such that new water tanks located in these areas would be visible for longer period of time.

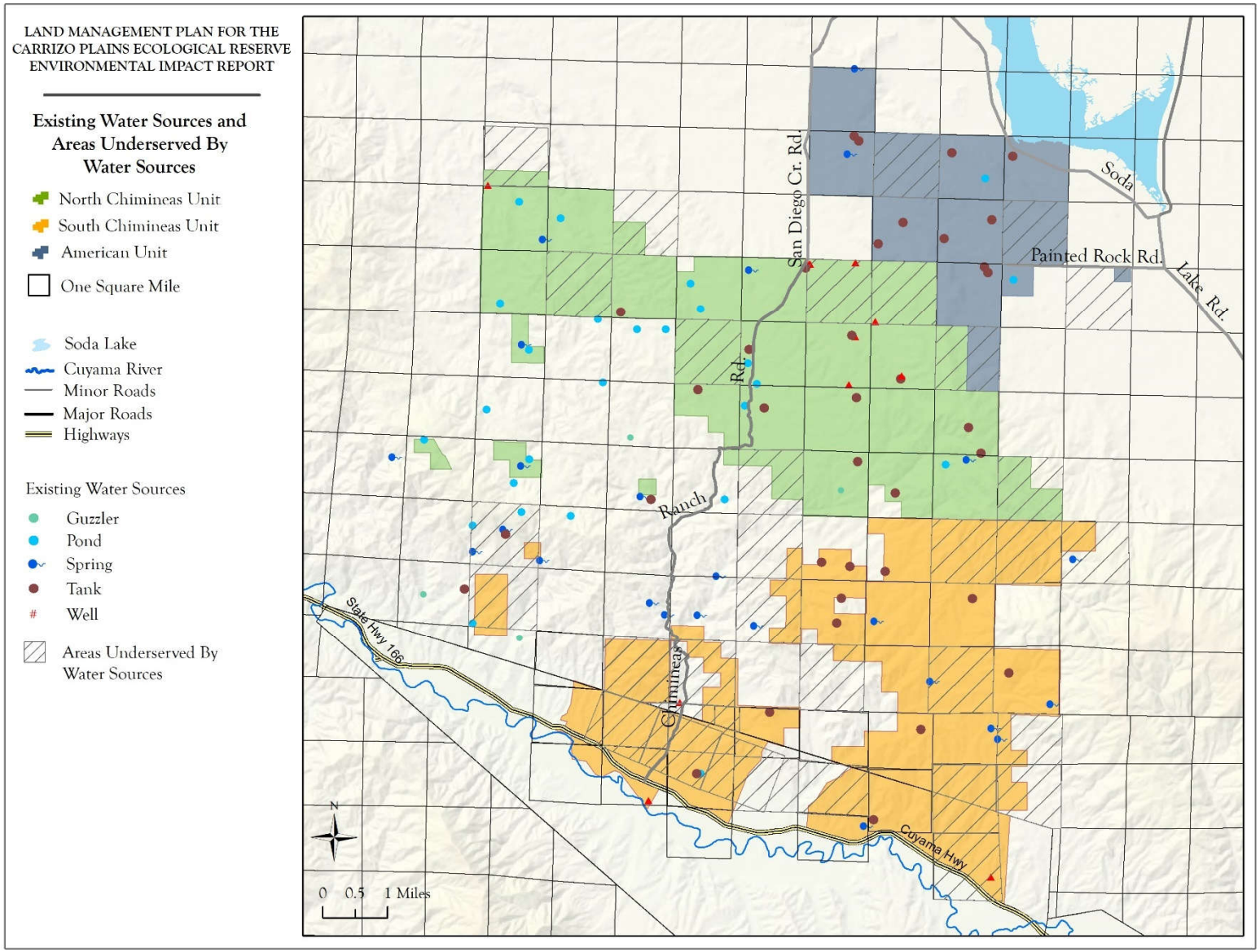


Figure 14: Existing Water Sources and Areas Underserved by Existing Water Sources

New water tanks on the American Unit would be visible to users who walk onto the Reserve (e.g., hikers and hunters). In addition, one or more tanks could be visible to travelers on Soda Lake Road.

Factor 2 — The integrity and uniqueness of the existing scenic resource. Water tanks and other improvements have been a part of the visual landscape of the CPER for over 100 years. The American Unit contains a number of features and structures established by previous users of the site, including eight existing water tanks (Section 4.1.1.3). The installation of up to nine new water tanks (assuming one per square mile) would alter the scenic qualities of the American Unit somewhat compared to existing conditions.

The scenic qualities of the Chimineas units also include several improvements, including corrals and water infrastructure, including an estimated 23 water tanks (Section 4.1.1.4). The South Chimineas Unit, when viewed from Highway 166, currently includes structures typical of the rural ranching character of the region that disrupt the natural landscape with features. The installation of up to 21 new water tanks would alter, but be consistent with, the scenic qualities of both Chimineas units.

Factor 3 — The magnitude of the change. Existing sources of water for wildlife are available throughout the American, North Chimineas and South Chimineas units (Figure 14) and include springs, ponds, water tanks and wells. Water supply improvements (including windmills, reservoirs, water tanks and pipelines) have been a part of the visual landscape of the CPER and of the region for over 100 years. Thus, the scenic qualities of the Chimineas and American units have been altered over time as new water supply and livestock facilities have been constructed. Nonetheless, the placement of up to 21 new water tanks in the natural landscape will further alter the scenic character of the American and Chimineas units and the magnitude of the change could be considered significant without further mitigation.

Impact 5.2-4 — Best Management Practices Recommended by the Draft LMP that Mitigate Potential Impacts to Aesthetic and Visual Resources Associated with the Construction of New Water Tanks

The BMPs listed under impact 5.2-1 provide mitigation for this impact.

Impact 5.2-4 — Conclusions/Summary of Impact

The frequency with which new water tanks that may be established along Highway 166 could be viewed by the public is high, based on current traffic volumes. Traffic volumes on Soda Lake Road are currently low and the frequency with which water tanks would be viewed is correspondingly low. New water tanks visible from either roadway could disrupt the integrity of the scenic qualities of the area. However, the visual impact of placing water tanks in these locations would be less than significant because:

- The relatively high speed at which travelers would view these facilities (40 – 55 MPH) from either roadway;
- The distance from the roadway at which water tanks will be visible;
- The ability to choose colors that blend with the landscape;
- The presence of topographic features and natural vegetation that will help screen the tanks from view;
- The presence of existing structures, water tanks, and other features within the site that render the placement of new water tanks within the character of the landscape;

- Water tanks installed within the interior of the American and Chimineas units would be visible infrequently and by a small number of viewers; and
- New construction will be subject to project-specific CEQA compliance, which will identify the appropriate BMPs from the Draft LMP (Appendix C) to ensure visual impacts associated with the placement of new water tanks do not detract from the visual character of the CPER.

For these reasons, this impact is considered **less than significant (Class III).**

Impact 5.2-4 — Additional Mitigation

None required.

5.2.8.7 Alteration of Scenic Qualities of the CPER — Installation of New Fencing

Impact 5.2-5 **The installation of exclusionary fencing around sensitive resources and along the CPER boundary could adversely alter the scenic qualities of the CPER. This impact is considered less than significant (Class III) because of mitigation provided by management actions and Best Management Practices incorporated into the project description.**

The Chimineas, Panorama and Elkhorn units contain a combined 134 miles of existing barbed-wire fencing. The Draft LMP recommends installing additional fences along the eastern and western boundaries of the Chimineas units and around sensitive resources within the CPER to regulate cattle use (CDFW 2018). Such fencing would likely consist of barbed wire supported by metal posts consistent, with existing fencing. Fences along the borders may be visible from public vantages, such as along Highway 166; fencing on the interior of the CPER would be visible to Department personnel, researchers, and visitors, including attendees of special events and special hunting programs, but would largely not be visible from public vantages.

Fencing of sensitive biological resources, such as riparian areas, would result in both positive and negative visual impacts. Additional fencing would intrude visually on the scenic quality of these resources. However, regulating livestock use is expected to enhance growth of vegetation within the riparian zone.

Impact 5.2-5 — Discussion of Visual Impact Factors

Factor 1 — The potential for, and frequency of, viewing by the public. The few remaining riparian corridors where exclusion fencing has not been installed are located on the North Chimineas Unit on portions of the site not visible to the public, except to hunters during special hunting programs conducted by the Department. Thus, the potential for, and frequency of, viewing of these fences by the public is low. New fencing that may be installed along the eastern and western boundaries of the Chimineas units may be visible to the occasional visitor to the western, remote portion of the Carrizo Plain National Monument and to visitors to the backcountry area of Los Padres National Forest to the west of the CPER, respectively. The fence line will also be visible briefly to travelers on Highway 166.

Factor 2 — The integrity and uniqueness of the existing scenic resource. Barbed-wire fencing of the type expected to be installed along the eastern and western boundaries of the Chimineas units is a common feature of the viewshed along Highway 166, from where it will be visible to passing motorists. Since fencing is currently absent along the remote and largely-inaccessible boundaries of the CPER, the installation of new fencing will result in a minor disruption of the integrity of the scenic resource in these locations.

Factor 3 — The magnitude of the change. Barbed wire is a common feature of the CPER and of the region in general, where it is currently used to exclude livestock from sensitive resources and along the boundaries of the units. Installing new fencing along the remaining riparian areas and water sources on the North Chimineas Unit and along their eastern and western boundaries will result in a minor change to the scenic qualities of the CPER.

Impact 5.2-5 — Best Management Practices Recommended by the Draft LMP that Mitigate Potential Impacts to Aesthetic and Visual Resources Associated with the Placement of New Fencing

BMP AV-4. New fencing shall be placed in the least visible location practical, while still accomplishing the resource protection or safety objectives of the LMP. Where fencing will be visible from a public vantage or visible to visitors, consideration should be given to the use of historic/rustic materials (e.g., split wooden posts) so long as the resource protection objectives of the LMP can be satisfied.

Impact 5.2-5 — Conclusions/Summary of Impact

Based on the analysis provided above, the placement of new fencing will be minimally visible to the public and will constitute a minor change to the visual qualities of the landscape consistent with the character of the CPER and the region. Implementation of the management actions and BMPs included the Draft LMP (Appendix C) will ensure visual impacts associated with the placement of new fencing do not detract from the visual character of the CPER. For these reasons, this impact is considered **less than significant (Class III).**

Impact 5.2-5 — Additional Mitigation

None required.

5.2.8.8 Alteration of Scenic Qualities of the CPER – Prescribed Burning

Impact 5.2-6 Prescribed burning as recommended by the Draft LMP could adversely alter the scenic qualities of the CPER. This impact is considered less than significant (Class III) because of mitigation provided by management actions and Best Management Practices incorporated into the project description.

The Draft LMP recommends the use of prescribed burning as a vegetation management tool (CDFW 2018). The CPER has a long history of wildfires, which are a natural component of several of the CPER ecosystems. Based on the historical record compiled by CalFire, an average of approximately 500 acres in the vicinity of the CPER have burned per year since 1917 (CalFire 2015; Sections 5.3 and 5.7).

A prescribed fire will be guided by a project specific burn plan developed based on the biological and vegetation management goals outlined in the LMP, by biologists and fire practitioners familiar with regional experience, and in coordination with fire protection agencies and with input from adjacent landowners (Section 3.11.2; CDFW 2018).

Impact 5.2-6 — Discussion of Visual Impact Factors

Factor 1 — The potential for, and frequency of, viewing by the public. Prescribed burning will be concentrated in the fire-adapted chaparral communities of the CPER, some of which have not burned in

almost 100 years. For purposes of this analysis it is assumed that about 625 acres of the chaparral community will be burned over the next 25 years, either through naturally occurring wildfires or through a single prescribed burn (Figure 4). Thus, the areal extent and frequency of prescribed burning would be low.

With respect to the potential for a burned area to be visible to the public, chaparral communities occupy about 1,250 acres of the CPER located primarily on the higher and western elevations of the Chimineas units (Figure 4). These areas are located in a portion of the CPER not readily visible to the public. However, the unpredictable nature of fire could result in a prescribed burn moving beyond the desired location where the effects would be visible to visitors of the CPER and visible from offsite.

Factor 2 — The integrity and uniqueness of the existing scenic resource. As discussed above, chaparral occupies about 1,250 acres of the CPER (3.2%). Chaparral is also found in the adjacent Los Padres National Forest and on land managed by the BLM, including the Carrizo Plain National Monument where prescribed burning is also employed. Therefore, chaparral is not an uncommon vegetation type within the area.

Factor 3 — The magnitude of the change. Although wildfire scars are natural, they are often considered a major impact to visual resources. The effects of a prescribed burn would also likely be perceived as an adverse impact on visual resources to the extent the effects are visible to the public. The effects of fire on the landscape will be short-term and localized (Sections 5.3 and 5.7). Following the prescribed burn, the visual effects of fire would gradually recede as the vegetation returned, assuming near normal rainfall. For one to three years following a fire, chaparral is dominated by herbaceous plant species including many fire-followers—plant species that are aboveground only a few years following fire before the canopy closes. After that period, shrub canopy increases in cover for the next 20-60 years, after which shrubs senesce and their cover declines. Senescent chaparral supports a lower diversity and abundance of native plant and animal species, suggesting recurring fire is needed to maintain the chaparral community.

The chaparral vegetative community where prescribed burning may be employed is a mosaic of vegetative communities that includes chaparral, coastal scrub, grassland and oak woodland, which would also be burned by the fire. Table 16 estimates the acres of each vegetative community that could be affected by a 625-acre prescribed burn located in the northwest portion of the North Chimineas (Figure 4). The fire tolerance and recovery times differ for each of these communities and the corresponding visual impacts will vary accordingly.

Table 16: Estimate of Acreage of Vegetation Potentially Affected by a 625-Acre Prescribed Burn (Figure 4)

Vegetative Community	Estimated Acres[1]
Chaparral	327
Coastal Scrub	66
Grassland	21
Oak Woodland	211
Total	**625**

Notes:
1. Includes 2.5 acres for construction of fuel breaks.

Fire breaks may be constructed as part of fire control and suppression efforts. Fire breaks could have a moderate to major localized impact to visual resources. In the event a prescribed burn escapes the desired burn area, emergency fire breaks (i.e., dozer lines) would be created as part of fire suppression efforts, with minimal priority given to visual resource protection. Fire breaks could also result in a very visible change of the color and texture of the landscape and are of a much longer duration than the actual fire itself.

Impact 5.2-6 — Best Management Practices Recommended by the Draft LMP that Mitigate Potential Impacts to Aesthetic and Visual Resources Associated with Prescribed Burning

BMP AQ-7. Prescribed burning shall be conducted in full compliance with the provisions of Rule 502 of the San Luis Obispo County Air Pollution Control District (SLO APCD) Rules and Procedures, including (but not limited to) the following:

- Approval of a burn permit by the SLO APCD at least 72 hours prior to the burn date;
- Preparation and approval of a Smoke Management Plan by the SLO APCD;
- Air quality monitoring, as may be required by the Air Pollution Control Officer;
- Consultation with the SLO APCD and surrounding air quality districts in advance of the burn date; and
- Participation in the Prescribed Fire Information Reporting System (PFIRS)[4].

Impact 5.2-6 — Conclusions/Summary of Impact

Prescribed burning will result in a temporary alteration to the visual character of the landscape. However, the visual impacts of prescribed burning will be offset by the following factors:

- Prescribed burns will be focused on the chaparral communities, which are located in remote portions of the CPER not readily visible to the public;
- To accomplish the desired fuel management and biological objectives, only a small area of the CPER (625 acres, or less than 1%) will be subject to prescribed burning;
- On a single fire during the 25-year timeframe is anticipated, thus the potential visual impacts will be infrequent;
- Reducing the fuel load by prescribed burning may reduce the number, size, and intensity of wildfires on the CPER and the associated visual impacts caused by such fires; and
- Prescribed fire is expected to prevent senescence of shrubs that occurs in the absence of recurring fire, thereby improving its visual qualities.

Lastly, implementation of the management actions and BMPs included the Draft LMP (Appendix C) will ensure visual impacts associated with prescribed burning do not detract from the visual character of the CPER. For these reasons, this impact is considered **less than significant (Class III).**

[4] PFIRS ("P-furs") serves as an interface between air quality managers, land management agencies, and individuals that conduct prescribed burning in California. It is intended to facilitate communications by providing access to a database containing information on burn planning, burn approvals, and emissions information. PFIRS is a joint project of the California Air Resources Board, federal land management agencies, local air districts, and various fire agencies.

Impact 5.2-6 — Additional Mitigation

None required.

5.2.8.9 Actions to Protect Cultural Resources

Impact 5.2-7 **Implementation of management actions recommended by the Draft LMP could result in the discovery of previously undiscovered cultural resources, which in turn would necessitate actions to protect these resources. These actions may include the realignment of road segments; closure, or capping of roads; and the addition of interpretative signs and fencing at Native American sites, which could adversely impact visual resources. This impact is considered less than significant (Class III) because of mitigation provided by management actions and Best Management Practices incorporated into the project description.**

The CPER contains previously identified significant cultural resources (Section 5.5). The Draft LMP and BMPs recommend conducting pre-construction surveys before the implementation of management actions with the potential to disturb cultural resources. These surveys may reveal the presence of previously undiscovered resources. The preferred approach to minimizing the impact on cultural resources is to avoid such resources altogether, such as relocating a roadway. Following the discovery of new resources, landscaping and/or fencing may be erected at the sites. All of these activities have the potential to result in minor impacts to the visual qualities of the CPER.

Impact 5.2-7 — Best Management Practices Recommended by the Draft LMP that Mitigate Potential Impacts to Aesthetic and Visual Resources Associated with Efforts to Protect Cultural Resources

BMP AV-2. Where landscaping is conducted, plants shall be chosen that are compatible with native vegetation and which provide a visual transition from developed to open areas.

BMP AV-4. New fencing shall be placed in the least visible location practical, while still accomplishing the resource protection or safety objectives of the LMP. Where fencing will be visible from a public vantage or visible to visitors, consideration should be given to the use of historic/rustic materials (e.g., split wooden posts) so long as the resource protection objectives of the LMP can be satisfied.

BMP S-6. The design of new construction shall be in keeping with the rural character and natural environment of the Reserve.

Impact 5.2-7— Conclusions/Summary of Impact

Actions to protect cultural resources have the potential to alter the visual character of the CPER. However, the visual impacts of these actions will be less than significant because:

- The relocation of roadways or the placement of signage and fencing around cultural resources would affect a very small area of the CPER;
- Relocated roadways and/or signage would not likely be visible from public vantages such as public roadways used to access the CPER;

- The need to undertake extensive relocation activities to avoid cultural resources is expected to be uncommon due to the low frequency of ground-disturbing activities conducted during implementation of the LMP; and
- New construction will be subject to project-specific CEQA compliance which will identify the appropriate BMPs from the Draft LMP to ensure visual impacts associated with efforts to protect cultural resources do not detract from the visual character of the CPER.

For these reasons, this impact is considered **less than significant (Class III).**

Impact 5.2-7 — Additional Mitigation

None required.

5.2.9 Cumulative Impacts and Mitigation Measures

This subsection analyzes the Draft LMP's contribution to cumulative impacts to aesthetic and visual resources (Section 5.1.4).

5.2.9.1 Cumulative Setting

The setting for cumulative impacts to aesthetic and visual resources includes the Carrizo Plain (including the CPNM), Elkhorn Plain, the west end of the Cuyama Valley, and land within the Caliente Range and Los Padres National Forest within five miles of the CPER.

5.2.9.2 Alteration of Scenic Qualities — Cumulative Impacts

Impact 5.2-8	**Implementation of the management actions recommended by the Draft LMP, when added to other closely-related past, present, and reasonably-foreseeable future projects in the region, will alter the area's scenic qualities during the timeframe of the Draft LMP. The contribution to this cumulative impact by the Draft LMP is considered less than cumulatively considerable (Class III) because of mitigation provided by management actions and Best Management Practices incorporated into the project description.**

Land uses in the region with the potential to result in cumulatively considerable impacts to visual resources include development on private properties as well as activities undertaken on federal lands surrounding the CPER (Section 4.5).

5.2.9.3 Present and Future Land Use/Reasonably Foreseeable and Approved Development Projects

Previously approved and reasonably foreseeable private development projects are subject to the permitting requirements and general plan policies of local governments including San Luis Obispo, Kern, and Santa Barbara counties, and are subject to environmental review in accordance with CEQA. The environmental review process must identify mitigation measures to reduce significant impacts relating to visual resources. All of the units of the CPER are located entirely within San Luis Obispo County in an area governed by the Shandon-Carrizo Area Plan (Area Plan; SLO County 2012a). The Area Plan contains policies to guide land

use and development consistent with the rural character of the area. All of the parcels surrounding the units of the CPER are designated either Agriculture or Rural Lands (Section 4.5.2.1, Figure 7). These designations allow for a wide range of activities and uses subject to varying levels of permits issued by the County. These uses include crop cultivation (including cannabis), livestock operations, grazing, recreation, electricity generation, petroleum extraction, sand and gravel extraction, certain types of manufacturing, camping, hunting and fishing, waste disposal sites and public utilities.

In the Carrizo Plain, large-scale energy development in the form of photovoltaic solar arrays has been constructed in the California Valley (Section 4.5.3) on land with the Agriculture designation. These projects (Topaz Solar Farm and California Valley Solar Ranch) comprise 6,100 acres of developed area (Table 12). Both projects were subject to conditions of approval that required the incorporation of features to minimize their visual impacts. Nonetheless, these projects were found to have a significant and unavoidable adverse impact on the visual resources of the Carrizo Plain (SLO County 2011a, b).

Parcels on the Carrizo Plain with the Agriculture designation that are currently farmed or used for grazing could be developed with additional solar arrays or similar large-scale electrical generating facilities subject to the permitting requirements of San Luis Obispo County. At present, no additional large-scale energy projects are pending but considerable potential exists for additional development. Additional construction activities and the resulting improvements would significantly alter the visual qualities of the landscape and contribute to a cumulative adverse impact on aesthetic and visual resources.

The San Luis Obispo County General Plan contains goals and policies aimed at protecting visual resources from the adverse impact of development. Policies that specifically address the protection of visual resources in rural areas are provided in the Conservation and Open Space element (SLO County 2010a), as summarized below.

Goal 1: The natural and agricultural landscape will continue to be the dominant view in rural parts of the county.

- Policy VR1.1 Adopt Scenic Protection Standards. Protect scenic views and landscapes, especially visually Sensitive Resource Areas (SRAs) from incompatible development and land uses.

Goal 2: The natural and historic character and identity of rural areas will be protected.

- Policy VR 2.1 Develop in a manner compatible with historical and visual resources. Through the review of proposed development, encourage designs that are compatible with the natural landscape and with recognized historical character, and discourage designs that are clearly out of place within rural areas.
- Policy VR 2.2 Site development and landscaping sensitively.
- Policy VR 2.3 Revise countywide design guidelines. New development should follow Countywide Design Guidelines to protect rural visual and historical character. The guidelines should encourage new development that is compatible with public views of scenic areas, the natural landscape, and existing development.

Goal 5: Views from scenic vistas and vista points will be protected.

- Policy VR 5.2 Retain existing scenic access. Encourage Caltrans to maintain existing scenic vista points. Where vista points and turnouts must be eliminated due to bluff erosion, other hazards, or operational needs, they should be replaced in reasonable proximity if feasible.
- Policy VR 5.2 Create new scenic access. The County and Caltrans, as applicable, should identify, construct, and maintain additional scenic overlooks, turnouts, or vista points along designated scenic corridors. Vista points, overlooks, and turnouts should include parking, support facilities, and interpretive features as appropriate.
- Policy VR 5.3 Sale of public lands. Seek to assure, through required General Plan conformity reports and the disposal of County-owned lands, that the sale of publicly owned land is consistent with the goals and policies in this element to protect the county's visual resources.

In addition, the Area Plan designates Soda Lake as a sensitive resource area which is recommended for designation as a natural area. Under the natural area designation, development on private properties in the vicinity of Soda Lake would be subject to additional restrictions to protect its natural and scenic qualities (SLO County 2012a).

Private land in the Cuyama Valley is subject to the Santa Barbara County Comprehensive Plan. All of the land in the Cuyama Valley outside of the Cuyama and New Cuyama urban areas is designated with the Agriculture land use designation, which allows a wide variety of uses that include crop production, grazing, mining and mineral extraction, certain types of recreation, and service uses. No significant development projects are currently being processed for the Cuyama Valley at present. Policies for the protection of scenic resources are provide din the General Plan Open Space Element. In addition, the County Visual Aesthetic Impact Guidelines (Santa Barbara County 2008) provide guidance in determining the importance of visual resources for purposes of assessing the impacts of new development. Santa Barbara County's most important visual resources include: coastal view, mountain views, the urban fringe, and travel corridors. With regard to scenic corridors, the Scenic Highways Element of the Comprehensive Plan identifies State Highway 166 as eligible for designation as a Scenic Highway from its junction with Highway 33 through the Cuyama Valley to Highway 101 to the west.

Carrizo Plain National Monument 2010 Resource Management Plan

The Carrizo Plain National Monument (CPNM) consists of 246,817 acres stretching from Soda Lake on the north to Highway 166 to the south. In April, 2010, BLM adopted a Final Environmental Impact Statement (FEIS) and approved a Resource Management Plan (RMP) for the CPNM (Section 4.5.1.1).

Through the RMP process, BLM assigns Visual Resource Management (VRM) classes to all public lands within the CPNM. Each class allows for landscape changes from management activities and use authorizations that contrast at different levels with the existing characteristic landscapes. In all situations, actions are taken to minimize visual contrasts through careful project design. In addition, the RMP includes specific management actions aimed at protecting and enhancing visual resources. These actions include (BLM 2010):

- Action VRM-1(I): Complete visual contrast ratings for all proposed surface or visually impacting projects to ensure they meet VRM class objectives.

- Action VRM-2(I*): Complete visual contrast ratings for existing roads and facilities and identify opportunities to reduce existing visual impacts through modifications such as painting water tanks, or removing unneeded facilities.
- Action VRM-3(I*): Complete an inventory of existing and potential key scenic vista points along roads and trail corridors and identify opportunities to develop and improve these locations as overlooks and interpretive sites.
- Action VRM-4(I): Limit exterior lighting of BLM administrative facilities to the minimum necessary for safety and security. Use lighting types and shields that minimize light pollution.
- Action VRM-5(S): Work with adjoining communities (California Valley) to minimize light sources that impact the Monument.
- Action VRM-5(I): Conduct visual contrast ratings and ensure that all projects meet VRM Class 1 requirements.
- Action VRM-6(I): Conduct visual contrast ratings on all projects. Ensure that all proposed projects meet VRM Class II objectives.
- Action VRM-7(I*): Encourage retrofitting of existing facilities to comply with VRM Class II objectives by working in partnership with existing right-of-way holders (such as communication sites) and oil and gas lessees. Incorporate mitigation measures, such as repainting existing facilities, and carefully locating and designing new facilities (such as by using topographic screening) to minimize their contrast with the characteristic landscape.
- Action VRM-8(I): Conduct visual contrast ratings on all projects. Ensure that all proposed projects meet VRM Class III objectives.
- Action VRM-9(I*): Encourage retrofitting of existing facilities to comply with VRM Class III objectives by working in partnership with existing right-of-way holders (such as communication sites) and oil and gas lessees. Incorporate mitigation measures, such as repainting existing facilities, and carefully locating and designing new facilities (such as by using topographic screening) to minimize their contrast with the characteristic landscape.

Vegetation management and restoration activities recommended by the RMP are expected to have a beneficial impact on the visual qualities of the CPNM and the region. Lastly, the RMP recommends several Best Management Practices (BMPs) that will complement the management actions listed above to protect visual resources.

Bakersfield Field Office of the Bureau of Land Management, Proposed Resource Management Plan

The BLM updated the 1997 Caliente Resource Area Resource Management Plan entitled Bakersfield Field Office Proposed Resource Management Plan (Section 4.5.1.3). As with the CPNM, this RMP uses the VRM system and has assigned VRM classes to areas within the Plan area including the areas surrounding the CPER. Under the preferred alternative (Proposed Plan) areas surrounding the CPER would be designated VRM Class III which is defined as follows (BLM 2014):

> *Partially retain existing landscape character. The level of change to the characteristic landscape should be moderate. Management activities may attract attention, but should not dominate a casual observer's view. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape.*

Thus, Class III allows for moderate changes to the visual landscape on BLM lands, where management actions are subordinate to the visual character. The Proposed Plan also provides goals and objectives for the protection of visual resources. The objectives for the protection of visual resources include:

- Utilize visual resource management classes for all public lands within the decision area to preserve and enhance scenic quality for present and future generations.
- Ensure approval of projects outside the CPNM boundary, but within its viewshed, so that they comply with the visual resource management objectives as described in the CPNM RMP (BLM 2010).

In addition, the Proposed RMP recommends several BMPs aimed at maintaining visual quality.

Los Padres National Forest Land Management Plan

The USFS Land Management Plan and FEIS for the Southern California National Forests (including the Los Padres) focuses on the cumulative effect of forest management activities on biological resources within the forests (USDA 2005b; Section 4.5.1.2). The LMP recommends the following actions to protect "landscape aesthetics" and "landscape character" within the forest:

- Use best environmental design practices to harmonize changes in the landscape and advance environmentally sustainable design solutions.
- Prioritize landscape restoration activities in key places. Integrate restoration activities with other resource restoration.
- Maintain the integrity of the expansive, unencumbered landscapes and traditional cultural features that provide the distinctive character of the place.
- Promote the planning and improvement of infrastructure along scenic travel routes.

The LMP also includes BMPs aimed at protecting visual and aesthetic quality.

Impact 5.2-8 — Conclusions/Summary of Impact

Previously approved and reasonably foreseeable development activities in the California Valley and the region will significantly alter the visual character of the area. However, new development will be subject to the permitting requirements of the applicable jurisdiction and subject to compliance with CEQA, which will help minimize the cumulative degradation of visual qualities.

Implementation of the management actions and BMPs recommended by the Draft LMP is expected to have an overall beneficial impact on the visual qualities of the CPER as the habitats and vegetative communities are maintained, restored, and enhanced. As discussed under impacts 5.2-1 through 5.2-7, the Draft LMP recommends a range of management actions and BMPs to ensure implementation of the Draft LMP complements the visual qualities of the CPER. In addition, implementation of management plans on federal lands surrounding the CPER will contribute to the protection of the visual qualities of these areas. Therefore, the contribution of the Draft LMP to the cumulative impact on aesthetic and visual resources is considered **less than cumulatively considerable (Class III).**

Impact 5.2-8 — Additional Mitigation

None required.

5.3 Air Quality and Climate Change

5.3.1 Introduction

This section addresses impacts associated with air quality and climate change that may result from implementation of the management actions recommended by the Draft LMP. It describes existing environmental conditions within the CPER and broader region, identifies and analyzes environmental impacts, and recommends measures to reduce or avoid adverse impacts anticipated from management actions included in the Draft LMP. In addition, existing laws and regulations relevant to air quality are described. In some cases, compliance with these existing laws and regulations would serve to reduce or avoid certain impacts that might otherwise occur with the implementation of the Draft LMP. Finally, this section discusses cumulative impacts related to air quality and climate change.

5.3.2 Sources Used in This Analysis

This analysis is based on a review of applicable law, local planning documents, publications, and air quality modeling software, including:

- The Draft Land Management Plan for the Carrizo Plains Ecological Reserve (CDFW 2018);
- California Air Resources Board Climate Change Scoping Plan (CARB 2008);
- The California Clean Air Act;
- The San Luis Obispo County Air Pollution Control District (SLO APCD) Clean Air Plan (SLO APCD 2001);
- The SLO APCD CEQA Handbook (SLO APCD 2012); and
- The California Emissions Estimator Model (CalEEMod) version 2011.1.1. (CAPCOA 2011)

Section 10 References provides a complete list of references used in this analysis.

5.3.3 Scoping Issues for Air Quality and Climate Change

During the 30-day public review period for the Notice of Preparation, written and oral comments were received from agencies, organizations, and the public. The following issues relating to air quality and climate change were raised during the scoping process and are addressed in this section:

- Portable gasoline-powered equipment that may be used as part of land management activities may require statewide registration or a permit from the SLO APCD. Such equipment includes, but is not limited to, portable generators and equipment with engines that are 50 horsepower or greater;
- Certain activities may require issuance of an Authority to Construct permit from the SLO APCD;
- The assessment of air quality impacts should closely follow the requirements outlined in the SLO APCD CEQA Handbook (SLO APCD 2012); and
- The use of prescribed burning, as may be allowed by the Draft LMP, should be closely coordinated with the SLO APCD and consistent with SLOA PCD Rules. All agencies involved in the prescribed burn should ensure that a representative participates in the Prescribed Burn One O'clock Coordination Call conducted by the California Air Resources Board and the SLO APCD.

5.3.4 Environmental Setting

5.3.4.1 Factors That Affect Air Quality in San Luis Obispo County

The CPER lies entirely within San Luis Obispo County. From a geographical and meteorological standpoint, the county can be divided into three general regions: the Coastal Plateau, the Upper Salinas River Valley, and the East County Plain (Figure 15). Air quality in each of these regions is characteristically different, although the physical features which divide them provide only limited barriers to the transport of pollutants among regions (SLO APCD 2012).

The CPER lies within the East County Plain region, which is the largest region by land area, but contains only one percent of county residents. Dry-land farming and unpaved roads in this region contribute to particulate emissions, but these rarely affect other regions of the county. The La Panza and Caliente ranges on the west and the Temblor Range to the east join together to close the plain at the southeastern tip of the county. The Diablo Range occupies the extreme northeastern portion of this region and, like the Temblors, lies adjacent to the San Joaquin Valley (SLO APCD 2012).

Airflow plays an important role in the movement and dispersion of air pollutants in the region. The speed and direction of local winds are controlled by 1) the location and strength of the Pacific high pressure cell—an area of persistent high pressure that forms over the eastern Pacific Ocean between Hawaii and the west coast of North America— and other global patterns, 2) topographical factors, and 3) circulation patterns resulting from temperature differences between the land and sea (SLO APCD 2012).

5.3.4.2 General Climate and Meteorology

The CPER features a Mediterranean climate characterized by hot, dry summers and cool, relatively wet winters. Precipitation occurs primarily between November and April, mainly in the form of rain but occasionally as snow at higher elevations. Within the region, precipitation exhibits three main gradients according to latitude, longitude, and elevation, with precipitation greater in the north and west than south and east, and greater at higher elevation than at lower elevation (CDFW 2018).

Winter storms generated over the Pacific Ocean that move northwest to southeast across the region are typical. This directionality results in a lower rainfall in the East County Plain region. In addition, a greater amount of rain falls on the Caliente and La Panza ranges, leaving the Carrizo Plain and Temblor Range in the rain shadow and receiving less precipitation, particularly in the south and southeast. Temperatures generally vary inversely with elevation and tend to be highest on the valley floor and lower in mountain and foothill regions.

5.3.4.3 Temperature Inversions

Although air temperatures normally decrease as altitude increases in the atmosphere, a reversal of this temperature gradient can occur. Such a condition, which is called an inversion, can have the effect of limiting the vertical dispersion of air pollutants, trapping them near the earth's surface. Several types of inversions are common to the San Luis Obispo County area. Weak surface inversions are caused by radiational cooling of air in contact with the cold surface of the Earth at night. In valleys and low-lying areas such as the Carrizo Plain, this condition is intensified by the addition of cold air flowing down from hills and pooling on valley floors. Surface inversions are common throughout the county during winter months,

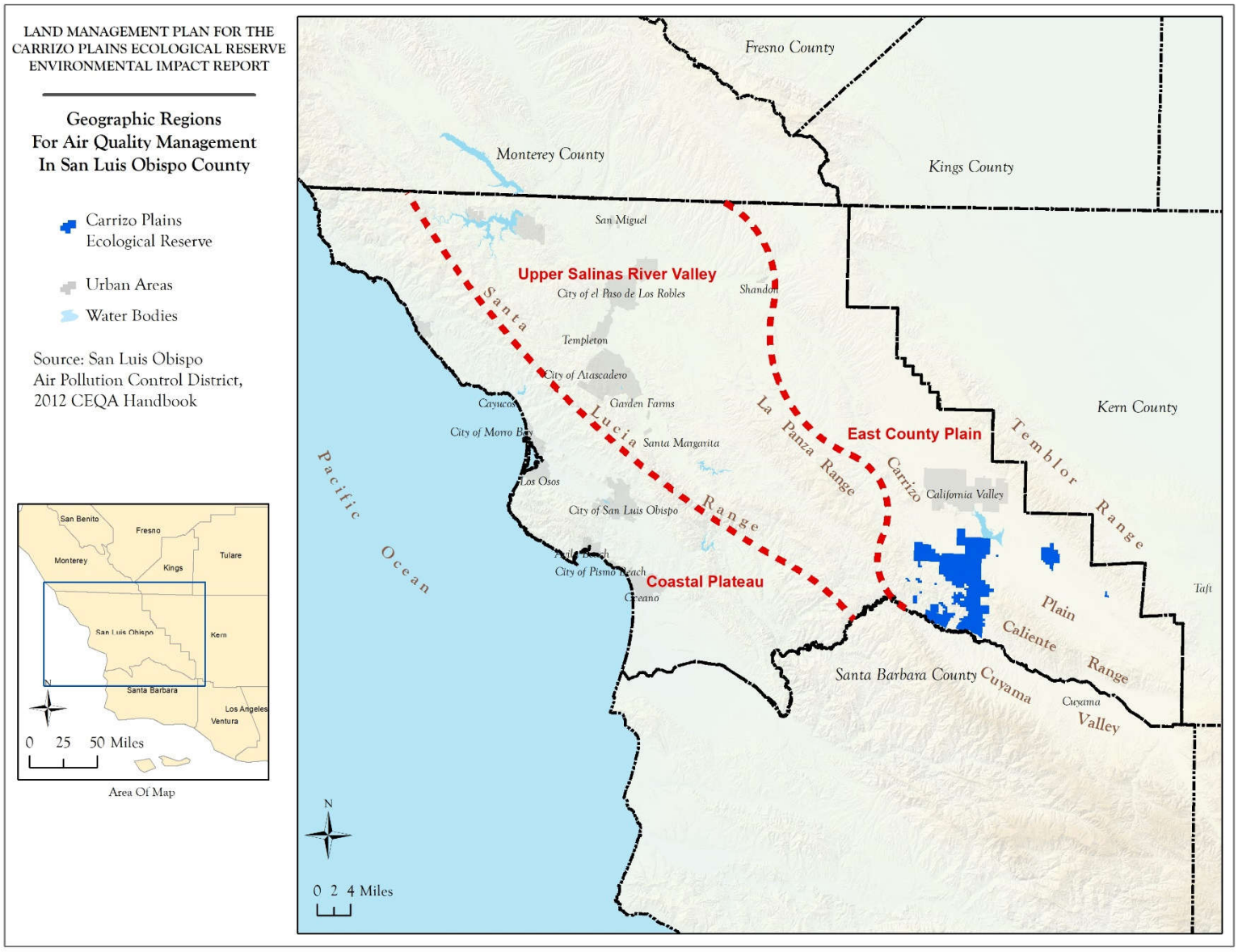


Figure 15: Air Quality Management Regions of San Luis Obispo County

particularly on cold mornings. As the morning sun warms the Earth and air near the ground, the inversion lifts, gradually dissipating throughout the day (SLO APCD 2012).

During the summer, subsidence inversions can occur when the Pacific high pressure cell can cause the air mass aloft to sink. As the air descends, compressional heating warms the air to a higher temperature than the air below. This highly stable atmospheric conditioning can act as a nearly impenetrable lid to the vertical mixing of pollutants. Subsidence inversions can persist for one or more days, causing air stagnation and the buildup of pollutants (SLO APCD 2012).

5.3.5 Overview of Air Pollution Control

Air pollution control is administered on three governmental levels in San Luis Obispo County. The United States Environmental Protection Agency (EPA) has jurisdiction under the federal Clean Air Act to develop federal air quality standards and require individual states to prepare State Implementation Plans (SIPs) to attain these standards. The California Environmental Protection Agency, Air Resources Board (CARB) has jurisdiction under the California Health and Safety Code and the California Clean Air Act to develop California air quality standards, to require regional plans to attain these standards, and to coordinate the preparation by local air districts of plans required by both the federal and State Clean Air Acts. The CARB is also responsible for the development of state emission standards for mobile and stationary emission sources.

The San Luis Obispo Air Pollution Control District (SLO APCD) shares responsibility with the CARB for ensuring that all state and federal ambient air quality standards are attained within the county. The SLO APCD has jurisdiction under the California Health and Safety Code to develop emission standards (Rules) for the county, issue air pollution permits, and require emission controls for stationary sources in the county. The SLO APCD is also responsible for the attainment of state and federal air quality standards.

5.3.5.1 Air Pollutants and Air Quality Standards

Air pollution is hazardous to human health, diminishes the production and quality of many agricultural crops, reduces visibility, degrades soils materials, and damages native vegetation. State and federal ambient air quality standards were created to protect the public health and welfare, and to minimize the other effects mentioned above. The standards address pollutants in the ambient air—the air that people breathe outside of buildings, as they go about their daily activities.

The National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS) define the upper limits for ambient airborne concentrations of pollutants. The standards are designed to protect all aspects of the public health and welfare, with a reasonable margin of safety. The NAAQS and CAAQS are established for "criteria pollutants", which are described below. Table 17 provides a summary of state and federal ambient air quality standards. The following sections describe the pollutants.

5.3.5.1.1 Ozone

Ozone is a secondary pollutant that is not emitted directly from a source (e.g., an automobile tailpipe); it is formed in the atmosphere by chemical and photochemical reactions. Reactive organic gases (ROGs), including volatile organic compounds (VOCs), and nitrogen oxides (NO_x), are monitored and regulated because they are precursors to ozone formation. Breathing ozone can trigger a variety of health problems including chest pain, coughing, throat irritation, and congestion; it can worsen bronchitis, emphysema, and

Table 17: State and Federal Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards[1]	Federal Standards[2]
Ozone (O_3)	1 Hour	0.09 ppm	0.12 ppm
	8 Hour		0.08 ppm
Respirable Particulate Matter (PM_{10})	Annual Geometric Mean	30 µg/m^3	
	24 Hour	50 µg/m^3	150 µg/m^3
	Annual Arithmetic Mean		50 µg/m^3
Fine Particulate Matter ($PM_{2.5}$)	24 Hour		65 µg/m^3
	Annual Arithmetic Mean		15 µg/m^3
Carbon Monoxide (CO)	8 Hour	9.0 ppm	9 ppm
	1 Hour	20 ppm	35 ppm
Nitrogen Dioxide (NO_2)	Annual Arithmetic Mean		0.053 ppm
	1 Hour	0.25 ppm	
Lead	30-day average	1.5 µg/m^3	
	Calendar Quarter		1.5 µg/m^3
	Annual Arithmetic Mean		0.03 ppm
Sulfur Dioxide (SO_2)	24 Hour	0.04 ppm	0.14 ppm
	3 Hour		0.5 ppm (secondary)
Visibility Reducing Particulates	1 Hour 8 Hour (10 AM to 6PM, PST)	0.25 ppm In sufficient amount to produce an extinction coefficient of 0.23 per kilometer-visibility of ten miles or more (0.07-30 miles or more for Lake Tahoe) due to particles when the relative humidity is less than 70 percent.	
Sulfates	24 Hour	25 µg/m^3	
Hydrogen Sulfide	1 Hour	0.03 ppm	

Source: (SLO APCD 2001)

Notes:
1. SLO APCD 2001
2. EPA 2012

asthma. Ground-level ozone can also reduce lung function and inflame the linings of the lungs. Repeated exposure may permanently scar lung tissue.

5.3.5.1.2 Particulate Matter (PM_{10} and $PM_{2.5}$)

Particulate matter is comprised of various small particles including acids, organic chemicals, metals, and dust. Of primary concern are particles that are 2.5 micrometers in diameter or smaller ($PM_{2.5}$) and particles that are 10 micrometers in diameter or smaller (PM_{10}), for which state and federal standards have been set. Particulate matter in this size range can be inhaled deeply into the respiratory tract and lungs, posing a significant health threat. In July 1997, the federal EPA added new standards for $PM_{2.5}$, particulate matter with sizes of 2.5Φ or less in diameter. In this size range, all particles which enter the lungs remain lodged there, causing a greater threat to respiratory illness and contributing to premature death. State and federal air quality standards for PM_{10} are set for both a 24-hour and an annual average period.

5.3.5.1.3 Sulfur Dioxide

The main source of sulfur dioxide (SO_2) emissions is the burning of sulfur-containing fuels. When SO_2 (or particulate matter on which SO_2 is adsorbed) contacts moist respiratory surfaces, an acid is formed, causing the body to react in a way that interferes with normal breathing. In contrast to the regional nature of ozone and PM_{10}, higher SO_2 levels are usually very localized and source-specific. Thus, monitoring for SO_2 has occurred primarily in the southern coastal part of San Luis Obispo County, where an industrial source of SO_2 emissions, the Santa Maria Refinery, is located. This facility performs preliminary refining and sulfur removal from the high-sulfur crude oil produced in central California.

5.3.5.1.4 Nitrogen Dioxide

Nitrogen dioxide (NO_2) is one of a group of highly reactive gasses known as oxides of nitrogen (NOx). Other oxides of nitrogen include nitrous acid and nitric acid. NO_2 forms quickly from emissions from cars, trucks and buses, power plants, and off-road equipment. In addition to contributing to the formation of ground-level ozone and fine particle pollution, NO_2 is linked with a number of adverse effects on the respiratory system, due to its propensity to inflame moist respiratory surfaces. Ambient standards have been set at the state and federal levels for one of the gaseous oxides of nitrogen, nitrogen dioxide (NO_2).

5.3.5.1.5 Carbon Monoxide

Carbon monoxide (CO) is a colorless, odorless gas resulting from the incomplete combustion of carbon-containing fuels, and is emitted by a wide variety of combustion sources**;** major sources include motor vehicles and waste burning. Carbon monoxide interferes with the ability of blood to carry oxygen to the body's tissues. Short-term exposure to CO at concentrations above the health standards can cause impairment of the central nervous system and other disorders. Exposure to concentrations substantially above established standards can be fatal. Carbon monoxide concentrations at these very high levels are not normally found in the outdoor environment.

5.3.5.1.6 Naturally Occurring Asbestos

Naturally occurring asbestos (NOA) can take the form of long, thin, separable fibers, which can be broken down into microscopic particles and suspended in the air through natural weathering or human

disturbance. There is no health threat if asbestos fibers in soil remain undisturbed and do not become airborne. When inhaled, these thin fibers irritate tissues and resist the body's natural defenses. Asbestos, a known carcinogen, causes cancers of the lung and the lining of internal organs, as well as asbestosis and other diseases that inhibit lung function.

Naturally Occurring Asbestos has been identified as a toxic air contaminant by the CARB. Under the CARB Air Toxics Control Measure (ATCM) for Construction, Grading, Quarrying, and Surface Mining Operations, prior to any grading activities, a geologic evaluation should be conducted to determine if NOA is present within the area that will be disturbed (SLO APCD 2012). If NOA is not present, an exemption request must be filed with the SLO APCD. If NOA is found at the site, the applicant must comply with all requirements outlined in the Asbestos ATCM. This may include development of an Asbestos Dust Mitigation Plan and an Asbestos Health and Safety Program for approval by the APCD.

The CPER is in an area where a geologic investigation is recommended, but not required, to determine the presence of NOA prior to activities that involve ground disturbance (SLO APCD 2012; Figure 16).

5.3.5.1.7 Sensitive Receptors

Sensitive receptors are people or other organisms that may have a significantly increased sensitivity or exposure to air pollution by virtue of their age and health (e.g., schools, day care centers, hospitals, nursing homes), regulatory status (e.g., federal or state listing as a sensitive or endangered species), or proximity to the source. Sensitive receptors within the CPER include state and federally-listed plant and animal species.

5.3.5.1.8 Toxic Air Contaminants

Toxic air contaminants (TACs) are a category of air pollutants regulated separately from criteria pollutants. The TACs are suspected or known to cause cancer, birth defects, neurological damage, or death. There are no established ambient air quality standards for TACs. Instead they are managed on a case-by-case basis depending on the quantity and type of emissions and proximity to potential receptors. Their effects tend to be localized and directly attributable to certain sources.

The TACs are managed through a combination of source identification, risk characterization, control requirements, and avoidance of land use conflicts. All stationary sources of TACs are subject to the SLO APCD's permitting requirements, which include an evaluation of potential TAC emissions and risks to nearby receptors. Stationary sources are screened for their potential to cause health risks using a facility prioritization score. Management of the public's exposure to odors is also generally accomplished by avoiding land use conflicts with appropriate distance controls.

In 1998, CARB identified diesel engine particulate matter as a TAC. Mobile sources, such as trucks, buses, automobiles, trains, ships, and farm equipment are the largest source of diesel emissions. Particulates from diesel exhaust are managed through vehicle emission control programs implemented on a state and federal level with the cooperation of fuel suppliers and vehicle and engine manufacturers.

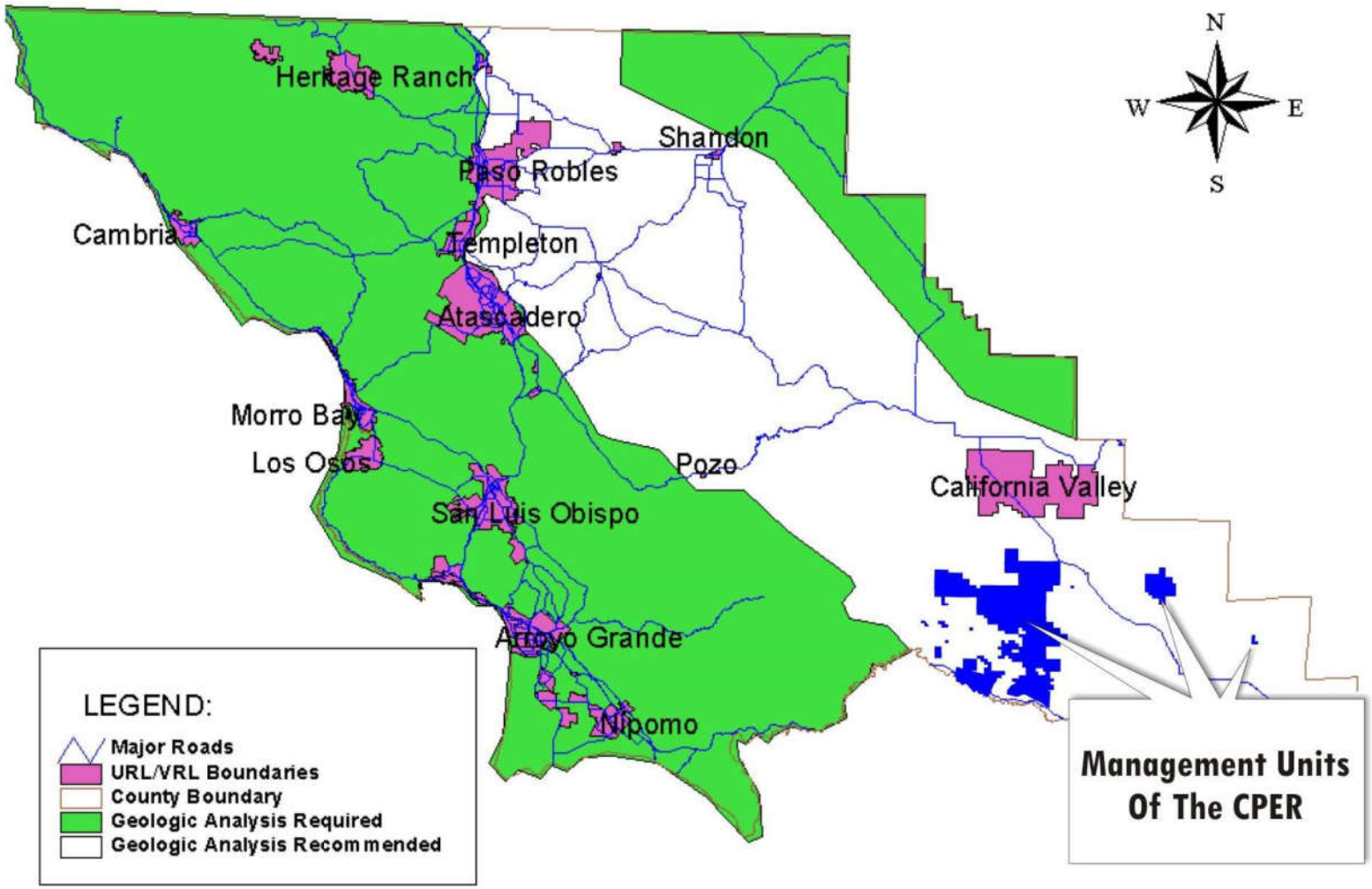


Figure 16: Areas in San Luis Obispo County where a Geologic Investigation is Required to Determine the Presence of Naturally Occurring Asbestos (SLO APCD 2012)

5.3.6 Air Quality in San Luis Obispo County

Air pollution in San Luis Obispo County results from emissions generated in the county as well as from emissions and secondary pollutants transported into the county (SLO APCD 2012). Air quality in the county is contingent on several factors including the type, amount, and dispersion rates of pollutants being emitted within the region. Occasional high pressure over the interior of California can produce strong easterly winds that transport pollutant-laden air from the San Joaquin Valley to the Carrizo Plain (SLO APCD 2012).

5.3.6.1 Sources of Emissions

Major sources of emission sources in and around the CPER include agricultural activities, on- and off-road motor vehicles, agricultural burning, and automobile travel. Agricultural activities in the Cuyama Valley can also occasionally cause emissions of toxic air contaminants from pesticide application. Petroleum extraction in western Kern County can produce emissions of volatile organic compounds that provide a chemical pathway for the formation of ozone in the atmosphere.

Mobile sources are a major source of emissions in San Luis Obispo County (SLO APCD 2012). In the vicinity of the CPER, traffic on highways 58 and 166 and other on-road vehicles throughout the region's transportation network routinely emit ROG, NOx, and CO. On- and off-road vehicles are also a major source of PM_{10} and $PM_{2.5}$ from entrained dust (i.e., carried along by the wind) on the roadways.

5.3.6.2 Attainment Status of San Luis Obispo County

To determine the attainment of the state and federal air quality standards in San Luis Obispo County, by the SLO APCD, CARB and private industry have conducted continuous air monitoring since 1970. Air monitoring is typically done either in locations that are representative of where people live and work, or near industrial sources to document their specific impacts on air quality. For most pollutants, continuous monitoring is performed 24 hours a day, and usually for periods of many years at any one location. Monitoring locations in the region are shown on Figure 17. The number of operating stations and the variety of analyzers in service at each station changes periodically as new needs are identified. As selected monitoring data are available only at specific stations, air quality data from the nearest air quality monitoring stations is provided.

Table 18 summarizes the attainment status of San Luis Obispo County relative to state and federal standards based on the monitoring data. The county is in attainment of all standards except for the state standards for ozone and particulate matter. Ozone remains a pollutant of highest concern. The state standard has been violated at several locations in the county, which may be due in part to the transport of pollutants from outside the county. The county is currently in attainment of the federal PM_{10} standards, but does not meet the more stringent state standards.

Table 18: Attainment Status of the San Luis Obispo County Air Basin by Criteria Pollutant

	Designation/Classification[1]	
Pollutant Soil type	**State Standards[2]**	**Federal Standards[3]**
Ozone - One hour	Non-Attainment	Not Designated[3]
Ozone - Eight hour	Non-Attainment	Not Designated[3]
PM 10	Non-Attainment	Unclassified/Attainment[3]
PM 2.5	Attainment	Unclassified/Attainment[4]
Carbon Monoxide	Attainment	Unclassified
Nitrogen Dioxide	Attainment	Unclassified
Sulfur Dioxide	Attainment	Unclassified
Lead (Particulate)	Attainment	No Attainment Information
Hydrogen Sulfide	Attainment	No Federal Standards
Sulfates	Attainment	No Federal Standards
Visibility Reducing Particles	Attainment	No Federal Standards
Vinyl Chloride	Attainment	No Federal Standards

Source: SLO APCD 2012

Notes

1. **Unclassified (EPA/federal)**: Any area that cannot be classified based on available information as meeting or not meeting the national primary or secondary ambient air quality standard for that pollutant.
   Attainment (EPA/federal): Any area that meets the national primary or secondary ambient air quality standard for that pollutant.
   Attainment (CARB): State standard was not exceeded during a three-year period. **Non-Attainment (EPA/Federal)**: Any area that does not meet, or contributes to an area that does not meet the national primary or secondary ambient air quality standard for that pollutant.
   Non-Attainment (CARB/state): State standard was exceeded at least once during a three-year period.
2. 40 CFR Part 81 provides more information on standards.
3. As of September 16, 2011, EPA has not determined attainment status for the 2008 8-hr ozone standard. The current ozone attainment status for the federal ozone standard is best described as "Not Designated" or "Not Yet Designated."

5.3.6.3 Air Quality in Surrounding Counties

The CPER is located entirely within San Luis Obispo County and entirely within the jurisdictional boundaries of the SLO APCD. However, the CPER is located in close proximity to Santa Barbara County to the south and Kern County to the east. As a result, air quality in these adjoining counties could be affected by emissions originating on the CPER; conversely, air quality on the CPER could be adversely impacted by emission sources outside the county.

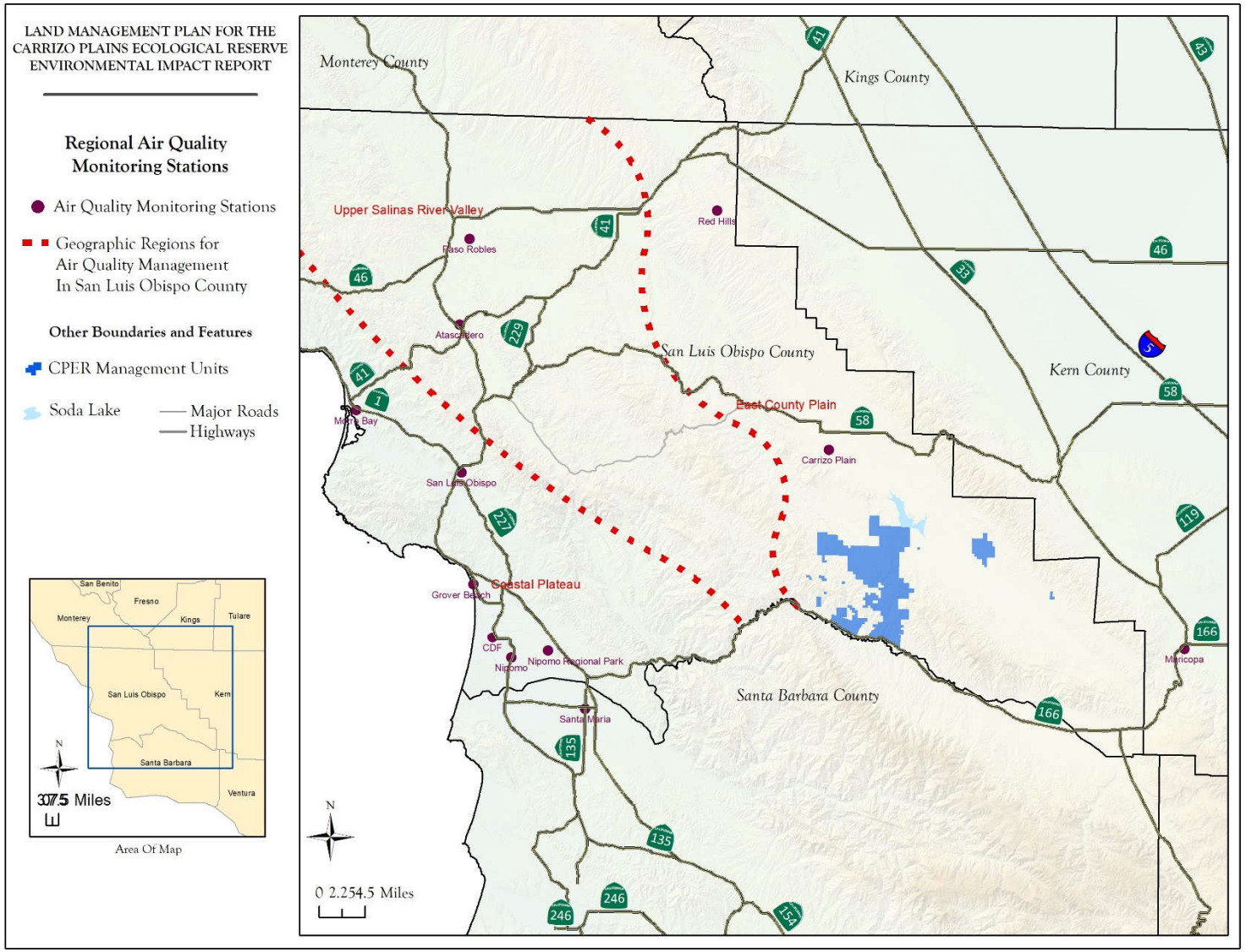


Figure 17: Air Quality Monitoring Stations in the Region

5.3.6.3.1 Santa Barbara County

Air quality in Santa Barbara County is managed by the Santa Barbara County Air Pollution Control District (SBC APCD), the jurisdictional boundary of which is coterminous with the county boundary. On January 20, 2011, the SBC APCD adopted its 2010 Clean Air Plan (SBC APCD 2011). Air quality in the county, measured by the number of days exceeding the state 1-hour and 8-hour ozone standards, has improved steadily since the first clean air plan was adopted in 1988. As a result, Santa Barbara County is in attainment of all applicable federal air quality standards and has attained the state 1-hour ozone standard (SB APCD 2011). However, the county remains in non-attainment of the 8-hour state ozone standard. The emission reduction strategies of the 2011 CAP are aimed primarily at reducing ozone precursors as a means to achieve the 8-hour standard. The main sources of ozone precursors in the county are motor vehicles, followed by stationary sources such as oil and gas production, coatings and solvents, and area-wide sources which include consumer products, pesticides, and farming waste (SB APCD 2011).

5.3.6.3.2 Kern County

Air quality in western Kern County is managed by the San Joaquin Valley Air Pollution Control District (SJVAPCD) whose boundaries include San Joaquin, Stanislaus, Merced, Madera, Fresno, Kings, and Tulare counties, and the portion of Kern County generally west of the Sierra Nevada foothills. As shown in Table 19, the SJVAPCD remains a non-attainment area for the state 1-hour and 8-hour ozone standards, as well as the state PM_{10} and $PM_{2.5}$ standards. The SJVAPCD is also in non-attainment of the federal 1-hour ozone standard and the federal $PM_{2.5}$ standard. The SJVAPCD is in attainment or is unclassified for all other federal and state standards (Table 19).

The SJVAPCD has adopted attainment plans for carbon monoxide, ozone, and particulate matter and will be developing a new plan for the EPA's revoked 1-hour federal ozone standard. Although EPA approved the SJVAPCD's 2004 plan for the 1-hour standard in 2010, EPA has withdrawn this approval as a result of litigation. Although the District had intended to present the plan to the District Governing Board at the June 2013 hearing, EPA has requested, and CARB has agreed to, additional modeling. The SJVAPCD will prepare a separate plan to address EPA's 2008 8-hour ozone standard of 75 parts per billion (ppb). The EPA has designated the San Joaquin Valley as an extreme nonattainment area for this standard (Table 19). This 8-hour ozone plan is expected to be due to EPA in 2015. The main sources of ozone precursors in the San Joaquin Valley include motor vehicles (on-road and farm machinery). The main source of fine particulate matter is agriculture.

5.3.6.4 Air Quality of the Carrizo Plain and Vicinity

The Carrizo Plain monitoring station is closest to the CPER and provides the most relevant data regarding background air quality (Figure 17). Operated by SLO APCD since January 2006, this station monitors ozone levels, only, and is located in an outbuilding at the Carrizo Plains School. Air quality is also monitored in western Kern County by the San Joaquin Air Pollution Control District. The closest monitoring station to the CPER is located in the town of Maricopa about 35 miles southeast of the CPER (Figure 17) on the east side of the Temblor Range. The Maricopa station monitors ozone, only. Particulates are not monitored in the East County Plain area of San Luis Obispo County. The nearest monitoring station for particulates is located in the City of Atascadero, which is about 45 miles west of the CPER in the Upper Salinas River Valley air quality management region (Figure 17).

Table 19: Attainment Status of the San Joaquin Valley Air Pollution Control District

Pollutant	Designation Classification	
	Federal Standards[1]	State Standards[2]
Ozone - One hour	No Federal Standard[3]	Nonattainment/Severe
Ozone - Eight hour	Nonattainment/Extreme[4]	Nonattainment
PM 10	Attainment[5]	Nonattainment
PM 2.5	Nonattainment[6]	Nonattainment
Carbon Monoxide	Attainment/Unclassified	Attainment/Unclassified
Nitrogen Dioxide	Attainment/Unclassified	Attainment
Sulfur Dioxide	Attainment/Unclassified	Attainment
Lead (Particulate)	No Designation/Classification	Attainment
Hydrogen Sulfide	No Federal Standard	Unclassified
Sulfates	No Federal Standard	Attainment
Visibility Reducing Particles	No Federal Standard	Unclassified
Vinyl Chloride	No Federal Standard	Attainment

Source: SJVAPCD 2013

Notes:

1. 40 CFR Part 81
2. CCR Title 17 Sections 60200-60210
3. Effective June 15, 2005, the EPA revoked the federal 1-hour ozone standard, including associated designations and classifications. EPA had previously classified the SJVAB as extreme nonattainment for this standard. EPA approved the 2004 Extreme Ozone Attainment Demonstration Plan on March 8, 2010 (effective April 7, 2010). Many applicable requirements for extreme 1-hour ozone nonattainment areas continue to apply to the SJVAB.
4. Though the San Joaquin Valley was initially classified as serious nonattainment for the 1997 8-hour ozone standard, EPA approved reclassification to extreme nonattainment in the Federal Register on May 5, 2010 (effective June 4, 2010).
5. On September 25, 2008, EPA redesignated the San Joaquin Valley to attainment for the PM10 National Ambient Air Quality Standard (NAAQS) and approved the PM10 Maintenance Plan.
6. The San Joaquin Valley is designated nonattainment for the 1997 PM2.5 NAAQS. EPA designated the valley as nonattainment for the 2006 PM2.5 NAAQS on November 13, 2009 (effective December 14, 2009).

The following is summary of data collected from these monitoring stations for ozone and particulate matter, the criteria pollutants for which San Luis Obispo County and Kern County are currently in non-attainment of state standards. As shown in Table 20, the 1-Hour federal and state ozone standard was not exceeded between 2010 and 2012 at either the Carrizo Plain or Maricopa monitoring stations. However, the state standard was exceeded a total of 13 times at the Maricopa station. As shown on Table 21, the federal 8-Hour standard was exceeded a total of 12 times at the Carrizo Plain monitoring station, and a total of 85 times at Maricopa. The state 8-Hour standard was exceeded a total of 50 times at Carrizo Plain and a total of 176 times at Maricopa during the same period (Table 21).

Table 20: Ambient Air Quality Data for One-Hour Ozone Standards

Monitoring Station	Number of Days Exceeding 1-Hour NAAQS[1]			Number of Days Exceeding 1-Hour CAAQS[2]			Maximum 1-Hour Concentration (ppm[3])		
	2010	2011	2012	2010	2011	2012	2010	2011	2012
Carrizo Plain	0	0	0	0	0	0	0.097	0.085	0.086
Maricopa	0	0	0	2	10	1	0.096	0.102	0.101

Source: CARB 2013
Notes:
1. National Ambient Air Quality Standard. The NAAQS 1-Hour standard has been rescinded and replaced with an 8-Hour standard, which is more restrictive.
2. California Ambient Air Quality Standard
3. Parts per million.

Table 21: Ambient Air Quality Data for the Eight-Hour Ozone Standards

Monitoring Station	Number of Days Exceeding 8-Hour NAAQS[1]			Number of Days Exceeding 8-Hour CAAQS[2]			Maximum 8-Hour Concentration (ppm[3])		
	2010	2011	2012	2010	2011	2012	2010	2011	2012
Carrizo Plain	4	5	3	21	11	18	0.088	0.083	0.082
Maricopa	12	49	24	32	81	63	0.094	0.098	0.097

Source: CARB 2013
Notes:
1. National Ambient Air Quality Standard
2. California Ambient Air Quality Standard
3. Parts per million.

Sampling for $PM_{2.5}$ began in the county in January 1999 in the cities of San Luis Obispo and Atascadero. Since then, no single sample has exceeded the federal standard, nor have average levels at either location exceeded the federal annual average standard. PM_{10} monitoring has been performed at several locations around the county since 1988, and is currently monitored at six site; however, monitoring for PM_{10} is not collected at either the Carrizo Plain or Maricopa monitoring stations. Data from the Atascadero monitoring station located about 45 miles west of the CPER is provided for state and federal standards in Tables 22 and 23.

Table 22: Ambient Air Quality Data for PM10, Federal Standard[1]

	Number of Days Exceeding 24-Hour NAAQS[2]			3-Year Maximum Annual Average (µg/m^3)[3]		
Monitoring Station	**2010**	**2011**	**2012[4]**	**2010**	**2011**	**2012[4]**
Atascadero	0	0	0	17	––	19

Source: CARB 2013
Notes:
1. The national annual average PM10 standard was revoked in December 2006 and is no longer in effect.
2. National Ambient Air Quality Standard
3. Micrograms per cubic meter.
4. Most recent data available.
5. "__ "indicates insufficient data available to determine the value.

Table 23: Ambient Air Quality Data for PM10, State Standard

	Number of Days Exceeding 24-Hour CAAQS[1]			3-Year Maximum Annual Average (µg/m^3)[2]		
Monitoring Station	**2010**	**2011**	**2012[3]**	**2010**	**2011**	**2012[3]**
Atascadero	––	3	2	20	––	17

Source: CARB 2013
Notes:
1. California Ambient Air Quality Standard
2. Micrograms per cubic meter.
3. Most recent data available.
4. "__ "indicates insufficient data available to determine the value.

5.3.7 Climate Change/Greenhouse Gases

Greenhouse gases (GHG) present in the Earth's lower atmosphere play a critical role in maintaining the Earth's temperature by trapping some of the longwave infrared radiation emitted from the Earth's surface, which otherwise would escape to space.

Because global warming is the result of GHG emissions, and GHGs are emitted by innumerable sources worldwide, global climate change is a significant cumulative impact of human development and activity. Climate change is the result of cumulative global emissions; there is no single project, when taken in isolation, that can "cause" global warming because a single project's emissions are insufficient to change the radiative balance of the atmosphere. The global increase in GHG emissions that has occurred and will occur in the future is the result of the actions and choices of individuals, businesses, local governments, states, and nations. Thus, the assessment of climate change impacts necessarily involves the cumulative contributions to a significant global impact.

On a state level, AB 32 determined that an acceptable level of GHG emissions in California in 2020 is 427 MMTCO2e, which is the same as the 1990 GHG emissions level. This level is also approximately 15 percent less than current GHG emissions and approximately 28 percent less than projected 2020 Business

As Usual[5] conditions (CARB 2009). In order to achieve these GHG reductions, there will have to be widespread reductions of GHG emissions from sources in many sectors across the California economy. Some of those reductions will need to come from the existing sources of emissions in the form of changes in vehicle emissions and mileage, changes in the sources of electricity, and increases in energy efficiency by existing residential, commercial, industrial, and agricultural development, as well as other measures. In the upcoming years, the state will be adopting comprehensive regulations to reduce the GHG emissions from vehicles, industry, buildings and other sources. These regulations are expected to play a major part in reaching the goal of reducing currently projected 2020 emissions levels by 15 percent compared to current levels.

The Department has no control over land use or existing sources of GHG in the region beyond the CPER. Thus, most of the reductions in local and regional GHG emissions will come as the result of implementation of state and federal mandates. These limitations notwithstanding, it is important to ensure that the Department is doing its part to ensure that California, cumulatively, meets the AB 32 target.

There are no "attainment" concentration standards established by the state or federal government for greenhouse gases. In fact, GHGs are not generally thought of as traditional air pollutants because greenhouse gases, and their impacts, are global in nature; in contrast, while air pollutants affect the health of people and other living things at ground level in the general region of their release to the atmosphere.

Common GHGs include water vapor, carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), ozone (O_3), and chlorofluorocarbons (CFCs). Some greenhouse gases occur naturally and are emitted to the atmosphere through both natural processes and human activities. Other GHGs are created and emitted solely through human activities. The principal greenhouse gases that enter the atmosphere because of human activities are CO_2, CH_4, N_2O, and fluorinated gases.

Carbon Dioxide. This gas enters the atmosphere through the burning of fossil fuels, solid waste, trees, and wood products, and is also as a result of other chemical reactions (e.g., certain manufacturing processes). Carbon dioxide is removed from the atmosphere through photosynthesis, the process in which plants absorb and convert CO_2 into energy.

Methane. Methane (CH_4) is emitted during the production and transport of coal, natural gas, and oil. It is also produced by the digestive processes of livestock and by the decay of organic waste.

Nitrous Oxide. Nitrous Oxide (N_2O) is emitted during agricultural and industrial activities, as well as during combustion of fossil fuels and solid waste.

Fluorinated Gases. Hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride are synthetic gases that are emitted from a variety of industrial processes. These gases are typically emitted in smaller quantities, but because of their potency, they are sometimes referred to as High Global Warming Potential gases (High GWP gases).

5 "Business as usual" (BAU) conditions are defined as population and economic growth in the future using current (2009) building practices and current (2009) regulatory standards. For this EIR, reference to BAU conditions are specifically defined as including current mandatory requirements, such as Title 24 (Energy Efficiency Standards); current federal vehicle mileage standards; California AB 1493 vehicle emission standards; current renewable portfolio standards, including RPS (SB 1078 and SB 107) for California regulated utilities; current County water efficiency requirements; and other existing local and State requirements. BAU conditions presume no improvements in energy efficiency, water efficiency, fuel efficiency beyond that existing today or as required by existing (2009) statute. Specifically, BAU conditions do not include the GHG reduction measures included in the CARB Draft Scoping Plan from June 2008 (CARB 2008), which are not yet enacted in statute.

5.3.7.1 Potential Effects of Climate Change

Due to the existing concentrations of GHG emissions in the atmosphere and the inevitable additional emissions before the implementation of GHG reduction plans provide reductions, a known amount of warming in the lower atmosphere, and consequent changes in historical climate patterns will inevitably occur (IPCC 2007). A report published in 2012 by the CEC using projections from six global climate models, all run with two emissions scenarios, one lower and one higher, concluded that temperatures in California will rise significantly during this century as a result of human-induced greenhouse gas emissions. By 2050, California is projected to warm by approximately 2.7 degrees Fahrenheit (° F) above 2000 averages, a threefold increase in the rate of warming over the last century (CEC 2012).

The projected temperature increases would result in a variety of impacts to the people, economy, and environment of California, including impacts related to public health, water resources, flooding, agriculture, forests and ecosystems, fire frequency, sea-level rise, and growing energy demands. Sea-level rise does not pose an immediate threat to the CPER due to its inland location and is not discussed further in this EIR (CEC 2012).

With regard to San Luis Obispo County specifically, a recent analysis of the effects of global climate change (Koopman et al. 2010) found that annual temperatures may increase between 2.1°F to 3.9°F (3.6% and 6.8%, respectively) between 2035 and 2045 and from 4.1°F to 7.6°F (7.1% and 13.0%) by 2075 and 2085. These increases are relative to a mean annual temperature of 58.3°F within a historical reference period spanning 1961 and 1990 (69.9°F and 47.3°F during summers and winters, respectively). Changes in precipitation were not as consistent among models and projections ranged from -4.2 inches to +1.5 inches (-26.9% and +9.6%, respectively) between 2035 and 2045 and -4.7 inches to +0.9 inches (-30.1% and +5.8%) between 2075 and 2085. Historical values for the reference period include a mean annual precipitation of 15.6 inches and summer and winter averages of 0.06 inches and 2.8 inches per month, respectively.

5.3.7.2 San Luis Obispo County Baseline Greenhouse Gas Emissions Inventory

San Luis Obispo County adopted a greenhouse gas (GHG) inventory in 2010 as part an update of the Conservation and Open Space Elements of the General Plan (SLO County 2010a). The inventory was prepared in 2009 using data from 2006 because of the availability of reliable data for that year. In 2011, the inventory was updated because of the availability of more refined data for the baseline year of 2006 (SLO County 2011d). For purposes of this discussion, the year 2006 will be used when referring to the County's baseline GHG inventory. The GHG inventory quantified all GHG emissions and sinks within the county.

Table 24 summarizes the county's 2006 baseline GHG emission inventory by sector. The inventory concluded that, in 2006, activities within the unincorporated county emitted about 917,710 metric tons of carbon dioxide equivalent ($MTCO_2e$)[6] into the atmosphere. The methodologies and assumptions used to prepare the inventory are provided in Chapter 3 of the plan (SLO County 2011d). The transportation sector, along with electricity and natural gas consumption in the residential and commercial/industrial sectors, are together responsible for the largest amount of emissions released within the county.

[6] Carbon dioxide equivalent is a metric used to compare the emissions from various greenhouse gases based upon their global warming potential (GWP) and is a way to equalize the different GWPs of the six internationally recognized greenhouse gases. For instance, methane (CH4) has 21 times the GWP of carbon dioxide (CO_2); therefore, 21 metric tons CO2e could be 21 metric tons of carbon dioxide or 1 metric ton of methane.

Table 24: Baseline Greenhouse Gas Emissions for Unincorporated San Luis Obispo County by Sector in 2006

Source	2006 GHG Emissions (MTCO2e)	Percent of Total
Residential	136,360	15%
Commercial/Industrial	215,970	24%
Transportation	365,260	40%
Waste	30,540	3%
Other - Crops	22,630	2%
Other - Livestock	83,420	9%
Other – Off-Road Equipment	63,280	7%
Other - Aircraft	240	<0.1%
Total	**917,710**	**100.0%**

Source: SLO County 2011d
Notes:
1. Due to rounding, percentages and totals may result in different sums than those depicted.

5.3.8 Regulatory Setting

5.3.8.1 Federal Regulations

5.3.8.1.1 The Clean Air Act/U.S. Environmental Protection Agency

The EPA is responsible for enforcing the federal Clean Air Act (CAA) and the 1990 amendments to it, and the national ambient air quality standards (NAAQS or federal standards) that the EPA establishes. These standards identify levels of air quality for six "criteria" pollutants, which are considered the maximum levels of ambient (background) air pollutants considered safe, with an adequate margin of safety, to protect public health and welfare. The EPA also has regulatory and enforcement jurisdiction over emission sources beyond state waters (outer continental shelf), and sources that are under the exclusive authority of the federal government, such as aircraft, locomotives, and interstate trucking.

5.3.8.1.2 Federal Hazardous Air Pollutant Program

Title III of the CAA requires EPA to adopt National Emissions Standards for Hazardous Air Pollutants (NESHAP). The NESHAP may differ for major sources than for area sources of HAPs—major sources are defined as stationary sources with potential to emit more than 10 tons per year (TPY) of any HAP or more than 25 TPY of any combination of HAPs; all other sources are considered area sources.
The CAA required EPA to adopt vehicle or fuel standards containing reasonable requirements that control toxic emissions, at a minimum to benzene and formaldehyde.

5.3.8.2 State Regulations

5.3.8.2.1 California Clean Air Act/California Air Resources Board

The CARB oversees air quality planning and control throughout California (Section 5.3.5). It is primarily responsible for ensuring implementation of the 1989 amendments to the California Clean Air Act (CCAA), responding to the federal CAA requirements, and for regulating emissions from motor vehicles and consumer products within the state. The CARB has established emission standards for vehicles sold in California and for various types of commercial equipment. It also sets fuel specifications to further reduce vehicular emissions.

The amendments to the CCAA establish ambient air quality standards for the state (state standards) and a legal mandate to achieve these standards by the earliest practical date. These standards apply to the same six criteria pollutants as the federal CAA, and also include sulfate, visibility, hydrogen sulfide, and vinyl chloride. They are more stringent than the federal standards and, in the case of PM_{10} and SO_2, far more stringent.

The Clean Air Plan adopted by the SLO APCD (Section 5.3.7.2) which governs air quality within the CPER is based on the air quality standards mandated by the CCAA.

5.3.8.2.2 Tanner Air Toxics Act

California regulates TACs primarily through the Tanner Air Toxics Act (AB 1807) and the Air Toxics Hot Spots Information and Assessment Act of 1987 (AB 2588). The Tanner Act sets forth a formal procedure involving research, public participation, and scientific peer review for CARB to designate substances as TACs. To date, CARB has identified more than 21 TACs and has adopted the EPA's list of HAPs as TACs. Most recently, diesel PM was added to the CARB list of TACs.

Once a TAC is identified, CARB then adopts an Airborne Toxics Control Measure (ATCM) for sources that emit that particular TAC. If there is a safe threshold for a substance at which there is no toxic effect, the control measure must reduce exposure below that threshold. If there is no safe threshold, the measure must incorporate Best Available Control Technology (BACT) to minimize emissions.

The implementation of management actions that result in the use of diesel engines, such as construction equipment, may be subject to the BACT requirements for toxic air contaminants.

5.3.8.2.3 CARB Air Quality and Land Use Handbook

As part of its Community Health Program, CARB has developed an Air Quality and Land Use Handbook (CARB 2005), which is intended to serve as a general reference guide for evaluating and reducing air pollution impacts associated with new projects subject to the land use decision-making process. The CARB is also developing related information and technical evaluation tools for addressing cumulative air pollution impacts. Any recommendations or considerations contained in the handbook are voluntary and do not constitute a requirement or mandate for either land use agencies or local air districts.

The recommendations of the handbook were consulted in preparing the assessment of cumulative air quality impacts (Section 5.3.12).

5.3.8.2.4 California Global Warming Solutions Act of 2006 (AB32)

This law requires CARB to adopt a statewide greenhouse gas emissions limit equivalent to the statewide GHG emissions levels in 1990 (427 MMTCO2e), to be achieved by 2020. A longer-range goal is also reflected in California Executive Order S-3-05, which requires an 80-percent reduction of greenhouse gases from 1990 levels by 2050. CARB adopted the 2020 statewide target and mandatory reporting requirements in December 2007 and a statewide scoping plan, the AB32 Scoping Plan, in December 2008 (CARB 2008).

5.3.8.2.5 CARB AB32 Scoping Plan

The AB32 Scoping Plan identifies how emission reductions will be achieved from significant sources of GHG via regulations, market mechanisms, and other actions. Key elements of the Scoping Plan are a 33 percent Renewables Portfolio Standard (RPS) for energy production, aggressive energy efficiency targets, and a cap-and-trade system that includes the electricity sector. Statewide plans and programs for GHG management that stem from AB32 are within the sole jurisdiction of CARB. Since CARB must fulfill its mandate to achieve the maximum technologically feasible and cost-effective GHG emission reductions, management actions of the Draft LMP may need to be revised and updated as GHG reduction and control requirements are adopted.

5.3.8.2.6 Senate Bill 97 Chapter 185, Statutes of 2007 and Office of Planning and Research Guidelines

Senate Bill (SB) 97 was written in August 2007 to clarify responsibilities for analyzing GHG emissions in accordance with CEQA. This law formally acknowledges that climate change is an important environmental issue that requires analysis under CEQA. In January 2010, the State Resources Agency adopted guidelines for addressing climate change in CEQA documents, which were prepared by the Governor's Office of Planning and Research. On February 16, 2010, the Office of Administrative Law approved the amendments, and filed them with the Secretary of State for inclusion in the California Code of Regulations. The Amendments became effective on March 18, 2010. The analysis of impacts associated with climate change (Impact 5.3-6) is based on these requirements.

5.3.8.2.7 California Department of Fish and Wildlife Going Green

In October, 2009, the Department compiled a list of strategies for reducing the Department's emission of greenhouse gases entitled CDFW Going Green: Reducing Our Carbon Footprint (CDFW 2009). These strategies address energy consumption associated with Department business (the use of teleconferencing, a paperless office, carpooling, and others), efforts to reduce energy consumption in Department offices, improvements to the energy efficiency of Department buildings and facilities, and educating Department staff regarding ways to reduce their carbon footprint.

Subsequently the Department published CDFW Going Green: Next Steps Toward Sustainability (CDFW 2011) which sets forth specific recommendations for reducing the Department's greenhouse gas emissions. Based on these recommendations, the Director of the Department issued Bulletin 2011-01 on September 27, 2011 which sets forth the Going Green Guidelines to be implemented immediately by Department staff, which address the following issues:

- Paper reduction (encouraging paperless communications, double-sided printing, use of recycled paper, etc.);

- Transportation (encourage carpooling, alternate forms of transport, proper maintenance of vehicles, flexible work schedules, etc.);
- Energy conservation and efficiency (minimize use of electricity associated with lights and computers, replace older refrigeration and freezer units, reduce the use of heating and air conditioning);
- Reduction of water use;
- Green meetings (reduce paper handouts, use reusable cups, web conferencing);
- Purchasing (purchase Energy Star and Restriction of Hazardous Substances products, products with less packaging and recycled materials, rechargeable batteries);
- Recycling (expand recycling efforts); and
- Other (encourage and support staff efforts to reduce GHG emissions).

5.3.8.3 Local and Regional Regulations

5.3.8.3.1 San Luis Obispo County Air Pollution Control District 2001 Clean Air Plan

As part of the California Clean Air Act, the SLO APCD is required to develop a plan to achieve and maintain the state ozone standard by the earliest practicable date (Section 5.3.5). The Clean Air Plan (CAP) outlines the SLO APCD's strategies to reduce ozone precursor emissions from a wide variety of stationary and mobile sources (SLO APCD 2001). The CAP was adopted by the Air Pollution Control Board at their hearing on March 26, 2002.

The CAP for San Luis Obispo County addresses the attainment and maintenance of state and federal ambient air quality standards. State standards for ozone and fine particulate matter (PM_{10}) are currently exceeded within the county, and violation of federal standards may occur in future years without adequate planning and air quality management.

The stringency of the emission controls required to attain the ozone standard is based on the severity of the nonattainment problem. The CCAA classifies nonattainment areas as moderate, serious, severe or extreme depending on the concentration and frequency of ozone measurements exceeding the state standard. San Luis Obispo County is designated a moderate nonattainment area for ozone. In accordance with section 15125(d) of the State CEQA Guidelines, an EIR is required to discuss any inconsistencies between the project and applicable regional plans including, but not limited to, the Clean Air Plan (Impact 5.3-5).

5.3.8.3.2 2012 CEQA Air Quality Handbook

The CEQA Air Quality Handbook was adopted by SLO APCD to assist lead agencies, planning consultants, and project proponents in assessing the potential air quality impacts from residential, commercial and industrial development (SLO APCD 2012). It is designed to provide uniform procedures for preparing the air quality analysis section of environmental documents for projects subject to CEQA. The guidelines define the criteria used by the SLO APCD to determine when an air quality analysis is necessary, the type of analysis that should be performed, the significance of the impacts predicted by the analysis, and the mitigation measures needed to reduce the overall air quality impacts. The analysis of air

quality impacts provided in this section follows the format and procedures recommended by the SLO APCD CEQA Air Quality handbook (SLO APCD 2012).

5.3.8.3.3 SLO APCD Rules and Regulations

There are several rules and regulations administered by the SLO APCD that may apply to the management actions recommended by the Draft LMP including:

Rule 402: Nuisance. Rule 402 prohibits the discharge of air contaminants that may adversely impact people. The rule exempts agricultural operations necessary for the growing of crops or the raising of fowl or other animals.

Rule 403: Particulate Emissions Standards. Rule 403 sets forth standards for the emission of respirable particulates (PM_{10})

Rule 502 - Agricultural and Prescribed Burning. This rule applies to all agricultural and prescribed burning in the county and is intended to implement the Smoke Management Guidelines of Article J, Subchapter 2 of Title 17 California Code of Regulations and the San Luis Obispo County Air Pollution Control District Smoke Management Program. In sum, a burn permit must be issued by the SLO APCD for any prescribed burn and is valid only for the days and times prescribed on the permit. A Smoke Management Plan must be submitted for review and approval by the SLO APCD at least 14 days prior to the burn.

5.3.8.3.4 San Luis Obispo County General Plan

Development on private land surrounding the CPER is subject to the policies and standards of the San Luis Obispo County General Plan, which sets forth policies and implementation measures to guide land use decisions within the unincorporated county, including the Carrizo Plain. Policies and standards relating to the protection of air quality are provided in the in the Conservation and Open Space (SLO County 2010a), and the Land Use and Circulation Elements (SLO County 2013).

5.3.8.3.5 Environmental Review

San Luis Obispo County is required to consider the potential adverse environmental impacts of discretionary actions in accordance with CEQA (Section 1.4). In fulfilling these responsibilities, the County is required to consult with, and request comments from, responsible and trustee agencies (Section 1.3), such as the SLO APCD. The County may choose to require or not require the measures suggested by the responsible agency.

5.3.8.3.6 2011 San Luis Obispo County EnergyWise Plan (Climate Action Plan)

In 2011 San Luis Obispo County adopted the EnergyWise Plan (Section 5.3.7.2; SLO County 2011d) to implement policies and programs contained in the County's General Plan Conservation and Open Space Element (COSE) aimed at meeting the reduction targets for greenhouse gas emissions and energy use prescribed by state law. The EnergyWise Plan builds upon the goals and strategies of the COSE to reduce local GHG emissions. It identifies how the county will achieve the GHG emissions reduction target of 15% below baseline levels by the year 2020 in addition to other energy efficiency, water conservation, and air

quality goals identified in the COSE. The EnergyWise Plan will also assist the County's participation in the regional effort to implement land use and transportation measures to reduce regional greenhouse gas emissions from the transportation sector by 2035.

5.3.9 Standards of Significance

5.3.9.1 Standards of Significance for Air Quality

A project would result in a significant impact to air quality if it would:

1. Conflict with or obstruct implementation of the applicable air quality plan;
2. Violate any air quality standard or contribute substantially to an existing or projected air quality violation;
3. Result in a cumulatively considerable net increase of any criteria pollutant for which the project is non-attainment under applicable federal or state ambient air quality standards;
4. Expose sensitive receptors to substantial pollutant concentrations; and
5. Create objectionable odors affecting a substantial number of people.

The analysis of air quality impacts applies the thresholds of significance for construction impacts adopted by the SLO APCD, as summarized in Table 25.

Table 25: Thresholds of Significance for Construction-Related Emissions

Pollutant	Threshold[1]		
	Daily	Quarterly Tier [1]	Quarterly Tier [2]
Ozone Precursors (ROG + NOx, Combined)	137 lbs.	2,5 tone	6.3 tons
Diesel Particulate Matter (DPM)	7 lbs.	0.13 tons	0.32 tons
Fugitive Particulate Matter (PM10), Dust[2]	_	2.5 tons	_

Source: SLO APCD 2012

Notes:

1 Daily and quarterly emission thresholds are based on the California Health & Safety Code and the CARB Carl Moyer Guidelines (CARB 2011)

2 Any project with a grading area greater than 4.0 acres of worked area can exceed the 2.5 ton PM10 quarterly threshold

3 "— "indicates no reported threshold.

To assist local agencies in determining if a project will exceed the thresholds, the SLO APCD CEQA Air Quality Handbook (SLO APCD 2012) provides screening criteria for construction-related operations (Table 26). Table 26 provides an estimate of the cubic yards of material that would typically need to be moved to exceed the construction thresholds. Table 27 provides the thresholds of significance applied by the SLO APCD to assess impacts associated with operational emissions.

Table 26: Screening Emissions Rates for Construction Operations

Pollutant	Grams/Cubic Yard of Material Moved	Lbs./Cubic Yard of Material Moved
Diesel Particulate Matter	2.2	0.0049
Reactive Organic Gases (ROG)	9.2	0.0203
Oxides of Nitrogen (NOx)	42.4	0.00935
Fugitive Dust (PM10)	0.75 tons/acre/month of construction activity (assuming 22 days of operation per month)	

Sources:
1. BAAQMD 1999
2. PM10 Source: EPA-AP-42 (January 1995) and Index of Methodologies by Major Category Section 7.7 Building Construction Dust, California Air Resources Board, August 1997.

Table 27: Thresholds of Significance for Operational Emissions

Pollutant	Threshold[1] Daily	Threshold[1] Annual
Ozone Precursors (ROG + NOx, Combined) [2]	25 lbs./day	25 tons/year
Diesel Particulate Matter[2] (DPM)	1.25 lbs./day	–
Fugitive Particulate Matter (PM10), Dust[2]	25 lbs./day	25 tons/year
Carbon Monoxide	550 lbs./day	–
Greenhouse Gases (CO2, CH4, N20, HFC, CFC, F6S)	Consistency with a Qualified Greenhouse Gas Reduction Plan, Or 1,150 MT CO2e/year, Or 4.9 CO2e/SP/year (residents + employees)	

Source: SLO APCD 2012
Notes:
1. Daily and annual emission thresholds are based on the California Health & Safety Code Division 26, Part 3, Chapter 10, Section 40918 and the CARB Carl Moyer Guidelines for DPM (CARB 2011)
2. CALEEMOD: use winter operational emission data to compare to operational thresholds (CAPCOA 2011).
3. "– "indicates no reported threshold.

5.3.9.2 Standards of Significance for Climate Change

In accordance with Appendix F of the State CEQA Guidelines, a project would have a significant impact relating to climate change if it would:

1. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment; or

2. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

In addition, the SLO APCD Air Quality Handbook states that a project will have a less-than-significant impact relating to climate change if the project:

- Is consistent with a qualified greenhouse gas reduction plan;
- Generates less than 1,150 MT CO2e/year; or
- Generates less than 4.9 CO2e/SP/year (residents + employees).

San Luis Obispo County has adopted a plan for achieving the GHG reduction targets set forth by AB 32 and Executive Order S-01-07 (SLO County 2011d; Section 5.3.7.2). Although the Department is not subject to local regulations, if the Draft LMP is inconsistent with these reduction targets, it would be considered to have a project-specific and cumulatively considerable significant impact on climate change. Accordingly, the assessment of impacts associated with climate change will be based on consistency with the County's adopted 2011 EnergyWise Plan (climate action plan; SLO County 2011d).

A certain level of environmental change is inevitable due to current GHG emissions and unavoidable future increases in GHG emissions worldwide. Thus, for purposes of this EIR, implementation of the Draft LMP would result in a cumulatively-considerable contribution to a significant impact if implementation of the recommended management actions does not respond to reasonably foreseeable environmental changes that may occur due to climate change, and thus subject the resources of the CPER to additional risk of physical harm related to flooding, wildfire risk and other impacts.

5.3.9.3 Methodology for Assessing Operational and Construction Related Air Quality Impacts

The Draft LMP meets the definition of a program as defined by CEQA Guidelines Section 15168(a) because it will be implemented over time through a series of interrelated actions. The SLO APCD's CEQA Air Quality Handbook (SLO APCD 2012) does not require the quantification of emissions associated with a program for purposes of assessing potential impacts to air quality. Rather, the handbook recommends that a detailed analysis of consistency with the goals, standards and objectives of the 2001 adopted Clean Air Plan be performed. However, Section 15168(c) (5.) of the State CEQA Guidelines states:

> *(5) A program EIR will be most helpful in dealing with subsequent activities if it deals with the effects of the program as specifically and comprehensively as possible. With a good and detailed analysis of the program, many subsequent activities could be found to be within the scope of the project described in the program EIR, and no further environmental documents would be required.*

Accordingly, in the analysis that follows, impacts are quantified for operational impacts (associated with the implementation of management policies and ongoing activities at the CPER) and are discussed qualitatively for impacts relating to construction, climate change and cumulative impacts.

Operational air quality impacts are based on the projected traffic increase associated with the Draft LMP as described in Section 15 Transportation, of the initial study (Appendix B). The analysis was prepared consistent with the SLO APCD CEQA Air Quality Handbook (SLO APCD 2012), based on the "Full Analysis Level" of analysis.

The California Emissions Estimator Model (CalEEMod) v. 2011.1.1 (CAPCOA 2011) was used to estimate operational emissions (motor vehicles, area sources) and greenhouse gas emissions as recommended by the SLO APCD. Construction emissions were not estimated due to uncertainty in the amount of construction (if any) that would occur in any one year.

5.3.9.4 Methodology for Assessing Impacts Related to Climate Change

With regard to the assessment of air quality impacts associated with a plan or policy document (such as the Draft LMP) the SLO APCD CEQA Air Quality Handbook states the following (SLO APCD 2012):

> *A Program Level environmental review, such as for a General Plan, Specific Plan or Area Plan however, does not require a quantitative air emissions analysis at the project scale. A qualitative analysis of the air quality impacts should be conducted instead, and should be generated for each of the proposed alternatives to be considered.*

The assessment of impacts associated with climate change will be based on consistency with the County's adopted 2011 EnergyWise Plan (climate action plan; SLO County 2011d).

5.3.10 Impacts Found to Be Less Than Significant

Based on the information provided in the initial study (Appendix B), the following impacts have been determined to be less than significant:

- Impacts relating to implementation of the applicable air quality plan;
- Exposure of sensitive receptors to substantial pollutant concentrations; and
- Creation of objectionable odors affecting a substantial number of people.

5.3.11 Project Impacts and Mitigation Measures

Currently the CPER is not a major source of air pollutants. The main source of emissions associated with the CPER are associated with motor vehicle trips from ongoing management activities, recreation, and special events (Section 4.2). The management actions recommended by the Draft LMP are intended to preserve and enhance the resources of the CPER. Table 28 lists the LMP management goals and actions with the potential to preserve and enhance air quality on the CPER.

5.3.11.1 Air Quality Impacts Associated with Construction Activities

Impact 5.3-1	**Management actions recommended by the Draft LMP could result in construction activities, which would generate short-term construction-related emissions. This impact is considered less than significant (Class III) because of mitigation provided by management actions and Best Management Practices incorporated into the project description.**

Table 28: LMP Management Goals and Actions that Address Air Quality

LMP Section	Topic	Goals[1]	Management Actions[1]	Summary/ Relevance to Air Quality
4.4.1	Fire management Element	V1	V1.1	Develop a fire management plan that incorporate strategies to reduce the number and intensity of fires on the CPER, which will in turn minimize air pollution associated with fire.
4.4.2	Grazing Management Element	V2	V2.2	Develop a grazing management plan that incorporates strategies to reduce fuel load, which in turn will help reduce the number and intensity of fires on the CPER and the associated air pollution.
4.8	Facilities Maintenance Element	F1, F2	F1.3, F1.7	F1.3 recommends actions to improve, maintain, and upgrade roads and parking areas with an all-weather surface, which in turn will help reduce dust emission. F1.7 recommends that the Department increase the proportion of reserve power produced on-site (e.g., solar) to reduce long-term energy and maintenance costs which in turn will reduce emissions from energy use.

Note:
1. The complete text of recommended management goals and actions is provided in Section 4 of the Draft LMP (CDFW 2018)

The Draft LMP does not recommend management actions that would result in significant grading, excavation, or the construction of new habitable buildings. However, the construction of trails, parking areas, and wildlife viewing platforms; the relocation of roads to avoid significant cultural resources; road maintenance activities; the placement of water tanks; and the extension of waterlines for wildlife could generate exhaust emissions from construction equipment and vehicles, and particulate matter (fugitive dust) from earth disturbance. In addition, the emission of ozone precursors (NOx and ROG) associated with these activities could contribute to existing periodic high ozone levels in the eastern portion of the county (G. Arcemont, pers. comm. 2012).

The magnitude of combustion emissions in each project would depend on the number of construction vehicles that operate simultaneously; due to the limited scope of these projects, the number of vehicles is likely to be small (e.g., 1-3). The construction emissions associated with each specific management action with the potential to generate criteria pollutants will be evaluated individually and cumulatively through project-specific CEQA compliance to determine impacts to regional and local air quality.

The SLO APCD provides guidance relative to the magnitude of construction activities that would typically exceed the thresholds of significance (Tables 25 and 26). Although the location and extent of specific construction activities to be undertaken following adoption of the Draft LMP is unknown, the total estimated amount of land disturbance associated with these activities (Table 4, Section 3.8) can be compared with the amount of ground disturbance required to exceed the screening criteria provided by the SLO APCD (Table 26). Construction of trails and other facilities that may be provided following adoption of the Draft LMP is expected to result in about 1.7 acres of ground disturbance over the timeframe of the LMP. As shown in Table 29, construction activities associated with the Draft LMP are unlikely to exceed the quantities of material that would normally exceed the SLO APCD construction emissions screening criteria for significance.

Table 29: Quantity of Construction/Earth Moving Required to Exceed Screening Criteria for Construction–Related Emissions

Pollutant	Emission Factor (Lbs./Cubic Yard of Material Moved)[1]	Threshold of Significance[2]	Quantity of Construction/Earth Moving Required to Exceed Threshold
Diesel Particulate Matter	0.0049	7 lbs./day	1,428 cubic yards/day
Reactive Organic Gases (ROG) and Oxides of Nitrogen (NOx) Combined	0.02965	137 lbs./day	4,620 cubic yards/ day
Fugitive Dust (PM10)	0.75 tons/acre/month of construction activity (assuming 22 days of operation per month)	2.5 tons per quarter	1.11 acres per quarter

Sources:
1. From Table 26
2. From Table 25

Impact 5.3-1— Best Management Practices Recommended by the Draft LMP that Mitigate Potential Impacts to Air Quality Associated with Construction Activities

BMP G-1. The Department shall comply with relevant provisions of the California Environmental Quality Act (CEQA) prior to a decision to approve an activity with the potential to adversely impact the environment.

BMP G-2. The Department shall consult with other agencies with permit approval authority over aspects of management activities undertaken within the Reserve, to identify the relevant permit practices and to ensure compliance with applicable state and federal regulations.

BMP G-3. Management activities undertaken in accordance with the LMP shall meet the applicable permitting and regulatory practices of federal and state agencies, including, but not limited to, the following:

- California Department of Fish and Wildlife;
- U.S. Fish and Wildlife Service;
- State Water Resources Control Board;
- U.S. Army Corps of Engineers (Section 404 of the Clean Water Act);
- San Luis Obispo Air Pollution Control District; and
- California Department of Forestry and Fire Protection (CalFire).

BMP AQ-4. To minimize potential air quality impacts associated with the emission of fine particulate matter associated with construction activities, the Department shall apply the following, as applicable:

- During construction activities, unpaved roads shall be effectively stabilized of dust emissions.
- When large, earth-moving equipment is used for construction/demolition activities, fugitive dust emissions will be controlled by presoaking or otherwise applying water to the construction/demolition area.
- Following the addition of earthen materials to, or the removal of earthen materials from, the surface of outdoor storage piles, said piles shall be effectively stabilized of fugitive dust emissions utilizing sufficient water or chemical stabilizer/suppressant.
- Limit traffic speeds on unpaved roads to 15 mph;
- Suspend excavation and grading activity when winds exceed 20 mph.
- Limit area subject to excavation, grading, and other construction activity at any one time. Reduce the amount of the disturbed area where possible.
- All roadways, driveways, sidewalks, etc. to be paved should be completed as soon as possible after grading unless seeding or soil binders are used.
- All of these fugitive dust mitigation measures shall be shown on applicable grading and building plans.

BMP AQ-5. To minimize air quality impacts associated with construction and applicable restoration activities, the Department shall implement the following as applicable:

- Maintain all construction equipment in proper tune according to manufacturer's specifications;
- Fuel all off-road and portable diesel-powered equipment with Air Resources Board (ARB)-certified motor vehicle diesel fuel (non-taxed version suitable for use off road);
- Use diesel construction equipment meeting ARB's Tier 2 certified engines or cleaner off-road, heavy-duty diesel engines, and comply with the State Off-Road Regulation;
- Use on-road heavy-duty trucks that meet the ARB's 2007 or cleaner certification standard for on-road heavy-duty diesel engines, and comply with the State On-Road Regulation;
- Construction or trucking companies that that do not have engines in their fleet that meet the engine standards identified in the above two measures (e.g., captive or NOx exempt area fleets) may be eligible by proving alternative compliance;
- All on and off-road diesel equipment shall not idle for more than 5 minutes. Signs shall be posted in the designated queuing areas and or job sites to remind drivers and operators of the 5-minute idling limit;
- Use equipment powered by electricity rather than diesel or gasoline when feasible;
- Substitute gasoline-powered in place of diesel-powered equipment, where feasible;

- Use alternatively-fueled construction equipment on-site where feasible, such as compressed natural gas (CNG), liquefied natural gas (LNG), propane or biodiesel; and
- To ensure SLO APCD thresholds for construction-related emissions are not exceeded, limit the quantity of construction/earth moving activities as follows:
    - 1,400 cubic yards of earth moving/grading per day when conducted with diesel-powered equipment; and
    - 4,620 cubic yards per day when conducted with gasoline-powered equipment.[7]

BMP AQ-6. If the Department is removing or renovating any building(s) or relocating any utility pipelines, the Department shall comply with the relevant provisions of the National Emission Standard for Hazardous Air Pollutants (40CFR61, Subpart M - asbestos NESHAP). These practices include, but are not limited to: 1) notification practices to the APCD, 2) asbestos survey conducted by a Certified Asbestos Inspector, and, 3) applicable removal and disposal practices of identified Asbestos Containing Materials.

Impact 5.3-1— Conclusions/Summary

Construction activities will generate emissions and particulate matter, which have the potential to degrade air quality. However, these impacts are expected to be less than significant because:

- The management actions recommended by the Draft LMP will not involve extensive grading or construction activities and will primarily involve hand tools or small hand-held gasoline powered equipment;
- Implementation of the BMPs included in the Draft LMP (Appendix C) will limit earth disturbing activities to an amount below the threshold expected to result in a significant impact to air quality;
- Implementation of the management actions and Draft LMP BMPs will ensure air quality impacts associated with construction activities do not exceed the SLO APCD thresholds of significance; and
- New construction will be subject to project-specific CEQA compliance which will identify the appropriate BMPs from the Draft LMP to ensure impacts associated with construction activities do not exceed SLO APCD thresholds of significance.

For these reasons, construction-related air quality impacts are considered **less than significant (Class III).**

Impact 5.3-1— Additional Mitigation

None required.

5.3.11.2 Operational Impacts – Emissions Generated by Motor Vehicle Use

Impact 5.3-2	**Motor vehicle trips associated with implementation of the management actions recommended by the Draft LMP will generate particulate matter and ozone precursors, which could contribute to a periodic exceedance of adopted air quality standards. This impact is considered less than significant (Class III)**

[7] Based on Table 2-1 of the SLO APCD CEQA Air Quality Handbook (SLO APCD 2012). Assumes 2.2 grams of diesel particulate matter per cubic yard of material moved.

because of mitigation provided by management actions and Best Management Practices incorporated into the project description.

Management actions recommended by the Draft LMP may involve the use of motor vehicles for the maintenance of facilities, ongoing monitoring and scientific activities, and habitat management and restoration activities. In addition, the Department authorizes periodic use of the Chimineas Unit Headquarters on the North Chimineas Unit for events accessed by vehicles. Lastly, continued recreation activities, such as hunting and hiking, generate motor vehicle trips to and from the CPER. These vehicles will generate emissions of reactive organic gases, nitrogen oxides, carbon monoxide and particulates.

The current average daily traffic associated with the CPER is estimated at 14 trips per day from all sources except special events (Table 30). The net increase in motor vehicle trips associated with adoption of the Draft LMP is estimated to be about 10 trips on a typical day, largely associated with an increase in research activities and a slight increase in trips associated with recreation. Special events are expected to occur once per month following adoption of the Draft LMP and have 30 attendees.

Table 30: Current and Anticipated Average Daily Trip Generation for the CPER

	Estimated Average Daily Trips (ADTs)	
Staffing/Use	**2012**	**2032**
CDFW Staff	5	5
Researchers	4	11
Grazing	1	2
Volunteers	2	3
Average Daily Recreation Use	2	3
Sub-Total Staffing, Research, Grazing, Volunteers and Recreation Use	14	24
Special Events	30	30
Total Maximum ADT	**44**	**54**

Source: CDFW 2012c

Operational impacts associated with the Draft LMP were modeled using the CalEEMod computer model (Appendix D; CAPCOA 2011), based on the following assumptions:

- Trips associated with increased daily staff, research, and volunteer activities (an increase of 8 trips per day) have a one-way average trip length of 60 miles, of which 51.5 miles are on paved roads and 8.5 miles are on unpaved roads. For purposes of this analysis, all 8 trips are assumed to arrive at the Chimineas Unit Headquarters from the north via Soda Lake Road and Sprague Hill (Chimineas Ranch) Road.
- Trips associated with recreational use (an average increase of 1 trip per day) have a one-way average length of 60 miles from trips originating in or near the city of San Luis Obispo and ending on the American or South Chimineas units, all of which are on paved roads.
- Special events located at the headquarters building within the Northern Chimineas Unit have an average of 30 total attendees each. For purposes of this analysis, all 30 trips are assumed to arrive at the headquarters building from the north via Soda Lake Road and Sprague Hill Road, and all special events trips have a one-way average trip length of 60 miles.
- For purposes of this analysis, trips associated with grazing management are assumed to increase by one trip per day as a result of management actions recommended by the grazing management plan

and have an average one-way trip length of 6.5 miles. All of the trips associated with grazing are assumed to be on unpaved roads.

Tables 31 and 32 estimate the operational emissions on a typical day and compare those emissions with thresholds of significance adopted by the SLO APCD. Operational emissions will exceed the daily and annual thresholds of significance for particulate matter (PM_{10}), primarily as a result of trips traveling on the unpaved roads leading to, and within, the CPER (Table 31). It should be noted that, per SLO APCD, the CalEEMod model (CAPCOA 2011) assumes vehicles on unpaved roads are travelling at 34.4 miles per hour (SLO APCD 2012). It should be noted that existing regulations for the Reserve restrict vehicle speeds to 15 miles per hour (Title 14, CCR, Section 550 (y) (6)).

Table 31: Typical Day Estimated Operational Emissions

	Pollutant (lbs./day)			
Sources[1]	**Ozone Precursors (ROG + NOx)[2]**	**Fugitive Particulate Matter (PM_{10}) [2]**	**Carbon Monoxide (CO) [2]**	**Greenhouse Gases (CO2) [2]**
CDFW Staff, Researchers and Volunteers	1.98	101.09	6.21	863.12
Recreation	0.25	0.15	0.78	107.89
Grazing	0.02		0.06	6.91
Total	**2.25**	**106.45**	**7.05**	**977.49**

Table 32: Comparison of Typical Day Estimated Operational Emissions with Thresholds of Significance

	Typical Day Estimated Operational Emissions[2]			
	Pounds Per Day	**Threshold**	**Tons Per Year**	**Threshold**
Ozone Precursors (ROG + NOx)	1.83	25 lbs./day	0.335	25 tons/year
Fugitive Particulate Matter (PM_{10})	236.24	25 lbs./day	43.11	25 tons/year
Carbon Monoxide (CO)	6.62	550 lbs./day	1.20	No Threshold
Greenhouse Gases (CO2, CH4)	921.16	No Threshold	168.11	1,150 MT CO2e/year

Source: CAPCOA 2011

Notes:

1. SLO APCD 2012.
2. Emissions resulting from increased motor vehicle trips associated with adoption of the Draft LMP.
3. Appendix D provides the calculations.
4. Pollutants for which a threshold of significance has been adopted by SLO APCD (2012).

Table 33 provides an estimate of emissions associated with motor vehicle travel to a special event conducted at the headquarters building on the North Chimineas Unit. Motor vehicle travel associated with a special event could exceed the daily and annual thresholds of significance for particulate matter (Table 34). It should be noted that, per SLO APCD (2012), the CalEEMod model (CAPCOA 2011) assumes vehicles on

unpaved roads are travelling at 34.4 miles per hour. Existing regulations for the Reserve restrict vehicle speeds to 15 miles per hour (Title 14, CCR, Section 550 (y) (6)).

Table 33: Estimated Operational Emissions for Special Events

	Pollutant (lbs./day)			
Source[1]	Ozone Precursors (ROG + NOx)	Fugitive Particulate Matter (PM_{10})	Carbon Monoxide (CO)	Greenhouse Gases (CO2, CH4)
Special Events[3]	6.89	885.90	24.82	3,454.33

Source: CAPCOA 2011

Notes:

1. Emissions resulting from increased motor vehicle trips associated with implementation of the Draft LMP.
2. Appendix D provides the calculations based on information provided by the Department of Fish and Wildlife 2012 (Table 30).
3. A special event located at the headquarters building on the North Chimineas Unit with 30 attendees.

Table 34 provides a comparison of "worse case" total operational emissions by combining typical day emissions with those associated with a special event. Operational emissions from the increase in motor vehicle trips will exceed the SLO APCD's threshold of significance for the daily and annual emission of fugitive particulate matter (PM_{10}), with special events representing the single largest source of emissions (Table 34). Emissions for other criteria pollutants will remain below the SLO APCD's thresholds of significance.

Table 34: Comparison of Estimated Operational Emissions with Thresholds of Significance

	Estimated Operational Emissions (lbs./day) [2]		Total Operational Emissions			
Pollutant[1]	Typical Day[3]	Special Events[3]	Lbs. / Day[4]	Threshold[5]	Tons /Year[4]	Threshold[5]
Ozone Precursors (ROG + NOx)	1.83	6.89	8.72	25 lbs./day	1.59	25 tons/yr.
Fugitive Particulate Matter (PM_{10})	236.24	885.90	1122.14	25 lbs./day	204.79	25 tons/yr.
Carbon Monoxide (CO)	6.62	24.82	31.44	550 lbs./day	5.737	—
Greenhouse Gases (CO2, CH4)	921.16	3,454.33	4,375.49	No Threshold	798.52	1,150 MT CO2e/year

Source: CAPCOA 2011

Notes:

1. Pollutants for which a threshold of significance has been adopted by SLO APCD (2012).
2. Appendix D provides the calculations.
3. Emissions resulting from increased motor vehicle trips associated with adoption of the Draft LMP.
4. Assumes special event and typical day vehicle trips occur on the same day.
5. SLO APCD 2012

Impact 5.3-2 — Best Management Practices Recommended by the Draft LMP that Mitigate Potential Impacts to Air Quality Associated with the Increased Use of Motor Vehicles

BMP AQ-1. To mitigate the emission of fugitive dust associated with use of Reserve roads and parking areas, the Department shall implement at least one of the following:

- Install and maintain an all-weather surface with material that minimizes the emission of fugitive dust such that fugitive dust emissions do not impact off-site areas; OR,
- Maintain the roadway or parking area with a dust suppressant such that fugitive dust emissions do not impact off-site areas; OR,
- Limit traffic speeds on unpaved roads to 15 mph;

BMP AQ-2. To reduce vehicle miles associated with special events, meetings, and management activities on the Reserve, the Department shall encourage the following:

- The use of carpools/vanpools; and
- Establishing a shuttle service or Park-and-Ride lots from areas outside the Reserve.

BMP AQ-3. The Department shall implement the relevant provisions of DFG Going Green: Next Steps Toward Sustainability (CDFW 2011), which sets forth specific recommendations for reducing the Department's greenhouse gas emissions.

Impact 5.3-2 — Conclusions/Summary of Impact

Management activities to implement the Draft LMP will generate emissions and particulate matter, which have the potential to degrade air quality. Operational emissions associated with typical day operations when combined with those generated during special events will exceed the SLO APCD thresholds of significance for particulate matter (Table 34). In such instances, the CEQA Air Quality Handbook (SLO APCD 2012) states:

> *When a project is accessed by unpaved roads and or has unpaved driveways or parking areas, a PM_{10} emission estimate needs to be conducted using the CALEEMOD model. When the model's emission estimate demonstrates an exceedance of the 25 lbs. of PM10/day or 25 tons of PM10/year APCD thresholds, the following mitigation is required:*
>
> *For the unpaved road leading to the project location, implement one of the following:*
>
> *a. For the life of the project, pave and maintain the driveway; or,*
>
> *b. For the life of the project, maintain the private unpaved driveway with a dust suppressant (See Technical Appendix 4.3 for a list of APCD-approved suppressants) such that fugitive dust emissions do not impact off-site areas and do not exceed the APCD 20% opacity limit. To improve the dust suppressant's long-term efficacy, the applicant shall also implement and maintain design standards to ensure vehicles that use the on-site unpaved road are physically limited (e.g., speed bumps) to a posted speed limit of 15 mph or less.*

Best Management Practice AQ-1 addresses these requirements. By applying this and other BMPs listed above, the Draft LMP will meet the requirements for particulate matter recommended by the SLO APCD. For these reasons, operational air quality impacts are considered **less than significant (Class III).**

Impact 5.3-2— Additional Mitigation

None required.

5.3.11.3 Operational Impacts — Carbon Monoxide Hotspots

Impact 5.3-3	**Implementation of the Draft LMP will generate additional motor vehicle trips on surrounding roadways serving the CPER, which in turn will result in elevated CO emissions. This impact is considered less than significant (Class III).**

SLO APCD (2012) indicates that a project would have the potential to create a violation of the CO standard if one or more intersections would operate at level of service E or F, or substantially worsen intersections already operating at level of service F. The transportation impact analyses conducted as part of the initial study revealed that implementation of the Draft LMP would not generate sufficient traffic to reduce intersection operations to level of service E or F (Appendix B). Therefore, impacts associated with CO hotspots are considered **less than significant (Class III)**.

Impact 5.3-3— Additional Mitigation

None are required.

5.3.11.4 Operational Impacts – Prescribed Burning

Impact 5.3-4	**Periodic prescribed burning will result in temporary adverse impacts to air quality. This impact is considered less than significant (Class III) because of mitigation provided by management actions and Best Management Practices incorporated into the project description.**

Prescribed burning produces smoke, which is a mixture of toxic particles and gases. If not carefully managed, smoke can be a nuisance to residents, and it can adversely impact public health. Smoke can contribute levels of pollution that exceed health protective air quality standards.

Prescribed burning will be concentrated in the fire-adapted chaparral communities of the CPER, some of which have not burned in almost 100 years. Chaparral communities occupy about 1,250 acres of the CPER located primarily on the higher elevation areas of the western Chimineas units (CDFW 2018; Figure 4). This analysis assumes that implementation of the LMP vegetation management elements will include a single burn of about 625 acres of the chaparral community over the next 25 years either through naturally occurring wildfires or through a single prescribed burn. The precise location of a prescribed burn to be applied following adoption of the Draft LMP will be determined through the preparation of the fire management plan. As a result, a precise estimate of potential emissions associated with these activities cannot be achieved with any accuracy. Therefore, a qualitative analysis is provided.

Table 35 and Figure 18 illustrate the fires mapped within the CPER between 1917 and 2015 (there are no mapped data for the occurrence of fires on either the Panorama or the Elkhorn units). Fires of varying size and intensity have affected the CPER region about once every six years over this time period with fires ranging in size from less than 100 acres to almost 50,000 acres. The varying size, location and intensity of these fires would have resulted in similar variability with respect to impacts on air quality.

Table 35: Cause and Size of Fires Mapped within the CPER

			Acres Burned		
Fire Name	**Year**	**Cause**	**American Unit**	**Chimineas Units**	**Total Size of Fire [1]**
Unnamed	1917	Miscellaneous		43	956
Unnamed	1921	Unknown		707	12,351
Unnamed	1922	Miscellaneous		8,396	25,637
Unnamed	1956	Miscellaneous		168	2,781
Unnamed	1957	Miscellaneous		162	16,628
Spanish Ranch	1979	Miscellaneous		751	1,191
Washburn Ranch	1981	Equipment Use	2,813	137	3,110
Spanish	1982	Unknown		220	879
Overlook	1996	Escaped Prescribed Burn	2,230	1	2,231
American	1997	Powerline	860	180	1,631
Logan	1997	Miscellaneous		4,596	49,491
Spanish	1998	Arson		100	120
Spanish	2003	Equipment Use		23	23
Cuyama	2006	Miscellaneous		379	926
Rancho	2006	Equipment Use		112	183
Cotton	2010	Automotive		730	2,040
Caliente	2012	Lightening		144	144
Branch	2013	Miscellaneous		2	490
		Total	**5,903**	**16,851**	**120,812**

Source: CDFW 2018

Notes:

1. Total acreage affected by a fire Including land within the CPER and elsewhere.
2. Data current through 2015 (CalFire 2015)

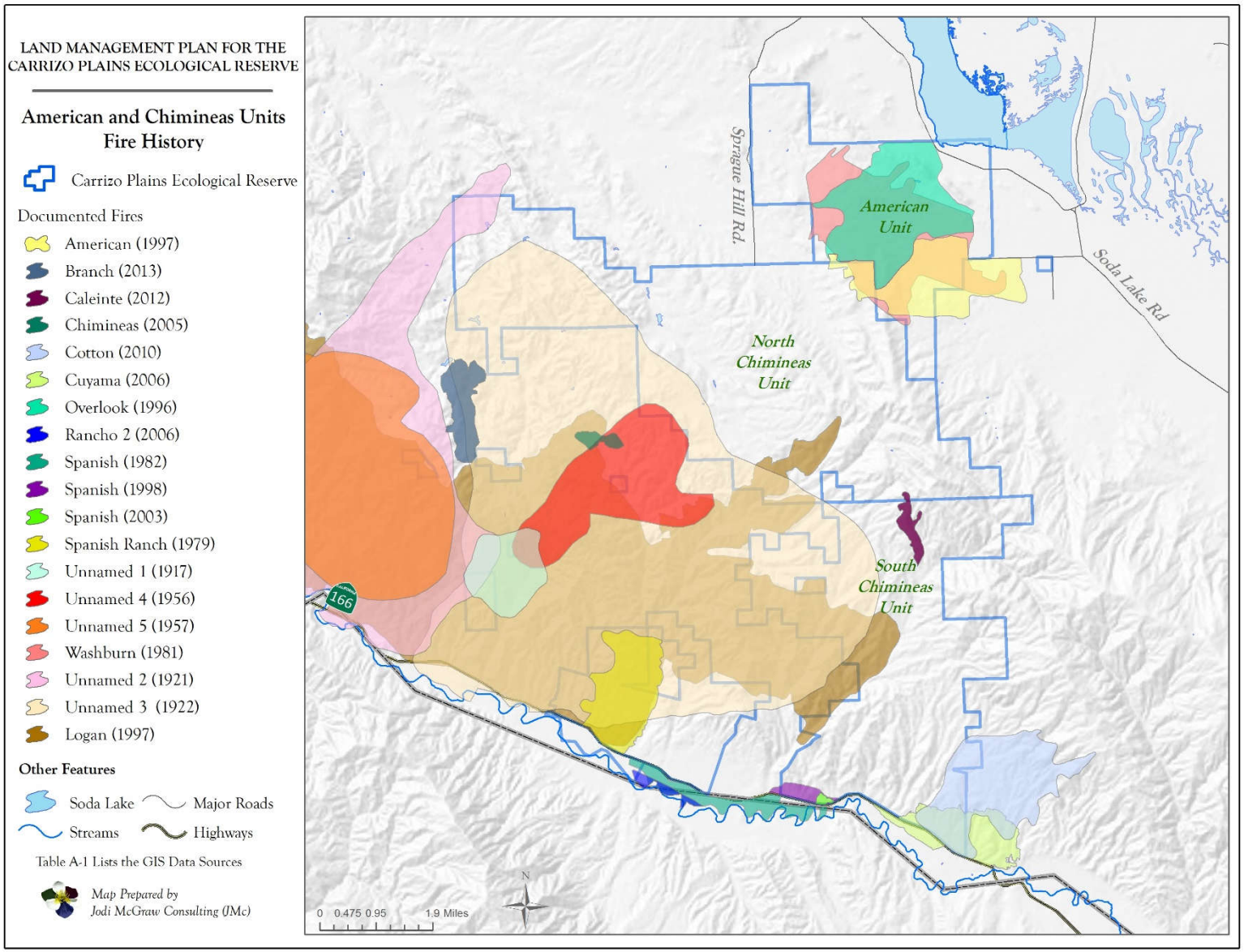


Figure 18: Fire History of the Chimineas and American Units

Impact 5.3-4 — Mitigation Provided by Compliance with Existing Regulations

Regulations for the management of smoke from agriculture and prescribed burning are set forth in the Smoke Management Guidelines of Article J, Subchapter 2 of Title 17 California Code of Regulations. At the local level, these regulations are implemented by the SLO APCD through Rule 502. In sum, any person or agency who intends to undertake a prescribed burn must first obtain a burn permit from the SLO APCD. The requirements for a burn permit and smoke management plan are aimed at ensuring that prescribed burning does not adversely impact air quality or public safety. A burn permit sets forth the precise time, date, and conditions under which a prescribed burn will be permitted in order to protect air quality and public safety. To obtain a burn permit, an applicant must submit a smoke management plan at least 72 hours prior to the burn date. For a large-sized prescribed burn (greater than 250 acres), a smoke management plan must contain at least the following:

- Location, types, and amounts of material to be burned;
- Expected date of the fire from ignition to extinction;
- Identification of responsible personnel, including telephone contacts;
- Procedures for reporting of public smoke complaints and for public notification and education, including appropriate signage at burn sites;
- Identification and location of all potentially affected smoke sensitive sites in nearby areas;
- Identification of meteorological conditions necessary for burning;
- The smoke management criteria the land manager or his/her designee will use for making burn ignition decisions;
- Projections, including a map, of where the smoke from burns is expected to travel, both day and night;
- Specific contingency actions, including fire suppression or containment plans, that will be taken if smoke impacts occur or meteorological conditions deviate from those specified in the smoke management plan;
- An alternative to burning evaluation (projects meeting NEPA or CEQA requirements will be considered to have complied with this provision); and
- Air Pollution Control Officer-approved monitoring provisions, which may include visual monitoring, ambient particulate matter monitoring, or other monitoring.

In addition, the SLO APCD recommends discussing any planned prescribed burns with SLO APCD staff to ensure impacts to air quality are minimized and no health standards will be violated. They recommend burns be conducted when meteorological conditions allow for proper dispersion of smoke to minimize impacts to sensitive receptors. Adjacent air districts in Santa Barbara County and the San Joaquin Valley (i.e., the SBC APCD and the SJVUAPCD) should also be consulted to keep the public informed of potential impacts to air quality. The SLO APCD also recommends that the Department coordinate the prescribed burn with CARB.

Impact 5.3-4 — Best Management Practices Recommended by the Draft LMP that Mitigate Potential Impacts to Air Quality Associated with Prescribed Burning

The BMPs described under Impact 5.3-1 also apply to this impact.

BMP AQ-7. Prescribed burning shall be conducted in full compliance with the provisions of Rule 502 of the San Luis Obispo County Air Pollution Control District (SLO APCD) Rules and Procedures, including (but not limited to) the following:

- Approval of a burn permit by the SLO APCD at least 72 hours prior to the burn date;
- Preparation and approval of a Smoke Management Plan by the SLO APCD;
- Air quality monitoring, as may be required by the Air Pollution Control Officer;
- Consultation with the SLO APCD and surrounding air quality districts in advance of the burn date; and
- Participation in the Prescribed Fire Information Reporting System (PFIRS).

Impact 5.3-4 — Conclusions/Summary of Impact

Prescribed burning will generate emissions of smoke and particulate matter. The frequency of a prescribed burn (once during the 25-year life of the LMP) and the area affected (about 625 acres) will be considerably less than the frequency and size of wildfires that have affected the area over the past 100 years (Table 35 and Figure 18). Other vegetation management strategies recommended by the Draft LMP, such as the continuation of managed livestock grazing, are expected to reduce the number and intensity of fires originating on the CPER in the future. Nonetheless, air quality impacts associated with prescribed burning are expected to be comparable to, or less than, background conditions. In addition, compliance with the SLO APCD Rule 502, along with the management actions and BMPs listed above will ensure adverse impacts to air quality associated with prescribed burning will **be less than significant (Class III).**

Impact 5.3-4 — Additional Mitigation

None are required.

5.3.11.5 Consistency with the 2001 Clean Air Plan

Impact 5.3-5 The Draft LMP is consistent with the 2001 Clean Air Plan for San Luis Obispo County. Impacts relating to consistency with the AQMP are considered less than significant (Class III).

The SLO APCD CEQA Air Quality Handbook (SLO APCD 2012) lists three criteria to determine consistency with the Clean Air Plan (SLO APCD 2001). The following assesses the project's consistency with these criteria.

1. *Are the population projections used in the plan or project equal to or less than those used in the CAP (chapter 2) for the same area?*

   The CAP estimates that the number of county residents will increase 25% between 2000 and the year 2015, with the rate of growth in the unincorporated rural areas out pacing incorporated cities. Table 2-1 on page 2-7 of the 2001 Clean Air Plan provides a projection of county population by planning area (SLO APCD 2001). The CPER lies within the Shandon-Carrizo planning area which is projected to grow from a population of 2,565 in 2000 to 3,255 by the year 2015. This represents a population increase of about a 27% increase over the 15-year timeframe.

The Draft LMP does not accommodate additional housing or significant new employment that would increase the local population beyond levels anticipated by the CAP. Therefore, the Draft LMP is consistent with the population projections outlined in the 2001 Clean Air Plan.

2. *Is the rate of increase in vehicle trips and miles traveled less than or equal to the rate of population growth for the same area?*

   As discussed under Item 1 above, the CAP projects an increase in population of about 27% for the Shandon-Carrizo planning area by 2015. The increase in motor vehicle trips associated with the Draft LMP is 10 trips per day during a typical work day (Table 30). The increase in motor vehicle trips is a small fraction of the total for the planning area and the county and far less than the 27% increase projected for population.

3. *Have all applicable land use and transportation control measures from the CAP been included in the plan or project to the maximum extent feasible?*

   The Draft LMP does not designate land for development that would substantially increase motor vehicle use, nor does the plan accommodate employment or attract visitors that would generate a substantial increase in traffic.

   The total increase in traffic following adoption of the Draft LMP would be 10 trips per day on a typical work day and 30 trips per day on the day of a special event (Table 30). As discussed under Impact 5.3-2, the Draft LMP incorporates management actions aimed at minimizing the traffic and resulting air quality impacts associated with special events.

   The Draft LMP will not accommodate the development of land uses that would generate additional population or motor vehicle trips within the county or region in excess of levels anticipated by the CAP. Accordingly, the Draft LMP is consistent with the 2001 CAP. This impact is considered **less than significant (Class III)**.

Impact 5.3-5 — Additional Mitigation

None are required.

5.3.12 Cumulative Impacts

This subsection analyzes the Draft LMP's contribution to cumulative impacts to air quality and climate change (Section 5.1.4). The analysis of the Draft LMP's contribution to a cumulative impact on air quality is based on the recommendations of the SLO APCD Air Quality handbook (SLO APCD 2012).

5.3.12.1 Cumulative Setting

The cumulative setting for air quality impacts includes the area governed by the SLO APCD 2001 Clean Air Plan (SLO APCD 2001).

5.3.12.2 Climate Change — Consistency with the Adopted Climate Action Plan (EnergyWise Plan)

Impact 5.3-6 **Motor vehicle trips and the use of motorized machinery anticipated to occur during implementation of the Draft LMP will generate greenhouse gases which may contribute to climate change. This impact is considered less than cumulatively considerable (Class III).**

The EnergyWise Plan builds upon the goals and strategies of the County Open Space Element (COSE) to reduce local GHG emissions (Section 5.3.7.2; SLO County 2011d). It identifies how San Luis Obispo County will achieve the GHG emissions reduction target of 15% below baseline levels by the year 2020 in addition to other energy efficiency, water conservation, and air quality goals identified in the COSE. The EnergyWise Plan will also assist the County's participation in the regional effort to implement land use and transportation measures to reduce regional greenhouse gas emissions from the transportation sector by 2035.

Implementation of management actions following adoption of the Draft LMP is anticipated to increase vehicle trips, and could require the use of motorized machinery for the construction of visitor-serving amenities. In addition, in the absence of naturally-occurring fire, prescribed burning may be implemented as a vegetation management tool which will result in the emission of smoke and its related constituents which include greenhouse gases. The Draft LMP recommends management actions and BMPs that will help minimize the emission of GHG as outlined in Table 36, which provides an analysis of consistency of the Draft LMP with the County's EnergyWise Plan (SLO County 2011d).

Prescribed burning may be conducted by the Department as a vegetation management tool and the combustion of vegetation will generate the emission of greenhouse gases. Prescribed fire would help reduce the fuel load on the CPER thus reducing the potential for a large-scale wildfire and the associated emission of greenhouse gases (Impact 5.3-4). Because the precise location and timing of a prescribed burn is not known at this time, a precise estimate of the quantity of greenhouse gases emitted from such a burn cannot be quantified.

Prescribed burning can have beneficial effects on the generation of greenhouse gases. A study published in 2010 by the National Center for Atmospheric Research (Wiedinmyer and Hurteau 2010) concluded that widespread prescribed burns can reduce fire-related emissions of carbon dioxide in the western U.S. by an average of 18 to 25 percent, and by as much as 60 percent in certain forest systems. This is because wildfires can destroy large trees that store significant amounts of carbon. Prescribed fires are typically designed to burn underbrush and small trees, which store less carbon. By clearing out the underbrush, these prescribed fires reduce the chance of subsequent high-severity wildfire, thereby protecting large trees and keeping more carbon locked up in the forest. The authors of the study cautioned, however, that the actual impacts in the western states would likely be lower than they estimated because the study assumed that prescribed burns could be set in all suitable forests, whereas forest managers in reality would be hard-pressed to set so many fires, especially in remote regions or near developments. Moreover, the areas where prescribed burning is likely to be employed on the CPER would be in chaparral communities, which are structurally different than the forests analyzed in the study. For example, by breaking up otherwise continuous fuel, prescribed fire could prevent an even larger fire, which could spread into the oak woodland and kill mature oaks, which store a significant amount of carbon. Nonetheless, to the extent that prescribed burning preserves larger trees and other plants and reduces the potential for a larger wildfire, the emission of greenhouse gases from future wildfires will be diminished compared with the absence of prescribed burning.

Table 36: San Luis Obispo County EnergyWise Plan Consistency Analysis

GHG Reduction Measure	Description	Consistency of Draft LMP
Energy Conservation		
Energy Conservation Programs	Collaborate with local utility providers, educational institutions, and stakeholders to develop effective energy conservation campaigns through energy competitions and to provide targeted marketing for new and existing conservation programs.	Not applicable
Low-Income Weatherization	Promote existing low-income energy conservation and weatherization programs and coordinate with local utility providers and nonprofit corporations to develop additional energy efficiency programs.	Not applicable
Energy Efficiency Financing	Develop and adopt an energy efficiency retrofit program to increase energy efficiency in existing commercial, residential, governmental, and industrial facilities.	Not applicable
Building Energy Scores	The county will collaborate with the incorporated cities in the county to develop and implement a countywide program to: 1) conduct energy audits or provide EPA Home Energy Scores for residential buildings; 2) disclose energy use history of nonresidential buildings; and 3) prepare an energy conservation ordinance to reduce electricity and natural gas use by implementing energy efficiency measures identified in the energy audits.	BMPs S-1 and S-2 in the Draft LMP promote sustainable, energy-efficient construction techniques and passive solar design for heating and cooling.
Workforce Training Programs	Continue to seek funding and support green building and weatherization training programs like the SLO County Workforce Investment Board's program funded by the California Clean Energy Workforce Training Program.	Not applicable
Smart Grid Technology	Work with local utility providers to implement smart grid technology in new and existing residential and nonresidential properties.	Not applicable
Energy-Efficient New Development	Encourage and incentivize new development projects to exceed minimum Cal Green requirements.	BMPs S-1 and S-2 in the Draft LMP promote sustainable, energy-efficient construction techniques and passive solar design for heating and cooling.
Community Forestry Program	Pursue a comprehensive program to plant and maintain trees on county-maintained roads, medians, and public parking lots in the unincorporated communities. Expand the program to include tree planting on private property where owners wish to be part of the program. Encourage property owners to plant and maintain trees near structures to reduce building energy demand.	Not applicable
Renewable Energy		
Countywide Energy Collaborative	Build a collaborative network or organizational structure to work with the seven cities, other local and state agencies, investor owned utilities, the California Energy Commission,	Not applicable

Table 36: San Luis Obispo County EnergyWise Plan Consistency Analysis

GHG Reduction Measure	Description	Consistency of Draft LMP
	and the California Public Utilities Commission to promote a wide range of energy efficiency and renewable programs.	
Commercial-Scale Renewable Energy	Develop a comprehensive renewable energy strategy to encourage the commercial-scale installation of renewable energy projects within the county.	Not applicable
Small-Scale Renewable Energy	Implement a financing program to provide property owners with low interest loans for the installation of renewable energy resources	Not applicable
Renewable Energy Partnerships	Collaborate with local and state governmental agencies (California Men's Colony, Cal Poly, Cuesta College, etc.) and energy facility operators to develop renewable energy sources at existing facilities.	Not applicable
Solid Waste GHG Emissions Reduction		
Recycling	Provide additional opportunities for county residents to recycle cardboard, glass, paper, and plastic products.	BMP S-4 in the Draft LMP promotes recycling and reuse to reduce solid waste generation.
Composting & Green Waste	Implement a composting and green waste program in those communities without them.	Not applicable.
Construction & Demolition Waste	Reduce construction and demolition waste by requiring a minimum of 75% nonhazardous construction and demolition debris generated on site to be recycled or salvaged.	BMP S-4 in the Draft LMP promotes recycling and reuse to reduce solid waste generation.
Waste Hauling Fleet	Encourage waste haulers on contract with the county to use clean, alternative fuels for waste collection vehicles.	Not applicable.
Landfill Methane Capture	Increase methane capture rates at all operating landfills in the county.	Not applicable
Land Use and Transportation GHG Emissions		
Strategic Growth	Continue to implement strategic growth strategies that direct the county's future growth into existing communities and to provide complete services to meet local needs.	Not applicable
Transit Accessibility	Work with the San Luis Obispo Regional Transit Authority, San Luis Obispo Council of Governments, local cities, transit providers, and other agencies to identify transit nodes appropriate for mixed-use development and promote transit-oriented development where appropriate.	The Carrizo Plain region is currently not served by public transit. The low population and remote location make the extension of transit to the area infeasible.
Affordable Housing	Continue to increase the amount of affordable housing provided in San Luis Obispo County. Affordable and below-market-rate housing provides greater opportunity for lower-income families to live closer to job and activity centers, providing residents with greater access to transit and alternative modes.	Not applicable
Bicycle & Pedestrian Network	Improve access to community-wide pedestrian and bicycle networks by removing barriers and providing additional bike- and pedestrian-oriented infrastructure.	The Draft LMP promotes the development of additional hiking trails in areas of existing public access within the CPER.

Table 36: San Luis Obispo County EnergyWise Plan Consistency Analysis

GHG Reduction Measure	Description	Consistency of Draft LMP
Parking Supply Limits	Revise County parking requirements to ensure development meets the County's strategic growth objectives while providing alternative transportation choices to project residents and employees and efficient design options, as well as flexibility to project applicants. Specifically, consistent with the General Plan, reduce parking requirements in areas where a variety of uses and services are planned near each other and to transit.	Not applicable
Unbundle Parking Costs	Parking and property costs will be separated to enable those who choose to utilize a parking space to do so at an additional cost separate from the cost of the property.	Not applicable
Commute Trip Reduction Programs	Continue to support voluntary commute trip reduction programs.	BMP AQ-2 in the Draft LMP promotes encourages the use of carpooling and vanpooling for special events, meetings, and workers.
Alternative Fuels	Continue to expand the use and availability of alternative and low carbon fuels for vehicles and equipment.	Not applicable.
Water Conservation GHG Emissions Reduction		
New Construction	Reduce potable water use by 20% in all newly constructed buildings by using the prescriptive or performance method provided in the California Green Building Code to demonstrate compliance.	BMP S-6 in the Draft LMP encourages the efficient use of water and water conservation in new facilities.
Existing Buildings	Work with local CSDs to continue to implement indoor and outdoor conservation and rebate programs.	Not applicable.
Retrofit Upon Sale	Continue to enforce retrofit upon sale requirements in Los Osos and the Nipomo Mesa and facilitate compliance with SB 407 in residential and commercial properties in other unincorporated areas of the county.	Not applicable
Tiered Water Rates	Implement tiered water rate structures to incentivize water conservation.	Not applicable
Water-Efficient Landscape	Reduce outdoor water use in new landscapes through compliance with the County's Water-Efficient Landscape Ordinance.	Not applicable. However, the CPER features limited landscaping, and it is drought tolerant.
Recycled Water	Increase the availability and use of recycled water for use in outdoor landscaping areas.	The CPER currently uses untreated groundwater for irrigation.
Greywater & Rainwater	Encourage the installation and use of greywater and rainwater harvesting systems to reduce outdoor potable water use.	The CPER facilities are served by a septic system and wells. As a result, there is no opportunity for the use of greywater. Rainwater can be collected but is very limited given the dry climate.

Table 36: San Luis Obispo County EnergyWise Plan Consistency Analysis

GHG Reduction Measure	Description	Consistency of Draft LMP
Agriculture GHG Emissions Reduction		
Agriculture Resource Conservation	Encourage voluntary energy conservation through appropriate and practicable efficient energy, water, and resource management practices.	Not applicable. The Draft LMP does not recommend irrigated agriculture on any of the units of the CPER.
Soil & Crop Management	The County will collaborate with Cal Poly, agriculturalists, the University of California Cooperative Extension (UCCE), and the county's resource conservation districts (RCDs) to develop and disseminate appropriate voluntary management practices for the application of pesticides and fertilizers, tillage practices, cover crops, and other techniques to reduce nitrous oxide emissions, maximize carbon sequestration, and reduce fuel use.	The Draft LMP encourages the use of best management practices with respect to soil conservation and pesticide use.
Livestock Management	Implement a voluntary fermentation and manure management program.	Not applicable
Off-Road Equipment	Reduce fuel use and GHG emissions from off-road agricultural equipment.	Off-road vehicle use on the CPER is used solely for research and management activities.
Local Foods	Reduce emissions from transport of agriculture-related products within the county through the encouragement of local food programs.	Not applicable
Agricultural Employee Transportation	Reduce VMT associated with commuting by agricultural workers.	Grazing management on the CPER is conducted by an on-site manager. No other agriculture-related employees commute to the CPER.
Sequestration	Identify opportunities for terrestrial and aquatic sequestration in the county, including but not limited to County lands, reclaimed mining lands, agricultural lands, and other areas as appropriate.	The main objective of the Draft LMP is to manage the resources of the CPER to promote the enhancement of native habitats and species, which in turn will help maintain the capacity of the CPER for GHG sequestration.

Source: SLO County 2011d

Impact 5.3-6 — Conclusions/Summary of Impact

Based on the preceding discussion, adoption of the Draft LMP will have a less than cumulatively considerable impact on climate change because:

- The Draft LMP (CDFW 2018) is consistent with an adopted Climate Action Plan for the area (SLO County 2011d).
- The estimate of greenhouse gas emissions associated with a typical day plus a special event day provided in Table 34 indicates that total greenhouse gas emissions associated with these activities will fall well below the SLO APCD threshold of significance of 1,150 MT CO_2e/year.

- The various vegetation management treatments recommended by the Draft LMP are designed to mimic the beneficial effects of natural disturbances, which remove biomass (i.e., grazing and prescribed fire). However, grazing and periodic fires (about one fire every six years on the Chimineas units between 1917 and 2010) are part of the baseline conditions (Section 4).
- Implementation of the management actions of the Draft LMP will promote the enhancement of vegetation communities, which in turn will help maintain the capacity of the CPER for GHG sequestration.
- Although the regulation of greenhouse gas emissions associated with motor vehicle use is beyond the authority of the Department, the Draft LMP recommends BMPs to reduce motor vehicle use associated with management of the CPER.

As a result, impacts associated with climate change are expected to **less than cumulatively considerable (Class III).**

Impact 5.3-6 — Additional Mitigation

No additional mitigation is needed.

5.3.12.3 Risk to Sensitive Resources Associated with Climate Change

Impact 5.3-7	**The resources of the CPER, and in particular special-status species, may be subject to additional risk of physical harm resulting from climate change. This impact is considered less than cumulatively considerable (Class III).**

Section 15126.2(a) of the State CEQA Guidelines requires an EIR to analyze the potentially significant impacts associated with placing projects in hazardous locations, including locations potentially affected by climate change. Implementation of the management actions recommended by the Draft LMP is expected to have a beneficial effect on the populations of plant and animal species on the CPER, and especially those listed by the state and federal endangered species acts. Accordingly, the biological resources of the CPER will be subject to climate change impacts resulting from past, present, and future GHG emissions.

The predicted hotter and likely drier climate can have important implications for management of the biological systems in the CPER (CDFW 2018). Increased temperature and potential decreased rainfall would likely cause plant species to shift further north or up elevation gradients, thus altering the composition and structure of the vegetation within the CPER. Plant species at the edge of their temperature or precipitation tolerances within the region may be extirpated from the CPER, while climate change could promote the spread of other species adapted to the hotter or drier conditions (CDFW 2018).

Climate change can similarly affect the abundance and distribution of animal species, both directly and indirectly (via vegetation changes). Site-specific impacts of climate change for the CPER are difficult to predict not only because of uncertainty in the magnitude and direction of climate change, but also because the myriad indirect effects and complex interactions that will ultimately determine the impacts the change in climate on individual plant and animal species. However, specific impacts may include:

- **Reduced Plant Productivity**. Reduced plant productivity, particularly in the herb-dominated systems including the grasslands. Interannual variability in rainfall greatly influences plant species composition, plant cover and height, and residual dry matter which affects numerous soil and plant processes (CDFW 2018).
- **Changes to Populations**. Reduced populations of herbivores and granivores relying on plant production, and thus reduced populations of predators of these species.
- **Water Resources**. Reduced flow in drainages, springs, and seeps, and shorter hydroperiod in ponds, which can influence not only aquatic species but also the numerous terrestrial species that rely on them. From a statewide perspective, water resource management in the face of climate change is among the largest challenges facing California. Currently, about 50 percent of water used in California for human consumption comes from groundwater, and current research is focused on understanding the interplay of groundwater supplies, precipitation patterns, groundwater recharge, snowpack, and usage in California. Since the CPER will continue to rely on groundwater resources in the future, the effect of climate change on groundwater resources will be particularly important.
- **Hydrology and Flooding.** Although the CPER features many streams, flooding is currently not a serious problem. At present, it is uncertain whether areas like Carrizo Plain or the Cuyama Valley will experience an increase, decrease, or no change in precipitation due to climate change. Atmospheric modeling at scales that can provide meaningful precipitation projections at the county level is an active area of research, and in coming decades, a better scientific foundation for forecasting this impact at the city or county level will likely be available. However, regional climate change modeling for central California shows a decrease in precipitation falling as snow and an increase in rainfall during the winter, as well as an increase in the frequency of intense rainfall events (Knowles et al. 2007). These conditions will heighten local flood risk. On a broad level for California, there is a potential increase in the severity of winter storms due to climate change (CNRA 2009). If this were to occur, peak stream flows may increase, which would increase the risk of flooding beyond the existing risk levels in the CPER.
- **Wildfire Risk.** With climate change, the potential for wildfires may increase due to changes in fuel conditions, such as forests transitioning to chaparral and grasslands, and changes in precipitation, including longer dry seasons and higher extreme temperatures; wind, which affects the spread of wildfire, and other variables. Wildfire intensity and frequency have increased in recent years across the western United States. The total area burned has increased nearly seven times for the period between 1987 and 2003 as compared to the period between 1970 and 1986 (Westerling et al. 2006). The wildfire season in the western U.S. has increased by 78 days since 1979. Recent research indicates that statewide occurrence of fire could increase by between 37 and 94 percent before 2085 depending on the level of global warming assumed (Westerling et al. 2009). Prescribed burning in the CPER is expected to help reduce the emission of greenhouse gases while reducing the fuel available for a large-scale wildfire (Impact 5.3-6). In this case, management actions of the CPER may at least partially offset the increased potential for wildfire associated with climate change.

Changes to the CPER's water supplies, flooding, wildfire potential, air quality and other areas are reasonably foreseeable, although not quantifiable at present. The Draft LMP incorporates an adaptive management strategy for the CPER, in which management actions are informed and amended as needed in response to the ongoing monitoring of conditions. To the extent feasible, monitoring of the CPER will be conducted using approaches designed to detect responses to climate change. Such changes may influence whether prescribed management actions are appropriate and necessitate adjustments as part of the adaptive management approach incorporated in the Draft LMP (CDFW 2018).

Impact 5.3-7— Conclusions/Summary of Impact

The Draft LMP recommends a wide range of management actions specifically aimed at improving the native habitats which will help maintain the capacity of the CPER to sequester greenhouse gases from the atmosphere. The adaptive management strategies outlined in the Draft LMP will ensure that the threat to special-status plants and animals associated with climate change will be addressed to the extent possible over the timeframe of the LMP. By applying these actions, exposure of the resources of the CPER to the effects of climate change will be reduced to a level that is less than cumulatively considerable.

Impact 5.3-7 — Additional Mitigation

No additional mitigation is required.

5.3.12.4 Cumulative Emission of Air Pollutants

Impact 5.3-8	**The management actions recommended by the Draft LMP, when added to other closely related past, present, and reasonably foreseeable future projects in the region, will contribute to cumulative air quality impacts and could conflict with ozone and particulate matter attainment efforts. This impact is considered less than cumulatively considerable (Class III).**

As discussed under impacts 5.2-2, 5.2-3 and 5.2-4, implementation of the LMP is expected to have a less than significant project-level and cumulative impact on air quality, so long as the recommended management actions and BMPs are applied. Emissions associated with construction activities, mobile sources, and management activities such as vegetation management, together with emissions associated with regional construction activities and development, will contribute to the cumulative degradation of air quality and could hinder efforts to achieve and maintain the state 1-hour, and 8-hour ozone standards and the state PM PM_{10} standard.

Impact 5.3-8 — Conclusions/Summary of Impact

Air quality impacts associated with construction activities and ongoing management actions are considered **less than cumulatively considerable (Class III)** because:

- The Draft LMP is consistent with the 2001 Clean Air Plan (SLO APCD 2001) and subsequent amendments which demonstrates attainment of the state ozone and PM PM_{10} standards (Impact 5.3-5); and
- New construction will be subject to project-specific CEQA compliance which will identify the appropriate project-specific BMPs to be applied to mitigate potential impacts to air quality. This, in turn, will mitigate project-level and cumulative air quality impacts to a less than significant level.

Impact 5.3-8 — Additional Mitigation

No additional mitigation is required.

5.4 Biological Resources

5.4.1 Introduction

This section addresses impacts to biological resources that may result from implementation of the management actions recommended by the Draft LMP. It describes existing environmental conditions on the CPER and in the broader area, describes existing laws and regulations relevant to the protection and management of biological resources, identifies and analyzes potential environmental impacts during implementation of the Draft LMP, and recommends measures to reduce or avoid adverse impacts. In some cases, compliance with these existing laws and regulations would serve to reduce or avoid certain impacts that might otherwise occur with the implementation of the Draft LMP. This section ends with a discussion of the cumulative impacts to biological resources.

5.4.2 Sources Used in This Analysis

This analysis is based on a review of applicable law, local planning documents, and publications including:

- Draft Land Management Plan for the Carrizo Plains Ecological Reserve (CDFW 2018);
- Biological resources inventories/surveys prepared by the Department and others. Unless otherwise referenced, data for biological surveys is taken from the Draft LMP (CDFW 2018);
- Environmental compliance documents adopted by the Department, BLM, San Luis Obispo County, and the USFS (USDA 2005a, b, BLM 2010, BLM 2014, and SLO County 2011a, b); and
- A review of relevant scientific literature regarding species and habitats on the CPER.

A complete list of sources is provided in Section 10 References.

5.4.3 Scoping Issues for Biological Resources

During the 30-day public review period for the Notice of Preparation, written and oral comments were received from agencies, organizations, and the public. The following issues relating to biological resources were raised during the scoping process and are addressed in this section:

- Consider a range of vegetation management options in the EIR, including a no grazing and a 'free use' grazing option;
- Evaluate options to ensure public oversight of management activities;
- Evaluate a range of public access options to the CPER, including camping, bicycling and walk-on access;
- Evaluate the feasibility of a visitor-serving facility at the Chimineas Unit Headquarters;
- Evaluate the adequacy of law enforcement to ensure hunting regulations are enforced;
- Assess the potential for portions of the CPER to be designated as wilderness;
- Consider the impacts of land management, especially grazing and burning, on pronghorn;
- Analyze the impacts of livestock grazing on the CPER, including a range of grazing alternatives;
- Evaluate the impacts of grazing on rare and special-status plants and animals;

- Evaluate whether the existing fences around the ponds will protect pond turtles that take shelter in surrounding habitats during the winter;
- Evaluate the impacts of livestock grazing on grasshopper sparrows and other ground-nesting birds;
- Identify pronghorn fawning areas and evaluate the impacts of livestock grazing on these areas;
- Evaluate grazing impacts to soil crusts;
- Evaluate grazing impacts to blue oak regeneration;
- Assess impacts based on adequate surveys for rare species;
- Include a discussion of whether existing fencing blocks pronghorn movement;
- Evaluate the use of herbicides and pesticides on the CPER;
- Evaluate the impacts of the road system on the ecology of the CPER;
- Include maps illustrating the fire history, and which areas would be considered for the proposed prescribed burning;
- Assess the impacts of providing additional water sources on the CPER; and
- Include the Bakersfield Proposed RMP/Final Environmental Impact Statement (2012) in both its Land Use and Planning and the References section.

5.4.4 Environmental Setting

The following discussion of the CPER and its environmental setting was derived from the Sections 2.1, 3.1 and 3.2 of the Draft LMP (CDFW 2018).

The CPER occurs at the nexus between two of California's biogeographic regions, which have been identified based largely on patterns of floristic diversity and community structure (Hickman 1993). The Elkhorn and Panorama units are located within the Carrizo Plain—a western extension of the San Joaquin Valley Bioregion, which primarily supports grasslands and saltbush scrub communities (Figure 2). Because of the rain shadow created by the Coast Range Mountains to the west, the arid Carrizo Plain and larger San Joaquin Valley Bioregion feature elements of the Mojave Desert Bioregion, which is located just 50 miles to the east. On the western portion of the CPER, higher rainfall within the southern La Panza Range Mountains supports coastal scrub, chaparral, and blue oak woodlands characteristic of the South Inner Coast Range Bioregion, which reflect the CPER's location within 35 air miles of the Pacific Ocean (Figure 2). Located between these coastal and desert influences, the Caliente Range on the east side of the Chimineas units, supports a unique mosaic of assemblages including desert scrub and juniper woodlands.

5.4.5 Prior and Ongoing Monitoring Activities

In 2003, the Department Resource Assessment Program (RAP) initiated an inventory and investigation of several specific management issues in Southern California and the Sierra Nevada regions. In 2004, the program expanded, with assignment of biologists throughout the state to the program. The goal was to inventory resources on Department lands, with specific inventory needs identified in each region. Statewide goals were to:

1. Start with an inventory of wildlife resources and habitats,

2. As the inventory progressed, develop long-term monitoring of "indicator" species to help assess changes in habitat condition, and
3. If further resources are available, develop research projects to explore specific management questions.

Because the inventory was designed to assess Department lands within a landscape context, work extended beyond Department-owned lands as access and funding were available.

In the Department's Central Region (Region 4), which includes the CPER, biologists decided to inventory special-status species, as well as non-native invasive species related to land management. High priority was given to sensitive resources that may be impacted by planned activities on Department lands, and, as needed, for completion of management plans such as the Draft LMP. Surveys were initiated to determine presence, and in some cases, characterize the distribution of, special-status species; to establish an index of population trend for "indicator" species; and to assess habitat conditions. To assess sensitive species in a broader ecosystem context, inventories have included incidental detections of other fauna, vegetation, predator and prey species, and the distribution of non-native invasive species.

The Department commenced with biological inventories of the Chimineas units in 2002. Initial efforts including surveys for small mammals, rare plants, birds, reptiles and amphibian were opportunistic, as specific sampling protocols were not yet developed. However, locations of any sensitive species observed during these efforts, or observed incidentally during other activities, were recorded with a Global Positioning System (GPS) and incorporated within a Geographic Information System (GIS) database. All of field work was conducted at the appropriate times of year, and over multiple years. Efforts have been made to survey the entire Reserve, with attention given to areas supporting special-status species and sensitive communities. The VegCAMP points (discussed below) were sampled in a more randomized systematic approach based upon vegetation type and aerial imagery. In these cases, all of the plants in the stand were listed including their relative cover.

Table 37 summarizes the studies; Appendix F provides maps showing the location of the survey efforts as well as survey results, which are described below.

5.4.5.1 Vegetation Mapping

To facilitate development and implementation of the Draft LMP, the California Department of Fish and Wildlife's Vegetation Classification and Mapping Program (VegCAMP) conducted a site-specific vegetation classification and mapping project (CDFW 2010b). Data from 379 vegetation Rapid Assessment surveys (Figures F-1 and F-2; Appendix F) conducted between 2005 and 2008 were analyzed using cluster analysis to produce a vegetation and mapping classification for the 39,597-acre study area. The area was delineated and attributed by vegetation type; total cover; conifer tree, hardwood tree and total tree, shrub or herb cover; impacts present; and a subjective assessment of site quality using one-foot resolution aerial imagery from 2007. The classification and map follows the National Vegetation Classification Standard and Federal Geographic Data Committee standard and State of California Vegetation and Mapping Standards. The minimum mapping unit was one acre, with 0.5 acre for wetland or special types. After the draft map was completed, about 50% of the mapped patches were verified in the field; knowledge gained during this field reconnaissance was used to also correct patches that were not visited.

Table 37: Surveys and other Studies Conducted by the Department to Inventory and Monitor Biological Systems within the CPER (Survey locations are illustrated in Appendix F)

Type	Subject	Description
Inventories and General System Monitoring	vegetation	Rapid assessment protocol to examine plant species composition and structure throughout the CPER and create a floristic-based classification and map (CDFW 2010b).
	vernal pools	Presence/absence sampling for special-status invertebrates.
	blue oak recruitment	Examine the size structure and recruitment of blue oaks in 62 sample sites within the Chimineas units.
	rare plants	Rare plant surveys to document occurrences of special-status plants within the CPER.
	birds	Visual encounter surveys and avian point counts throughout the Chimineas and American units to inventory birds, evaluate distributions and habitat associations, and establish baseline abundance. Incidental detections of special status or other important bird species encountered on the CPER, including Christmas bird counts, were also recorded.
	amphibians	Acoustic surveys and dip netting of ponds in the Chimineas units. Protocol-level surveys for California red-legged frog in all available habitat within the Chimineas units. Also, USGS genetic analysis and chytrid fungus assessment of species on Cuyama River.
	terrestrial reptiles	Visual encounter surveys, cover boards, and drift fences with funnel/pit traps to inventory reptiles in the Chimineas units
	small mammals	Small mammal traps to inventory the Chimineas, Panorama, and Elkhorn units
	mesocarnivores	Spotlighting surveys, and camera and scent stations within the Chimineas units to evaluate distributions and abundance of San Joaquin kit fox, American badger, and other species.
	bats	Acoustic surveys to identify bat species utilizing the CPER and evaluate their habitat use
Population Monitoring	western pond turtle	Telemetry surveys within the Chimineas units to examine pond and upland habitat use. Demographic sampling to determine population characteristics.
	Giant kangaroo rat	Aerial surveys to map burrow locations (precincts) and small mammal trapping
	San Joaquin kit fox	Quarterly spotlighting for San Joaquin kit fox (and other carnivores) using transects established in 1970 on the Carrizo and Elkhorn plains, along transects that traverse the Elkhorn Unit and portions of the American Unit.
	upland game birds	Hunter take per unit effort, sex/age ratio, and brood counts through hunter reporting at the Chimineas units.
	black bear	Scent stations in the Chimineas units monitored as part of a statewide study. Camera station within the Chimineas units.

Table 37: Surveys and other Studies Conducted by the Department to Inventory and Monitor Biological Systems within the CPER (Survey locations are illustrated in Appendix F)

Type	Subject	Description
	mule deer	Aerial surveys to assess abundance following standardized methods employed statewide, as well as roadside surveys of the Chimineas units.
	pronghorn	Annual surveys of herd size and fawn production throughout the Carrizo Plain
	tule elk	Telemetry surveys to track movement of the tule elk within two subherds within and around the Chimineas and American units, Flights to survey the herds,

5.4.5.2 Oak Recruitment Surveys

Department biologists have conducted surveys to assess blue oak recruitment within oak woodlands and savannas in the Chimineas units of the CPER. The 62 sample sites (Figure F-3) were selected from areas mapped as oak woodland and which featured existing vegetation composition data from the VegCAMP surveys (Figures F-1 and F-2). Each point functioned as the center of a 100 m by 100 m plot. All of the oaks within the survey plot were classified as to diameter at breast height (DBH) using the following size classes: Class 1=<1", Class 2=1"-6", Class 3=6"-11", Class 4=11"-24", Class5=>24". The study revealed that the mean tree density when plotted against oak size class exhibits a typical 'inverse J'-shaped curve; the proportion of trees is greatest in the smallest size class, and decreases to the largest size class (Figure 19). These data, which illustrate the relatively high abundance of oak seedlings and saplings in stands with fewer adult trees, suggest that recruitment is occurring within the population. Thus, the blue oak woodlands within the CPER appear to be in good condition in terms of their age structure.

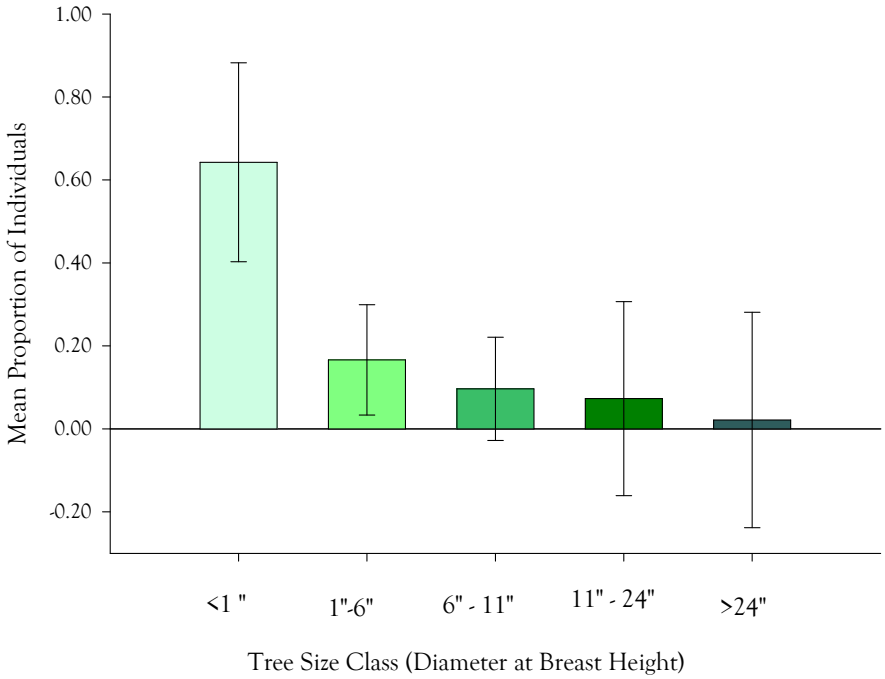


Figure 19: Size Distribution of Blue Oaks within the Chimineas Units

5.4.5.3 Rare Plant Surveys

In addition to the vegetation characterization and mapping described above, which revealed occurrences of rare plants, the Department has surveyed for rare plant species since 2007 (Appendix F, Figures F-4 through F-10). All of the field work was conducted at the appropriate times of year, and over multiple years. Initial efforts were opportunistic, and included recording locations of rare plants encountered. Beginning in 2008, more focused surveys were undertaken with surveys directed to areas where the appropriate soils and/or associated plant species are thought to occur. Since 2008, Department botanists have spent over 3,000 hours searching for sensitive plant populations within the CPER.

5.4.5.4 Wildlife Visual Encounter Surveys

Visual encounter surveys (VES) were conducted in grazed and ungrazed grasslands of the Chimineas units between May 27 and July 4, 2005 (Appendix F, Figures F-11 and F-12). Forty-three, one-half-mile transects totaling 21.5 miles were surveyed throughout the grasslands for birds, reptiles, and mammals and their sign, including dens, scats, tracks, roost sign, and road kill. Surveys were conducted in the morning, and were concluded when ambient temperature reached 90 °F.

5.4.5.5 Avian Point Counts

Avian point counts were conducted on portions of the CPER from 2005 through 2011 using protocols developed by Point Reyes Bird Observatory (Ballard et al. 2003). In 2005, point counts were conducted on grasslands of the Chimineas units between April 20 and May 24 where 33 points were randomly located in ungrazed (CRP) grassland and an additional 31 points were randomly located in grazed grassland. Surveys were conducted for 20 minutes at each point. Between May 4 and June 2, 2006, point counts were conducted in juniper woodland (n=50) and riparian (n=28) communities along the Cuyama River within the South Chimineas Unit. Each point was surveyed for 5 minutes.

Between March 24 and June 22, 2007, point count surveys were conducted at 244 points located throughout the Chimineas and American units. Points were placed at 500 m intervals along internal, unpaved roads, with the sampling point at the edge of the road. Points were placed 250-300 m apart along the Cuyama River to more intensively sample riparian communities. Each point was permanently marked with a metal stake and numbered tag to enable re-sampling. Each point was surveyed once, 133 points were surveyed a second time, and 14 were surveyed three times. Survey duration at each point was 10 minutes, with species recorded at 5 minute intervals. (The time code for birds detected in the first five minutes was 5, and the time code for birds detected between minutes 5 and 10 was 10). In 2008, 2010, and 2011, at least 100 of these points were surveyed in representative habitats between April 1 and June 1.

5.4.5.6 Winter Bird Area Searches

During winter 2010-2011, over 50 constrained areas searches were conducted in grazed and nongrazed grasslands. Each survey location was a 200 m x 200 m square and all birds seen and heard during the walked transects were recorded (Figures F-13 and F-14).

5.4.5.7 Incidental Detections

Detections of special-status species or species considered unusual for a location were recorded by biologists whenever they were encountered on the CPER. Additionally, an annual bird survey similar to the Christmas bird count was conducted by experienced birders from 2006 to 2009 over one weekend in late April. All bird species heard and seen between about 7:00 AM and 3:00 PM were noted and GPS readings were recorded for all special-status bird observations.

5.4.5.8 Mule Deer Counts

The Department has conducted annual mule deer population counts on the Chimineas units since 2004. In conjunction with those counts, large and medium-sized mammals (ungulates, carnivores, and other species of management interest) were also counted. A 25.6 mile transect was driven on three days within one week in the fall of each year. Survey conditions were standardized as much as possible, including weather conditions, observer, vehicle height, and moon phase. Counts took approximately 2.75 hours, and were timed to end near dusk, though the survey timing depended on the number of animals counted. For each animal seen, a location (waypoint and/or mileage) was recorded, as well as perpendicular distance from the road (transect), time observed, and when possible, age class (juvenile, sub-adult, adult), and gender. The number of mule deer observed is shown in Figure 20.

5.4.5.9 Small Mammal Trapping

The Department conducted small mammal trapping within the Chimineas units between 2006 and 2010 (Figures F-13 and F-14). The objectives were to survey for special-status mammal species and to sample all species across the representative areas within each of the main community types (habitat elements) of the CPER. The total trap effort exceeded 3,000 trap-nights.

In 2005 and 2006, trap lines were set in areas expected to support special-status species. Beginning in 2007, the Department established a 100m transect line with 10-meter spacing on a subset of 52 of the avian point count stations, across all habitat types. Five small mammal trap points, spaced 10 m apart, were set up on either side of the road at the avian point count station. Two Sherman live traps were placed at each point on the transect and baited with a commercially available wild bird seed mix. Traps on each transect were operated for one night. Department biologists recorded the species, sex, age (juvenile or adult), weight, and location of each animal captured.

5.4.5.10 Camera Stations

To determine the distribution and relative abundance of mesocarnivores within the Chimineas units, Department biologists used a Geographic Information System (GIS) to develop a property-wide grid system consisting of 100-hectare (ha) sample units. The 100-ha sample unit size was chosen because it encompasses the minimum home range size of two of the target species: ringtail (*Bassariscus astutus*) and Western spotted skunk (*Spilogale gracilis*; Figure F-15).

Within each sample unit, one passive infrared camera trap was placed in an area that had the best chance of being visited by the target species, including game trails, rock outcroppings, and stream sides. If habitat was equal across the sample unit, the camera was placed in the middle. The type of cameras used included a mix of commercially available scouting cameras as well as some high quality “homemade” models. Each camera

trap was baited with scent lure and canned mackerel and monitored weekly until a minimum of 28 camera-nights had been achieved. Cameras were programmed to run for 24 hours/day

Habitat was characterized across the study area using a combination of GIS and manual habitat sampling. Each camera trap location was marked using a GPS unit and those points were plotted on existing digital vegetation maps of the area. Landscape features such as the distance to nearest water source, distance to nearest road, and distance to nearest camera trap were assessed using GIS. Habitat components such as elevation, slope, aspect, canopy cover, and distance to rock outcroppings were assessed from the ground. Vegetation within an appropriate radius of each camera trap was sampled from the ground. Since August of 2009, over 2,500 trap nights have been sampled using camera traps in all representative habitat types, including grazed and ungrazed grasslands.

5.4.5.11 Spotlighting Surveys

Beginning in 1970, two spotlight survey routes, which cross the Elkhorn and American units, were surveyed quarterly (March, June, September, and December) on 67.8 miles on both Elkhorn and Soda Lake roads. Two observers (including the driver) spotlighted on their prospective side of the vehicle which was driven at approximately 15 mph. Spotlights with a minimum of one million candle power were used and vehicle mileage was recorded for all carnivores. Beginning in 2000, when kit foxes were identified, a GPS location was recorded and a hand-held range finder was used to determine the perpendicular distance from the road to the original location where the fox was first observed. The total number of lagomorphs observed on the survey routes as well as a rough estimate of the number of small mammals was also recorded. Figure 20 illustrates the total number of San Joaquin kit fox observed during the summer surveys on both transects between 1990 and 2012.

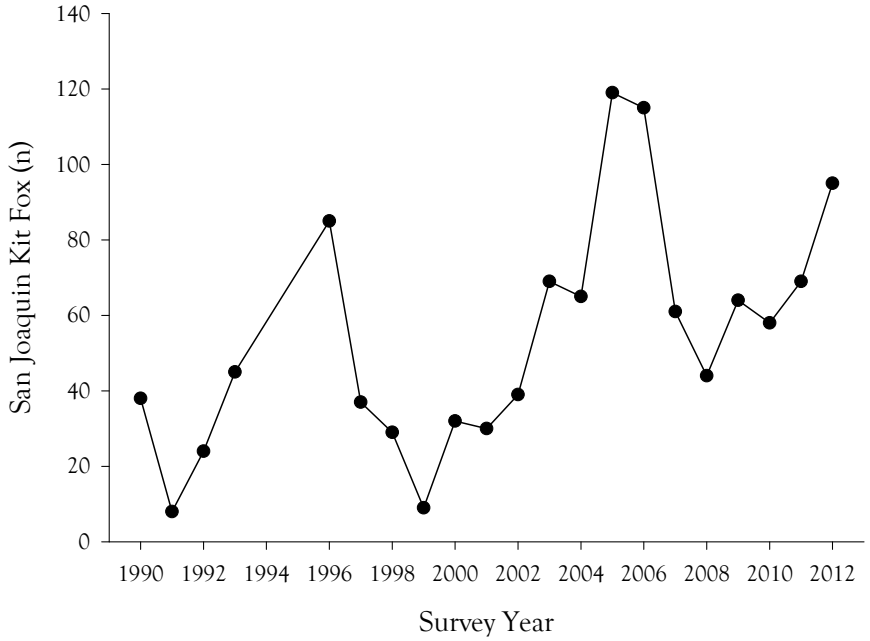


Figure 20: San Joaquin Kit Fox Counts

5.4.5.12 Bat Surveys

The Department used acoustical monitors (e.g., Anabat) set up at several locations associated with water in 2005, 2006, 2008, and 2010 to survey bats. In addition, the Wildlife Society (2009) held bat ecology workshops on the CPER in 2008 and 2009, which involved mist netting as well as acoustical monitoring. Beginning in 2010, the Department started using full spectrum acoustical monitors with auto classifying software (Sonobat), which have enabled the Department to survey far more extensively (Figure F-16).

5.4.5.13 Tule Elk Telemetry Studies and Aerial Surveys

Tule elk (*Cervus elaphus nannodes*) were reintroduced into the Carrizo Plain in the 1980s. To determine movement patterns, home range sizes, and habitat use in the established population, the Department captured and affixed GPS radio collars to 18 (4 male and 14 female) tule elk between 2005 and 2008. Collars were set to record locations every 1 to 13 hours and to remain on the tule elk for approximately 2 years. These studies have yielded over 30,000 locations from tule elk in 4 separate subherds.

5.4.5.14 Western Pond Turtle

The Department collaborated with Dr. David Pilliod, professor at California Polytechnic State University, and others to conduct radio-telemetry studies on western pond turtle within Gillam and Taylor ponds on the North Chimineas Unit (Pilliod et al. 2013). Nine turtles were fitted with a small transmitter and antenna, attached to the carapace with epoxy. Each was selected based on its good apparent health and weight of at least 300 grams, which allows the turtle to adapt to the extra weight of the transmitter and antenna. Telemetry was used to track turtle movement over the approximately 1.5-year life of the transmitter. The tracking data provided information about terrestrial and aquatic habitat utilization, seasonal movements for migration and dispersal, and nesting sites.

The following information was also recorded about all turtles observed during the study: weight (grams), sex (male, female, unknown), age class (years in terms of annuli), carapace length (millimeters), carapace width (millimeters), height of shell (millimeters), plastron length (millimeters), and median plastron length (millimeters). All captured turtles were tagged by placing a PIT (Passive Inducer Transmitter) tag in the body cavity of each turtle with a PIT tagging syringe. PIT tagging is an inexpensive, effective long term tagging tool, with minimal impact on the species. Each tag has a specific bar code which is identified by scanning the individual with a PIT tag reader.

In addition to the telemetry study, Professor David Germano, California State University, Bakersfield has collected size and demographic data for western pond turtles within occupied ponds of the North Chimineas Unit since 2005, providing long term monitoring data.

5.4.5.15 Cover Boards

Cover boards (four feet by four feet) were placed at bird point count locations in November 2010 to survey for reptiles and amphibians (Figure F-17). Additional areas searched for reptiles and amphibians are identified in Figure F-18. Except for the points on the Cuyama River, all of the other bird point count locations have an associated cover board. These cover boards will be used to develop a long-term monitoring program for reptiles and amphibians.

5.4.5.16 California Red-Legged Frog Assessment

Surveys for California red-legged frogs were conducted on the Chimineas units in 2007 and 2008 to evaluate whether the species occupies the ponds and wetland areas. All suitable ponds, streams and rivers located on the Chimineas units were surveyed following the United States Fish and Wildlife Service Protocol (USFWS 2005). Nocturnal visual encounter surveys involved spotlighting, while diurnal surveys included visual encounter surveys and dip-netting for larvae.

In 2010, US Geological Survey biologists sampled CRLF on the Cuyama River for genetic diversity and chytrid fungus (Richmond et al. 2011).

5.4.5.17 Incidental Observations of Amphibians and Reptiles

Locations of amphibian and reptile species of special status were documented whenever they were encountered on the CPER. All of these locations were included into a database which is the basis for the maps in the biological resources section.

5.4.5.18 Vernal Pool Surveys

The Department surveyed the vernal pools to evaluate presence of fairy shrimp (Figure F-19). Samples were randomly collected to adequately represent the pond. A standard 0.5-micron mesh net was used for sampling a one-meter net swipe through the pool at each selected site. A floating wood perimeter was placed in the water to help guide the length of the net swipe.

5.4.6 Habitat and Species Descriptions

The CPER supports a diversity of plant communities (vegetation types). Throughout much of the CPER, these communities occur as a complex mosaic that reflects several factors including (CDFW 2018):

- **Biogeography:** its location at the contact zone between the San Joaquin and the South Inner Coast Range Mountains biogeographic regions, which results in a broad pool of plant species;
- **Topography and Climate:** the variable topography and landforms including mountains, rolling hills, plains, and river valleys, which feature a variety of meso- and microclimate conditions;
- **Geology, Soils, and Hydrology**: a mosaic of geologic formations interact with the climatic variability to result in diverse hydrologic conditions and soils, which in turn create variable conditions for plant growth;
- **Disturbance:** a complex suite of ecological disturbances including fire, flood, bioperturbation (e.g., giant kangaroo rat diggings and clipping), and landslides and other erosion, which result in multiple successional stages across the landscape; and
- **Land Use History:** Variable prior land uses within the CPER, including primarily cattle ranching and farming, which have introduced species and had differential effects on native plant species.

These communities support a wealth of plant species, with more than 430 native plants catalogued within the CPER. The rich flora and variability in plant species composition creates a range of habitats that support diverse animal assemblages, with more than 285 species of vertebrates known to utilize habitat within the CPER (CDFW 2018).

The richness of plant and animal species also reflects the variable habitat conditions maintained within the communities of the CPER. Most notably, the vast grassland communities of the CPER vary in their plant species composition, including dominant species and life forms (e.g., forb-dominated vs. grass dominated) and also their structure (e.g., short statured vs. tall statured). While some species occupy grasslands exhibiting a range of conditions, many plants and animals, including several special-status species, preferentially or exclusively utilize grasslands of one condition or another.

The distribution, condition, and ecology (e.g., associations with physical factors such as soils) of the natural communities, plants, and animals are described below.

5.4.6.1 Vegetation and Plant Species of the CPER

To facilitate development and implementation of the LMP, the 57 vegetation types that were identified and mapped within the Reserve were categorized into ten elements (Table 38, Figure 21). These systems support similar animal species assemblages, and will generally require similar management owing to similarities in

Table 38: Vegetation Elements in each Unit of the CPER

Element	Acres					Percent of Total
	American	Chimineas	Elkhorn	Panorama	Acres	
Grassland	5,962.2	12,747.2	118.8	2,477.8	21,305.9	54.7%
Chaparral	0.0	1,250.5	0.0	0.0	1,250.5	3.2%
Coastal Scrub	102.9	4,513.9	1.2	6.8	4,624.7	11.9%
Desert Scrub	122.7	4,240.9	45.5	363.1	4,770.4	12.3%
Juniper Woodland	2.4	3,034.8	0.0	0.0	3,037.2	7.8%
Oak Woodland	0.0	3,546.7	0.0	0.0	3,546.7	9.1%
Wetland	84.6	21.9	0.0	0.0	106.5	0.3%
Ponds	0.0	7.4	0.0	0.0	7.4	0.0%
Riparian and Riverine	0.7	258.4	0.0	0.0	260.3	0.7%
Cliffs and Rocks	7.3	3.1	0.0	0.0	10.4	0.0%
Other	6.8	25.5	0.0	0.0	32.2	0.1
Grand Total	**6,289.6**	**29,650.2**	**165.5**	**2,847.6**	**38,952.9**	**100.0%**

Source: CDFW 2018

the ecologies of the dominant plant species and disturbance regimes (CDFW 2018). These vegetation elements were created to facilitate the design of ecosystem and multi-species oriented management objectives used for the Department's lands including ecological reserves.

Section 3.1 and Appendix B of the Draft LMP combines the results of the vegetation classification and mapping study with the scientific literature, additional site-specific assessments, and other information available for the region, to characterize the ten main vegetation elements according to: 1) distribution, or occurrence within the CPER units, 2) structure including dominant layers (herbs, shrubs, and trees); 3) species composition, including general extent of invasion by non-native species, and 4) disturbance ecology, which describes the natural processes that remove established plant cover, such as flood, fire, and small

mammal diggings, which can influence the structure and species composition in ways that are important for many plants and animals. Appendix B of the Draft LMP provides detailed descriptions of the individual community types in each element. Additional information about many of these community types is provided in the California Manual of Vegetation (Sawyer et al. 2009).

Community types were identified as 'sensitive' if they met one or more of the following criteria:

1. Listed as a 'special community' on the Department's list of sensitive plant communities (CDFW 2010a);
2. Ranked S1 or S2 on The Nature Conservancy Heritage Program; and
3. Identified as locally rare or unique, including disjunct occurrences or more widespread communities (e.g., coast live oak woodland).

Sensitive communities are mapped in Figures 22 and 23, and their acreage within the CPER units is listed in Table 39. Appendix F provides higher-resolution versions of these maps (Figures F-20 through F-26).

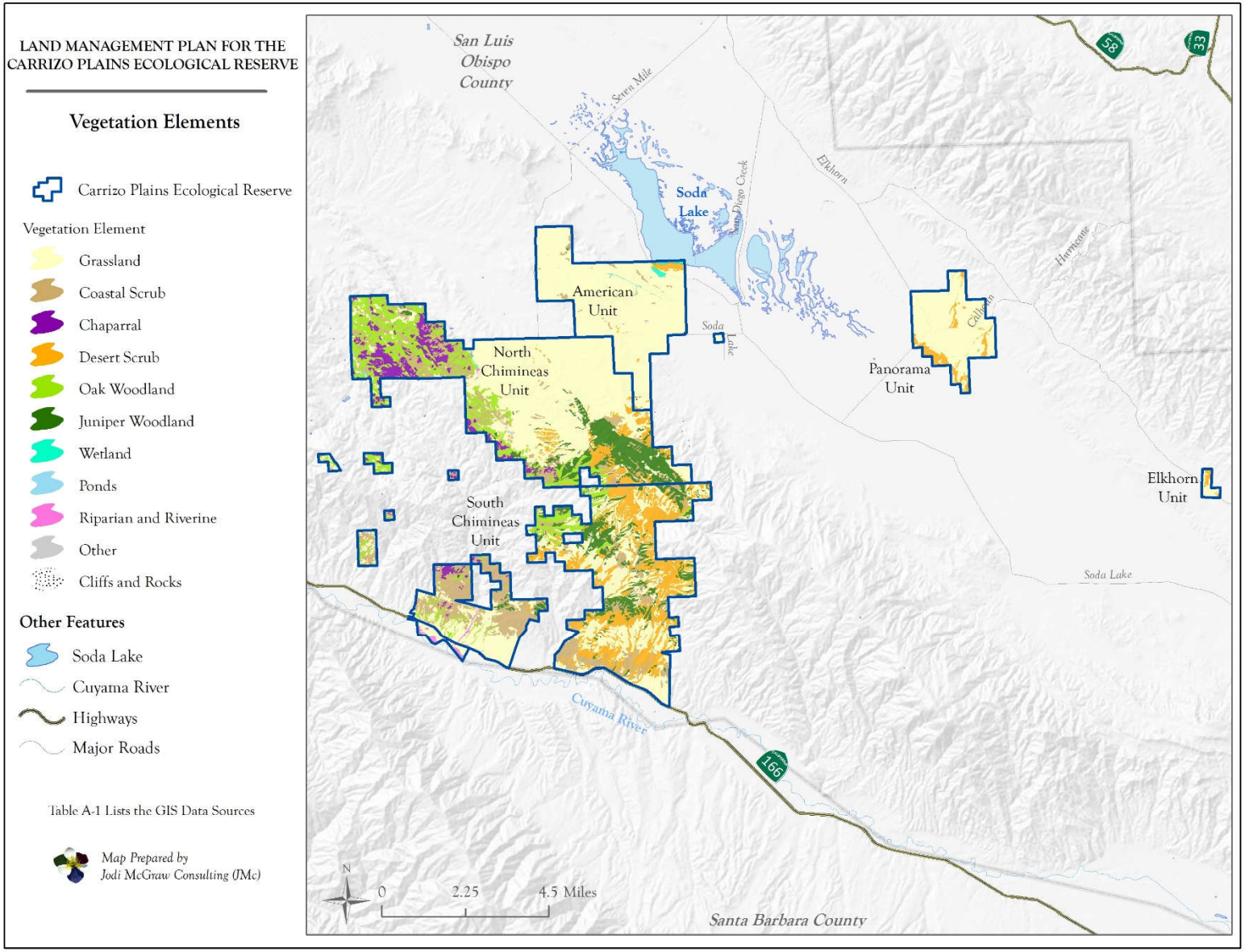


Figure 21: Vegetation Elements of the CPER

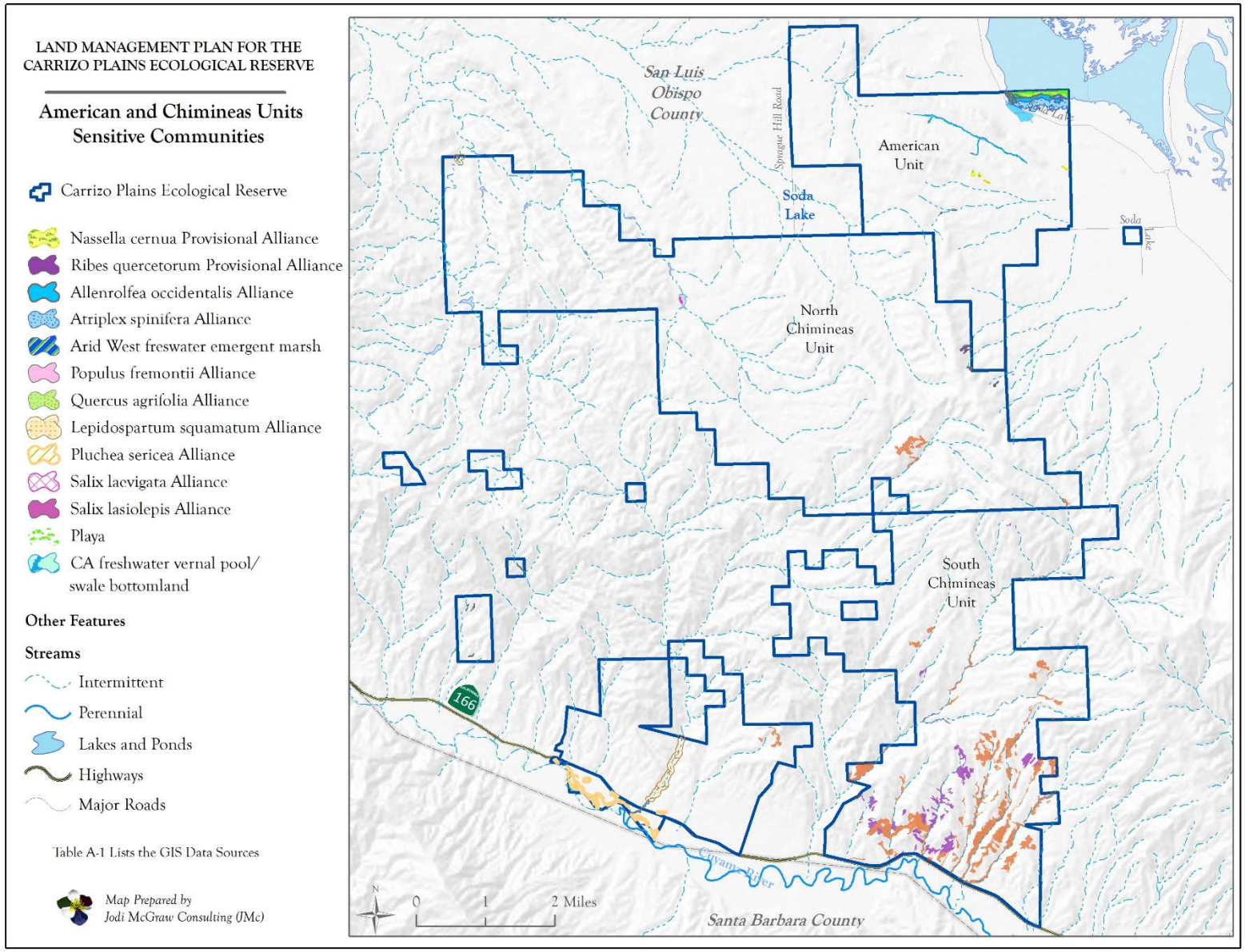


Figure 22: Sensitive Communities of the Chimineas and American Units (Appendix F provides larger-scale maps)

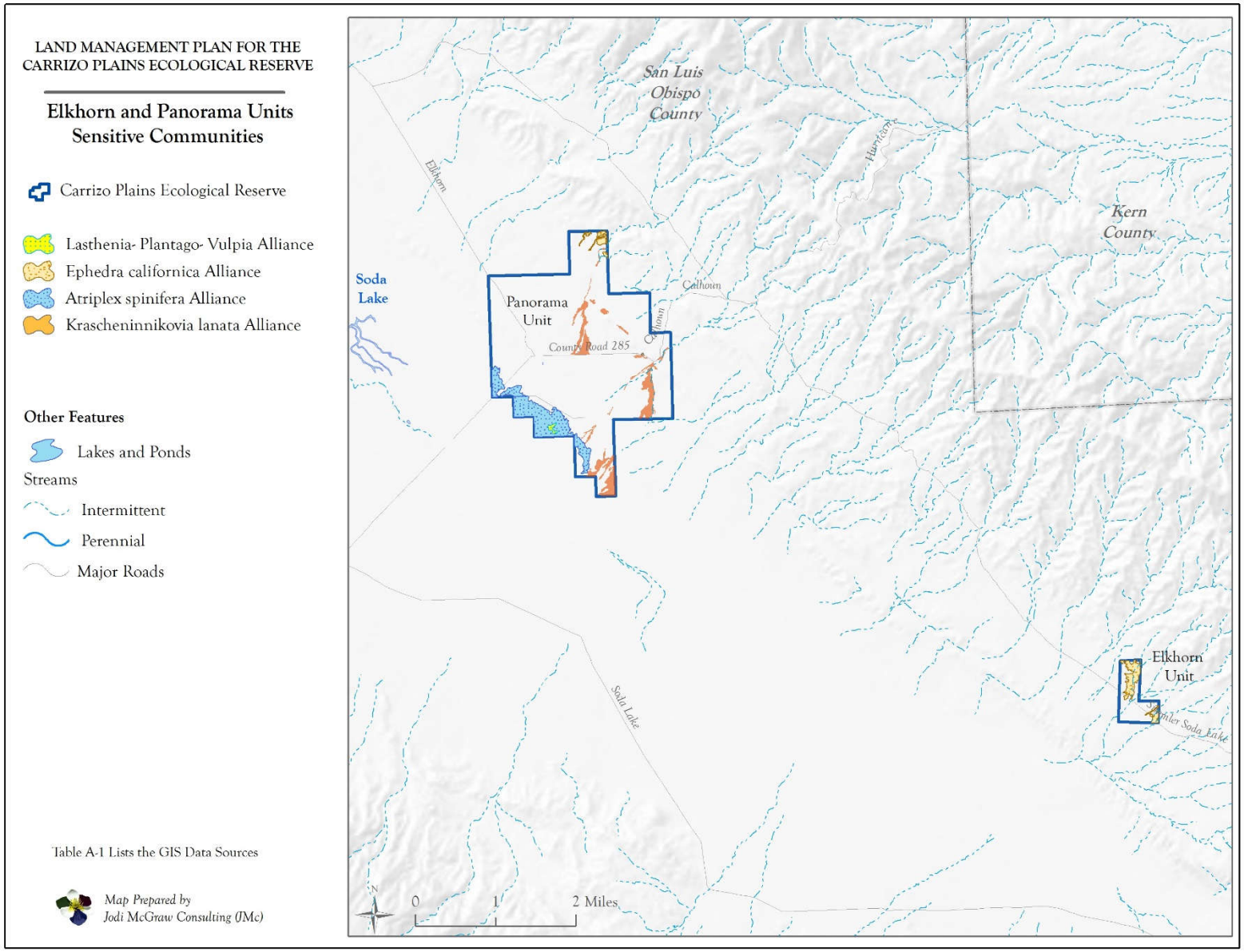


Figure 23: Sensitive Communities of the Elkhorn and Panorama Units

Table 39: Mapped Sensitive Communities of the CPER Units

Element	Mapped Sensitive Vegetation	American		Chimineas (North and South Combined)		Elkhorn		Panorama		Total	
		Acres	Percent	Acres	Percent	Acres	Percent	Acres	Percent	Acres	Percent
Grassland	*Nassella ceruna* Provisional	5.2	0.1%							5.2	0.10%
Desert Scrub	*Allenrolfea occidentalis*	34.7	0.6%							34.7	0.1%
	Atriplex polycarpa			647.6	2.2%			154	5.4%	801.6	2.1%
	Atriplex polycarpa-Atriplex canescens (mapping unit)			157.8	0.5%						
	Krascheninnikovia lanata							0.4	0.0%	0.4	0.0%
	Ribes quercetorum Provisional	0.6	0.0%	7.4	0.0%					8	0.0%
	Desert Scrub Subtotal	35.3	0.6%	812.8	2.7%			154.4	5.4%	1,002.5	2.6%
Juniper Woodland	Juniperus californica	2.4	0.0%								
Oak Woodland	Quercus agrifolia			0.7	0.0%					0.7	0.0%
Wetland	Arid West freshwater emergent marsh			6.3	0.0%					6.3	0.0%
	CA mixed freshwater vernal pool/swale bottomland	11	0.2%	5.1	0.0%					16.1	0.0%
	Distichlis spicata	31.8	0.5%							31.8	0.1%
	Playa	41.9	0.7%							41.9	0.1%
	Wetland Total:	84.7	1.3%	11.4	0.0%					96.1	0.2%
Ponds/Riparian and Riverine	Reservoir and Ponds	0.7	0.0%	7.4	0.0%					8.1	0.0%
Cliffs and Rocks		7.3	0.1%	3.1	0.0%					10.4	0.0%
	Total Acres and Percent by Unit	**135.6**	**2.2%**	**835.4**	**2.8%**	**0.0**	**0%**	**154.4**	**5.4%**	**1,125.4**	**2.9%**
	Total Acres in the Units and Reserve	**6,289.6**		**2,9650.2**		**165.5**	**0.00%**	**2,847.6**		**38,952.9**	

Source: CDFW 2018

5.4.6.2 Animal Species and Habitats of the CPER

The CPER supports a diverse assemblage of native animal species, which reflects the CPER's biogeography as well as the rich mosaic of relatively intact habitats. The CPER is known to support at least 287 species of vertebrates, including 7 fishes, 6 amphibians, 25 reptiles, 194 birds, and 55 mammals (CDFW 2018). Though little information is available about invertebrate species, their richness likely reflects the diversity of biogeographic influences and plant species and communities within the CPER.

5.4.7 Special-Status Plant and Animal Species

The CPER supports occurrences of numerous rare plant and animal species. These include species that have been listed as threatened, endangered, or of other special status under one or more of the following:

- **Federal Endangered Species Act**: listed or proposed for listing as threatened or endangered;
- **California Endangered Species Act**: listed or a candidate for listing;
- **Fully Protected Species**: listed under California Fish and Wildlife Code;
- **Species of Special Concern**: species of special concern on the special animals list (CDFW 2018);
- **California Rare Plant Rank**: plants that are rare, threatened, or endangered in California (CRPR Ranks 1B and 2);
- **Western Bat Working Group**: species ranked as 'high' on the regional priority matrix;
- **CEQA**: other species that meet the definition of rare or endangered under CEQA, including those are not listed but known to be very rare or declining.

Figures 24 and 25 illustrate the observations of special-status animals on the CPER while Figures 26 and 27 illustrate the occurrence of special-status plants. Appendix E of the Draft LMP provides species profiles for each species, which describes their distribution, life history, and threats, focusing on information that is relevant for management within the CPER.

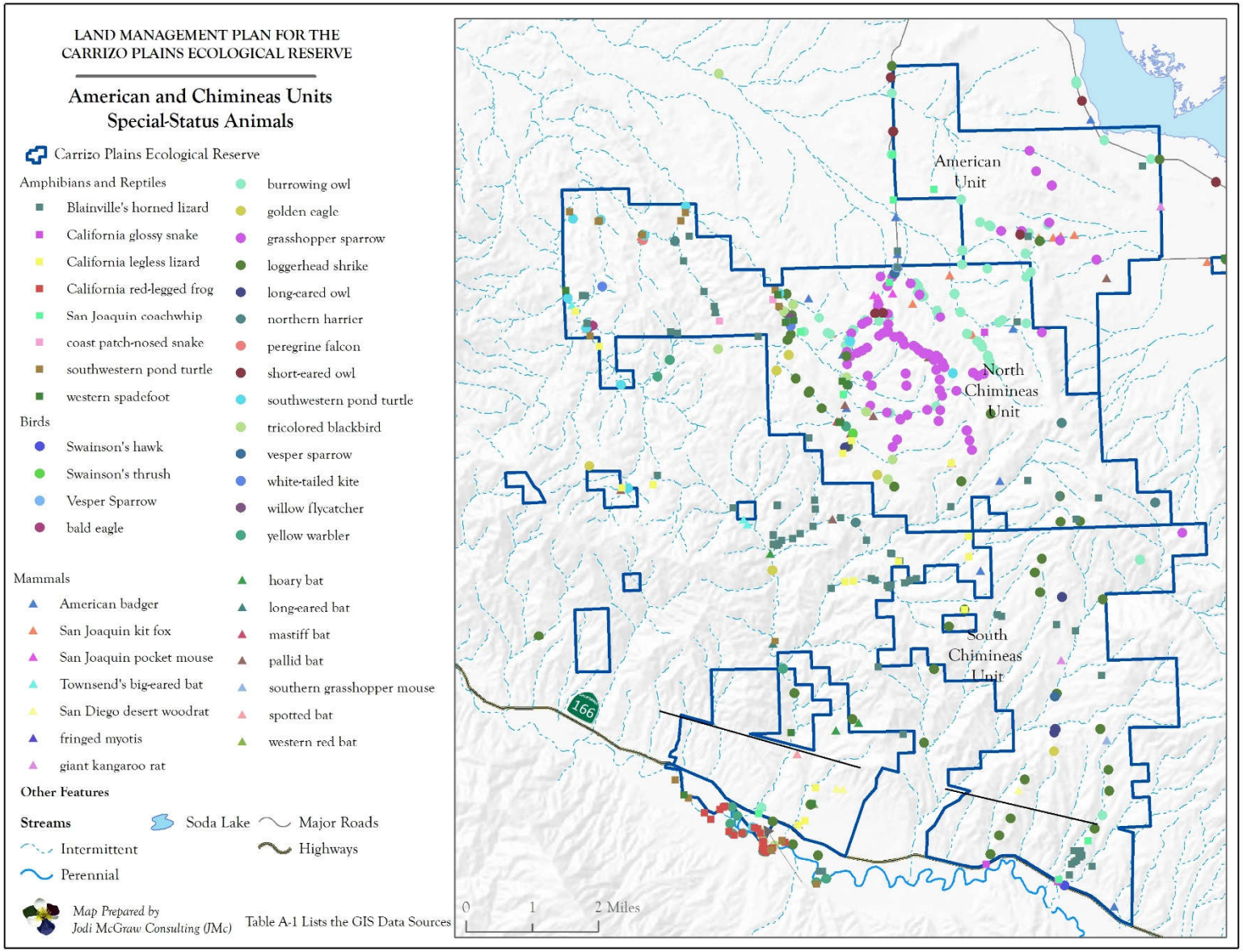


Figure 24: Observations of Special-Status Animal Species on the American and Chimineas Units

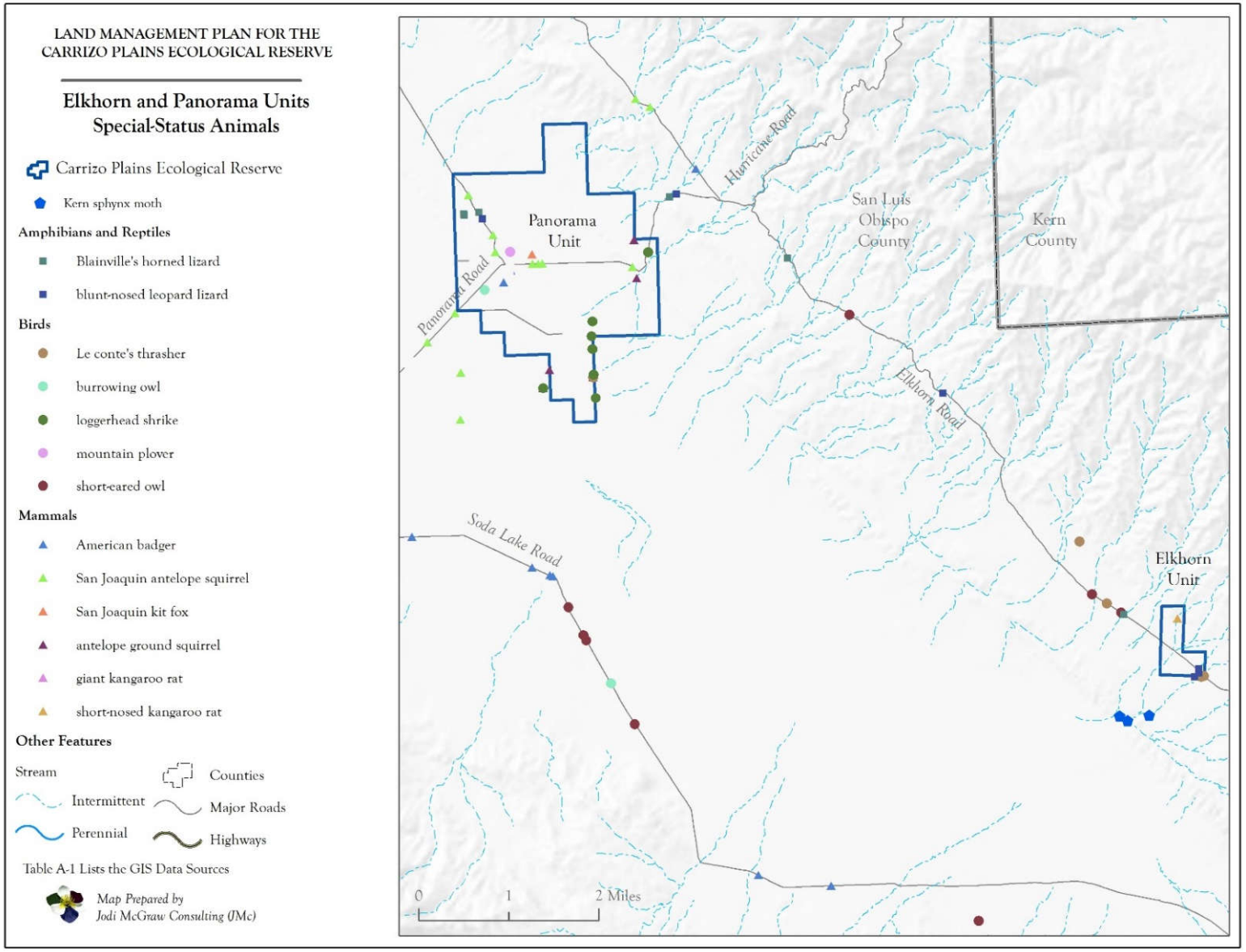


Figure 25: Observations of Special-Status Animals Species within the Panorama and Elkhorn Units

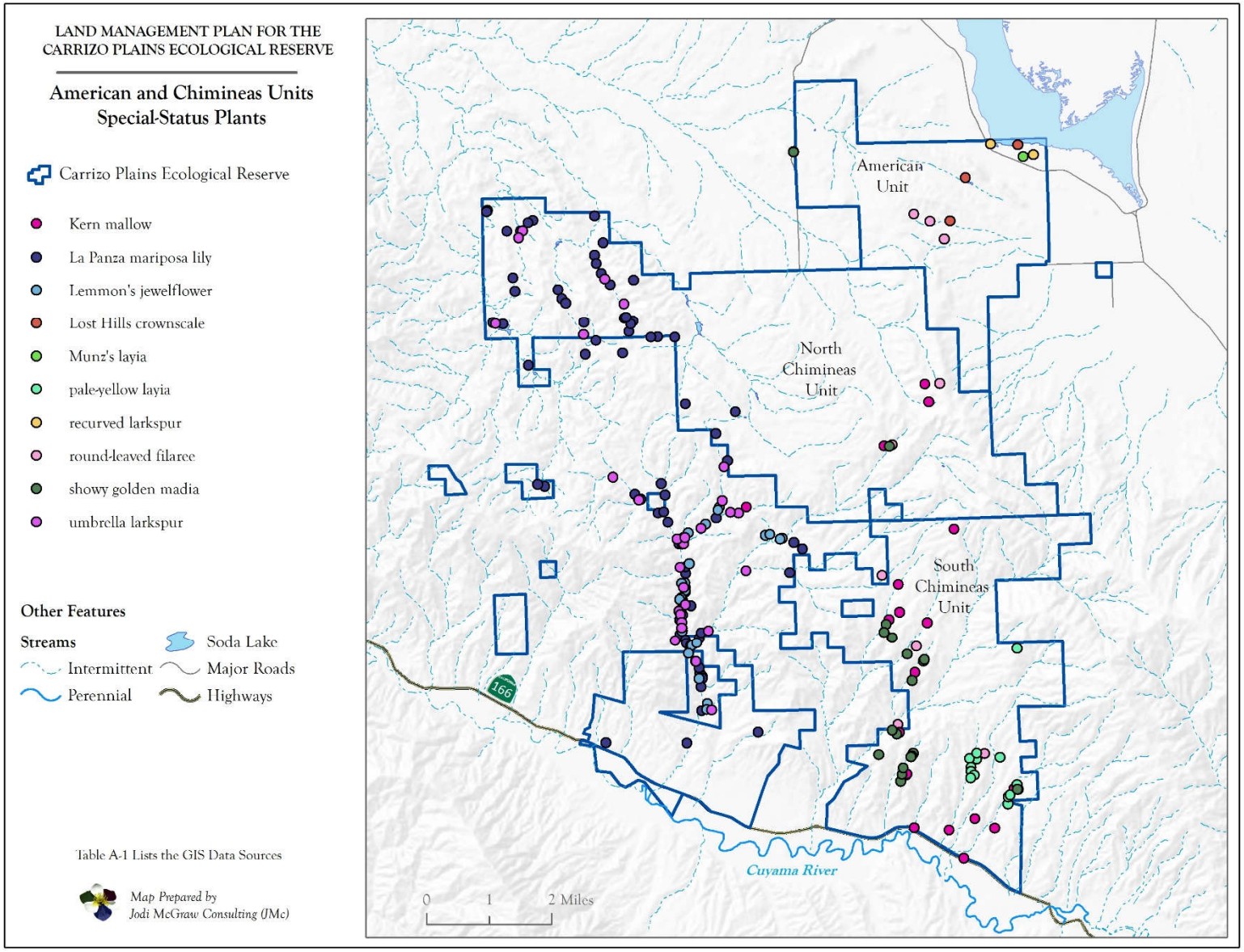


Figure 26: Observations of Special-Status Plants within the American and Chimineas Units

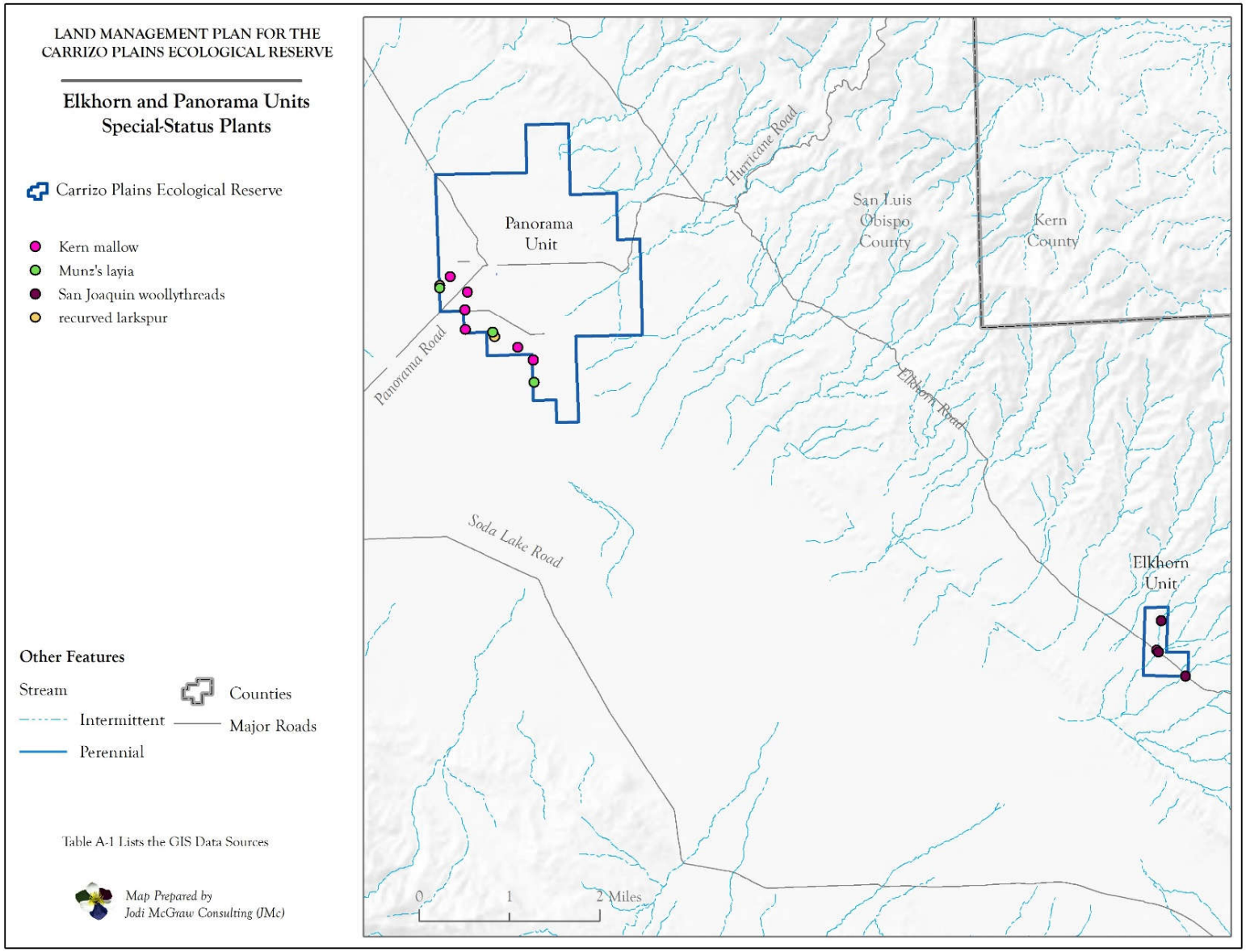


Figure 27: Observations of Special-Status Plants within the Panorama and Elkhorn Units

5.4.8 Native Ungulates

The CPER supports three species of native ungulates that are actively managed by the Department as part of a specific program: tule elk, pronghorn, and mule deer. The Department works collaboratively with various organizations including the California Deer Association and Rocky Mountain Elk Foundation, to develop habitat management and enhancement projects for these species. The following sections describe their ecology and role of management within the CPER as part of the Department's broader programs.

5.4.8.1 Tule Elk (*Cervus elaphus nannodes*)

The tule elk is a large ungulate in the Cervidae that is endemic to California, where it historically occupied central California, including the Central Valley and San Francisco Bay Area (McCullough 1969). Approximately 300 tule elk currently utilize habitat within the Chimineas and American units of the CPER (CDFW 2018). Tule elk within the CPER preferentially occupy the CPER's grasslands, though they occasionally also utilize the adjacent desert scrub, coastal scrub, and oak woodland and juniper woodland habitat, particularly in the South Chimineas Unit where the vegetation occurs as a mosaic (Stafford and Hobbs 2013). Within the North Chimineas and American Units, tule elk exhibit a strong preference for the taller structured grasslands located within the management units that were placed into Conservation Reserve Program by the prior landowner in the late 1980s and have remained largely ungrazed by cattle since that time. Tule elk utilize much of the grassland habitat within the American Unit, which has not been grazed since being incorporated into the CPER.

Research using radio-collared tule elk has helped the Department understand aspects of the species ecology, including habitat use and carrying capacity. At present, the Department believes that the tule elk herd can be increased to 500 individuals. Between 2001 and 2011, the Carrizo herd has increased by 25% (Figure 28; CDFW 2018).

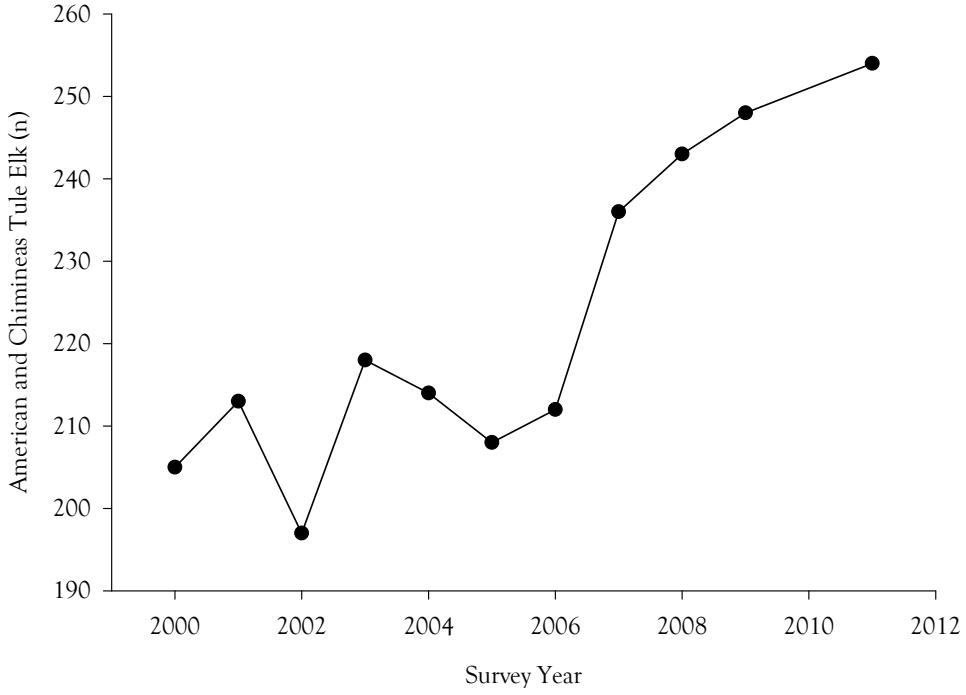


Figure 28: Elk Survey Counts for the American and Chimineas Units

5.4.8.2 Pronghorn (Antilocapra americana)

Within the Carrizo Plain region, pronghorn (*Antilocapra americana)* occur within grasslands of the plain and adjacent foothills. Within the CPER, pronghorn have been primarily observed on the American Unit with occasional use of the Panorama Unit in spring. A few individuals have been sporadically observed in the grasslands on the North Chimineas Unit and may also occasionally utilize the Elkhorn Unit as well (CDFW 2018). The Carrizo Plain population is thought to be limited by recruitment, which may reflect both high rates of fawn predation as well as low quantity and quality of forage and poor cover at fawn bed sites (Longshore and Lowrey 2008, Johnson et al. 2013).

From 1996 through 2001, up to five male pronghorn were taken annually within the Carrizo Plain region through a limited hunting program (Sommer 2012). In 2002, the population was determined to be insufficient to support an ongoing harvest and pronghorn hunting has not occurred in the area since that time (Figure 29). Studies are being conducted to understand the factors that limit the population within the region, including the role of recruitment and stochastic events (Longshore and Lowrey 2008, Johnson et al. 2013). The Department's goal for pronghorn within the Carrizo Plain region is to maintain a population of 300 individuals (Sommer 2012).

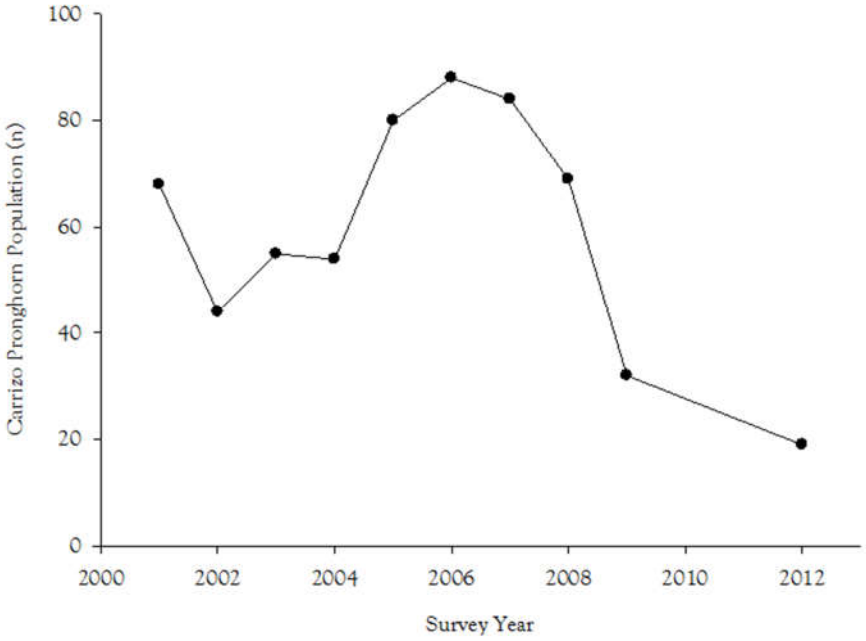


Figure 29: Pronghorn Survey Counts for the Carrizo Plain

5.4.8.3 Mule Deer (*Odocoileus hemionus*)

Within the CPER, mule deer occur within the Chimineas and American units. They attain their greatest abundance within the northwestern portion of the North Chimineas Unit, which features extensive oak woodlands. However, they also utilize the grasslands, oak savannas, and woodlands of the South Chimineas Unit, and occur within the grasslands of the American Unit, albeit at lower abundance (CDFW 2018).

A game species, mule deer are hunted within the CPER and the broader region. Department biologists monitor their populations to inform mule deer management in the region (Figure 30).

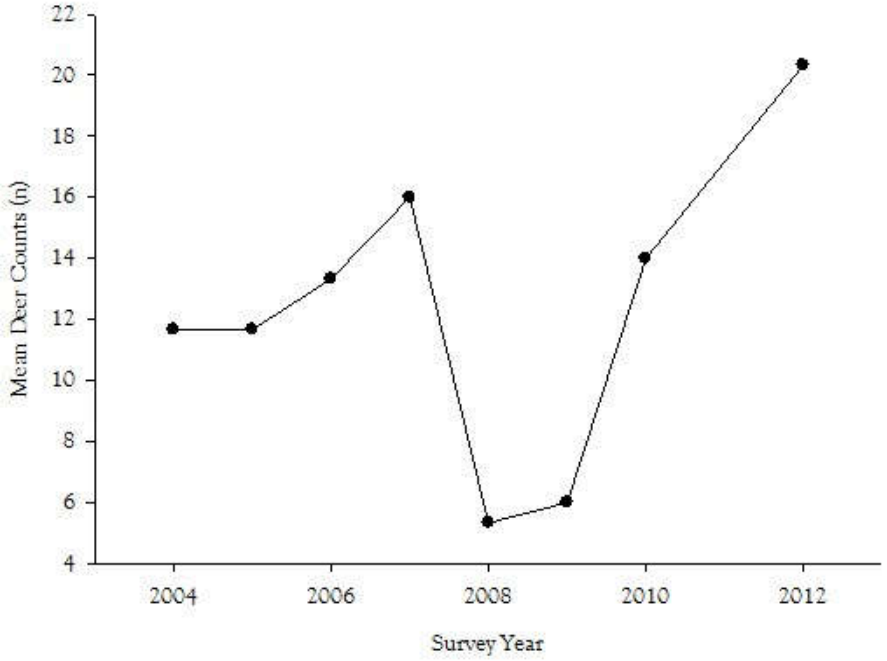


Figure 30: Deer Counts within the Chimineas Units

5.4.9 Non-Native Species

The CPER supports populations of plants and animals that are not native to California and instead have been introduced from other regions of the world. Through a variety of direct and indirect mechanisms, non-native species can greatly impact the species and communities of the CPER (CDFW 2018). Species impacts are determined by complex interactions between aspects their ecology as well as that of the invaded community. Non-native species that spread rapidly and exert strong effects on native species, communities, and ecosystems are often referred to as 'invasive species'.

Invasive species threaten the persistence of endangered species (Wilcove et al. 1998), including many of those in the CPER (USFWS 1998, USFWS 2002). Non-native animal species compete with, and predate upon rare native animals, and can consume and degrade habitat for native plants. Invasive plants reduce the ability of habitat to support populations of native plants directly, through competition (Carlsen et al. 2000, McGraw 2004), and indirectly, by altering habitat conditions so that they are no longer suitable (D'Antonio and Vitousek 1992, Levine et al. 2003). Invasive plants can also degrade habitat for native animals.

The following sections taken from the Draft LMP describe the invasive plant species and non-native animals of the CPER, and describe their known or predicted effects on the native species and communities within the CPER (CDFW 2018).

5.4.9.1 Non-Native Plants

Of the CPER's 526 known plant species, 77 species (15%) are not native to California (CDFW 2018). Woody non-native plants include six trees: elm (*Ulmus* sp.), olive (*Olea europaea*), tree of heaven (*Ailanthus altissima*), tree tobacco (*Nicotiana glauca*), and two species of *Tamarisk*. The vast majority of the non-native plants (73 or 95%) are herbaceous species (CDFW 2018), many of which originated in other regions of the world that also feature a Mediterranean climate, and thus were 'pre-adapted' to California (Jackson 1985). Moreover, their predominantly annual life history allows many to avoid the seasonal drought and high temperatures of summer that might otherwise limit non-native species from invading the Carrizo Plain region.

5.4.9.1.1 Invasive Plant Species

Thirty-two (41%) of the non-native plants within the CPER are included within the California Invasive Plant Council (CalIPC) list of invasive, non-native plants that threaten wildlands (CalIPC 2016). These species have been documented to negatively impact natural systems by displacing native species, hybridizing with native species, altering biological communities, or altering ecosystem processes (CalIPC 2016).

Grasses are the dominant form of invasive plant, both in terms of species richness (11 species or 34% of invasive species) and also absolute cover. The most widespread and abundant invasive grass by far is red brome (*Bromus madritensis* ssp. *rubens*), though other invasive grasses are also abundant including wild oats (*Avena fatua* and *A. barbata*), soft chess (*Bromus hordeaceus*), ripgut brome (*B. diandrus*), and rattail fescue (*Festuca myuros*). The CPER also supports numerous invasive broad-leaved herbs (forbs), the most widespread and abundant of which are redstem filaree (*Erodium cicutarium*), summer mustard (*Hirschfeldia incana*), tocalote (*Centaurea melitensis*) and tumbleweed (*Salsola tragus;* CDFW 2018).

5.4.9.1.2 Invasive Species Distributions

Grasslands are the most invaded vegetation type within the CPER; they feature the highest number of invasive species (21 or 66% of total) and the highest total species relative abundance (CDFW 2018). This pattern likely reflects the impacts of historic farming, as well as perhaps livestock grazing, which may have promoted the invasion and spread of non-native species. Even uncultivated grasslands are dominated by non-native plants, however, as they feature high-light conditions that are required by many of the most successful and abundant invaders, including the grasses and forbs species adapted to colonizing disturbed areas (CDFW 2018).

In the shrublands and woodlands, non-native species are most abundant within areas featuring open canopy conditions, which afford greater light availability. In some areas, abiotic conditions, such as thin soils or south-facing slopes, limit woody plant density and maintain open conditions. This is observed in the oak savannas, juniper woodlands, and coastal scrub, where the scattered shrubs and trees occur within a matrix of non-native herbs (CDFW 2018).

Owing to the increased availability of water, riparian areas within the CPER support high concentrations of non-native species with higher water requirements. Though they cover just 0.7 percent of the CPER's total area, riparian areas support 63% of the invasive plants known from the CPER. Several species, including tamarisk (*Tamarix ramosissima*), curly doc (*Rumex crispus*), and bull thistle (*Cirsium vulgare*) are restricted to riparian areas and/or the ponds. Invasive species also occur in higher concentrations within areas of

historic or current anthropogenic activity or disturbance. These include road sides, where recurring soil disturbance maintains opportunities for disturbance-adapted ruderal species such as tocalote (*Centaurea melitensis*). Table 40 provides a summary of the general impacts of invasive species within the CPER (CDFW 2018).

Table 40: Potential Impacts of Invasive Plant Species within the CPER

Impact	Description	Examples within the CPER
Outcompete Native Plants	Invasive plants can deplete soil moisture and/or nutrients, shade-out native species, compete for limited space, and/or create conditions that deter native plant establishment, such as dense thatch	Invasive herbs in the grasslands complete with native herbs and likely contribute to reduced native plant species richness.
Alter Community Structure	Invasive plants alter the structure of native communities, oftentimes degrading habitat for native animals.	Grasses in desert scrub may impede movement by blunt-nosed leopard lizards.
Alter Hydrology	Invasive plants can evapotranspire excessive amounts of water, thus reducing water flow or depth.	Tamarisk in the Cuyama River may be reducing water flow and depth required by native species including California red-legged frog.
Promote Fire in Non-Fire Adapted Systems	Invasive plants can create fuel conditions that promote fire, which can kill native woody species that are not adapted to fire. Fires that kill woody species can result in type-conversion of shrublands to grasslands as part of a grass-fire cycle (D'Antonio and Vitousek 1992)	Invasive grasses create fine fuels that promote fire in shrublands where widely spaced native shrubs and sparse herbs typically will not sustain fire. In non-fire adapted systems such as desert scrub and juniper woodland, a grass-fire cycle can convert shrublands and woodlands to grasslands.

Source: CDFW 2018

5.4.9.2 Non-Native Animals

The CPER supports populations of 12 non-native animal species: five species of fish, six species of birds, and one mammal (CDFW 2018). Species that are notably absent include bullfrog (*Lithobates catesbeianus*): a large frog, which negatively impacts many native special-status species including California red-legged frog (*Rana draytonii*) and western pond turtle (*Emys marmorata*). Bullfrogs have not been detected within the ponds or streams of the Chimineas units during the various inventory and research studies conducted since the Department acquired the property in 2004 (CDFW 2018).

5.4.9.2.1 Non-Native Fish

Five non-native fish species occur within Broken Dam Pond, a large pond in the western portion of the North Chimineas Unit. They are brown bullhead (*Ameiurus nebulosus),* western mosquitofish (*Gambusia*

afinis), bluegill (*Lepomis macrochirus),* redear sunfish *(Lepomis microlophus),* and largemouth bass *(Micropterus salmoides)* Several of these species may have also occurred intermittently within the perennial reaches of San Juan Creek downstream of the pond. The fish were introduced into Broken Dam and/or the Tajea Flat Reservoir on the adjacent private lands, to create opportunities for fishing and, in the case of mosquito fish (*Gambusia affinis*), to control mosquito populations. The drought between 2011 and 2015 caused these ponds to dry up, likely eliminating non-native fish from the San Juan Creek Drainage. Non-native fish may also occur within the Cuyama River (CDFW 2018). These and perhaps other non-native fish species may occur within the Cuyama River; CDFW does not control management actions on the south side of the Cuyama River which is outside the Reserve in Santa Barbara County.

5.4.9.2.2 Non-Native Birds

The CPER supports populations of six non-native bird species, most of which are widespread throughout California. Chukar (*Alectoris chukar*) and wild turkey (*Maleagris gallopavo*) were deliberately introduced to California to provide hunting opportunities. In the Carrizo Plain region, the Department historically bred and released wild turkeys (CDFW 2004) and installed numerous gallinaceous guzzlers for supplying water to wildlife including chukars as well as native upland game birds (BLM 2010, CDFW 2018).

Rock Dove (*Columba livia)* and Eurasian collared dove (*Streptopelia chinensis*) escaped from pet breeders, with the latter only observed in the region beginning this century. European starlings and house sparrows were deliberately introduced by European settlers wanting familiar animals in their new county (CDFW 2018).

Within the CPER, European Starlings and Rock Doves are the most widespread and abundant non-native bird species. The Department has been tracking Eurasian collared dove abundance through monitoring of the upland game hunting within the Chimineas units, and the species appears to be increasing in distribution and abundance (CDFW 2018).

5.4.9.2.3 Wild Pigs

The CPER supports wild pig (*Sus scrofa*): a non-native species found throughout much of California's Coast Range Mountains. Within the CPER, wild pigs occur primarily in the Chimineas and American units, where evidence of their rooting or grubbing is observed in grasslands, shrublands, oak woodlands, riparian areas, and ponds. Wild pigs are hunted within the CPER as part of the Department's hunting program.

5.4.10 Habitat Connectivity

Long-term effectiveness of habitat reserves relies on maintaining conditions necessary for individuals and ecological processes to move through the landscape. Habitat connectivity is essential for sustaining populations of a variety of animals, including those that migrate seasonally, disperse from where they are born, have large home ranges, or exhibit metapopulation dynamics. Examples of animal species within the CPER for which habitat connectivity is critical to population persistence include San Joaquin kit fox, American badger, tule elk, and pronghorn. Habitat connectivity is also critical to the plant dispersal as well as the maintenance of ecological processes that structure many communities and maintain habitat conditions, such as fire.

Because these processes occur at various spatial and temporal scales in ways that are difficult to predict, long-term persistence of the species and communities that the CPER was designated to protect will require

the maintenance of habitat connectivity within the CPER (i.e., habitat permeability), and between the CPER and other habitat areas (habitat linkages; CDFW 2018).

5.4.10.1 Regional Connectivity

The CPER is part of a large block of contiguous intact natural habitat that has been identified as essential for maintaining habitat connectivity within California (Spencer et al. 2010). The CPER occurs within two natural landscape blocks, the 483,280-acre La Panza Range block, and the 163,850 Carrizo Plain/Temblor Range block, which are separated by Soda Lake Road. Together, the more than 650,000-acre area featuring limited land conversion and roads, is part of a more than five-million-acre landscape extending from the Southern Diablo Range Mountains in the north to the Sierra Madre Mountains to the south (Spencer et al. 2010).

Due to the highly intact nature of the habitat, this area, including habitat within the Carrizo Plain region, functions as an essential linkage connecting intact habitat within the Outer Coast Range Mountains, including the Santa Lucia Mountains, to the Inner Coast Range Mountains, as well as remaining intact habitat within the San Joaquin Valley. Moreover, owing to its location at the southern end of the Coast Range Mountains, the Carrizo Plain including lands within the CPER provides essential connectivity with the Transverse Mountains to the south (CDFW 2018).

5.4.10.2 Local and Site Connectivity

At the local scale, land within the CPER connects other lands managed at least in part for biodiversity conservation purposes. The Elkhorn and Panorama Units are adjacent to portions of the 207,000 acres of BLM-managed land within the Carrizo Plain National Monument. These BLM holdings are contiguous with an additional BLM lands east of the monument. To the southeast, the CPNM lands are nearly contiguous with the approximately 14,000-acre Bitter Creek National Wildlife Refuge (U.S. Fish and Wildlife Service) and the approximately 95,000- acre private Wind Wolves Preserve (The Wildlands Conservancy). These reserves, in turn, adjoin the southern portion of the 1.75-million-acre Los Padres National Forest.

The Chimineas and American units of the CPER similarly connect BLM-managed land within the CPNM with the Los Padres National Forest (USFS). These units together also provide connectivity between the Cuyama River and the protected lands to the north, which include the 27,380-acre Carrizo Ranch, which is protected by a conservation easement, and the 12,380 acres protected by the Department in California Valley as mitigation for recent solar development. Because many wildlife species move through riparian areas, such stream linkages to upland terrestrial areas can promote connectivity (Hilty and Merenlender 2004).

Much of the other land surrounding the CPER is managed as part of large ranches used primarily to graze cattle. These private lands primarily support intact natural habitats which contribute greatly to the local and regional connectivity.

5.4.11 Applicable Regulations, Plans and Policies

Federal and state endangered species legislation gives special status to several plant and animal species known to occur on or in the vicinity of the CPER. In addition, state resource agencies and professional organizations, whose lists are recognized by agencies when reviewing environmental documents, have

identified as sensitive some species occurring in the vicinity of the CPER. Such species are referred to collectively as *special-status species* (Section 5.4.7). Wetlands are specially protected habitats and are governed by section 404 of the Clean Water Act and other laws.

5.4.11.1 Federal Regulations

5.4.11.1.1 Federal Endangered Species Act (16 U.S.C. §§1531 et seq.)

Federal ESA provisions protect federally listed threatened and endangered species and their habitats from unlawful take. Under the federal ESA, "take" is defined as:

> "*to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any of the specifically enumerated conduct*."

The regulations define harm to mean "*an act which actually kills or injures wildlife*." Such an act:

> *"may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering"* (50 CFR §17.3)

Activities that may result in "take" of individuals are regulated by the U.S. Fish and Wildlife Service (USFWS). The USFWS regularly updates its list of species that are candidates for listing (50 CFR Part 17). Candidate species are not afforded any legal protection under the federal ESA; however, candidate species typically receive special attention from federal and state agencies during the environmental review process.

The Department has entered into a cooperative agreement with the USFWS in accordance with Section (6) (C) of the federal Endangered Species Act, which defines the working relationship between the USFWS and the Department for the conservation of federally-listed species within the state. Under the terms of the cooperative agreement, the USFWS is authorized to provide financial assistance to the Department for the development and implementation of programs for the conservation of federally-listed species. The agreement also authorizes the Department to undertake investigations to determine the status and requirements for survival of resident species of federally-listed fish and wildlife without the issuance of a take permit from the USFWS, so long as such activities are undertaken in accordance with the Department's program for the conservation of such species.

The USFWS also uses the label Species of Concern as an informal term that refers to those species that might need concentrated conservation actions. Species of Concern receive no legal protection because of the designation, and the use of the term does not necessarily mean that the species will eventually be proposed for listing as a threatened or endangered species.

5.4.11.1.2 The Recovery Plan for Upland Species of the San Joaquin Valley, California

The CPER lies within the planning area for the Recovery Plan for Upland Species of the San Joaquin Valley, California (USFWS 1998). The primary objective of this plan is the recovery of 11 endangered and threatened species, along with protection and long-term conservation of candidate species and species of special concern. The species covered in the plan inhabit grasslands and scrublands of the San Joaquin

Valley, adjacent foothills, and small valleys including the Carrizo Plain. Implementing the management actions of the Draft LMP is expected to complement and help achieve the objectives of the recovery plan.

5.4.11.1.3 Clean Water Act (CWA)

Areas meeting the regulatory definition of "Waters of the United States" (jurisdictional waters) are subject to the jurisdiction of the U.S. Army Corps of Engineers (ACOE) under provisions of Section 404 of the Clean Water Act (CWA 1972; 33 U.S.C. §§ et seq.) and Section 10 of the Rivers and Harbors Act (1899). These waters may include all waters used, or potentially used, for interstate commerce, including all waters subject to the ebb and flow of the tide, all interstate waters, all impoundments of waters otherwise defined as "Waters of the United States," tributaries of waters otherwise defined as "Waters of the United States," the territorial seas, and wetlands (termed Special Aquatic Sites) adjacent to "Waters of the United States" (33 CFR, Part 328, Section 328.3). Wetlands on non-agricultural lands are identified using the Corps of Engineers Wetlands Delineation Manual (Environmental Laboratory 1987) in combination with the Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (USACE 2006). Jurisdictional waters occurring on the CPER may include the Cuyama River and wetlands. Management actions that affect the Cuyama River may require compliance with Section 404 and/or Section 401 of the Clean Water Act.

Section 404 of the Clean Water Act provides regulatory protection for water resources throughout the United States. Section 404 prohibits the discharge of dredged or fill material into waters of the U.S. without a permit from the ACOE. The section 404 permitting process includes consultation with the USFWS concerning federally-protected species. Federal policy mandates that projects requiring section 404 permits result in no net loss of wetland resources. Under section 404, actions in waters of the U.S. may require an individual permit, may be covered by a nationwide or general permit, or may be exempt from regulatory requirements.

Section 401 of the CWA and its provisions protect wetland resources and ensure that federally-permitted activities comply with the federal CWA and state water quality laws. Section 401 is implemented at the local level through a review process conducted by the nine Regional Water Quality Control Boards (RWQCB). Under Section 401, the RWQCB issues a Water Quality Certification that a proposed project complies with applicable effluent limitations, water quality standards, and other conditions of California water law. Evaluating the effects of the proposed project on both water quality and quantity (runoff) falls under the jurisdiction of the RWQCB.

Compliance with Section 401 or 404 would be required in the event that management actions recommended by the Draft LMP could result in the alteration of a streambank, the placement of fill around a creek or wetland or would degrade water quality. The RWQCB has jurisdiction over the issuance of National Pollutant Discharge Elimination System (NPDES) Construction Permits, which are used to manage erosion and runoff from construction sites. Construction activities associated with new parking areas, wildlife viewing facilities and trails may require an NPDES permit from the RWQCB.

5.4.11.2 State Regulations

5.4.11.2.1 California Endangered Species Act

Provisions of the California ESA (CESA) protect state-listed threatened and endangered species. The Department regulates activities that may result in "take" of listed individuals. Habitat degradation or

modification is not expressly included in the definition of "take" under the California Fish and Wildlife Code (Cal. Fish & Game Code §§2050 et seq.). Additionally, the California Fish and Wildlife Code contains lists of vertebrate species designated as "fully protected" (California Fish & Game Code §§ 3511 [birds], 4700 [mammals], 5050 [reptiles and amphibians], 5515 [fish]). Such species may not be taken or possessed. Monitoring, research, and habitat management activities undertaken by the Department on the CPER are exempt from the definition of "take" under the CESA in accordance with California Code of Regulations, Title 14, Section 783.1(c). However, the provisions of the CESA do apply to visitors to the CPER and are enforced by Department staff.

Pursuant to the requirements of CESA, an agency reviewing a proposed project within its jurisdiction must determine whether any state-listed endangered or threatened species may be present in the project study area and determine whether the proposed project will result in take of such species, as defined above. Environmental review of management actions undertaken following adoption of the Draft LMP will be required to assess the potential for take of state-listed species.

In addition to federal and state-listed species, the Department also has produced a list of Species of Special Concern to serve as a "watch list". Species on this list are of limited distribution or the extent of their habitats has been reduced substantially, such that threat to their populations may be imminent. Species of Special Concern may receive special attention during environmental review, but they do not have statutory protection.

5.4.11.2.2 Native Plant Protection Act of 1977

The Native Plant Protection Act of 1977 (Cal. Fish & Game Code §§ 1900 et seq.) prohibits the taking, possessing, or sale within the state of any plants with a state designation of rare, threatened, or endangered, as defined by the Department. An exception to this prohibition in the act allows landowners, under specified circumstances, to take listed plant species, provided that the owners first notify the Department and give at least 10 days to come and retrieve (and presumably replant) the plants before they are destroyed. Fish and Game Code Section 1913 exempts from take prohibition "the removal of endangered or rare native plants from a canal, lateral ditch, building site, or road, or other right of way". Impacts to these species are not considered significant unless the species are known to have a high potential to occur within the area of disturbance associated with construction of the proposed project. Monitoring, research, and habitat management activities undertaken by the Department are exempt from the definition of "take" under the Native Plant Protection Act (Cal. Fish and Game Code § 1906); however, these provisions do apply to visitors to the CPER.

5.4.11.2.3 Fish and Wildlife Code Section 1600

Section 1600 of the Fish and Wildlife Code requires any person, state or local government agency, or public utility proposing a project that may affect a river, stream, or lake to notify the Department before beginning the project. If activities will result in the diversion or obstruction of the natural flow of a stream, or substantially alter its bed, channel, or bank, or adversely affect existing fish and wildlife resources, a Streambed Alteration Agreement is required. A Streambed Alteration Agreement lists conditions of approval for the proposed project, and serves as an agreement between an applicant and the Department for a term of not more than five years for the performance of project activities.

> The Department potentially extends the definition of stream to include "intermittent and ephemeral streams, rivers, creeks, dry washes, sloughs, blue-line streams (USGS), and watercourses

with subsurface flows." Canals, aqueducts, irrigation ditches, and other means of water conveyance can also be considered streams if they support aquatic life, riparian vegetation, or stream-dependent terrestrial wildlife (CDFW 1994). Such areas on the site were determined using methodology described in *A Field Guide to Lake and Streambed Alteration Agreements, Sections 1600-1607* (CDFW 1994).

Management activities that may result in the alteration of creek channel may require a Streambed Alteration Agreement. This requirement may apply to projects located within the 100-year floodplain of a stream or its tributaries, such as along certain sections of the Cuyama River.

5.4.11.2.4 Other Fish and Wildlife Code Sections

Sections 3500 to 5500 of the FGC outline protection for fully-protected species of mammals, birds, reptiles, amphibians, and fish. Species that are fully protected by these sections may not be taken or possessed at any time. The Department cannot issue permits or licenses that authorize the take of any fully protected species, except under certain circumstances such as activities that may be undertaken following adoption of the Draft LMP that may include scientific research and live capture and relocation.

5.4.11.2.5 California Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act of 1969 (Cal. Code, §§ 13000 et seq.) established the State Water Resource Control Board (SWRCB) and the nine Regional Water Quality Control Boards (RWQCB) as the principal state agencies with the responsibility for controlling water quality in California. The act made the nine RWQCB's responsible for preparing water quality plans for areas within each region, known as basin plans. It also authorizes the SWRCB to establish water quality principles and guidelines for long-range resource planning, including groundwater and surface water management programs and control and use of recycled water. Management actions with the potential to adversely impact water quality would be subject to the water quality standards enforced by the RWQCB, including Sections 401 and 404 of the CWA.

5.4.11.2.6 California Environmental Quality Act

The California Environmental Quality Act (CEQA; Public Resources Code §§21000 et seq.) was enacted by the California Legislature in 1970 to provide a system of environmental review for land use, development, and management decisions for projects approved by public agencies. CEQA applies to all California government agencies, and requires a lead agency to analyze the potential environmental effects of proposed projects under its jurisdiction. CEQA establishes a framework for impact assessment and a mitigation requirement determination by the lead agency for a proposed project. CEQA also requires public agencies to adopt feasible changes in proposed projects to lessen or avoid significant environmental impacts.

Special-status species that would qualify for listing under the CESA but are not currently listed are afforded consideration under CEQA. The CEQA Guidelines Section 15065 (Mandatory Findings of Significance) requires that a substantial reduction in numbers of a rare or endangered species be considered a significant effect. CEQA Guidelines Section 15380 (Rare or Endangered Species) provides for assessment of unlisted species as rare or endangered under CEQA if the species can be shown to meet the criteria for listing. Unlisted plant species on the California Rare Plant Rank (formerly California Native Plant Society's Ranks) 1A, 1B, and 2 would typically be considered under CEQA. Certain management actions, such as the

construction of new facilities, will require project-specific CEQA compliance following adoption of the Draft LMP (Section 1.4.8).

5.4.11.3 Non-Government Organizations

5.4.11.3.1 California Rare Plant Inventory

The California Native Plant Society (CNPS) maintains a list of plant species native to California that are found in low numbers, have limited distribution, or are otherwise threatened with extinction. The California Rare Plant Ranks (CRPR) are published in the Inventory of Rare and Endangered Vascular Plants of California (CNPS 2012). Potential impacts to populations of CNPS-listed plants receive consideration under CEQA review. The following defines the CRPRs:

- Rank 1A: Plants Presumed Extirpated in California and Either Rare or Extinct Elsewhere;
- Rank 1B: Plants Rare, Threatened, or Endangered in California and Elsewhere;
- Rank 2A: Plants Presumed Extirpated in California, But Common Elsewhere
- Rank 2B: Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere;
- Rank 3: Plants about Which We Need More Information - A Review List; and
- Rank 4: Plants of Limited Distribution - A Watch List.

Plants in rankings 1 and 2 are afforded protection under CEQA (Section 5.4.11.2.6).

5.4.12 Standards of Significance

According to the CEQA Guidelines Section 15131(a), the Draft LMP would have a significant impact to biological resources if it would result in any of the following:

1. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or the U.S. Fish and Wildlife Service;
2. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service;
3. Have a substantial adverse effect on federally-protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, etc.) through direct removal, filling hydrological interruption, or other means;
4. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;
5. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; and
6. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional or state habitat conservation plan.

5.4.13 Impacts Found to Be Less Than Significant

Based on the supporting evidence provided in the initial study (Appendix B), the Draft LMP was determined to have less than significant effects on the following:

- conflict with any local policies or ordinances protecting biological resources; and
- conflict with the provisions of an adopted Habitat Conservation Plan or Natural Community Conservation Plan.

5.4.14 Project Impacts and Mitigation Measures

The management strategies of the Draft LMP (Section 4) include the following:

- Management within an adaptive framework in which monitoring is used to evaluate the effectiveness of management, which is then adjusted as necessary to enhance the ability to achieve the goals of the plan;
- The specific biological goals and actions within elements that address three levels (landscape, habitats and species);
- Research and monitoring; and
- Vegetation management to achieve the goals and objectives, including: fire management, grazing management, habitat restoration, and control of non-native and invasive species.

The Draft LMP also recommends the preparation of more detailed, 'step-down' plans to provide more refined and focused management for the following:

- Fire management;
- Grazing management;
- Hunting;
- Public education programs;
- "Inadvertent discovery" of cultural resources;
- Cultural uses of the CPER by Native Americans;
- Emergency response; and
- Facilities maintenance and safety.

Adoption of these subsequent plans will be subject to project-specific environmental review to determine the appropriate CEQA compliance document (if any). The Draft LMP also recommends BMPs to be applied when the various management actions are implemented. If a particular action has the potential to adversely impact the resources of the CPER, the relevant BMPs will be applied as necessary to minimize project effects. The BMPs may be refined as necessary to address site-specific conditions in subsequent site-specific CEQA compliance documents. Table 41 lists the LMP management goals and actions that help mitigate potential impacts to biological resources.

Table 41: LMP Management Goals and Actions that Help Mitigate Potential Impacts to Biological Resources

LMP Section	Element	Goals[1]	Management Actions[1]	Summary/Relevance to the Protection of Biological Resources	Impact Number
4.2.1.1	Disturbance Regimes	B1	B1.1, B1.2, B1.3	Support research to inform ongoing management. Develop fire management plan and implement fire management to enhance natural communities.	5.4-2, 5.4-3 5.4-4, 5.4-6 5.4-7, 5.4-11 5.4-13
4.2.1.2	Landscape permeability	B2	B2.1, B2.2, B2.3, B2.4, B2.5	Coordinate management with adjacent landowners and agencies. Assess road barriers and remove or retrofit fences. Promote native vegetation to enhance connectivity of riparian habitats. Maintain connectivity between grassland habitat of similar structure.	5.4-1, 5.4-6 5.4-7, 5.4-8 5.4-9, 5.4—14
4.2.2.1	Grassland Habitat Element	B3a, B3b	B3.1, B3.2, B4.1,	Maintain a diverse mosaic of grassland structure. Maintain areas of short structure and tall structure grassland that support special-status species. Implement a revegetation program to increase richness of native grasses and forbs.	5.4-2,5.4-3 5.4-4
4.2.2.2	Coastal Scrub Habitat Element	B6a, B6b	B6.1, B6.2	Implement vegetation management to maintain and enhance coastal scrub habitat and reduce non-native grasses and forbs.	5.4-2 5.4-4
4.2.2.3	Chaparral Habitat Element	B8a, B8b, B9	B8.1, B8.2	Implement vegetation management to maintain the areal extent of chaparral, maintain a mosaic of stands that support different animal assemblages, and reduce non-native annual grasses and forbs.	5.4-2, 5.4-3 5.4-4, 5.4-9 5.4-12, 5.4-15
4.2.2.4	Desert Scrub Habitat Element	B10a, B10b,	B10.1	Implement fire management to reduce anthropogenic fires and to suppress fires that can convert desert scrub to grassland.	5.4-4, 5.4-6 5.4-11
4.2.2.5	Oak woodland habitat	B12a, B12b, B13	B12.1, B12.2, B13.1	Implement fire management and grazing to maintain the areal extent of oak woodlands, prevent anthropogenic fires, promote blue oak recruitment, and maintain habitat for mule deer.	5.4-4, 5.4-7
4.2.2.6	Juniper Woodland Habitat Element	B14a, B14b, B14c	B14.1, B14.2	Implement fire management to reduce anthropogenic fires and help control non-native grasses. Use grazing to reduce fine fuel loads, facilitate juniper recruitment, and reduce competition from non-native annual grasses and forbs.	5.4-4
4.2.2.7	Riparian and riverine habitat element	B16a, B16b, B16c	B16.1, B16.2	Restore riparian areas with native plant species; install fences to reduce livestock and tule elk trampling and herbivory; eradicate non-native animals; control tamarisk; implement fire management to reduce anthropogenic fires that may adversely impact riparian areas.	5.4-2, 5.4-4 5.4-6, 5.4-7 5.4-11, 5.4-12 5.4-13
4.2.2.8	Wetland habitat element	B18	B18.1, B18.2	Recreate topographic conditions to support wetlands destroyed through cultivation. Manage exotic plants in wetland areas.	

Table 41: LMP Management Goals and Actions that Help Mitigate Potential Impacts to Biological Resources

LMP Section	Element	Goals[1]	Management Actions[1]	Summary/Relevance to the Protection of Biological Resources	Impact Number
4.2.2.9	Pond habitat	B20	B20.1, B20.2	Manage grazing to maintain open water conditions preferred or required by many species. Regulate cattle access to ponds to manage pond habitat conditions. Control invasive plants and animals.	
4.2.3.1	Special-Status Species Element	B24, B25	B24.1, B24.2, B24.3, B24.4, B24.5, B25.1, B25.2, B25.3, B25.4	Conduct management and restoration projects to address anthropogenic factors. Reintroduce special-status species to suitable habitat. Evaluate introducing rare species not currently within the reserve. Limit impacts of human activities on the special-status species within the reserve. Ensure that all actions in the CPER comply with the federal ESA, CESA, and Section 1602 of Fish and Wildlife Code. Continue to conduct surveys to evaluate the distribution and abundance of special-status plants and animals. Monitor the status and trends in the distribution and abundance of special-status species and evaluate effects of management. Support research to inform management of special-status species.	5.4-1, 5.4-2 5.4-3, 5.4-4 5.4-5, 5.4-6 5.4-7, 5.4-8, 5.4-11, 5.4-12 5.4-13, 5.4-14
4.2.3.2	Native Ungulates Element	B26.1	B26.1, B26.2, B26.3	Design and implement habitat management and restoration projects within the CPER to address anthropogenic factors that unnaturally limit tule elk, pronghorn, and mule deer. Manage grazing to maintain or enhance mule deer, tule elk and pronghorn habitat. Implement habitat enhancement projects to increase water availability on the Reserve. Manage Carrizo Plain herds of tule elk to promote genetic diversity. Conduct and support research to inform management of native ungulate species.	5.4-8, 5.4-9 5.4-14, 5.4-15
4.3.1	Scientific Research Element	S1	S1.1, S1.2, S1.3, S1.4, S1.5, S 1.6	Increase understanding of the ecology and management needs of the species, communities, and ecosystems and their response to management, restoration, and enhancement projects by promoting, supporting, and conducting research within the CPER.	5.4-1, 5.4-2 5.4-3, 5.4-4 5.4-5, 5.4-6 5.4-7, 5.4-8 5.4-9, 5.4—11 5.4-12, 5.4-13 5.4-14, 5.4-15
4.3.2	Monitoring Element	S2	S2.1, S2.2, S2.3, S2.4, S2.6	Enhance long-term effectiveness of the management of the CPER by evaluating the effectiveness of management and tracking the status and trends in communities and species to detect declines that could trigger the need for new management projects.	
4.3.3	Adaptive Management Element	S3	S3.1, S3.2, S3.3, S3.4	Increase the long-term effectiveness of management of the CPER by updating management actions according to new	

Table 41: LMP Management Goals and Actions that Help Mitigate Potential Impacts to Biological Resources

LMP Section	Element	Goals[1]	Management Actions[1]	Summary/Relevance to the Protection of Biological Resources	Impact Number
				information obtained from scientific research and monitoring, and to changes in the reserve.	
4.4.1	Fire Management	V1	V1.1, V1.2, V1.3	Conduct fire management to protect and enhance the biological systems, cultural resources, and facilities of the CPER, and promote attainment of the goals described under the corresponding elements.	5.4-3, 5.4-4
4.4.4	Grazing Management	V2	V2.1, V2.2, V2.3, V2.4 V2.5	Develop a grazing management plan to use livestock as a landscape-level management tool to attain the biological goals related to grazing, while protecting sensitive biological and cultural resources and facilities.	5,4-2, 5.4-4 5.4-5, 5.4-7 5.4-9, 5.4-10 5.4-11, 5.4-12 5.4-13, 5.4-15
4.5	Exotic Plant Management	V3	V3.1, V3.2, V3.3, V3.4, V3.5, V3.6, V3.7, V3.8	Control and eradicate, where feasible, exotic plant species and prevent their invasion and spread into the reserve, in order to promote attainment of the biological, public use, and facilities goals of the LMP.	5.4-4, 5.4-7 5.4-12, 5.4-13
4.6.1	Environmental Education	P1	P1.1, P1.2, P1.3	Educate the public about the unique ecology and natural history of the CPER to increase understanding of the conservation values and threats to the region and help ensure public use will not adversely impact the resources of the Reserve.	5,4-6
4.6.3	Hunting	P4	P4.1, P4.2, P5.1, P5.2, P5.2, P5.4, P6.1, P6.2, P6.3	Minimize any potential impacts of hunting on the biological and cultural resources by ensuring hunting regulations are enforced.	5.4-6, 5.4-9 5.4-15
4.6.4	Native American cultural use	P7	P7.3,	Ensure that Native American cultural use of the CPER is compatible with resource protection goals.	5.4-6
4.6.5	Public Access Element	P8	P8.1, P8.2, P8.3, P8.4	Enforce public access restrictions to protect the biological resources of the CPER.	5.4-6
4.6.8	Unauthorized use	P12	P12.1, P12.2, P12.3, P12.4, P12.5, P12.6, P12.7	Discourage, prevent, and reduce the frequency and impacts of unauthorized use of the reserve, such as illegal dumping, vehicle use (esp. off-highway vehicle), poaching, and camping which can adversely impact biological resources.	5.4-6
4.8	Facilities Maintenance Element	F1, F2	F1.1, F1.2, F1.3, F1.4, F1.5, F2.1, F2.2, F2.3	Conduct facility maintenance using best management practices to protect biological resources.	5.4-5

Notes: The complete text of recommended management goals and actions is provided in Section 4 of the Draft LMP (CDFW 2018).

5.4.14.1 Previous Environmental Review

Impacts to biological resources associated with the grazing lease executed in 2011 were assessed by previous environmental review and found to have a less-than-significant impact (Section 4.4.1). Because the lease was in effect at the time the Notice of Preparation was circulated, managed grazing and its effects on biological resources is considered part of the baseline conditions.

The Draft LMP recommends the continued use of managed livestock grazing on the CPER as a vegetation management tool. Best Management Practice BIO-20 states that the authorization of new or expanded grazing activities will be preceded by the adoption of a grazing management plan following project-specific environmental review. Managed grazing guided by the grazing management plan recommended by the Draft LMP is expected to have a beneficial impact on biological resources of the CPER by removing exotic species and enhancing the habitat and populations of special-status species.

5.4.14.2 Methodology

The significance of potential impacts was evaluated through the application of the significance criteria described in Section 5.4.12. Avoidance is the preferred approach for the protection of biological resources under the Draft LMP. The BMPs included in the Draft LMP emphasize this approach by requiring pre-construction surveys to determine the presence of listed species and by establishing facilities design criteria aimed at avoiding sensitive resources (Appendix C).

5.4.14.2.1 Direct and Indirect Impacts

The CEQA Guidelines define direct impacts as those impacts that result from the project and occur at the same time and place. These may include, but are not limited to, the removal of vegetation and the disturbance of wildlife from construction activities. Indirect impacts are caused by the project, but can occur later in time or farther removed in distance while still reasonably foreseeable and related to the project. Indirect impacts may include the spread of invasive plant species and increased traffic and human disturbance associated with management activities.

Temporary impacts are usually considered to be activities short in duration (i.e., 6 to 12 months) that do not result in permanent land use conversion. These impacts may include ground- disturbing activities, noise, human disturbance, and vehicle traffic. Project impacts are generally considered permanent if they involve the conversion of land to a new use, such as with the construction of new parking areas, trails, and wildlife viewing structures.

5.4.14.3 Impacts Associated with Construction Activities

Impact 5.4-1	**Construction activities associated with management actions recommended by the Draft LMP may adversely impact habitat for species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or the U.S. Fish and Wildlife Service. This impact will be reduced to a less than significant level (Class III) through implementation of management actions and Best Management Practices of the Draft LMP.**

The Draft LMP recommends limited construction, maintenance, modification, or removal of facilities on the CPER, such wildlife viewing platforms, water systems, water tanks, and trails. Although the precise number, size and location of new facilities to be constructed is not known at this time, ground disturbance such as trenching, surface modification (grading), vegetation clearing, and construction equipment use have the potential to adversely impact biological resources. Table 42 provides a reasonable worse-case estimate of the potential loss of habitat associated with construction activities. The combined loss of potential habitat associated with construction activities could be as much as 1.7 acres over the entire Reserve.

Table 42: Estimate of Potential Loss of Habitat Associated with Construction Activities

Facility	Quantity	Disturbance Area (Acres)	Vegetation Element Disturbed (Acres)			
			Grassland	Desert Scrub	Chaparral	Other[1]
Trails	4 miles	1.067	0.53	0.32	0.10	0.10
New Parking	4 spaces	0.073	0.37	0.03	0.00	0.00
Wildlife Viewing	4	0.067	0.05	0.02	0.00	0.00
Water Tanks	21	0.048	0.02	0.01	0.02	0.01
Pipelines and Water Delivery	2 miles	0.388	0.19	0.11	0.03	0.03
Road Relocations/Modifications	1	0.014	0.01	0.00	0.00	0.00
	Total Acres	**1.7**	**0.85**	**0.50**	**0.16**	**0.15**

Notes:
1. May include one or more of the following: oak woodland, coastal scrub, juniper woodland, or cliffs and rocks.

It should be noted that:

- The management actions recommended by the Draft LMP will not involve extensive grading or construction activities in undisturbed areas and will primarily involve hand tools or small hand-held gasoline powered equipment;
- No new roads or buildings are proposed outside of previously developed areas; and

  New construction will be subject to project-specific CEQA compliance, which will identify project-specific impacts and appropriate mitigation measures.

5.4.14.3.1 Trails

The Draft LMP recommends the creation of new trails on the CPER, based in part on the existing dirt roads, to connect to public access points and adjacent properties such as the CPNM and LPNF. In some instances, trails may be improved to serve mobility-impaired visitors in accordance with the Americans with Disabilities Act (ADA). It should be noted that impacts to biological resources from trails will be minimized because:

- The trail system will primarily utilize the extensive system of unpaved roads within the Chimineas and American units, such that new trails separate from the roadways will be minimal in these units;
- New disturbance associated with new trails separate from existing dirt roads would be limited; and
- Trails will be located to avoid sensitive biological resources through application of the BMPs.

5.4.14.3.2 New or Expanded Parking Areas

The number of visitors to the CPER is currently small, averaging just 1.4 visitor days per day between 2003 and 2012 (Table 6; Section 4.2). Following adoption of the LMP and the construction of additional visitor-serving facilities, the number of recreational visitors is expected to increase slightly from less than two visitors per day to about three per day. Because existing parking areas are sufficient to accommodate peak-daily use and special events expected on the CPER in the future, the Draft LMP does not recommend the construction of new parking areas. However, the installation of wildlife viewing platforms and trails could generate the need for parking to serve these facilities in the future. New parking, unpaved parking areas for two to four cars with room for an entry gate, signage, and back-up and turnaround area, would require about 1,600 square feet (0.03 acres) (Table 4; Section 3.11.3). The limited size of the new parking areas and the lack of paving, lighting, landscaping and other features will minimize their impact to biological resources.

5.4.14.3.3 Construction of Wildlife Viewing Platforms and Similar Improvements

Wildlife viewing platforms and similar improvements to facilitate public enjoyment of the CPER may be constructed in strategic locations where wildlife congregate, consistent with the overall objectives of the CPER. To be effective, some viewing platforms could be two stories tall (20 – 30 feet) to afford a wide field of view.

5.4.14.3.4 Installation of Water Infrastructure for Animals

Cattle grazing can have varying impacts on stream channel erosion in oak woodlands, such as those found on the North Chimineas Unit. George et al. (2004) found that, while the concentration of cattle along stream banks during the dry season resulted in a significant increase in bare ground, streambank erosion was not detected. However, they did find that cattle trails were an important mode of sediment transport into stream channels.

While cattle trails are common on grazed rangeland, excessive trailing often indicates that stock watering points are too far apart. One of the recommended management actions of the Draft LMP is to increase the number of watering opportunities (e.g., tanks and troughs) for both livestock and wildlife (CDFW 2018). In addition, the Draft LMP calls for erecting fences around remaining streams and ponds to regulate cattle access. These measures will reduce trailing to, and along, water sources such as creeks and ponds.

Existing troughs have, and new troughs will have, wildlife escape ramps. Most new troughs will be made of concrete. New water tanks to be established in the American and Chimineas units to achieve spacing of approximately one take per square mile are anticipated to hold 5,000 gallons (Figure 14; Section 5.2.8.6).

5.4.14.3.5 Protection of Cultural Resources

Implementation of management actions recommended by the Draft LMP could result in the discovery of previously undiscovered resources, which in turn would necessitate actions to protect these resources. These actions may include the realignment of road segments to avoid such resources. The realignment of roadways could result in impacts to sensitive resources.

5.4.14.3.6 Biological Soil Crusts

In the upper layers of soil, microbial activity creates a specialized microenvironment called a biological soil crust. Microorganisms that may comprise a soil crust ecosystem include visible elements such as cyanobacteria, green algae, lichens, and bryophytes, as well as less-evident fungi, bacteria, and slimemolds; small invertebrates may also be present (Belnap et al. 2001). The upper layers of soil are modified and stabilized by the interactions between these organisms and by their direct alteration of soil chemistry and physical structure.

Biological soil crusts are very important in maintaining soil health. They prevent erosion, modify water absorption and evaporation, recycle and make nutrients available, and provide microsites for seed germination and seedling establishment. Certain cyanobacteria (and lichens with those cyanobacteria as a component) are particularly important because they convert atmospheric nitrogen into a form that vascular plants can utilize (Belnap et al. 2001).

Excavation, grading and compaction associated with construction activities associated with the Draft LMP could adversely impact soil crusts. The extent of the damage depends on the nature of the underlying soils and topography, the timing and extent of disturbance, and the specific crust organisms present. Crust communities can repair following some disturbance during the growing season, when soils are moist and organisms are biologically active.

Management actions and BMPs by the Draft LMP will preserve and enhance the native vegetation of the CPER, minimize erosion, and limit soil disturbance associated with construction activities. Accordingly, potential impacts to soil crusts are expected to be less than significant.

Impact 5.4-1 — Best Management Practices Recommended in the Draft LMP that Mitigate Potential Impacts to Biological Resources Associated with Construction Activities

BMP G-1. The Department shall comply with relevant provisions of the California Environmental Quality Act (CEQA) prior to a decision to approve an activity with the potential to adversely impact the environment.

BMP G-2. The Department shall consult with other agencies with permit approval authority over aspects of management activities undertaken within the Reserve, to identify the relevant permit practices and to ensure compliance with applicable state and federal regulations.

BMP G-3. Management activities undertaken in accordance with the LMP shall meet the applicable permitting and regulatory practices of federal and state agencies, including, but not limited to, the following:

- California Department of Fish and Wildlife;
- U.S. Fish and Wildlife Service;
- State Water Resources Control Board;
- U.S. Army Corps of Engineers (Section 404 of the Clean Water Act);
- San Luis Obispo Air Pollution Control District; and
- California Department of Forestry and Fire Protection (CalFire).

BMP BIO-1. Any person handling special-status species must have all appropriate permits issued by the Department and/or the USFWS.

[See also BMP BIO-6 and BIO-7 (Surveys) regarding biological monitoring.]

BMP BIO-2. These BMPs will be revised or updated if the USFWS or the Department issue new or revised species survey or protection guidelines.

BMP BIO-3. The timing of activities with the potential to disturb sensitive resources shall be planned to minimize impacts to such resources to the extent practical and as a take avoidance strategy.

BMP BIO-4. Activities with the potential to disturb raptor nest sites shall have seasonal restrictions imposed within a ½-mile visible radius around such sites.

BMP BIO-5. Infrastructure such as power lines shall not be developed within 100 yards of ridge lines to minimize potential impacts to California condor.

Surveys

BMP BIO-6. The following procedures shall be followed where construction, demolition, or maintenance activities have the potential to adversely impact special-status plant populations:

- Department staff will review existing data regarding the presence of special-status plant species (CRPR List 1, CESA, and ESA lists) in the area of potential disturbance.
- Department staff will perform a field reconnaissance of the area of potential disturbance to assess the presence of special-status plant populations.
- The conclusions of the first two steps listed above steps 1 and 2 (above) will be used to inform the design and location of the construction or maintenance activity and to identify the least sensitive area(s) for ground disturbance.
- If steps 1 and 2 reveal the presence, or potential presence of, special-status plant species or their habitat, and avoidance is not feasible, the Department shall conduct a rare plant survey in accordance with applicable guidelines of the Department, USFWS, and CNPS. The survey shall identify and map any existing rare, threatened, or endangered plant species.
- The Department shall consult with the USFWS regarding appropriate avoidance, minimization, and mitigation measures for potential impacts to federally-listed plant species found to occur within the area of potential disturbance.
- Mitigation measures shall be developed within the project-level CEQA document and implemented with performance monitoring to avoid significant impacts. Mitigation measures may include (but would not be not limited to) avoidance of the habitat and/or seasonally-timed activities in addition to the implementation of project-specific mitigation measures designed to reduce potential impacts. These measures shall be based on the biological requirements of each species found to occur at a particular site, as well as a complete description of the proposed project and its potential impacts to the subject species. At the discretion of the Department, and with concurrence from

USFWS for federal-listed species, existing information, in lieu of a site specific survey, may be used to determine the presence of special-status species and appropriate measures to be undertaken to protect such resources.

- Personnel familiar with the sensitive resource may be required to be present during construction activities. Sensitive plants in the vicinity of planned activities will be temporarily fenced or prominently flagged to prevent inadvertent encroachment by vehicles and equipment during the activity. Ground-surface disturbance shall be scheduled after seed set and prior to germination. Collection of seed, with reseeding undertaken at the site following the activity, during seasonal time-frames, and when weather conditions are favorable for germination and growth, may also be required. If deemed appropriate, topsoil shall be stockpiled and replaced or translocated as soon as practicable after project completion.

BMP BIO-7. The following procedures shall be followed where construction, demolition, or maintenance activities have the potential to adversely impact special-status animal species:

- Department staff will review existing data regarding the presence of special-status animal species in the area of potential disturbance.
- Department staff will perform a field reconnaissance of the area of potential disturbance to assess the presence of special-status animal habitat or populations.
- The conclusions of steps 1 and 2 (above) will be used to inform the design and location of the construction or maintenance activity and to identify the least special-status area(s) for ground disturbance.
- In the event that steps 1 and 2 reveal the presence, or potential presence of, special-status animal species or their habitat, and avoidance is not feasible, the Department shall conduct a biological field survey to assess habitat suitability and animal utilization of the area of potential disturbance. All biological field surveys shall follow appropriate protocols established by the Department as well as relevant federal resources agencies, and the Department shall confer with applicable agencies regarding the results of these surveys and appropriate avoidance, minimization, and mitigation measures. Additionally, species-specific surveys shall be conducted in accordance with current guidelines for each rare, threatened, and endangered animal species potentially occurring at the site.
- If any federally-listed animal species are found to occur on or utilize the proposed area of disturbance, the Department shall confer with USFWS regarding appropriate avoidance, minimization, and mitigation measures prior to undertaking such activity.
- Mitigation measures shall be developed within the project-level CEQA document and implemented with performance monitoring to avoid significant impacts. Mitigation measures may include (but would not be not limited to) avoidance of the habitat in addition to the implementation of project-specific measures designed to reduce the potential impacts for individual animals. These measures shall be based on the biological requirements of each species found to occur at a particular site, as well as a complete description of the proposed projects and its potential impacts to the subject species.

- At the discretion of the Department and with concurrence from USFWS for federal-listed species, existing information, in lieu of a site-specific survey, may be used to determine the presence of special-status species and appropriate measures to be undertaken to protect such resources.
- Personnel familiar with the sensitive resource may be required to be present during construction activities.

BMP BIO-8. In the event project-specific pre-construction surveys conducted in accordance with BMP-BIO7 reveal the presence of dens or burrows for San Joaquin kit fox, giant kangaroo rat, burrowing owl, or blunt-nosed leopard lizard, the following measures will be applied:

- Disturbance to San Joaquin kit fox dens, giant kangaroo rat burrows, burrowing owl burrows, and burrows used by blunt-nosed leopard lizards shall be minimized through implementation of the avoidance buffers outlined in the table below unless consultation with the appropriate resource agency identifies other avoidance measures. New construction and new activities that would result in an increase in the potential for direct mortality/injury of these special-status species will not be conducted within these buffers, as determined by a qualified biologist.
- Personnel familiar with the aforementioned sensitive resource in this BMP shall be present during construction activities.
- The following standard avoidance measures will be applied:

Species	Avoidance Buffer/Distance
San Joaquin kit fox – potential den	50 feet
San Joaquin kit fox – known den	100 feet
San Joaquin kit fox – pupping den	As determined by the Department and USFWS
Giant kangaroo rat burrow	50 feet
Burrowing owl – outside of breeding season	50 feet until burrow is documented to be unoccupied
Burrowing owl – during breeding season	250 feet until the conclusion of breeding season or burrow is documented to be unoccupied
Blunt-nosed leopard lizard	500 feet from an observation.

- If resources cannot be avoided by the recommended distance, consultation shall be initiated with the appropriate agency.

BMP BIO-9. Disturbance to occupied San Joaquin kit fox dens, giant kangaroo rat burrows, San Joaquin antelope squirrel burrows, and burrows used by blunt-nosed leopard lizards shall be avoided unless appropriate take authorization has been obtained. If burrowing owls are present, activities shall be consistent with the Department's Burrowing Owl Mitigation (CDFW 2012a).

BMP BIO-10. Areas supporting special-status aquatic species shall be avoided to the greatest extent possible.

BMP BIO-11. Surveys of sensitive biological resources shall be conducted at the appropriate time of year to detect special-status species.

BMP BIO-12. If it has been longer than 30 days between the last biological survey and the proposed start of construction, Department biologists may require a pre-activity survey no more than 30 days prior to the commencement of activities. Surveys shall be conducted by qualified personnel familiar with the target species or sensitive communities to confirm previous survey results, make additional recommendations if conditions have changed, and assist with BMP and mitigation measure implementation.

Ground Surface Disturbance

BMP BIO-13. Vegetation removal and ground surface disturbance shall be minimized. The Department shall apply surface rehabilitation measures as necessary to protect the soil surface. The Department will emphasize hand clearing over heavy equipment.

BMP BIO-14. When applicable, soil crusts shall be removed prior to construction and re-deposited at the completion of the project.

BMP BIO-15. When considering the authorization of new ground surface-disturbing activities, the Department shall encourage the use of existing disturbed areas, thereby minimizing impacts to special-status species, sensitive communities, and significant cultural and paleontological resources.

BMP BIO-18. The Department shall encourage livestock operators, researchers, fire crews, equestrians, and other authorized users and Reserve visitors to employ best management practices that minimize the spread of weeds, such as cleaning equipment prior to entering the Reserve and requiring the use of certified weed-free hay and feed on the Reserve.

BMP BIO-24. Construction activities shall be minimized during evening hours when some special-status species are active and vulnerable to vehicle or equipment induced injury or mortality. In addition, the Department shall ensure that all activities requiring vehicle use during nighttime hours, including security, visitor access, or research, shall be conducted with extra caution to minimize impacts to special-status species.

BMP BIO-25. Construction activities within 1/4 mile of springs, or riparian areas should be avoided whenever practical. This restriction is intended to minimize native animal disturbance at key water locations and to limit impacts to sensitive watersheds.

BMP BIO-26. The ends of pipes, culverts, and similar structures with a diameter of at least three inches that are staged for construction shall be capped prior to being left on the CPER overnight. If a pipe, culvert or similar structure is left overnight, it shall be thoroughly inspected for entrapped animals before being moved, capped, or buried. Any animals found inside shall be allowed to escape before the pipe or culvert is moved, capped, or buried. During construction, all partially installed pipe ends, culverts, and similar structures shall remain covered unless closely attended by a monitor designated by the Department. In addition, pipe, culverts or similar material stored on-site shall have their ends covered prior to being stored or left on site. The ends of pipes stored onsite will have ends capped before or

immediately after off-loading. In all cases, pipes shall be inspected for presence of animals before moving or use. If a special-status species has taken occupancy in a section of pipe, a qualified biologist shall remove it prior to the pipe being used.

BMP BIO-27. Workers shall inspect for animals under vehicles and equipment before the vehicles and equipment are moved. If an animal is present, the worker shall allow it to move unimpeded to a safe location.

BMP BIO-28. No pets shall be allowed on the CPER during construction activities.

BMP BIO-29. To protect animals, the Department shall initiate a trash abatement program for the Reserve that establishes at least the following conditions: a) trash and food items are contained in animal-proof containers and removed regularly to avoid attracting opportunistic predators such as ravens, coyotes, and feral dogs; b) absolutely no deliberate feeding of native animals shall be allowed.

BMP BIO-30. The Department shall confine parking, storage areas, laydown sites, equipment storage, and any other surface-disturbing activities to designated areas on existing disturbed areas or areas that do not represent sensitive habitat as determined by a qualified biologist.

BMP BIO-31. Prior to conducting work on-site for new projects, non-Department personnel shall attend an awareness education program specific to the potentially-affected species, consisting of a brief presentation by persons who are knowledgeable about locally found species biology and legislative protection. This information should be posted in an easily accessible area for all workers and work-site visitors to review as needed. The education program shall be provided to contractors and persons conducting work to address concerns pertaining to special-status species and other species of management concern (e.g., pronghorn, nesting birds). The information presented should include habitat needs; generalized location information; an explanation of the status of the species and their protection under federal and state law; and a list of measures being taken to reduce impacts on the species during site activities.

BMP BIO-32. Upon completion of construction or restoration projects, unused roads and work sites shall be restored where appropriate and signs or barriers shall be installed to prevent continued travel on construction roads.

BMP BIO-33. Before starting any new project within the Reserve, the Department shall clearly delineate the boundaries of the work area and any off-road access routes with fencing, stakes, flags or other visible boundaries. The Department shall restrict activities that may disturb special-status species and habitats to the fenced, staked, or flagged areas.

BMP BIO-34. If potential adverse biological issues have been identified for a project, a biological monitor may be designated by the Department to minimize project impacts as part of CEQA compliance. The biological monitor shall be responsible for field crews to be in compliance with protection measures, performing surveys in front of crews as needed to locate and avoid special-status species and habitat features, and monitoring project mitigation compliance. Biological monitors shall be required to be present on site during initial ground-surface-disturbing actions and any other activities that have a potential for "take" of federal or state listed species.

BMP BIO-35. The Department will work with utility companies to configure or modify power lines to eliminate raptor electrocutions to the greatest extent practicable.

BMP BIO-36. The Department shall prohibit the use of erosion control materials potentially harmful to native animals, such as monofilament netting (erosion control matting) or similar material.

Motor Vehicle Use

BMP BIO-37. Vehicle speed will not exceed 15 miles per hour on Department-administered roads in endangered species habitats. Speed limits shall be posted where necessary at roadway entrances to the Reserve.

BMP BIO-38. Vehicle travel for operation and maintenance purposes should be limited to existing roadways except in the case of an emergency or as determined through project design. Appropriate biological surveys should be conducted prior to off-road vehicle travel, including travel that does not result in habitat disturbance. Construction of new roads shall be avoided if existing roads can be used.

BMP DC-1. New trails within the Reserve shall:

- Be consistent with all relevant Best Management Practices and consistent with the overall goals and objectives of the Reserve;
- Be designed to avoid sensitive resources;
- Be located on existing unpaved roads wherever possible;
- Follow the natural topography wherever possible;
- Minimize ground-surface disturbance, removal of vegetation, and grading;
- Minimize or avoid the use of culverts, bridges, and retaining walls; and
- Incorporate connections to existing parking areas.

BMP DC-2. New or expanded parking areas shall:

- Be located and designed to provide adequate pullout and turnaround area, sight distance and spacing between parking areas and other driveways to ensure public safety;
- Be consistent with all relevant Best Management Practices and consistent with the overall objectives of the Reserve;
- Incorporate signage and visitor information as necessary to inform visitors;
- Avoid sensitive resources;
- Be located at existing established parking areas or other disturbed areas wherever possible;
- Minimizes ground-surface disturbance, removal of vegetation, and grading;

- Incorporate a permeable surface to minimize erosion and to protect surface water quality; and
- Take advantage of natural topography, vegetation, and other physical features to provide screening from public view.

BMP DC-4. New watering facilities shall incorporate design features to protect wildlife, including:

- Effective escape structures;
- Unobstructed access to the water surface; and
- A minimum length or diameter of six feet, with a longer length or diameter preferred.

Impact 5.4-1 — Conclusions/Summary of Impact

The construction of facilities to implement the Draft LMP could result in the permanent loss of a small amount of habitat that may support special-status plants and animals and potential impacts to biological soil crusts (Table 42). However, the loss of this habitat is considered less than significant because:

- The design and location of new facilities will be consistent with the BMPs recommended by the Draft LMP which will minimize impacts to sensitive resources;
- Project-specific CEQA compliance will precede approval of any new construction activities with the potential to adversely impact special-status species to identify the appropriate BMPs to be applied;
- The total potential loss of habitat is about 1.7 acres over the entire Reserve, or a small fraction of the total acreage of potential habitat for special-status species and soil crusts on the CPER and in the broader region; and
- The spacing of new watering facilities (on average one per square mile where none currently exist) is expected to reduce the pressure on existing water sources along with a reduction in the amount of compaction and denuded areas at existing water sources.

For these reasons, construction activities will have a less than substantial adverse effect, either directly or through habitat modifications and the impact is considered **less than significant (Class III).**

Impact 5.4-1 — Additional Mitigation

None required.

5.4.14.4 Impacts Associated with Vegetation Management Activities – Continuation of Managed Grazing

Impact 5.4-2 **The continuation of managed livestock grazing under the management actions recommended by the Draft LMP may adversely impact habitat for species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or the U.S. Fish and Wildlife Service. This impact will be reduced to a less than significant level (Class III) through implementation of management actions and Best Management Practices of the Draft LMP.**

The Draft LMP recommends using grazing management to create and maintain areas of short-statured grassland required by several special-status species; enhance native plant cover and richness in grasslands, blue oak woodlands, and coastal scrub; and control non-native herbaceous plant species in order to reduce their competitive effects on native plants and the potential for type conversion of shrublands to grassland via the grass-fire cycle (CDFW 2018).

Grazing management within the CPER will continue to be used to create and maintain areas of short-statured grassland required by several native species, enhance native plant cover and richness in grasslands, blue oak woodlands, and coastal scrub, and control non-native herbaceous plant species to reduce their competitive effects on native plants and the potential for type conversion of shrublands to grassland via the grass-fire cycle (CDFW 2018). The Draft LMP recommends management actions for the different vegetative communities of the CPER (Section 3.10.2, Table 43).

As with other components of vegetation management, managed grazing will be conducted within an adaptive management framework that will be detailed in a grazing management plan, which will be developed based on the goals in the Draft LMP (CDFW 2018). The grazing plan will be prepared by biologist(s) with regional experience in their respective fields. It will be developed in consideration of fire and exotic plant management elements as part of coordinated vegetation management (Section 4.42 of the Draft LMP; CDFW 2018). The grazing management plan will include specific goals and objectives for grazing as a management tool based on the biological goals of the LMP. The grazing management plan will incorporate the elements described in management action V2.1 and BMP-20.

Under the terms of the lease agreement executed in 2011 (Section 4.4.1), current grazing activities are subject to a range of restrictions, standards, monitoring, and remediation activities. The lease agreement set specific standards for biomass and residual dry matter (RDM) to be maintained in all grazed areas, to protect the soil and create and maintain desired habitat conditions for the special-status animal species (Table 43; CDFW 2011b).

Table 43: Standards for Residual Dry Matter and Biomass for Grazing Management Units in the Department's Grazing Lease Agreement

Management Unit Focus	Target Species	Management Objectives for RDM
Short Grass	Burrowing owl San Joaquin kit fox Pallid bat Horned lark	Primary Objective: At least 75% of all management units with under 3 inches of standing annual vegetation by May 1. Secondary Objective: No more than 25% of such management units may have an RDM of less than 300 lbs./acre.
Upland Game	Doves Quail	Primary Objective: Between 25% and 75% of the management unit will be less than 750 lbs. RDM per acre by September 1.
Woodland	Blue oak and juniper woodlands	Primary Objective: At least 75% of the management units with RDM of more than 1,000 lbs./acre. Secondary Objective: No more than 10% of the management unit with RDM less than 300 lbs./acre RDM

Source: CDFW 2011b

The lease agreement established a maximum number of animal unit months (AUMs) to be available on an annual basis on the lease premises. The AUM standard was based on the carrying capacity of the lease premises derived from the work of Mr. Keith Gunther, a certified range manager with extensive experience

evaluating rangelands in the project area. Under the terms of the lease agreement, grazing activities would be subject to ongoing monitoring to ensure that these standards are achieved and maintained. Exhibit B of the Lease Agreement describes the methodologies to be used for such monitoring and for reporting the results to the Department (CDFW 2011b). In the event monitoring reveals that the standards for RDM may not be achieved, remedial actions are required which include:

- Adjustments in the number and/or distribution of animals in the grazing management unit areas;
- Mandatory monitoring of biomass;
- Removal of animals from the lease area until the RDM standards are achieved; and/or
- Resting of management units until the RDM standards are achieved.

Table 44 compares the acreage within the current grazing lease area with the total acreage on the CPER by vegetation element. About two-thirds of the acreage within the CPER (about 25,500 acres) are currently ungrazed including 70% of grasslands within the CPER (about 15,300 acres). The CPER will continue to provide ample suitable grassland habitat for species that depend on grassland outside of grazing areas.

Table 44: Acres of Vegetation Elements within the Grazing Lease Area and the CPER Overall

Vegetation Element	Acreage Within 2011 Grazing Lease Area	Acreage Outside of the Grazing Lease Area	Total Acreage On The CPER	Percent of Vegetation Element Outside of Grazing Lease Area
Grassland	5,948.8	15,357.1	21,305.9	72.1%
Chaparral	985.8	264.7	1,250.5	21.2%
Coastal Scrub	2,042.7	2,582.0	4,624.7	55.8%
Desert Scrub	632.9	4,137.5	4,770.4	86.7%
Juniper woodland	1,369.2	1,668.0	3,037.2	54.9%
Oak woodland	2,400.4	1,146.3	3,546.7	32.3%
Wetland	6.8	99.7	106.5	93.7%
Ponds	6.5	0.9	7.4	12.2%
Riparian and Riverine	49.5	210.8	260.3	81.0%
Cliffs and Rocks	2.8	7.6	10.4	73.4%
Other	14.7	17.5	32.2	54.4%
Grand Total	**13,459.9**	**25,492.3**	**38,952.2**	—

Sources: CDFW 2011b, CDFW 2018

In areas where livestock congregate, cattle may modify habitat by disrupting soils and biological soil crusts. Potential impacts of livestock grazing on soil health include effects of reducing vegetative cover that helps protect soil from erosion; and effects of trampling that can result if domestic livestock are heavier, more numerous, and/or differently distributed than animals native to the ecosystem; these effects can include soil compaction, breakdown of sensitive landforms such as stream banks, and destruction of biological soil crusts. The Draft LMP recommends BMPs to protect biological soils crusts from the effects of grazing and or management activities (Appendix C).

Impact 5.4-2 — Best Management Practices Recommended in the Draft LMP that Mitigate Potential Impacts to Biological Resources Associated with the Continuation of Managed Livestock Grazing

The BMPs described above under impact 5.4-1 apply to this impact.

BMP BIO-20. Any authorization, or reauthorization, of new or expanded grazing activities will be preceded by the adoption of a grazing management plan following compliance with the California Environmental Quality Act. Such a Grazing Management Plan shall set forth at least the following:

- Specific goals, objectives and performance standards (targets) that define the desired habitat conditions to be achieved through grazing as a management tool, which are based upon the resource protection and enhancement goals of the LMP.
- Performance standards should be measurable, objective and relevant to grazing management while incorporating the flexibility necessary for effective adaptive management.
- Grazing prescriptions, which identify how grazing will be conducted to attain the various goals, objectives and performance standards. Grazing prescriptions will include:
    - animal class: the kind of animals, in terms of species, breed, and age
    - spatial distribution: which portions of the reserve will be grazed
    - temporal distribution: when animals will be grazing
    - density of animals: the number of grazing animals within each area to be grazed.
- Grazing prescriptions and methods developed based on a review of the best available scientific literature examining the effects of various types grazing, based on the seasonality, intensity, and frequency, on biological systems, and the site-specific conditions of the reserve.
- Grazing facilities, such as water and fencing, that are currently present or that would be needed.
- Methods to avoid or minimize impacts of grazing on sensitive species, special communities, cultural resources, and public uses.
- Performance standards such as minimum standards for residual dry matter (RDM) and/or grass height to ensure the protection of water and soil quality.
- Monitoring protocols and performance standards that will be used to assess effective implementation of the grazing prescriptions.
- Lease management requirements to ensure compliance, cooperation between the permittee and Department staff.

BMP BIO-21. The Department shall implement appropriate measures to protect special-status plants that would be negatively affected from the potential impacts of grazing activities based on species-specific information. Such measures may include, but are not limited to, the following:

- Excluding livestock from areas where special-status plants that may be negatively impacted by grazing occur, or have the potential to occur but have not been surveyed, including through the construction of exclosures.
- Excluding livestock from areas where special-status plants are known to occur (or have the potential to occur) during the flowering/fruiting period (generally March through June).

BMP BIO-22. The Department will adjust grazing prescriptions or eliminate grazing following restoration treatments, if necessary to protect populations of vulnerable species and/or facilitate establishment of newly planted sites.

BMP BIO-23. Where possible, water for livestock shall be piped away from the riparian zone. If possible, livestock water sources shall be kept on year-round for use by native animals.

Impact 5.4-2 – Conclusions/Summary of Impacts

Table 45 lists potential impacts to special-status species associated with the continuation of managed grazing, subject to the management actions and BMPs in the Draft LMP. Appendix E of the Draft LMP provides a detailed description of the species (CDFW 2018). The continuation of managed grazing is expected to have a less-than-significant impact on the biological resources of the CPER because:

- Grazing has been used as a vegetation management tool on the CPER in accordance the terms of the 2011 Lease Agreement (Section 4.4.1) and the CRRE (Section 4.4.2). The MND prepared lease agreement concluded that the continuation of managed grazing in accordance with the lease terms will have a less-than-significant impact on biological resources (CDFW 2011b). The categorical exemption adopted for the CRRE (CRCD 2005) concluded that the project would have a less-than-significant impact on biological resources.
- The Draft LMP states that any authorization of new or expanded grazing activities will be preceded by the adoption of a grazing management plan following project-specific environmental review.
- Unless and until a grazing management plan is developed and a new grazing lease is adopted, or the terms of the CRRE are amended, grazing will continue at baseline conditions.
- Managed grazing guided by a future grazing management plan developed as recommended by the Draft LMP is expected to have a beneficial impact on the biological resources of the CPER by reducing exotic species and enhancing the habitat and population of special-status species.
- The Draft LMP recommends regulating livestock access to riparian areas, wetlands, and ponds to maintain appropriate upland habitat for pond-breeding species, including open conditions for western spadefoot toad and wetland vegetation suitable for tricolored blackbird.
- Although suitable habitat for certain special-status species exists within the area recommended for the continuation of managed grazing, between 16,300 to 18,300 acres of comparable habitat on the CPER will remain un-grazed, providing suitable habitat for these species.
- The continuation of managed livestock grazing following adoption of the Draft LMP will not result in the "take" of state-listed threatened or endangered because of the implementation of management actions and BMPs included in the Draft LMP.

Impact 5.4-2 – Additional Mitigation

None are required.

Table 45: Conclusions and Summary of Impacts to Special-Status Species

Species	Status[1]	Found in Grazing Management Units?	Conclusion/Summary of Impact
Plants			
Lost Hills crownscale (*Atriplex coronata* var. *vallicola*)	Rank 1B.2	No	No Impact. The species is not found within the area where managed grazing is recommended to continue under the Draft LMP (CDFW 2018). No suitable habitat exists within the area recommended for the continuation of managed grazing.
Round-leaf filaree (*California macrophylla*)	Rank 1B.1	Yes	Less than significant impact. The largest populations of round-leaf filaree on the CPER occur outside the areas where managed grazing will continue under the Draft LMP. Two of the 19 populations occur within the areas where managed grazing has occurred (the Garcia and Little Garcia management units) and will continue under the Draft LMP (CDFW 2018). In addition, this species is relatively abundant on BLM lands outside the CPER where grazing occurs (BLM 2010). Through the application of BMPs, grazing in occupied management units will be avoided during the species' flowering and fruiting periods (April-May).
California jewelflower (*Caulanthus californicus*)	FE, CE	No	No Impact. This species has not been observed anywhere on the CPER. Most of the potentially suitable habitat will not be in areas recommended for the continuation of managed grazing. In areas of potential habitat where managed grazing is recommended, grazing to control exotic plants will occur outside of the flowering and fruiting season. Exotic plant competition and livestock grazing during the flowering/fruiting season were both considered to be detrimental to this species (USFWS 1998).
Lemmon's jewelflower (*Caulanthus lemmonii*)	Rank 1B.2	No	No impact. Based on previous surveys of the CPER, Lemmon's jewelflower does not occur in the area where managed grazing will occur under the Draft LMP (CDFW 2018). Therefore, managed grazing will have no impact on this species.
Umbrella larkspur (*Delphinium umbraculorum*)	Rank 1B.3	Yes	Less than significant impact. Department botanists have documented 34 locations on the CPER with umbrella larkspur. Of these, 5 are in pastures where managed grazing will continue under the Draft LMP (CDFW 2018). This species is relatively abundant on the CPER outside the areas where managed grazing will continue under the Draft LMP.
Valley larkspur (*Delphinium recurvatum*)	Rank 1B.2	No	No impact. Based on previous surveys of the CPER, valley larkspur does not occur in the area where managed grazing will continue under the Draft LMP. The species may occur in small numbers in desert scrub in the American Unit (CDFW 2018). It may also occur near Soda Lake on saline/alkaline soils associated with surrounding playas (BLM 2010).
Kern mallow (*Eremalche parryi cf.* ssp. *kernensis)*	FE, Rank 1B.1	Potential	Less than significant impact. Until 2010, Kern mallow was not known to occur west of the Temblor Range. Recent observations in the CPNM (DeVries 2011) suggest *E. parryi* populations within the CPER are the endangered subspecies. Although suitable habitat exists within the area recommended for the continuation

Table 45: Conclusions and Summary of Impacts to Special-Status Species			
Species	**Status**[1]	**Found in Grazing Management Units?**	**Conclusion/Summary of Impact**
			of managed grazing (CDFW 2018), between 16,300 to 18,300 acres of comparable habitat on the CPER will remain un-grazed, providing ungrazed habitat for this species.
Pale-yellow layia (*Layia heterotricha*)	Rank 1B.1	No	No impact. Based on previous surveys of the CPER, pale-yellow layia does not occur in the area where managed grazing will continue under the Draft LMP (CDFW 2018).
Munz's layia (*Layia munzii*)	Rank 1B.2	No	No impact. Based on previous surveys of the CPER, Munz's layia does not occur in the area where managed grazing will continue under the Draft LMP (CDFW 2018).
Showy madia (*Madia radiata*)	Rank 1B.1	Yes	Less than significant impact. Based on previous surveys of the CPER, one of the 18 populations of showy madia recorded on the CPER is located within the area where managed grazing will continue under the Draft LMP (CDFW 2018). This species is relatively abundant on the CPER outside the areas where managed grazing will continue under the Draft LMP. Although suitable habitat exists within the area recommended for the continuation of managed grazing, between 16,300 to 18,300 acres of comparable habitat on the CPER will remain un-grazed, providing suitable habitat for this species.
San Joaquin woolly threads (*Monolopia congdonii*)	Rank 1B.2, FE	Yes	Less than significant impact. Based on previous surveys of the CPER, San Joaquin woolly threads does not occur in the area where managed grazing will continue under the Draft LMP (CDFW 2018). Moreover, the species does not appear to be highly sensitive to or impacted by grazing. Moderate grazing, especially early in the season, has been recommended to benefit the species by reducing competition from non-native annual grasses and forbs (BLM 2010); however; a study of four populations at Lost Hills, Elkhorn Plain, and two locations on the Carrizo Plain between 1992 and 1993 did not detect an effect of weeding on plant size or fecundity (Mazer and Hendrickson 1993). A study in the Carrizo and Elkhorn plains, and in the Kettleman Hills northeast of the CPER, found that plants were often heavily grazed by cattle, giant kangaroo rats, or other herbivores but typically recovered via compensatory growth (Cypher 1994). Maximum stem length, number of stems, and flower head production were generally greater in grazed areas in the Carrizo Plain and Kettleman Hills populations and equal to or slightly lower in grazed areas at the Elkhorn Plain site. Herbivory and damage by giant kangaroo rats rarely causes mortality yet can reduce the reproductive capacity of plants by up to 30%. In contrast, plants growing on giant kangaroo rat precincts on the Elkhorn Plain were larger, had more stems, and produced more seed heads than those growing between precincts (no difference at the Carrizo site), but the power of this comparison was compromised by the study's small samples size. Flowers produce abundant seed even when pollinators are excluded and seedling survivorship is between 50 and 70% (Cypher 1994).
La Panza Mariposa Lily	Rank list 1B.2	Yes	Less than significant impact. Based on prior surveys of the CPER, this species occurs in relatively high abundance throughout the CPER units that have been historically grazed, including units where grazing will

Table 45: Conclusions and Summary of Impacts to Special-Status Species			
Species	**Status**[1]	**Found in Grazing Management Units?**	**Conclusion/Summary of Impact**
(*Calochortus simulans*)			continue under the Draft LMP (CDFW 2018). Department botanists have recorded 76 locations for mariposa lily on or adjacent to the CPER. Just under one-third of these locations (23) are on the areas where managed grazing will continue under the Draft LMP.
Invertebrates			
Vernal pool fairy shrimp (*Branchinecta lynchi*)	FT	No	No impact. This species has not been observed within the CPER during targeted surveys conducted by the Department's RAP program (R. Stafford pers. comm. 2010, CDFW 2018).
Longhorn fairy shrimp (*Branchinecta longiantenna*)	FE	No	No impact. During targeted surveys conducted by the RAP program, the species was observed within the American Unit near Soda Lake (CDFW unpublished data). However, the longhorn fairy shrimp does not occur in areas where the continuation of managed grazing will occur under the Draft LMP.
Kern primrose sphinx moth (*Euproserpinus euterpe*)	FT	No	No impact. Based on previous surveys of the CPER, suitable habitat for the Kern primrose sphinx moth does not occur in areas where managed grazing will continue under the Draft LMP (CDFW 2018). Since its discovery in the region in 2002, the Kern primrose sphinx moth have been observed in five sandy washes on the eastern side of the Carrizo Plain, with two additional unconfirmed sites on the Elkhorn Scarp (BLM 2010). It is unknown whether the species occurs within the CPER units; however, both the Elkhorn and Panorama units feature sandy washes and the primary larval host plant, *Camissonia campestris*, occurs at relatively high abundance within the Elkhorn Unit (CDFW 2018). The Elkhorn Unit is less than 0.5 miles north northeast of one of the mapped locations of this species within the Elkhorn Scarp (BLM 2010).
Fish			
Arroyo chub (*Gila orcutti*)	CSSC	Yes	Less than significant impact. Within the CPER, arroyo chub are known to occur only in the Cuyama River, where they were observed near the road crossing (CDFW 2018). Arroyo chub are not native to the Cuyama River and were introduced from their native range in Southern California. Managed grazing has been practiced along the Cuyama River in the South Chimineas Unit and will continue under the Draft LMP (Section 4.4.1). The Draft LMP does not recommend any changes to the management practices, stocking levels, and extent of grazed areas along the Cuyama River where the arroyo chub occurs. Following adoption of the Draft LMP, livestock will continue to be excluded from the river by fencing erected as part of the CRRE (CRCD 2005).
California roach (*Lavinia symmetricus*)	CSSC	Yes	Less than significant impact. The California roach occurs in the Cuyama River. It is not anticipated to occur in the other streams of the CPER, due to their insufficient hydroperiods and populations of piscivorous non-native fish (CDFG 2016).

Table 45: Conclusions and Summary of Impacts to Special-Status Species			
Species	**Status[1]**	**Found in Grazing Management Units?**	**Conclusion/Summary of Impact**
			Managed grazing has been practiced along the Cuyama River in the South Chimineas Unit and will continue under the Draft LMP (Section 4.4.2 of this EIR). The Draft LMP does not recommend any changes to the management practices, stocking levels, and extent of grazed areas along the Cuyama River where the California roach occurs. The Draft LMP recommends regulating livestock access to riparian, wetland, and pond to maintain appropriate habitat for aquatic and other species that utilize these habitats.
Amphibians			
California red-legged frog (*Rana draytonii*)	FT, CSSC	Yes	Less than significant impact. Within the CPER, California red-legged frog is known only from the Cuyama River, where it has been observed in numerous locations during the breeding season along an approximately 2.3-mile-long stretch of the Cuyama River within and adjacent to the CPER's southern border. The threatened frog has not yet been observed in surveys of the ponds or within San Juan, Barrett, or Carrizo creeks, which may provide suitable breeding habitat; however, the species may be precluded by the occurrence of non-native fish that occurred within San Juan Creek downstream of Broken Dam Pond prior to drying of these aquatic areas due to the drought between 2011 and 2015 (CDFW 2018). Managed grazing has been practiced along the Cuyama River in the South Chimineas Unit and will continue under the Draft LMP (Sections 4.4.1 and 4.4.2 of this EIR). The Draft LMP does not recommend any changes to the management practices, stocking levels, and extent of grazed areas along the Cuyama River where the California red-legged frog occurs. The Draft LMP recommends regulating livestock access to riparian, wetland, and pond to maintain appropriate habitat for aquatic and other species that utilize these habitats.
Western spadefoot toad (*Spea hammondii*)	CSSC	Yes	Less than significant impact. Within the CPER, western spadefoot toads have been observed within the American Unit, near the Painted Rock Ranch Headquarters, and within the Chimineas units in the Cuyama River, San Juan, Barrett, and Carrizo creek drainages, including in association with five ponds: Quarry, Number 3, Scale, Corral and Feed Lot (CDFW 2018). Under the grazing lease executed in 2011, riparian management units of the CPER are currently not available for livestock use to protect other wetland/riparian resources. The Draft LMP recommends regulating livestock access to riparian, wetland, and pond to maintain appropriate habitat for aquatic and other species that utilize these habitats. This will limit potential impacts from livestock directly killing spadefoot toads through trampling (Jennings and Hayes 1994), the habitat value for spadefoot populations at these locations may be reduced over time as wetland vegetation becomes denser and ponds dry up sooner due to increased evapotranspiration (Marty 2005). The degradation of spadefoot toad habitat associated with excluding livestock is expected to be minimal and insignificant. However, longer-term exclusion of livestock from spadefoot breeding ponds has the potential to result in the loss of these ponds for use by spadefoot. Accordingly, the Department will continue to

Table 45: Conclusions and Summary of Impacts to Special-Status Species			
Species	**Status**[1]	**Found in Grazing Management Units?**	**Conclusion/Summary of Impact**
			monitor spadefoot populations and the associated habitat. In the event that habitat quality and spadefoot numbers decrease, periodic, short-term livestock use will be used to promote populations of spadefoot toads.
Reptiles			
California legless lizard (*Anniella pulchra pulchra*)	CSSC	Yes	Less than significant impact. Within the CPER, California legless lizards have been observed within the Chimineas units, primarily in blue oak woodland and grassland habitat in the North Chimineas Unit, and in the river terrace grassland near Feed Lot Pond in the South Chimineas Unit (CDFW 2018). California legless lizard may be impacted by livestock grazing, which can limit food availability, reduce leaf litter, or compact the substrate (Jennings and Hayes 1994). These effects may be most acute where cattle congregate under trees within woodlands and savannas. This fossorial species has been found throughout the western half of the CPER in both grazed and ungrazed management units where the ground was not tilled. This species is not expected to be directly impacted by grazing operations as it rarely emerges above ground (Stebbins 1985, Jennings and Hayes 1994). However, livestock use may compact soils enough to restrict the food base or conformation of the substrate (Jennings and Hayes 1994). Healthy populations of this species have been observed in areas heavily grazed prior to the Department acquiring the CPER (CDFW unpublished data).
Blainville's horned lizard (*Phrynosoma blainvillii*)	CSSC	Yes	Less than significant impact. Within the CPER, Blainville's horned lizards have been observed on 27 instances in the Chimineas units and on two occasions within the American Unit. The species also occurs on sandy soils within the desert scrub and grasslands of the Panorama and Elkhorn units (CDFW 2018). This species occupies both grazed and ungrazed areas on the CPER. Open habitats created by fire, floods, grazing, and roads are needed as basking sites for this species (Jennings and Hayes 1994). With the exception of riparian areas, where the LMP recommends cattle access be regulated, grazing will continue under the Draft LMP in the same areas that have been grazed for at least the past 10 years. Reduction in grass density in these grazed units will continue to maintain open habitat required by this species.
Blunt-nosed leopard lizard (*Gambelia sila*)	FE, SE	No	Less than significant impact. Within the CPER, blunt-nosed leopard lizards occur within the desert scrub and grasslands of the Elkhorn and Panorama units (CDFW 2018). The Elkhorn Unit served as an ungrazed (control) site for a study of effects of grazing on this species, which found that blunt-nosed leopard lizards survived in similar proportions in grazed and nongrazed areas both in years of low and high plant productivity; though, drought and lack of grazing during several years of the study rendered the results inconclusive (Williams et al. 1993, Germano and Williams 1994).
California glossy snake (*Arizona elegans occidentalis*)	CSSC	Yes	Less than significant impact: This species has been observed primarily in grazed portions of the Chimineas units, where it is anticipated to benefit from the more open conditions (lower thatch and herbaceous plant cover) maintained by cattle (CDFW 2018), given its preferential occurrence in open microhabitats.

Table 45: Conclusions and Summary of Impacts to Special-Status Species			
Species	**Status**[1]	**Found in Grazing Management Units?**	**Conclusion/Summary of Impact**
San Joaquin Coachwhip (*Masticophis flagellum ruddocki*)	CSSC	Yes	Less than significant impact. Within the CPER, the San Joaquin coachwhip has been observed within grasslands and desert scrub within both Chimineas Units and along Sprague Hill Road on the western border of the American Unit. The species has also been observed on Soda Lake Road in the Carrizo Plain, and is expected to occur within the grasslands and desert scrub of the Panorama and Elkhorn units (CDFW 2018). The continuation of managed grazing is expected to have a less-than-significant impact on San Joaquin coachwhip because abundant suitable habitat will remain available to this species outside the area of managed grazing.
Coast Patch-Nosed Snake (*Salvadora hexalepis virgultea*)	CSSC	Potential	Less than significant impact. Within the CPER, coast patch-nosed snake has been observed on two occasions within the chaparral communities of the North Chimineas Unit. The snake is expected to also occur within the juniper woodland, chaparral, and perhaps blue oak woodland elsewhere in the North Chimineas Unit (CDFW 2018). Conversion of shrub communities through too-frequent wildfire is a threat to this species (Jennings and Hayes 1994). Reduction of fine fuels through vegetation management including cattle grazing may reduce this risk. Continued managed livestock grazing is expected to have a less-than-significant or positive impact on coast patch-nosed snake. The vegetation communities favored by this species often preclude use by livestock; the reduction in fines fuels through cattle grazing may help reduce the frequency of wildfire which can be detrimental to the perpetuation of the species' preferred habitat.
Two-striped garter snake (*Thamnophis hammondii*)	CSSC	Potential	Less than significant impact. The two-striped garter snake has not yet been observed within the CPER, though is predicted to occur within the appropriate riparian areas and ponds of the Chimineas units at low abundance. The bedrock-lined reaches of San Juan Creek may provide habitat for the snakes, which seek cover amidst rocks (CDFW 2018). Under the grazing lease executed in 2011, riparian management units of the CPER are currently not available for livestock use to protect other wetland/riparian resources. The Draft LMP recommends continuing the exclusion of livestock from riparian areas. The exclusion of riparian areas will eliminate any potential impacts from livestock directly killing two-striped garter snakes through trampling (Jennings and Hayes 1994).
Western pond turtle (*Emys marmorata*)	CSSC	Yes	Less than significant impact. In the CPER, western pond turtles occur within the streams and ponds within the Chimineas units. The species has been observed along the entire length of the Cuyama River within the CPER, along Carrizo Creek where a road-side spring ponds along the road, and in several locations on

Table 45: Conclusions and Summary of Impacts to Special-Status Species			
Species	**Status[1]**	**Found in Grazing Management Units?**	**Conclusion/Summary of Impact**
			various tributaries of San Juan Creek. Western pond turtles also occupy eight ponds within the San Juan and Barrett Creek drainages: Broken Dam, Anna/Betty, Taylor, Gillam, Joe, Quarry, Number 3, and Number 26 ponds (CDFW 2018). A multi-year study of western pond turtles in six ponds, Number 3, Quarry, Anna/Betty, Broken Dam, Joe, and Gillam, found that turtles produced an average of 4.9 eggs per clutch (D. Germano, unpublished data). Individuals within Joe Pond, the only pond with continued access for cattle, exhibited significantly greater growth rates when compared with other ponds. Moreover, Joe Pond featured a higher incidence of hatchlings than any other pond (Germano 2011). Within the area where managed livestock grazing will continue under the Draft LMP, 4 ponds within the San Juan and Barrett Creek drainages have large turtle populations. Historically, all of the ponds were grazed and turtle populations have persisted. Livestock are excluded from 3 of the 4 occupied turtle ponds to protect riparian habitat. This is expected to increase the duration of water retention and increase the weight and reproductive potential of turtles in these ponds. As part of the RAP program and ongoing research by researchers, pond turtle populations will continue to be monitored.
Birds			
Bald eagle (*Haliaeetus leucocephalus*)	DFW-FP	Yes	No impact. Bald eagles have been observed at Broken Dam Pond, the large pond within San Juan Creek on the northwestern border of the North Chimineas Unit, which supported non-native fish prior to the most recent drought which dried up the pond in 2015 (CDFW 2018). Bald eagles are presumed to utilize the pond within the CPER infrequently as part of migration and wintering habitat. The continuation of managed grazing will have no impact on the availability of nesting trees or access to the water bodies used by this species.
Burrowing owl (*Athene cunicularia*)	CSSC	Yes	Beneficial impact. Burrowing owls use the grasslands of all four units of the CPER for breeding as well as year-round residency and migration . They have been observed on numerous occasions within the grasslands of the American Unit and the North Chimineas Unit. Nesting burrowing owls have been observed in the Unit 32, Scale, and Garcia Farming management units, where grazing management is used to create and maintain low grassland height preferred by this species, particularly for breeding (CDFW 2018). Free roaming herds of tule elk present in the region do not reduce grass height sufficiently to promote use by burrowing owls, since the tule elk leave the CPER to find better forage conditions before reducing grass height to necessarily low levels (R. Stafford, pers. comm. 2010). Burrowing owls have been observed throughout the northern grasslands of the Reserve, primarily in or adjacent to the grazed management units.

Table 45: Conclusions and Summary of Impacts to Special-Status Species			
Species	**Status[1]**	**Found in Grazing Management Units?**	**Conclusion/Summary of Impact**
			Comparable habitat on the CPER will remain un-grazed, providing suitable habitat for other species that depend on grassland. It is well documented in the scientific literature that this owl needs the short grass structure associated with grazing, especially during the nesting season (Salt and Wilk 1958, Bent 1961, Grant 1963, Grant 1965, James and Seabloom 1968, Stewart 1975, Wedgwood 1976, Haug 1985, MacCracken et al. 1985, Haug and Oliphant 1990, and Ronan 2002). Burrowing owl nest sites on the adjacent Carrizo Plain were surrounded by significantly lower vegetation height (0.4 cm) compared to unused burrow sites (Ronan 2002). In addition to low vegetative structure, burrowing owls also benefit from livestock by collecting cattle dung and bringing it to their burrows (Salt and Wilk 1958, Martin 1973, Green and Anthony 1989, Dechant et al. 1999). The presence of cattle dung, which is thought to be utilized by owls to mask their scent (Green and Anthony 1997), is considered important enough that it was recommended that it be provided in the event none was present (Green and Anthony 1997, Dechant et al. 1999).
California condor (*Gymnogyps californianus*)	FE, SE	Potential	Less than significant impact. California condors utilize the area in and around the CPER for foraging. Prior to their initial removal from the wild, radio-tagged California condors were observed foraging year-round over the Carrizo Plain, Panorama Hills, Elkhorn Plain, Cuyama Valley and the upper San Juan Creek drainage (USFWS 1996). Presently, they are thought to occasionally utilize the CPER units for foraging, particularly the North Chimineas Unit where they may feed on cattle, tule elk, and mule deer. They are not known to breed within the CPER; the nearest known breeding sites are located 30 miles southeast of the nearest potential breeding habitat on the CPER (R. Stafford, pers. comm. 2010). A single California condor observation has been recorded on the CPER outside the area where managed grazing will continue under the Draft LMP. Telemetry data from USFWS also indicate that condors occasionally fly over the CPER. Under the Draft LMP and current grazing lease, dead livestock are required to remain on the CPER to provide a potential food source for condors foraging in the area (CDFW 2011b). The continuation of managed grazing, and the associated occasional mortality of livestock, will continue to provide a potential food source for California condors, which feed on carrion.
Golden eagle (*Aquila chrysaetos*)	DFW-FP	Yes	Less than significant impact. Within the CPER, golden eagles have been observed nesting in the Chimineas and American units in association with grassland, coastal scrub, and blue oak woodlands. Golden eagles are also predicted to utilize desert scrub, chaparral, and riparian vegetation. Golden eagles likely use the Panorama Unit and might occasionally forage within the Elkhorn Unit (CDFW 2018). Golden eagles feed on ground squirrels and carrion. The continuation of managed grazing will continue to provide potential food sources for this species. Although suitable habitat exists within the area recommended for the continuation of managed grazing, between 16,300 to 18,300 acres of comparable

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Species	**Status**[1]	**Found in Grazing Management Units?**	**Conclusion/Summary of Impact**
			habitat on the CPER will remain un-grazed, providing suitable habitat for this species. Accordingly, managed livestock grazing will not significantly limit or reduce the available nesting or foraging habitat for this species.
Grasshopper sparrow (*Ammodramus savannarum*)	CSSC	Potential	Less than significant impact. Within the CPER, grasshopper sparrows have been frequently observed within the American and North Chimineas units. Mapped occurrences are almost exclusively within the ungrazed grasslands; the species has not been observed nesting within the grazed grasslands within the North Chimineas unit (CDFW 2018). The species preferentially occurs in areas with scattered shrubs such as silver bush lupine (*Lupinus albifrons*) and linear-leaf goldenbush (*Ericameria linearifolia*), or tall forbs such as summer mustard (*Hirschfeldia incana*), which males use as perches during breeding displays (R. Stafford, pers. comm. 2010). Between 16,300 to 18,300 acres of habitat on the CPER will remain un-grazed, providing suitable habitat for this species.
LeConte's thrasher (*Toxostoma lecontei*)	CSSC	No	Less than significant impact. On the CPER, LeConte's thrashers breed within the desert scrub communities of the Panorama and Elkhorn units where managed grazing is not recommended under the Draft LMP. This species prefers saltbush/ephedra shrub communities but need open areas with short grass within this matrix for forage (Jongsomjit et al. 2014). The desert scrub communities on the South Chimineas Unit may represent suitable but unoccupied habitat, though they were not evaluated as part of a recent habitat suitability model for the monument (Jongsomjit et al. 2012). However, California thrashers (*Toxostoma redivivum*), which are thought to outcompete LeConte's thrashers (Sheppard 1996), inhabit this area. Thus, the effect of continued managed grazing is not expected to adversely impact LeConte's thrasher.
Loggerhead shrike (*Lanius ludovicianus*)	CSSC	Potential	Less than significant impact. Though most abundant in areas with nearby shrubs, loggerhead shrike occurrences within the CPER have been mapped throughout the range of habitat types, including grasslands, shrublands, woodlands, and in association with ponds and the riparian areas within the American, Chimineas, and Panorama units. The species occurs year-round and breed at relatively high abundance in all units of the CPER (CDFW 2018). Within the CPER, loggerhead shrikes are relatively abundant in both grazed and ungrazed units as long as there is some vertical structure present (e.g., shrubs, fences, or trees). However, a recent study of wintering raptors found that shrikes were observed on grazed lands at significantly higher rates than ungrazed lands (Pandolfino and Smith 2011).
Long-eared owl (*Asio otus*)	CSSC	Yes	Less than significant impact. Within the CPER, long-eared owls utilize the oak woodlands, juniper woodlands, and riparian woodlands primarily within the Chimineas Units, where they are known to breed. They have been observed nesting within the juniper woodland and just west of the Chimineas Headquarters (CDFW 2018). The grasslands, which occur as a mosaic with the juniper, oak, and riparian woodlands, may also provide habitat for the species. Long-eared owls have been observed nesting and roosting in both grazed

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Species	**Status**[1]	**Found in Grazing Management Units?**	**Conclusion/Summary of Impact**
			and ungrazed woodland units of the CPER and their populations appear to be stable (CDFW unpublished data). Comparable habitat on the CPER will remain un-grazed, providing suitable habitat for this species. The Draft LMP recommends regulating livestock access to riparian, wetland, and pond habitats to manage except habitat for aquatic and other species.
Mountain plover (*Charadrius montanus*)	CSSC	Potential	Positive impact. Within the CPER, mountain plovers utilize the grasslands of the Panorama Unit, which support low-growing forbs such as the native California gold fields (*Lasthenia californica*) and the non-native red-stemmed filaree (*Erodium cicutarium*). These areas are located in areas with a high density of giant kangaroo rats, which create and maintain the low structured grasslands utilized by mountain plovers. While the rolling hills and tall-structured grasslands of the American Unit could provide appropriate habitat, the flat, grazed grasslands on the North Chimineas Unit would be the most suitable habitat for mountain plovers.
Northern harrier (*Circus cyaneus*)	CSSC	Yes	Less than significant impact. Within the CPER, northern harriers have been observed within the North Chimineas Unit, within grasslands and blue oak woodlands, and in the riparian and wetland vegetation on the margins of the Barrett Creek ponds (i.e., Number 3 and Quarry). The species is also predicted to occur, though at relatively low abundance, within the American and Panorama units (CDFW 2018). Northern harriers have been observed in both the grazed and ungrazed management units of the CPER. This species nests on the ground in tall grass (Shuford and Gardali 2008) and preferentially uses tall grass and marsh habitats (Pandolfino et al. 2011). Nests of this species can be directly impacted by grazing (Shuford and Gardali 2008). While nesting has not been directly detected on the CPER, one pair of harriers has been observed year round in the ungrazed grasslands including the nesting season (R. Stafford, pers. comm. 2010). Comparable habitat on the CPER will remain un-grazed, providing suitable habitat for this species.
Olive-sided flycatcher (*Contopus borealis*)	CSSC	Yes	Less than significant impact. This species has only been recorded on one occasion during spring migration. Appropriate breeding habitat (coniferous forests) does not occur within the CPER (Verner 1980).
Oregon vesper sparrow (*Pooecetes gramineus affinis*)	CSSC	Yes	Less than significant impact. At a species level, the vesper sparrow is an obligate grassland species (Vickery et al. 1999). Oregon vesper sparrows are not known to breed south of extreme northern California (Jones and Cornely 2002) and within the CPER, vesper sparrows have been only been observed in grasslands during the late fall and winter on the Chimineas units. The species is predicted to occur within the grasslands of the other units, and at lower abundance within the CPER's woodlands and shrublands. Christmas Bird Count

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Species	**Status[1]**	**Found in Grazing Management Units?**	**Conclusion/Summary of Impact**
			data indicate that the species may be relatively common on and around the Carrizo Plain (Leeman and Edson 2002). It is unknown whether the Oregon vesper sparrow, the Great Basin vesper sparrow (*P. g. confinis*) or both subspecies winter on the CPER. Only the Oregon vesper sparrow is considered as a species of special concern and was determined to be the predominate subspecies north of Kern County (Erickson 2008). However, all vesper sparrows were considered to be Oregon vesper sparrows for purposes of this analysis, Grazing that decreases herbaceous plant cover and increases shrub density has been shown to have a detrimental impact on the breeding grounds of the related Great Basin vesper sparrow (Gaines 1992). Similar data is not available for wintering sites and it is unknown whether overgrazing poses a problem on the wintering grounds (Erikson 2008). However, Grinnell and Miller (1944) described habitat for wintering Oregon vesper sparrows as "mainly open ground with little vegetation or grown to short grass", suggesting that grazed areas are preferred during winter. Declines in other parts of the species range have been attributed to a variety of agricultural practices including trampling of nests by livestock, earlier and/or more frequent mowing, removing of weedy field edges and hedgerows, pesticide use, and predation by mammals associated with human habitation (Altman 2003). Vesper sparrows have been observed wintering at low densities in both grazed and ungrazed grasslands of the CPER. Under the LMP, a comparable mosaic of grazed and ungrazed lands will be maintained to provide suitable habitat for this species.
Peregrine falcon (*Falco peregrinus*)	DFW-FP	Potential	Less than significant impact. American peregrine falcons populations in the United States declined dramatically in the 1960s and 1970s due to pesticide (DDT and DDE) contamination, with fewer than 40 breeding pairs in California in 1981 (Monk 1981). Population recovery following the ban of such pesticides in the United States lead to the American peregrine falcons being removed from the federal endangered species list in 1999 and the California endangered species list in 2009. Although American peregrine falcons incidentally prey on waterfowl utilizing the ponds of the North Chimineas Unit of the CPER, this species has only been observed once during spring migration and is not known to nest anywhere near the CPER (CDFW 2018). The Draft LMP recommends regulating livestock access to riparian, wetland and pond resources to maintain appropriate habitat for special-status species.
Sandhill Crane (*Grus canadensis*)	CSSC	Potential	Less than significant impact. Records of sandhill cranes overwintering at the Carrizo Plain began in 1955 (Walkinshaw 1973). Average annual numbers here have declined from 3,979 cranes for the period 1983-

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Species	**Status[1]**	**Found in Grazing Management Units?**	**Conclusion/Summary of Impact**
			1989 to 903 cranes between 1990 and 2000 (Shuford and Gardali 2008). This decline is most likely due to the cessation of grain farming, which began in the late 1980s (R. Stafford, pers. comm. 2010). Within the CPER, sandhill cranes are expected to only occasionally be present within the grasslands of the American Unit and northern portion of the North Chimineas Unit. They may also utilize the shoreline of Soda Lake within the American Unit where grazing will not be allowed under the Draft LMP (CDFW 2018). Comparable grassland habitat on the CPER will remain un-grazed, providing suitable habitat for this species. The Draft LMP recommends regulating livestock access to riparian, wetland, and pond areas to maintain suitable habitat for special-status species that utilize these areas.
Short-eared owl (*Asio flammeus*)	CSSC	Yes	Less than significant impact. Short-eared owls, which are associated with tall grasslands and marshes (Shuford and Gardali 2008), have been observed in the ungrazed grasslands of the CPER. Within the CPER, short-eared owls utilize the grasslands of the North Chimineas and American units, for breeding and wintering as well as migration. They might also occasionally utilize the grasslands of the Panorama and Elkhorn units, perhaps in wet years when cover is greater (CDFW 2018). Comparable habitat on the CPER will remain un-grazed, providing suitable habitat for this species. Livestock access to riparian areas, wetlands, and ponds, will be regulated to maintain or enhance suitable habitat for special-status species and may result in increased nesting habitat for short-eared owls.
Swainson's hawk (*Buteo swainsoni*)	CT	No	Less than significant impact. Swainson's hawks are migratory North American nesters and forage in open habitats such as juniper, sagebrush, and grassland communities as well as agricultural fields (Woodbridge 1998). They roost and nest in trees along riparian corridors near foraging (i.e., open) habitat as well as single trees along roadsides or in pastures (CDFW 2012b). In their breeding range, Swainson's Hawks feed primarily of small rodents, including California voles (*Microtus californicus*) and reptiles, birds, and insects, with group foraging occurring when hunting larger prey such as ground squirrels (National Audubon Society 2012). Swainson's hawks have not been observed nesting on the CPER but have been observed on the American and North Chimineas Units during migration. However, in 2012, Swainson's hawks were observed nesting near an alfalfa field approximately 22 miles east-southeast of the South Chimineas Unit of the CPER (CDFW 2016a). In addition, a kettle of Swainson's hawks was observed foraging in the heavily grazed grasslands on private land approximately 9 miles north of the American Unit during spring migration in 2012 (CDFW unpublished data). The open habitats of the CPER provide suitable foraging habitat while the CPER's riparian woodlands (i.e., Fremont Cottonwood (*Populus fremontii*] may provide suitable nesting habitat). The primary conservation

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Species	**Status[1]**	**Found in Grazing Management Units?**	**Conclusion/Summary of Impact**
			requirement for this species is maintaining groves of tall trees (over 40 feet tall) in riparian areas adjacent to open foraging habitat (CDFW 2005). Conservation of foraging habitat within 10 miles of existing nest sites is also considered important (CDFW 2005). Given the distance of the recent nest site to the CPER, regulation of livestock access to riparian woodlands, the overall goal of maintaining a mosaic of open grasslands on the Reserve, and the presence of comparable habitat outside the areas where continued managed grazing will occur under the Draft LMP, continued managed grazing will have a less-than-significant impact on this species.
Tricolored blackbird (*Agelaius tricolor*)	ST	Yes	Less than significant impact. Within the CPER, tricolored blackbirds have been observed in the Chimineas units. The greatest number of observations has been recorded in the freshwater wetland habitat along the Cuyama River; however, the species has also been observed around Number 3 Pond and Quarry Ponds on Barrett Creek in the north, and in grazed grasslands surrounding the Chimineas Headquarters. The species is known to breed within the CPER and is predicted to utilize the blue oak woodlands and savannas and occasionally grasslands of the American Unit. Nesting colonies have been observed at Big Spring Pond north of the North Chimineas unit and west of the American Unit, as well as on the Cuyama River. (CDFW 2018). This species commonly nests in cattails adjacent to open water (Beedy and Hamilton 1997). Under the Draft LMP and the CRRE (CRCD 2005), livestock access to riparian and marsh areas will be regulated to facilitate the growth of cattails adjacent to open water. Tri-colored blackbirds have been observed foraging in grazed grasslands on the CPER. This is consistent with tricolored blackbird use in other areas where foraging habitat is considered optimal when vegetation is less than 15cm (Shuford and Gardali 2008). The continuation of managed grazing will maintain suitable habitat for foraging.
Vaux's swift (*Chaetura vauxi*)	CSSC	No	Less than significant impact. Vaux's swifts migrate through the CPER during the spring and fall when moving between coniferous forests breeding grounds in the north and overwintering grounds to the south (Shuford and Gardali 2008). They are predicted to occur preferentially within the pond habitats on the North Chimineas Unit, though could occasionally utilize other habitats of the other units of the CPER (CDFW 2018). The Draft LMP recommends regulating livestock access to riparian, wetland, and pond areas to maintain or enhance habitat for aquatic and riparian species.
White-tailed kite (*Elanus leucurus*)	DFW-FP	Potential	Less than significant impact. Within the CPER, white-tailed kites have been observed near Number 3 Pond—a 4.5-acre pond near the northern border of the North Chimineas Unit, which was created by prior land owners by damming Barrett Creek, and features wetland and riparian woodland vegetation including large red willows (*Salix laevigata*) along its perimeter (R. Stafford, pers comm. 2010). The species is expected to

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Species	**Status[1]**	**Found in Grazing Management Units?**	**Conclusion/Summary of Impact**
			occur within the CPER only infrequently as part of its migration through the region; nesting has not been recorded on site (CDFW 2018). The area around Barrett Creek where white-tailed kites have been observed in the past will remain ungrazed under the Draft LMP, which recommends regulating cattle access to riparian, wetland, and pond areas to maintain or enhance habitat for special-status species.
Willow flycatcher (*Empidonax traillii*)	SE	Potential	Less than significant impact. Willow flycatchers primarily occupy dense thickets of primarily tree-sized willow (*Salix* spp.), which they use for roosting and nesting, and as perches for foraging for flying insects. Within the CPER, willow–dominated riparian woodland habitat appropriate for willow flycatchers occurs along the Cuyama River, and in the San Juan and Barrett creeks within the North Chimineas Unit (CDFW 2018). There are no recent observations of willow flycatcher nesting in San Luis Obispo County (Edell 2006). The species has only been observed once on the CPER briefly during fall migration in 2006 near Barrett Creek (R. Stafford, pers. comm. 2010). The Draft LMP recommends regulating livestock access to riparian, wetland, and pond areas to maintain or enhance habitat for aquatic and other special status species that utilize these areas. If nesting of willow flycatcher is discovered in the CPER in the future, cattle would be excluded until nesting activity is completed, to avoid impacts to nests.
Yellow warbler (*Dendroica petechia*)	CSSC	Yes	Less than significant impact. Yellow warblers utilize the CPER for breeding and for migration. They occur at low abundance in the Chimineas and American units in riparian areas and ponds that are lined with willows and Fremont cottonwood, and also occasionally utilize the oak woodlands and juniper woodlands within the North Chimineas Unit. Within the Chimineas units, yellow warblers have been observed along the Cuyama River, around the Chimineas Headquarters, and along the tributaries to San Juan Creek (CDFW 2018). The Draft LMP recommends regulating livestock access to riparian, wetland, and pond areas to maintain or enhance habitat for aquatic and other special status species that utilize these areas. Excluding grazing from riparian and marsh areas during the nesting season will also protect and enhance potential nesting sites for yellow warbler.
Yellow-headed blackbird (*Xanthocephalus xanthocephalus*)	CSSC	Potential	Less than significant impact. Within the CPER, a single yellow-headed blackbird was observed within the American Unit during spring migration in 2007. The species is not known to breed on the CPER or elsewhere in San Luis Obispo County, where it is a rare migrant (Edell 2006). Yellow-headed blackbird habitat may benefit limiting grazing within riparian areas of the CPER as recommended by the Draft LMP. However, the benefits of these management activities on this species may

Table 45: Conclusions and Summary of Impacts to Special-Status Species			
Species	**Status[1]**	**Found in Grazing Management Units?**	**Conclusion/Summary of Impact**
			be limited given that the species is a rare migrant in the county. Comparable habitat on the CPER will remain un-grazed, providing suitable habitat for this species.
Mammals			
American badger (*Taxidea taxus*)	CSSC	Yes	Less than significant impact. Within the CPER, American badger observations have been recorded on multiple occasions in the North Chimineas Unit's northern grasslands, including both grazed and ungrazed areas, and also in the desert scrub in the southeast corner of the unit. The species is anticipated to occur at low abundance within the CPER's woodlands and shrublands including habitats within the other three units (CDFW 2018). Although badgers have been observed in both the grazed and ungrazed grasslands of the CPER, the majority of detections have been in grazed pastures (CDFW unpublished data).
Big free-tailed bat (*Nyctinomops macrotis*)	CSSC	Potential	Less than significant impact. This species is known from only a few scattered locations in California (Williams 1986) and has only been reported once on the CPER on the Elkhorn Unit (D. Williams, unpublished data). Outside of this report, big free-tailed bats have not been detected in or around the CPER even though thousands of hours of acoustic monitoring have occurred. The species may use habitats within the CPER sporadically as part of their migration. Ample suitable habitat exists on the Reserve outside the area where managed grazing will continue under the Draft LMP.
Fringed myotis (*Myotis thysanodes*)	WBWG-H	Yes	Less than significant impact. Within the CPER, fringed myotis have been detected at Quarry Pond on Barrett Creek in the North Chimineas Unit, Feed Lot Pond in the South Chimineas Unit, and around the Chimineas Unit Headquarters. The species is expected to occur year-round at low abundance within the oak and juniper woodlands of the units and less frequently in association with the ponds. Fringed myotis may forage and otherwise infrequently utilize other habitats and units of the CPER (CDFW 2018). The Draft LMP recommends regulating cattle access to riparian, wetland, and pond areas to maintain or enhance habitat for special-status species that utilize these areas. Oak woodlands included within the riparian exclusion areas will similarly continue to be fenced to exclude livestock. Managed grazing as proposed under the Draft LMP will be used to maintain the health of oak woodlands which will ultimately benefit this species.
Giant kangaroo rat (*Dipodomys ingens*)	FE, SE	Potential	Less than significant impact. Within the CPER, giant kangaroo rats occur at high densities within the grasslands and desert scrub of the Elkhorn and Panorama units and the northeast portion of the American Unit near Soda Lake; these areas are outside the area where manage grazing will continue under the Draft LMP. Giant kangaroo rats also occur in the South Chimineas Unit near Taylor Spring which is also an area where grazing will not occur (CDFW 2018). These areas feature short-structured vegetation that becomes

Table 45: Conclusions and Summary of Impacts to Special-Status Species			
Species	**Status**[1]	**Found in Grazing Management Units?**	**Conclusion/Summary of Impact**
			increasingly sparse during the growth season as a result of the giant kangaroo rat activity. Comparable habitat on the CPER will remain un-grazed, providing suitable habitat for this species.
Hoary bat (*Lasiurus cinereus*)	WBWG-M	Yes	Less than significant impact. During acoustical surveys of the Chimineas Units of the CPER, hoary bats have been observed in grassland, blue oak woodland, coastal scrub, and riparian areas around Number 3 Pond within the North Chimineas Unit, and in the terrace grassland above the Cuyama River in the South Chimineas unit (CDFW 2018). There is no available information about the effects of grazing on this species. However, comparable habitat on the CPER will remain un-grazed, providing ungrazed habitat for this species.
Long-eared Myotis (*Myotis evotis*)	WBWG-M	Yes	Less than significant impact. During acoustical surveys of the North Chimineas Unit of the CPER, long-eared myotis have been observed around Number 3 Pond within the North Chimineas Unit, and at Feedlot Pond and the Cuyama River in the South Chimineas Unit (CDFW 2018). The species is anticipated to occur in appropriate habitats albeit at small numbers elsewhere in the North Chimineas Unit, and to occasionally use the ponds and upland habitat within the American Unit. Comparable habitat on the CPER will remain un-grazed, providing suitable habitat for this species.
Pallid bat (*Antrozous pallidus*)	CSSC	Yes	Less than significant impact. Within the CPER, pallid bats have been observed throughout the CPER, including grassland, coastal scrub, oak woodland, pond, and riparian communities within the Chimineas units. The species is generally expected to be a year-round resident of the CPER, and occur at high relative abundance within the grassland, oak woodland, and riparian areas of the Chimineas and American units. Pallid bats may also occur at low abundance within the juniper woodlands, shrublands, and ponds of the North Chimineas Unit, and the Elkhorn and Panorama units. Pallid bats have been detected with sonic detection equipment at several locations along the western half of the CPER, where three night roosts have also been located (CDFW 2018). Pallid bats are most commonly associated with relatively open habitat types and often feeds on the ground (Pierson and Rainey 1998). Therefore, they are anticipated to benefit from well-managed grazing which maintains open habitat conditions.
Ringtail (*Bassariscus astutus*)	DFW-FP	Potential	Less than significant impact. Despite extensive surveys, this secretive species has not been detected within the CPER. It may occur in small numbers within the oak and juniper woodlands, chaparral and coastal scrub, and riparian areas of the North Chimineas Unit as well as within the American Unit (CDFW 2018). Ringtails utilize rocky, areas, dense stands of brush, and riparian habitats (Trapp 1978), all of which occur within the area where managed grazing will continue under the Draft LMP. Livestock typically avoid rocky outcrops and dense brush and the riparian zones have been fenced to exclude livestock.
San Diego Desert Woodrat	CSSC	No	Less than significant impact. Within the CPER, San Diego desert woodrat observations have been recorded within the central and southern portion of the Chimineas units, primarily within the coastal scrub habitat where the species has and often been trapped near yucca. The species is also observed in adjacent areas that

Table 45: Conclusions and Summary of Impacts to Special-Status Species			
Species	**Status[1]**	**Found in Grazing Management Units?**	**Conclusion/Summary of Impact**
(*Neotoma lepida intermedia*)			have been mapped as grassland and is anticipated to also occur within the juniper woodland and less frequently within the other main vegetation types within the Chimineas units (CDFW 2018). Almost all of the coastal scrub is in ungrazed management units, where management practices will remain unchanged under the Draft LMP.
San Joaquin antelope squirrel (*Ammospermophilus nelsoni*)	ST	No	Less than significant impact. Within the CPER, San Joaquin antelope squirrels occur at high relative abundance within the grasslands and desert scrub of the Panorama and Elkhorn units. They have also been observed within the grasslands of the Painted Rock Headquarters parcel associated with the CPER's American unit. These areas are outside the area where managed grazing will continue under the Draft LMP (CDFW 2018). Though cattle grazing, particularly during high rainfall years, has been hypothesized to promote abundance of this species by reducing dense grass and thatch produced primarily by exotic plant species (Germano et al. 2001), results from an experiment within the CPNM revealed that cattle grazing negatively impacted San Joaquin antelope in 2010, an above average rainfall year. The effect was tied to lower reproduction rates in grazed areas compared to ungrazed areas (Prugh and Brashares 2012). Ongoing research is needed to inform when and how cattle grazing can serve as an effective vegetation management tool to promote native species such as San Joaquin antelope squirrel.
San Joaquin kit fox (*Vulpes macrotis mutica*)	FE, ST	Potential	Beneficial impact. Within the CPER, highly suitable habitat for the San Joaquin kit fox occurs throughout the relatively flat grasslands and desert scrub of the Elkhorn and Panorama units, and to a lesser extent on the rolling grasslands on the northeastern portion of the American Unit. The remaining grassland habitat within the American Unit and North Chimineas Unit is moderately suitable, as is the desert scrub in the South Chimineas Unit (Penrod et al. 2010). Observations of San Joaquin kit fox have been recorded by the Department within all four units of the CPER, with the Elkhorn and American units having the highest density of observations because the Department's quarterly spot light survey transects traverse these units (Bidlack 2007). Kit foxes have been observed primarily in the short grasslands of the CPER (CDFW 2018). On large expanses of the Carrizo Plain, this short structure can be achieved by giant kangaroo rats (*Dipodomys ingens*), which clip annual vegetation throughout the year (USFWS 1998, Germano et al. 2001, Bean et al. 2010, Prugh and Brashares 2012). However, giant kangaroo rats have not been observed in the areas where managed grazing will continue under the Draft LMP. Tule elk herds will not be expected to reduce grass height significantly since they are free roaming and will leave an area prior to reducing grass height to prescribed levels. In the absence of giant kangaroo rats or soil/geographic features, livestock grazing is the primary method for maintaining short grass structure in areas with higher annual vegetative productivity (Germano et al. 2001). Previous studies in the San Joaquin Valley showed that fenced areas where livestock

Table 45: Conclusions and Summary of Impacts to Special-Status Species			
Species	**Status**[1]	**Found in Grazing Management Units?**	**Conclusion/Summary of Impact**
			were excluded had significantly fewer kit fox captures than areas that were grazed (Warrick and Cypher 1998).
Short-nosed Kangaroo Rat (*Dipodomys nitratoides brevinasus*)	CSSC	Potential?	Less than significant impact. Short-nosed kangaroo rats have been observed within the California ephedra Alliance within the Elkhorn Unit of the CPER. They are expected to occur within the grassland and desert scrub communities there and within the Panorama Unit in small numbers (CDFW 2018). Both the Elkhorn and Panorama units are outside the areas where managed grazing will continue under the Draft LMP. Fire and grazing that remove the scattered shrubs are thought to degrade habitat, while cattle grazing during years of high herbaceous plant productivity is thought to promote populations by preventing build-up of thatch (USFWS 1998). A mosaic of grassland habitat types will be maintained under the LMP to ensure that suitable habitat is present for this species regardless of annual variations in plant productivity.
Spotted Bat (*Euderma maculatum*)	CSSC	Yes	Less than significant impact. Within the CPER, spotted bats, which need steep cliffs for roosting, were first detected using acoustic monitoring in 2012 at Broken Dam Pond in the North Chimineas Unit. The species is anticipated to occur occasionally within the Chimineas units, particularly in association with water or cliffs (CDFW 2018). Because this species can fly long distances, repeated surveys are needed to understand their spatial and temporal distribution within the CPER. The Draft LMP recommends regulating livestock access to riparian, wetland, and pond areas to maintain or enhance habitat for special-status species that utilize these habitats. Steep cliffs, which are necessary for roosting, will not be impacted by potential livestock operations.
Tulare grasshopper mouse (*Onychomys torridus tularensis*)	CSSC	Potential	Less than significant impact. Within the CPER, the Tulare grasshopper mouse is expected to occur in small numbers within arid communities, including the grassland, juniper woodlands, coastal scrub, and desert scrub (CDFW 2018). There is no available information about the effects of grazing on this species However, comparable habitat on the CPER will remain un-grazed, providing suitable habitat for this species.
Townsend's big-eared bat (*Plecotus townsendii*)	CSSC	Potential	Less than significant impact. Within the CPER, Townsend's big-eared bats have been observed in four locations within the oak woodlands, grasslands, and coastal scrub, of the North Chimineas Unit, and at the Painted Rock Headquarters within the American Unit. The species has been detected using remote cameras and acoustical recording equipment; no roost sites have been observed (CDFW 2018). Management of grazing within oak woodland and other communities will continue as under baseline conditions. Comparable habitat on the CPER will remain un-grazed, providing suitable habitat for this species.
Western mastiff bat	CSSC	Yes	Less than significant impact. Within the CPER, western mastiff bats have been detected at the Chimineas Unit Headquarters, as well as Gillam, Broken Dam, and Corral ponds. The species is predicted to occur in

Table 45: Conclusions and Summary of Impacts to Special-Status Species			
Species	**Status**[1]	**Found in Grazing Management Units?**	**Conclusion/Summary of Impact**
(*Eumops perotis californicus*)			small numbers within most of the vegetation types within all four units of the CPER, and occur at greater abundance within the ponds in the North Chimineas Unit (CDFW 2018). The Draft LMP recommends regulating livestock access to riparian, wetland, and pond resources to maintain or enhance habitat for special-status species that rely on these areas.
Western red bat (*Lasiurus blossevillii*)	CSSC	Yes	Less than significant impact. Within the CPER, western red bats have been detected at the Feed Lot Pond in the South Chimineas Unit. The species is anticipated to be a year-round within mature riparian habitat of the Chimineas units, particularly the along Cuyama River. It is also expected to utilize the ponds for foraging and water, and occasionally forage within other habits and other units (CDFW 2018). Western red bats are considered riparian obligates often roosting in large cottonwoods, willows, or sycamores (Bolster 2005). The Draft LMP recommends regulating livestock access to riparian, wetland, and pond resources to maintain or enhance habitat for special-status species that rely on these areas, including to protect suitable roost or foraging sites for western red bat.

[1] Notes:
California Rare Plant Rank Designations (CNPS 2012):
Rank1A = Plants presumed extinct in California
Rank1B = Most plants in this category are endemic to California and have experienced significant declines over several decades; these plants are rare, threatened, or endangered throughout California and elsewhere.
Rank2 = Species that are common outside of California, but rare, threatened, or endangered within California

Federal Status Designations:
FE = Federally Endangered. Species in danger of extinction throughout all or significant portions of its range.
FT = Federally Threatened. Species likely to become endangered within the foreseeable future throughout all or a significant portion of its range.
State Status Designations:
CSSC = California Species of Special Concern. Animal species with California breeding populations that may face extinction in the near future.
CSSC-P= Potential to be listed on updated list of California Species of Special Concern.
FP = Fully protected by the State of California under Sections 3511 and 4700 of the Fish and Wildlife Code.
SE = State Endangered. Species whose continued existence in California is jeopardized.
SE-PD = State Endangered, proposed for delisting
ST = State Threatened. Species, although not presently threatened with extinction, may become endangered in the foreseeable future.
WBWG = Western Bat Working Group: H = High Priority, M = Medium-High Priority

5.4.14.5 Impacts Associated with Vegetation Management Activities – Prescribed Burning

Impact 5.4-3	**The use of prescribed burning as a vegetation management tool, as recommended by the Draft LMP, may adversely impact habitat for species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or the U.S. Fish and Wildlife Service. This impact will be reduced to a less than significant level (Class III) through implementation of management actions and Best Management Practices of the Draft LMP.**

The Draft LMP recommends the use of prescribed burning to maintain native biodiversity in fire-adapted communities, control the spread of exotic plants, and to help manage the fire fuel load on a portion of the CPER. Fire management will be designed based on the biological and vegetation management goals outlined in the Draft LMP, by biologists and fire practitioners familiar with regional experience, and implemented in coordination with fire protection agencies and with input from adjacent landowners (CDFW 2018).

Prescribed burning is anticipated to be concentrated in the fire-adapted chaparral communities of the CPER, some of which have not burned in almost 100 years. Chaparral communities occupy about 1,250 acres of the CPER located primarily on the higher elevation areas of the western Chimineas units (Figure 21). This analysis assumes that implementation of the LMP vegetation management elements will include a single burn of about 625 acres of the chaparral community over the next 25 years either through naturally occurring wildfires or through a single prescribed burn. The precise location of a prescribed burn to be applied following adoption of the Draft LMP will be determined through the preparation of the fire management plan; however, Figure 4 illustrates a potential location for purposes of this analysis.

The chaparral vegetative community where prescribed burning may be employed on the CPER is not homogenous but is instead a mosaic of vegetation communities that includes chaparral, grassland, coastal scrub, and oak woodland. Given the unpredictable behavior of fire, it is reasonable to assume that a prescribed fire will affect these other communities. Table 16 provides an estimate of the acres of each vegetative community that could be affected by a 625-acre prescribed burn located in the northwest portion of the North Chimineas unit (Figure 4).

The effects of fire on the landscape are short-term and localized. The fire tolerance and recovery times differ for each of these communities and the corresponding impacts to biological resources will vary accordingly. However, it may take years for chaparral to return to pre-burn conditions (Knapp et al. 2009). During the post-fire period, the effects of the fire would gradually recede as the vegetation returned, assuming near normal rainfall.

Native species in fire-prone communities like chaparral feature adaptations to recurring fire. Many animals flee the area or hide underground in subterranean dens until the fire has passed. Excavators such as American badger (*Taxidea taxus*) and California ground squirrel (*Spermophilus beecheyi*]), or those species that inhabit their burrows such as San Joaquin coachwhip (*Masticophis flagellum*]) and burrowing owls (*Athene cunicularia*]) may escape the impacts of fire by sheltering themselves underground.

The construction of fuel breaks using heavy equipment (dozer lines) to safely contain the prescribed fire, or during wildfire suppression if the prescribed fire escapes the treatment area, could also have a moderate to

major localized impact to biological resources, as their construction would take place under emergency operations with minimal priority given to resource protection.

The habitats listed in Table 16 support a wide range of listed plant and animal species that may be adversely impacts by a prescribed burn, as described in Sections 3.1 and Appendices C-E of the LMP (CDFW 2018). The Draft LMP recommends BMPs that will minimize the adverse impacts of prescribed burning on special-status species. The BMPs require compliance with prescribed burning regulations to help ensure the fire is confined to the target area, and procedures to be followed in advance of a prescribed burn to determine the presence of listed plants and animals in the burn area so that they may be avoided.

Impact 5.4-3 — Best Management Practices Recommended in the Draft LMP that Mitigate Potential Impacts to Biological Resources Associated with Prescribed Burning

BMPs BIO-6 through BIO-15 also apply to this impact.

BMP AQ-7. Prescribed burning shall be conducted in full compliance with the provisions of Rule 502 of the San Luis Obispo County Air Pollution Control District (SLO APCD) Rules and Procedures, including (but not limited to) the following:

- Approval of a burn permit by the SLO APCD at least 72 hours prior to the burn date;
- Preparation and approval of a Smoke Management Plan by the SLO APCD;
- Air quality monitoring, as may be required by the Air Pollution Control Officer;
- Consultation with the SLO APCD and surrounding air quality districts in advance of the burn date; and
- Participation in the Prescribed Fire Information Reporting System (PFIRS).

Impact 5.4-3 Conclusion/Summary of Impact

Based on the standards of significance, prescribed burning will have a **less than significant effect (Class III)**, either directly or indirectly through habitat modifications, on state of federal listed species because:

- Prescribed burning will be concentrated in the chaparral vegetative communities, which occupy about 1,250 acres (3.2%) of the CPER located primarily in the western portion of the Chimineas units;
- The management objective of burning 625 acres of chaparral will be achieved by conducting a single prescribed burn once during the next 25 years, which is considerably less than the frequency (but not necessarily the same intensity) of fires that have affected the CPER during the period of 1917 to 2015 (Section 5.3.11.3);
- The impact of prescribed burning on special-status species will be localized and temporary; and
- Implementation of the BMPs included the Draft LMP require pre-burn surveys to determine the presence of listed plant and animal species and avoidance of those species.

Impact 5.4-3 – Additional Mitigation

None are required.

5.4.14.6 Impacts Associated with Vegetation Management Activities – Control of Exotic Species

Impact 5.4-4	**Management actions to control exotic species, as recommended by the Draft LMP, may adversely impact habitat for species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or the U.S. Fish and Wildlife Service. This impact will be reduced to a less than significant level (Class III) through implementation of management actions and Best Management Practices of the Draft LMP.**

Non-native plant species can negatively impact native plants and animals and alter natural systems through a variety of direct and indirect mechanisms, which can have important consequences for management (Section 5.4.9). Non-native plants outcompete native plants, change the structure of the communities, degrade habitat for native animals, alter the hydrology of ponds and streams, and promote fire in non-fire adapted systems. As elsewhere, the invasion and spread of non-native species is ongoing; new, potentially more detrimental species will likely invade the CPER during the period of management covered by the Draft LMP.

5.4.14.6.1 Control of Exotic Plants

The Draft LMP includes exotic plant management strategies in consideration of the ecology of the exotic species (or guilds of species, such as annual grasses) and the systems in which they occur. Given the size of the CPER and the current extent of exotic species, their occurrence within sensitive habitat supporting special-status species, their response to disturbance including fire, and their ability to spread from adjacent properties, exotic plant management will be strategic and conducted in coordination with other vegetation management components and, where feasible, adjacent landowners. As with other aspects of management, exotic plant management will be conducted within an adaptive management framework to enhance long-term effectiveness (CDFW 2018). In addition, CDFW has enacted an Integrated Pest Management Program (IPMP) consistent with standards established by the U.S. Environmental Protection Agency for the use, storage, and handling of pesticides and herbicides. Under the IPMP, CDFW staff must undergo annual training and recertification.

Table 46 provides a summary of treatment goals and potential methods for priority exotic plant species, which will include the following main strategies (CDFW 2018):

- Continued, managed grazing, particularly during late fall to early spring, to reduce exotic plant competition and seed production;
- Mowing in fall to early spring;
- Application of post-emergent, herbicides for especially problematic patches or species; and
- For non-native trees, cut at base and apply topical herbicide as needed to prevent stump and root sprouting.

Table 46: Treatment Goals and Potential Methods for Initial Priority Exotic Plants Species Management

Species or Guild	CalIPC Rank[1]	Treatment Goal	Treatment Method(s)
Non-Native Annual Grasses (*Avena* spp., *Bromus* spp., *Schismus* spp., *Festuca myuros)*	Limited to High	Control	Managed grazing, particularly during late fall to early spring, to reduce competition and seed production Mowing in fall to early spring as per above. Post-emergent, grass-specific herbicides for especially problematic patches (e.g., *Polypogon monspeliensis* near ponds or wetlands)
Yellow star thistle	High	Eradicate	Intensive grazing before the spiny stage but after bolting (April-June) Post-emergence herbicide application (May-July)
tocalote	Moderate	Control	Same as for yellow star thistle
Non-Native Trees other than *Tamarix* spp. (*Ailanthus altissima*, *Olea europaea, Robinia pseudoacacia*)	Limited to High	Eradicate	Cut at base and apply topical herbicide as needed to prevent stump and root sprouting.
Tamarix spp.		Control in Cuyama River; eradicate everywhere else.	Isolated trees and small stands (e.g., Barrett and San Juan creeks): cut and apply topical herbicide to the stump to reduce sprouting; kill root sprouts with follow-up herbicide. Large Infestations (Cuyama River): Develop site-specific treatment plan in coordination with other landowners

Source: CDFW 2018

Notes [1] California Invasive Plant Council Invasive Plant Inventory Categories (CalIPC 2016):
High= Species have severe ecological impacts on physical processes, plant and animal communities, and vegetation structure.
Moderate= Species have substantial and apparent—but generally not severe—ecological impacts.
Limited= Species are invasive but their ecological impacts are minor on a statewide level.

Managed Grazing to Control Exotic Plants. The continuation of managed grazing will be used to control exotic plant species on the CPER and especially non-native grasses and yellow star thistle. Managed grazing is expected to have a less than significant to beneficial impact on special-status species of the CPER (Impact 5.4-2).

Prescribed Burning. Prescribed burning will be employed as a vegetation management tool primarily within chaparral vegetative communities which are located primarily on the northwest portions of the North Chimineas Unit. The use of prescribed burning is expected to have a less-than-significant impact on listed species (Impact 5.4-3).

Use of Post-Emergent Herbicides to Control Exotic Plants. Post-emergent herbicides may be employed to control exotic species in areas where infestations are especially a problem (Section 5.4.14.6.1). Post-emergent herbicides are used to kill weeds after they have germinated. To be effective, they must be used as

the plant is actively growing and not simply green. Post-emergent weed control kills existing plants and must be applied carefully as too heavy or widespread an application can kill nearby desirable plants.

All pesticides and herbicides sold or distributed in the United States must be registered by the EPA, based on scientific studies showing that they can be used without posing unreasonable risks to people or the environment. The most widely-used post-emergent herbicide in the U.S. contains the active ingredient glyphosate. Reviews on the safety of glyphosate that have been conducted by several regulatory agencies and scientific institutions worldwide have concluded that there is no indication of any human health concern. A survey of studies conducted on the safety of glyphosate and risk to humans conducted in 2000 (Williams et al. 2000) suggests that neither glyphosate nor its breakdown component bioaccumulates in any animal tissue. The survey found that no significant toxicity occurred in acute, subchronic, and chronic studies. Therefore, the survey concluded that the use of a glyphosate-based post-emergent herbicide as directed by the manufacturer does not result in adverse effects on development, reproduction, or endocrine systems in humans and other mammals.

Glyphosate is of relatively low toxicity to birds and mammals (Evans and Batty 1986). Batt et al. (1980) found no effect on chicken egg hatchability or time to hatch when an egg was submerged in a solution of 5% glyphosate. Sullivan and Sullivan (1979) found that black-tailed deer showed no aversion to treated foliage and consumption of contaminated forage did not reduce total food intake. Glyphosate itself is of moderate toxicity to fish (Neskovic et al. 1996).

Glyphosate-based herbicides may also pose a danger to other life forms and non-target organisms, especially amphibians (Relyea 2005). The study found that Roundup (a glyphosate-based herbicide) caused a 70% decline in amphibian biodiversity and an 86% decline in the total mass of tadpoles.

Herbicides applied on the CPER will be conducted in accordance with EPA regulations, which are embodied in the Department's Integrated Pest Management Program (IPMP). As required by EPA, the IPMP requires annual training and certification of Department staff engaged in the application of herbicides and pesticides.

5.4.14.6.2 Eradication or Control of Non-Native Animals

Non-native fishes have a variety of negative impacts on natural systems. Most notably, they compete with and predate upon native aquatic species, including macroinvertebrates, fish, amphibians, and reptiles. Within the CPER, their occurrences present a management concern for the native species including four special-status species: arroyo chub, California roach, California red-legged frog, and western pond turtle.

Non-native fish can be difficult to control within individual properties and instead, success is best achieved when control efforts are applied throughout the invaded hydrologic system. In the CPER, eradicating non-native fishes from the San Juan drainage would require their removal from upstream areas outside of the CPER, including the reservoir at Tajea Flat. In 2012, the Department was evaluating installation of a barrier downstream of Broken Dam Pond in the North Chimineas Unit, to prevent the fish from reinvading following a potential eradication effort downstream in San Juan Creek. Management of non-native fishes in the Cuyama River would require system-wide control effort. Importantly, aerial reconnaissance of the region during tule elk surveys in 2016 revealed that Tajea Flat and Broken Dam were completely dry as a result of the multi-year drought, which presumably eradicated the non-native fish from this system. Installation of fish screens could prevent spread of non-native fish into Broken Dam and San Juan Creek downstream, if they are reintroduced into the Tajea Flat Reservoir by adjacent landowners.

Non-native birds can impact native species primarily through competition and direct predation. Wild turkeys, which are observed on the CPER very infrequently, are large, opportunistic feeders, and while they primarily eat seed and insects, they also take small vertebrates including lizards and snakes. Through their digging, they also create soil disturbances, which can promote establishment of invasive plants (CDFW 2018).

European starlings (*Sturnus vulgaris*) are aggressive and can outcompete native cavity nesting birds (Purcell and Verner 1999), such as acorn woodpeckers, for nests and may affect their populations (but see Koenig 2003). Owing to their low abundance, house sparrows, chukar, and wild turkey are likely to have very limited impacts within the CPER. Eurasian collared-doves have recently started colonizing San Luis Obispo County including the lands of the CPER. The long-term effects of this species on native bird populations is unknown but this species is known to be an amplifying species for West Nile virus (Jourdain et al. 2007) and is thought to compete with the native mourning dove for nest sites and food resources.

Wild pigs are opportunistic omnivores that feed on bulbs and roots, acorns, grasses and forbs, fungi, invertebrates, and small vertebrates as well as carrion (Barrett 1978). In doing so, they negatively impact native plants and compete with native animals for limited food supply, particularly acorns which are important for many wildlife species. Wild pigs can also negatively impact herpetofauna through direct predation as well as degrading aquatic habitats through wallowing and other activities (Jolley et al. 2010).

Wild pig rooting disturbs soil, and can promote establishment of non-native plant species (Kotanen 1997, Cushman et al. 2004). Wild pigs can degrade aquatic systems through sedimentation as well as contaminating water sources with disease that can affect native wildlife.

The Draft LMP recommends management actions for the control of non-native animals which include:

- Continued managed hunting for wild pigs and Eurasian collared-doves;
- Investigating the placement of a barrier downstream of Broken Dam to prevent non-native fish from re-invading San Juan Creek; and
- If Broken Dam dries up, investigate the possibility of installing upstream barriers to prevent recolonization of nonnative fish from private lands positioned upstream.

Impact 5.4-4 — Best Management Practices Recommended in the Draft LMP that Mitigate Potential Impacts to Biological Resources from the Control of Exotic Species

BMP BIO-16. The Department shall continue to implement the Integrated Pest Management Program in the control of invasive species, including mechanical, chemical, and other accepted control methods.

BMP BIO-17. The Department shall develop a weed control strategy designed to minimize herbicide use and associated impacts on non-target species consistent with the Department's Integrated Pest Management Program.

BMP BIO-18. The Department shall encourage livestock operators, researchers, fire crews, equestrians, and other authorized users and Reserve visitors to employ best management practices that

minimize the spread of weeds, such as cleaning equipment prior to entering the Reserve and requiring the use of certified weed-free hay and feed on the Reserve.

BMP BIO-19. If individuals of non-native animal species are discovered, the Department shall make every effort to eradicate them before the species becomes established.

BMP HZ-2. The Department shall provide appropriate safety equipment for herbicide applications and ensure that applicators have had proper safety training. Herbicide and pesticide chemicals shall be used only in accordance with existing law and according to manufacturers' instructions. The Department shall ensure herbicide mixing sites are only located in areas devoid of vegetation, and where there is no potential of a spill reaching a vegetated area or a stream. The Department shall ensure that any herbicide used where there is the possibility that the herbicide could come into direct contact with water is approved for use in an aquatic environment. The Department shall ensure that great care is taken to avoid herbicide contact with any native vegetation, and it shall only be applied on calm days to prevent airborne transfer.

BMP HZ-3. The specific recommendation for the type of herbicide or pesticide, application rate, timing, and application method will be determined by the site-specific conditions and made by a Licensed Pest Control Advisor (PCA). Accidental spills shall be minimized, avoided or controlled, by adherence to the PCA's recommendation and instructions on the product label.

BMP HZ-5. Any pesticide or herbicide work conducted by contractors shall be closely monitored by Department staff.

BMP HZ-6. When control of weeds or pests become necessary, the Department will work with a licensed PCA to determine the most appropriate integrated pest management approach to be used, with possible treatments ranging from manual to biological and chemical methods. For each project, it will be determined if additional CEQA analysis is necessary. When pesticides or herbicides are determined to be used on individual projects, conducted under the guidance of the LMP, Department staff will review the recommended pesticides, herbicides, surfactants, and adjuvants intended use and the possible environmental effects of each and work with the PCA to determine whether the proposed use would be consistent with the label and the registration limitations.

The control of exotic species is expected to have a beneficial impact on special-status species of the CPER by reducing competition and by improving the quality and quantity of native habitats. Species that are expected to benefit directly from the control of exotic species are summarized in Table 47.

Table 47: Special-Status Species Expected to Benefit Directly from the Control of Non-Native Species

Species	Status[1]	Habitat	Management Needs
Round-leaf filaree (*California macrophylla*)	No longer listed by CNPS	Grasslands and occasionally desert scrub on loam and clay soils	Reduce non-native annual plant competition.
La Panza mariposa lily (*Calochortus simulans*)	Rank 1B.3	Coastal scrub and blue oak woodland on sandy soils	Reduce non-native annual plant competition.
Lemmon's jewelflower (*Caulanthus lemmonii*)	Rank 1B.2	Steep slopes and canyon walls along drainages and road cuts in coastal scrub	Reduce non-native annual plant competition. Limit herbivory by cattle.
Umbrella larkspur (*Delphinium umbraculorum*)	Rank 1B.3	Oak woodlands, coastal scrub, and chaparral particularly in rocky areas	Reduce non-native annual plant competition. Limit herbivory by cattle.
Valley larkspur (*Delphinium recurvatum*)	Rank 1B.2	Saline/alkaline soils on valley floors including the playa around Soda Lake	Reduce non-native annual plant competition. Limit activities that alter soil chemistry. Limit herbivory by cattle.
Kern mallow (*Eremalche parryi cf.* ssp. *kernensis)*	FE, Rank 1B.1	Desert scrub, particularly near *Ephedra californica*, but also amidst herbaceous plants between *Atriplex* spp.	Reduce non-native annual plant competition. Limit herbivory by cattle.
Pale-yellow layia (*Layia heterotricha*)	Rank 1B.1	Saline/alkaline soils associated with Soda Lake; desert scrub and juniper woodland	Reduce non-native annual plant competition. Limit herbivory by cattle.
Munz's layia (*Layia munzii*)	Rank 1B.2	Alkali wetlands and desert scrub	Reduce exotic annual plant competition. Limit herbivory by cattle.
Showy madia (*Madia radiata*)	Rank 1B.1	Grasslands and open areas in juniper woodland	Reduce non-native annual plant competition. Limit herbivory by cattle.
San Joaquin woolly threads (*Monolopia congdonii*)	Rank 1B.2, FE	Grasslands and desert scrub on sandy or silty soils	Reduce non-native annual plant competition. Reduce dense annual exotic plant species that can promote fire. Limit herbivory from cattle.
Vernal pool fairy shrimp (*Branchinecta lynchi*)	FT	Vernal pools and ephemeral ponds as well as artificial, ephemeral wet areas including ditches.	Reduce non-native annual plants, which reduce the hydroperiod of ponds and pools.
Longhorn fairy shrimp (*Branchinecta longiantenna*)	FE	Vernal pools and ephemeral ponds as well as artificial, ephemeral wet areas including ditches.	Reduce non-native annual plants, which reduce the hydroperiod of ponds and pools.
Kern primrose sphinx moth (*Euproserpinus euterpe*)	FT	Sandy washes featuring the host plant, *Camissonia campestris*	Reduce non-native annual plant competition to promote its host plant, *Camissonia campestris*. Limit trampling and soil disturbance by humans, equestrians, and cattle during the breeding season.
Arroyo chub (*Gila orcutti*)	CSSC	Streams with gently flowing water, aquatic plants, algae, and invertebrates	Eradicate or control tamarisk. Eradicate or control non-native fish. Prevent introduction of bullfrogs.

Table 47: Special-Status Species Expected to Benefit Directly from the Control of Non-Native Species

Species	Status[1]	Habitat	Management Needs
California roach (*Lavinia symmetricus*)	CSSC	Wide-ranging stream conditions, on smaller, warmer, intermittent streams or the margins of larger streams	Eradicate or control tamarisk. Eradicate or control non-native fish. Prevent introduction of bullfrogs.
California red-Legged frog (*Rana draytonii*)	FT, CSSC	Ponds, streams, marshes and springs featuring deep pools with overhanging and emergent vegetation	Enhance vegetation along stream and ponds, while avoiding loss of deep water pools. Eradicate or control non-native fish. Prevent introduction of bullfrogs. Eradicate or control tamarisk.
Western spadefoot toad (*Spea hammondii*)	CSSC	Ponds or pools, especially seasonal ones that lack predators, primarily in short-statured grasslands, though occasionally woodlands.	Maintain open areas in spadefoot breeding ponds. Maintain short-statured grasslands. Prevent introduction of bullfrogs. Eradicate or control tamarisk.
Blunt-nosed leopard lizard (*Gambelia sila*)	FE, SE	Sparsely vegetated desert scrub and grasslands, including washes, especially areas featuring small mammal burrows, which are used as thermal refuges, and scattered subshrubs (e.g., *Ephedra* spp.) which provide cover	If necessary, reduce non-native annual plants during periods of blunt-nosed leopard lizard activity (April – September) to facilitate movements. Reduce non-native annual plants if/when necessary to enhance populations of native subshrubs and decrease the potential for wildfire.
Blainville's horned lizard (*Phrynosoma blainvillii*)	CSSC	Relatively open, often sandy areas in grassland, coastal scrub, chaparral, and woodlands, including washes, featuring native ants, on which the species is a specialist predator	Reduce non-native annual plants, which can be dense in high rainfall years and potentially increase fire frequency. Reduce mortality by vehicles by limiting traffic and speed and increasing driver awareness
Western pond turtle (*Emys marmorata*)	CSSC	Ponds, reservoirs, and slow-moving streams with aquatic vegetation, invertebrates, and fish for food, and logs, rocks, or vegetation for basking. Adjacent upland vegetation including shrublands and woodlands for hibernation and estivation.	Promote native vegetation within and along the margins of ponds, while maintaining deep water. Eradicate or control non-native fish and wild pigs. Prevent introduction of bullfrogs Eradicate or control tamarisk. Manage fire within the natural range of variation to maintain upland habitat. Provide open water conditions for basking sites on and adjacent to ponds.
Western patch-nosed snake (*Salvadora hexalepis virgultea*)	CSSC	Shrublands and woodlands with washes, sandy flats, and rocky areas.	Reduce non-native annual plants, which can be dense in high rainfall years. Prevent large and frequent wildfires in chaparral and coastal sage shrublands.
Two-striped garter snake (*Thamnophis hammondii*)	CSSC	Permanent or semi-permanent water bodies, particularly streams with rocky beds lined by willows, though also ponds; adjacent	Eradicate or control non-native fish. Eradicate and control feral pigs. Eradicate or control tamarisk from San Juan Creek drainage.

Table 47: Special-Status Species Expected to Benefit Directly from the Control of Non-Native Species

Species	Status[1]	Habitat	Management Needs
		chaparral and oak woodlands in winter months	
California glossy snake (*Arizona elegans occidentalis*)	CSSC	Open microhabitats within grasslands, coastal scrub, desert scrub, and chaparral; may preferentially occur in sandy soils	Protect large areas of open microhabitat conditions including by controlling exotic plant species in preferred habitat elements.
LeConte's thrasher (*Toxostoma lecontei*)	CSSC	Sparsely vegetated desert scrub with scattered shrubs (*Ephedra* spp. and *Atriplex* spp.); often nests in shrubs over washes	Reduce non-native annual plants, which can outcompete native shrubs and promote fire, which kills *Atriplex* spp.
Short-nosed kangaroo rat (*Dipodomys nitratoides*)	CSSC	Generally flat or gently sloping desert scrub and arid grasslands on friable, often sandy soils	Manage fire in desert scrub within the natural range of variation. Reduce abundance of non-native annual species within desert scrub and grasslands to enhance native plant diversity.
Tulare grasshopper mouse (*Onychomys torridus tularensis*)	CSSC	Arid grasslands, juniper woodlands, coastal scrub, and desert scrub; feeds on insects	Manage fire within the natural range of variation. Reduce abundance of non-native annual plants.

Impact 5.4-4 – Conclusions/Summary of Impact

The use of managed grazing and prescribed burning to control non-native plants is expected to have a less than significant (Class III) to beneficial (Class IV) impact on special-status species of the CPER (Impact 5.4-2, Impact 5.4-3).

The use of post-emergent herbicides can adversely impact non-target species of plants and animals. However, the continued use of post-emergent herbicides following adoption of the Draft LMP will be **less than significant (Class III)** because:

- The Department has used post-emergent herbicides on the CPER for the control of non-native plants since the properties were acquired in 2002.
- The Draft LMP does not recommend a significant expansion of the use of herbicides on the CPER Beyond baseline conditions.
- Following adoption of the Draft LMP, the use of post-emergent herbicides will continue to be conducted in full compliance with federal and state laws, and will be subject to the policies of the Department's IPM program as well as BMPs that include the following requirements for the use of herbicides:
    - Development of a strategy to minimize herbicide use and associated impacts on non-target species (BMP BIO-17);
    - Herbicides will only be applied by properly trained Department staff and will be handled to ensure the protection of native vegetation and water quality (BMP HZ-2);
    - When control of exotic plants or pests become necessary, the Department will work with its IPM program to determine the most appropriate approach to be used, with possible treatments ranging from manual to biological and chemical methods (BMP HZ-6).

- Each project will be evaluated to determine if additional CEQA compliance is necessary.

The primary efforts to control the populations of non-native animals will be through the continuation of hunting. Non-native birds such as wild turkeys occur in low abundance on the CPER and as a result their impact on native plants and animals is minimal. However, hunting for wild pigs can help keep the population on the CPER from adversely impacting native species. All hunting must follow the regulations established by the Fish and Wildlife Commission, and be consistent with the provisions of CCR Title 14, including the use of only non-lead bullets to protect the California Condor (Section 3.11.1).

Efforts to eradicate non-native fish may involve installing physical barriers to prevent their dispersal into the Reserve.

Impact 5.4-4 – Additional Mitigation

None are required.

5.4.14.7 Impacts Associated with the Maintenance, Repair and/or Removal of Infrastructure and Facilities

Impact 5.4-5	**The removal or maintenance, repair and/or removal of infrastructure on the CPER as recommended by the Draft LMP may adversely impact habitat for species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or the U.S. Fish and Wildlife Service. This impact will be reduced to a less than significant level (Class III) through implementation of management actions and Best Management Practices of the Draft LMP.**

The CPER contains a wide range of structures and facilities (Section 4.1.2). The Draft LMP recommends management actions aimed at maintaining, improving, and expanding existing facilities as necessary to facilitate the management goals associated with the other elements of the Draft LMP, and to promote safety for staff and visitors. Achieving the management objectives of the CPER may also involve the removal of certain infrastructure and buildings that are dilapidated. In some cases, these facilities may provide roosting or nesting habitat for special-status species and especially bats such as Townsend's big-eared bat.

Maintenance activities on the CPER could include the following:

- Repair and maintenance of roads and parking areas;
- Repair and maintenance of water tanks, pumps, wells and water distribution systems;
- Maintenance of buildings including the Chimineas Unit Headquarters within the North Chimineas Unit; and
- Repair or replacement of fences and signage.

Impact 5.4-5 — Best Management Practices Recommended in the Draft LMP that Mitigate Potential Impacts to Biological Resources Associated with Facilities Maintenance, Repair and Removal

The Draft LMP recommends management actions and BMPs to guide the maintenance and repair or removal of infrastructure consistent with the biological objectives for the CPER. The BMPs listed for Impact 5.4-1 apply to this impact and require pre-construction/pre-demolition surveys to determine the presence of listed or other special-status species as well as require the implementation of measures to avoid impacts to these species if present.

Impact 5.4-5 – Conclusions/Summary of Impact

Based on the standards of significance, the maintenance, repair and/or removal of infrastructure as may occur under the Draft LMP will have a **less than significant effect (Class III)**, either directly or indirectly through habitat modifications, on special species because management actions and BMPs recommended by the Draft LMP will be applied to ensure maintenance and repair activities do not adversely impact special-status species.

Impact 5.4-5 — Additional Mitigation

None are required.

5.4.14.8 Impacts to Special-Status Species Associated with Increased Use of the CPER

Impact 5.4-6	**Increased recreational use of the CPER under the Draft LMP may adversely impact habitat for species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or the U.S. Fish and Wildlife Service. This impact will be reduced to a less than significant level (Class III) through implementation of management actions and Best Management Practices of the Draft LMP.**

The average daily use of the CPER is expected to increase from 14 persons to about 24 persons per day in the years following adoption of the Draft LMP (Table 3, Section 3.11.2). Most of the increase will be associated with researchers performing ongoing monitoring and surveys of the biological resources of the CPER. Recreational use is expected to increase from an average of two persons per day to 3 persons per day. Potential visitor impacts to vegetation generally include trampling, picking, or other destruction of vegetation.

The Public Use Elements of the Draft LMP (Section 4.5) of the Draft LMP recommend management actions to facilitate public use of the CPER in a manner that protects public safety, promotes a better understanding of the sensitivity of the resources found on the Reserve, and helps ensure that public use is consistent with goals for protection of biological and cultural resources. Implementation of the recommended management actions is expected to foster an appreciation for the sensitivity of the resources of the CPER. Signage at trailheads, parking areas, and wildlife viewing platforms will help inform the public of public access and resource protection regulations. Enforcement of hunting, public access, and public safety regulations (Sections 4.5.3, 4.5.5, and 4.5.6 of the Draft LMP), will help ensure increased use of the CPER following adoption of the Draft LMP will minimize impacts to biological resources.

The Draft LMP does not recommend expanding allowable uses of the CPER to include camping or the use of private or off-road vehicles.

Impact 5.4-6 - Best Management Practices Recommended in the Draft LMP that Mitigate Potential Impacts to Biological Resources from Increased Use of the CPER

The BMPs recommend design criteria to guide the construction of new visitor-serving facilities such as wildlife viewing platforms, trails, interpretive centers, and parking areas to protect sensitive resources (BMPs AV-1, DC-1, DC-2). Providing these facilities and informing the public of their location is expected to minimize impacts to biological resources associated with informal parking and hiking in sensitive areas.

Impact 5.4-6 — Conclusions/Summary of Impact

Based on the standards of significance, management actions recommended by the Draft LMP will have a **less than significant effect (Class III)** relating to increased use of the CPER because:

- The majority of the increased use of the CPER following adoption of the Draft LMP will be associated with research and monitoring, which will promote effective management of the Reserve.
- The increase in average daily recreational use from 2 persons per day to 3 persons represents an insignificant increase.
- The increase in recreational activities near new or upgraded facilities will generate additional noise and disturbance of wildlife populations. However, given the slight increase in expected visitors, the impact is expected to be minimal.
- Although hunting may increase slightly compared with current levels, the use of lead-free ammunition required by the Ridley-Tree Condor Preservation Act will reduce lead exposure from hunting activities.
- Implementation of the Public Use Elements of the Draft LMP will help protect sensitive resources of the CPER by informing the public of ways to enjoy the Reserve while protecting such resources.
- Establishing trails and wildlife viewing areas is expected to reduce impacts to vegetation associated with recreational use of the Reserve.

5.4.14.9 Impacts to Riparian, Wetland, and Pond Habitats and Other Sensitive Natural Communities

Impact 5.4-7	**Management actions recommended by the Draft LMP may adversely impact riparian habitat, wetlands (as defined by Section 404 of the Clean Water Act) or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service and adversely impact federally protected wetlands. This impact will be reduced to a less than significant level (Class III) through implementation of management actions and Best Management Practices of the Draft LMP.**

5.4.14.9.1 Sensitive Communities

Mapped sensitive vegetation within these vegetation elements is illustrated on Figures 22 and 23 (higher resolution maps are included in Appendix F). Management actions recommended by the Draft LMP are expected to have a beneficial impact on these resources.

5.4.14.9.2 Riparian and Riverine Communities and Ponds

The CPER contains 15 ponds of various sizes (Table 48). Ponds are considered sensitive resources because they provide habitat for special-status animal species and often support wetlands. One of the objectives of the Draft LMP is to enhance wetland/pond resources by maintaining and enhancing the physical conditions that promote the special-status resources at each location. Management actions recommended by the Draft LMP that promote the protection and restoration of pond habitats within the CPER (Draft LMP Section 4.2.2.9) include managing grazing to maintain open water conditions and appropriate adjacent upland habitat for pond-breeding species, designating ponds or portions of ponds where cattle will be excluded, providing basking structures in ponds for western pond turtles, and controlling invasive plants and animals. Four ponds (Number 3, Joe, Corral, and Feed Lot) totaling approximately 8 acres have specific resources, including western spadefoot toad, bat species, and western pond turtle, that benefit from the reduction of vegetation around the water source. If native species (tule elk) are not reducing the vegetation around these ponds, periodic livestock grazing may be necessary to maintain these conditions.

Table 48: Ponds of the CPER

Unit	Management Unit	Pond	Hydrology	Source	Acres[1]
American	None	American Plateau	Seasonal	Natural	0.3
	None	Pridmore	Perennial	Pump	0.1
	None	Elk Canyon	Perennial	Spring	0.57
North Chimineas Unit	Barrett, Gillam	Broken Dam	Perennial	Natural	13.4
	Barrett Creek	Number 3	Seasonal	Natural	4.6
	Barrett Creek	Quarry	Seasonal	Natural	2.2
	Barrett	Betty/Anna	Perennial	Natural	2.0
	Barrett	Joe	Perennial	Natural	1.2
	CRP	CRP	Perennial	Spring	0.25
	Gillam	Taylor	Seasonal	Natural	1.2
	1,000 Acre, Scale	Scale	Seasonal	Natural	1.1
	1,000 Acre, Headquarters	Corral	Perennial	Natural	0.9
	Barrett	26 Pond	Seasonal	Natural	0.6
	Gillam	Gillam	Seasonal	Natural	0.4
South Chimineas Unit	Feed Lot	Feed Lot	Perennial	Pump	0.1

Source: CDFW 2018

Notes:

[1] The estimated acreage includes the adjacent wetland area, as well as wetted area.

The CPER contains more than 100 miles of drainages, including the Cuyama River, which currently support at least 259 acres of riparian communities (Section 5.8). Riparian and riverine communities within the CPER have been impacted by previous hydrologic modifications, including the installation of dams; historic land uses including farming and grazing; the invasion and spread of non-native plants such as tamarisk; and the impacts of non-native animals, including predatory fish and wild pigs.

The Department has installed fences to regulate cattle access to riparian areas and ponds except Joe Pond. The Draft LMP recommends management actions that promote the protection and restoration of riparian communities of the CPER (Draft LMP Section 4.2.2.7). These management actions include restoring the hydrologic function of the drainages, establishing native riparian plant species through direct planting, fencing to reduce livestock and tule elk herbivory and trampling, and eradicating and controlling non-native plant and animals. One of the objectives of the Draft LMP is to install livestock fencing around the remaining unfenced riparian areas (Draft LMP Section 4.2.2.7) and to provide additional livestock and wildlife watering areas to minimize impacts to streams, wetlands, and ponds.

5.4.14.9.3 Wetlands

The wetland element of the Draft LMP (Draft LMP Section 4.2.2.8) addresses areas within the CPER that feature permanently or seasonally saturated soils. Management actions for wetlands cover 107 acres and includes 84 acres around Soda Lake within the northeastern corner of the American Unit (Figures 21 and 22). Additional wetlands in the American Unit occur within an unnamed drainage to Soda Lake approximately one mile north of the American Ranch (CDFW 2018). In the Chimineas Units wetland vegetation is associated with Barrett and San Juan creeks, Gillam Pond near Gillam Spring, north of the Gifford Ranch, in Taylor Canyon, and in scattered occurrences along the Cuyama River, where tricolored blackbirds have nested.

In portions of the North Chimineas Unit, the extent of wetland vegetation may be limited by historic cattle grazing. To address this, the Department installed exclusionary fencing around perennial streams and most ponds, to promote the growth and spread of plants that may have been limited by cattle grazing.

The Draft LMP recommends management actions that promote the protection and restoration of wetlands within the CPER (Draft LMP Section 4.2.2.8) including recreating the topographic and hydrologic conditions to support wetlands, that were altered by cultivation, and the management of exotic plants within wetlands. In addition, the Draft LMP recommends regulating livestock access to riparian, wetland, and pond areas to maintain or enhance appropriate habitat for native species that inhabit these areas, including special status species such as western spadefoot toad and western pond turtle.

Impact 5.4-7 — Best Management Practices Recommended in the Draft LMP that Mitigate Potential Impacts to Riparian, Wetland, Ponds, or other Sensitive Natural Communities of the CPER

The Best Management Practices listed under impacts 5.3-1 and 5.3-2 will help ensure management actions of the Draft LMP will have a less-than-significant impact on sensitive natural communities, including wetlands and ponds.

Impact 5.4-7 – Conclusions/Summary of Impact

Based on the standards of significance management actions recommended by the Draft LMP are expected to have a **beneficial impact (Class IV)** on riparian, wetland, and pond habitats and other natural communities identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service resources because:

- The Draft LMP recommends management actions for riparian, wetland, and pond habitats that promote the restoration and enhancement of these resources and the management of non-native species;
- The Draft LMP recommends regulating livestock access to riparian, wetland, and pond areas to where maintain or enhance habitat required for native species that inhabit these areas, including several special-status species;
- The Draft LMP does not recommend management actions that would result in the direct removal, filling, hydrological interruption, or other adverse impact to federally protected wetlands as defined by Section 404 of the Clean Water Act;
- Previous and ongoing management actions on the CPER have resulted in a relatively high abundance of blue oak seedlings and saplings (Figure 19, Section 5.4.5.2) within areas of managed livestock grazing as well as areas where grazing does not occur; and
- Application of management actions and BMPs recommended by the Draft LMP will ensure impacts to riparian, wetland, pond, and oak woodlands will be beneficial when compared to baseline conditions.

Impact 5.4-7 – Additional Mitigation

None required.

5.4.14.10 Impacts to the Movement of Resident or Migratory Wildlife

Impact 5.4-8	**Management actions recommended by the Draft LMP may interfere with the movement of native resident or migratory fish or wildlife species. This impact will be reduced to a less than significant level (Class III) through implementation of management actions and Best Management Practices of the Draft LMP.**

The CPER connects the CPNM on the east with the LPNF to the west (Figure 31). Together, the three lands comprise over 2.5 million acres of contiguous public ownership that is managed, in part, for the protection and movement of wildlife. Due to the highly intact nature of the habitat, this area functions as an essential linkage connecting intact habitat within the Outer Coast Range Mountains, including the Santa Lucia Mountains, to the Inner Coast Range Mountains, as well as remaining intact habitat within the San Joaquin Valley (Spencer et al. 2010). Moreover, owing to its location at the southern end of the Coast Range Mountains, the Carrizo Plain, including lands within the CPER, provides essential connectivity with the Transverse Mountains to the south (CDFW 2018).

Roads

Roads can deter movement by some species and cause mortality to animals crossing roads or using the open conditions for movement, basking, or foraging. Slow species, such as western pond turtles, species with poor vision, such as American badger, may be especially vulnerable to mortality due to vehicle hits. Reducing vehicle speeds on roads can reduce collisions with animals (CDFW 2018).

No new roads are recommended by the Draft LMP. However, the number of people expected to use the CPER per day is expected to increase by as many as ten persons per day following adoption of the Draft LMP. Additional staffing and research efforts will increase the number of motor vehicle trips on roads within the CPER by as many as seven trips per day (Section 3.11.2). The increased traffic could adversely impact the movement of wildlife and could result in increased wildlife mortality. Increased roadway use would primarily occur during the day, thereby minimizing potential conflicts to movement of nocturnal species. The Draft LMP recommends a maximum speed of 15 miles per hour on Reserve roads which will help ensure increased traffic on CPER roads will not adversely impact wildlife movement.

The lower density of roads, restricted vehicle access, and the low volume of traffic on the CPER suggest that roads and increased roadway use following adoption of the Draft LMP will not adversely impact San Joaquin kit fox movement. Two-lane roads have been shown to have no significant detrimental effects on kit fox demography and ecology (Cypher et al. 2005).

Fences

While many wildlife species can readily move through the existing fences of the CPER, other species, such as pronghorn, will not jump fences. Accordingly, the lower strands of fences must be at least 18" off the ground to avoid inhibiting their movement and increasing their rates of predation (O'Gara and Yoakum 2004).

The impact of fences on tule elk distribution is not well understood. Elk can cross over or go under fences, depending on fence design; however, tule elk have been known to run into and damage fences when alarmed (McCullough 1969, Ferrier and Roberts 1973).

The Draft LMP recommends installing fences to regulate livestock access to riparian, wetland, and pond areas except to maintain or enhance their habitat conditions. The Draft LMP also recommends a series of management actions to maintain and improve landscape permeability and connectivity within the CPER and between the CPER and surrounding habitats (Draft LMP Section 4.2.1.2). These management actions include:

- Coordinate with adjacent landowners and public agencies (BLM, USFS) to promote habitat connectivity;
- Evaluate existing road barriers and remove barriers where necessary. Facilities that may facilitate the movement of wildlife across roadways include culverts and fences;
- Remove fences that are not necessary for management and retrofit all fences in pronghorn habitat so that the bottom wire is at least 18" above the ground;
- Install tule elk crossings to reduce injury to tule elk caused by existing fences;
- Promote native shrubs and trees along drainages to enhance connectivity of riparian habitats; and
- Create and maintain connectivity between grassland habitat of similar structure.

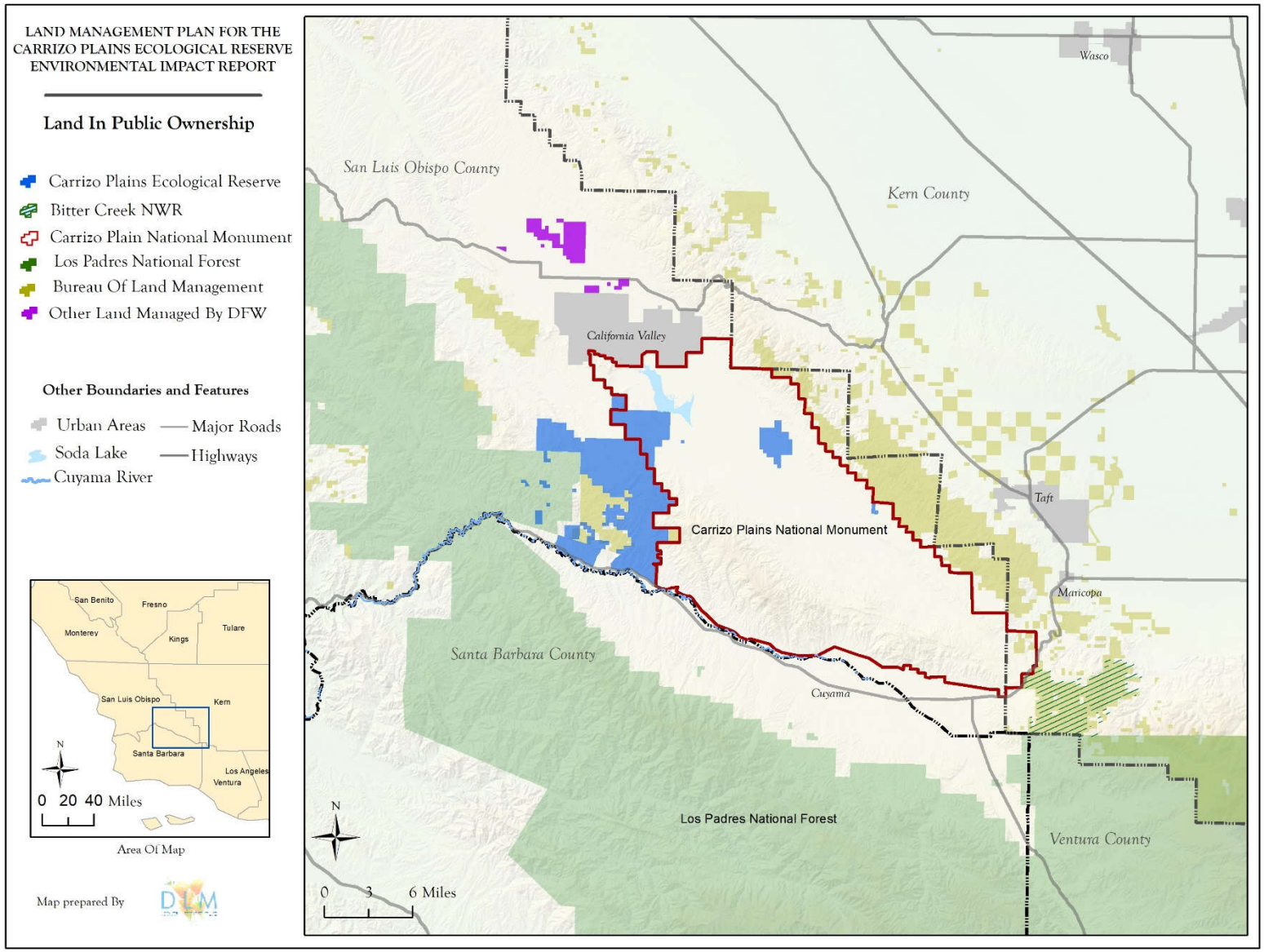

Figure 31: Public Lands in the CPER Region

Impact 5.4-8 — Best Management Practices Recommended in the Draft LMP that Mitigate Potential Impacts to Wildlife Movement and Connectivity

BMP BIO-37. Vehicle speed will not exceed 15 miles per hour on Department-administered roads in endangered species habitats. Speed limits shall be posted where necessary at roadway entrances to the Reserve.

BMP DC-3. New fencing shall be designed to be permeable to native animals. New fencing in pronghorn habitat shall be designed with a smooth bottom wire that is at least 18 inches above the ground.

BMP DC-4. New watering facilities shall incorporate design features to protect wildlife, including:

- Effective escape structures;
- Unobstructed access to the water surface; and
- A minimum length or diameter of six feet, with a longer length or diameter preferred.

Impact 5.4-8: Conclusions/Summary of Impact

Based on the standards of significance, management actions recommended by the Draft LMP will have a **less than significant effect (Class III)** relating to the movement of native resident or migratory fish or wildlife species because:

- The CPER currently features few impediments to dispersal of plants, and the movement of animals and ecological processes (e.g., fire) both within the Reserve and between the Reserve and surrounding land. No new roads, dams or other barriers to the dispersal of plants or animals are recommended by the Draft LMP.
- Implementation of BMP DC-3 will require that new fencing be designed to facilitate movement by wildlife and especially ungulates such as pronghorn, tule elk, and mule deer.
- Although the human presence on the CPER is expected to increase by 10 persons per day following adoption of the Draft LMP, the increase is insignificant in relation to the size of the CPER and the existing opportunities for wildlife movement. Most additional users will be Department staff involved in the management of the CPER.
- Increased staffing and researchers will result in a slight increase in traffic on CPER roadways (7 trips per day). However, BMP BIO-37 recommends a maximum speed of 15 miles per hour on Reserve roadways. The low number of trips combined with the low maximum speed will help ensure the increased use of use of the Reserve will not adversely impact wildlife movement or increased mortality associated with roadways.

Impact 5.4-8: Additional Mitigation

None required.

5.4.14.11 Impacts to other Focal Species — Pronghorn

Impact 5.4-9 Management actions recommended by the Draft LMP are expected to have a beneficial impact (Class IV) on pronghorn.

Pronghorn populations on all of the Department's reintroduction sites (Carrizo Plain, Tejon Ranch, and Parkfield) have been declining in recent years (Sommer 2012). The exact causes for the decline are not known but the severe droughts have led to very little fawn production. Current hypotheses on the causes of the declines include:

- Small population sizes leading to reduced individual fitness (Allee effect);
- The lack of high quality habitat in the overall Carrizo ecosystem;
- The lack of nutritious fall forage; and
- The lack of a predator swamping mechanism since few fawns are born each year. Predator swamping may occur when the number of offspring "swamp" the short-term capacity of predators to consume them before they disperse.

The Department has regularly conducted aerial surveys for pronghorn over the past 15 years and several research projects have been undertaken. The focus of these studies has been pronghorn diet, habitat assessment, movements, fawn survival, habitat suitability modeling, and habitat connectivity (Section 5.4.8.2).

The Draft LMP recommends management actions to protect pronghorn and other focal species (Draft LMP Section 4.2.3.2), including:

- Design and implement habitat management and restoration projects that address anthropogenic factors that unnaturally limit tule elk, pronghorn, and mule deer populations;
- Manage grazing to maintain areas of tall grasslands during the spring to provide cover for fawns;
- Design and implement enhancement projects to improve habitat conditions;
- Coordinate management efforts as part of the larger state-wide management plans; and
- Conduct and support research to inform management decisions relating to pronghorn and other focal species.

Impact 5.4-9 — Best Management Practices Recommended in the Draft LMP the Help Promote the Protection and Enhancement of Pronghorn

The Best Management Practices listed under impact 5.4-1 and 5.4-2 apply to this impact.

BMP DC-3. New fencing shall be designed to be permeable to native animals. New fencing in pronghorn habitat shall be designed with a smooth bottom wire that is at least 18 inches above the ground.

Impact 5.4-9 — Conclusion/Summary of Impact

The decline of pronghorn populations has preceded the adoption and implementation of the management actions and BMPs of the Draft LMP and therefore represents the baseline conditions against which the impacts of the Draft LMP are assessed. Implementation of the management actions of the Draft LMP, along with the Best Management Practices listed under impact 5.4-1 and 5.4-2 will result in a **beneficial impact (Class IV)** to pronghorn following adoption of the Draft LMP**.**

Impact 5.4-9: Additional Mitigation

None required.

5.4.15 Cumulative Impacts and Mitigation Measures

This subsection analyzes the Draft LMP's contribution to cumulative impacts to biological resources (Section 5.1.4).

5.4.15.1 Cumulative Setting

The Carrizo Plain supports grassland habitats that once occurred throughout the San Joaquin Valley. These grasslands provide some of the largest remaining contiguous habitats for many endangered, threatened, and rare species (BLM 2010). Since the 1870s, more than 95 percent of the original natural communities in the San Joaquin Valley have been destroyed. In the Carrizo Plain, the advent of mechanized agriculture in the early 1900s resulted in the conversion of vast acres of grassland to agriculture and subsequent loss of native habitats. This loss of natural communities both in the San Joaquin Valley and Carrizo Plain has been exacerbated through ongoing infrastructure development, petroleum and mineral extraction, solar project installation, the spread of exotic plant species, and altered fire ecology.

As a result, many of the species that occur on the CPER are now limited to a fraction of their historical ranges. For example, since the 1870s, both San Joaquin kit fox and giant kangaroo rat have lost more than 95 percent of their habitat (Williams 1992, USFWS 1998, USFWS 2010). Likewise, the reduction and fragmentation of habitat has led to the decline of blunt-nosed leopard lizard (Germano and Williams 1994). Because of their preference for arid, sparsely vegetated areas, giant kangaroo rat, San Joaquin kit fox and blunt-nosed leopard lizard are closely linked ecologically. Giant kangaroo rat is considered a "keystone species" because it provides an important source of food for predators, creates burrows used by other species, and affects vegetation in ways that maintain habitat structure (Goldingay et al. 1997, USFWS 1998, Prugh and Brashares 2012).

5.4.15.2 Geographic Extent of Cumulative Impact Analysis

The geographic extent for the analysis of cumulative impacts to biological resources includes the Carrizo Plain and surrounding areas including the CPNM, LPNF in San Luis Obispo County, the eastern Cuyama Valley in Santa Barbara County, and the natural areas of western Kern County. This area was chosen because:

- *It contains much of the remaining habitat in the region for many of the listed species that occur on the CPER.*

As discussed above, habitat within the Carrizo Plain region supports core populations that are essential to the conservation of numerous listed species that were once more widespread within the adjacent San Joaquin Valley prior to land use intensification. Appendix E of the Draft LMP summarize the current distribution and population status of listed species that occur (or are predicted to occur) on the CPER (CDFW 2018).

- *It includes the CPNM and lands within the LPNF that are being managed for the protection of habitat for many of the same listed species.*

  The RMP for the CPNM and the LMP for the LPNF both contain management actions and BMPs aimed at protecting and enhancing habitat for listed species that occur on the CPER, including maintaining connectivity among the CPER, CPNM and LPNF.

- *The area lies within the area covered by the ecosystem-level recovery strategy of the Recovery Plan for Upland Species of the San Joaquin Valley* (USFWS 1998).

  Of the 11 listed species that are the main focus of the recovery plan, five occur on the CPER:

  - Kern mallow;
  - San Joaquin woolly-threads;
  - Giant kangaroo rat;
  - Blunt-nosed leopard lizard; and
  - San Joaquin kit fox.

  The recovery plan considers the San Joaquin kit fox to be an "umbrella species" because it occurs in nearly all the natural communities used by other species featured in the recovery plan (Williams et al. 1998). Fulfilling the San Joaquin kit fox's habitat management and research needs also meets those of many other species. The recovery plan identifies three distinct core populations of kit fox:

  - The Carrizo Plain;
  - Natural lands of western Kern County; and
  - The Ciervo-Panoche Natural Area of western Fresno and eastern San Benito Counties.

  Although the western Kern County and Carrizo Plain populations are geographically close, they are separated by the Temblor Range. And although both populations have high densities from time to time, they also have different environmental conditions, which are reflected in the fact that their population dynamics are not always synchronous (B.L. Cypher pers. comm., Endangered Species Recovery Program unpublished data). For purposes of this analysis, the area of cumulative impact analysis includes the area occupied by the core populations of both the Carrizo Plain and western Kern County natural areas.

- *Lands within this area are either proposed for, or are currently subject to, land use changes that affect species covered by the Draft LMP.*

  Large-scale solar development currently represents a significant potential source of additional habitat loss for listed species that occur on the CPER. In addition to the solar projects recently

completed on the Carrizo Plain, several other projects in western Kern County would involve large-scale conversion of natural and agricultural lands. Together these projects would affect approximately 18,000 acres in the Carrizo Plain and western Kern County (Figure 8, Table 12). In some cases, mitigation lands are set aside as a condition of project approval (Table 13). However, the net result is a reduction in habitat and the fragmentation of remaining habitat.

- *It supports important populations of other species managed by the Draft LMP.*

  The loss of habitat associated with continued large-scale development would also impact habitat, linkages and movement corridors used by tule elk, pronghorn, and mule deer, which are important game species managed by CDFW (2016).

5.4.15.3 Cumulative Loss of Habitat for Listed species

Impact 5.4-10 Implementation of the management actions recommended by the Draft LMP, when added to other closely related past, present, and reasonably foreseeable future projects in the region, will result in the permanent loss of habitat for listed species on the CPER and in the region. The contribution of the Draft LMP to this impact is considered less than cumulatively considerable (Class III).

Impact 5.4-10 — Cumulative Impacts Associated with Past, Present and Future Large-Scale Development Projects

Table 49 estimates the potential acreage of habitat loss associated with large-scale development. To provide a worse-case estimate of potential habitat loss, it assumes that all of the acreage associated with large-scale development was suitable habitat that was converted to a non-habitat use. The impacts of the habitat conversion will likely be less as a result of project design, conditions of approval and mitigation requirements. The estimate for habitat loss does not distinguish between habitat for special-status species and habitat for non-listed species.

Development on private properties in the region has resulted in a cumulatively considerable loss of habitat for special-status species. Although mitigation lands have been provided for the solar projects in California Valley, the net result is a reduction in habitat and the fragmentation of remaining habitat.

Previously approved and reasonably foreseeable private development projects are subject to the permitting requirements of local governments (San Luis Obispo, Santa Barbara, and Kern counties), and are subject to environmental review in accordance with CEQA. The environmental review process must identify mitigation measures to reduce significant impacts relating to biological resources.

The FEIRs prepared for the California Valley Solar Farm (SLO County 2011a) and the Topaz Solar projects (SLO County 2011b), concluded that each project will result in impacts to special-status species that are cumulatively considerable and significant and unavoidable. In addition, the FEIRs conclude that the projects would result in impacts relating to the connectivity of suitable habitat for special-status wildlife species that are cumulatively considerable and significant and unavoidable.

Conditions of approval for the California Valley Solar Farm and the Topaz Solar Project require each project to compensate for permanent and temporary impacts to biological resources (Table 13). In most

Table 49: Summary of Previously Approved and Reasonably Foreseeable Future Large-Scale Development Projects

Project	Description	Jurisdiction	Acres	Status
California Valley Solar Farm (Sunpower)	250-megawatt solar generating plant, electric sub-station, maintenance facilities and 2.8-mile transmission line.	San Luis Obispo County	2,000[1]	Completed 2013
Topaz Solar Farm	550-megawatt photovoltaic solar power plant.	San Luis Obispo County	4,100[2]	Completed 2014
Maricopa Sun Solar Complex	700-megawatt photovoltaic solar power plant	Kern County	6,046	Approved March, 2011[3]
Lost Hills Solar	33-megawatt photovoltaic solar power plant	Kern County	307	Approved October 2010, construction to begin in 2013[3]
Elk Hills Solar	7-megawatt photovoltaic solar power plant	Kern County	47	Approved December 2011, Approved December 2011, construction pending[3]
Pumpjack & Rio Bravo	125-megawatt photovoltaic solar power plant.	Kern County	125	Draft EIR circulated in November, 2012[3]
SunGen Solar	398-megawatt photovoltaic solar power plant	Kern County	31	Approved for processing April 2011[3]
Kern Solar Ranch	1,000-megawatt photovoltaic solar power plant	Kern County	6,100	EIR being prepared[3]

Sources:

1. SLO County 2011a
2. SLO County 2011b
3. Kern County 2012

cases, compensation consists of the permanent preservation of a certain ratio of land for each acre impacted by the projects, where "preservation" refers to the acquisition or dedication of a permanent open space easement over land of appropriate habitat value. In some cases, portions of each project site provided suitable mitigation land. The conditions of approval also required each developer to prepare and fund a habitat management plan to ensure the objectives of the conditions are satisfied. As shown in Table 13, about 11,000 total acres of mitigation lands will be permanently preserved in the Carrizo Plain area as part of these projects (SLO County 2011a, b).

Impact 5.4-10 — Cumulative Impacts Associated with Development Accommodated by Local Land Use Plans

San Luis Obispo County has adopted the Shandon Community Plan (SLO County 2012a) to guide the development of the unincorporated community of Shandon, which is located at the north end of California Valley. According to the FEIR prepared for the project, buildout of the plan area could result in the permanent loss of about 1,760 acres of potential habitat, including habitat for the federally-endangered San Joaquin kit fox (SJKF). Because development of the community could result in the take of federally listed species, a Habitat Conservation Plan (HCP) would need to be prepared in accordance with Section 10(a)(1)(B) of the federal ESA and the CESA (Section 2050 et seq. of the California Fish and Game Code). Species covered in the HCP would be expected to include the San Joaquin kit fox, burrowing owl, and vernal pool fairy shrimp. Analysis of the Shandon Area Plan determined that suitable habitat for each of these species is present based upon existing habitat (land cover) types, land uses, and soil types. While the likelihood of take is considered to be relatively low for each of these species, direct mortality of these species and indirect impacts due to suitable habitat lost or altered may still occur. An HCP would provide mitigation for the permanent loss of habitat to federally listed species associated with buildout of Shandon.

Impact 5.4-10 — Cumulative Impact of Management Actions Undertaken on Federal Lands

Carrizo Plain National Monument Resource Management Plan

The CPNM is one of several core recovery areas for the San Joaquin kit fox, giant kangaroo rat, blunt-nosed leopard lizard, San Joaquin antelope squirrel, short-nosed kangaroo rat, and Le Conte's thrasher. The Department and BLM have conserved 4 percent and 83 percent of the core recovery area lands on the CPNM, respectively. The recovery plan set an objective of 100 percent conservation acquisition of the CPNM (USFWS 1998).

The long-term management of the CPNM for the conservation and recovery of the San Joaquin Valley upland species is expected to help offset continued habitat loss and environmental threats to these species from regional development. The management plan proposes to manage the core and non-core areas to maintain viable populations of these species. However, appropriate habitat management is needed to maintain suitable habitat conditions for the suite of species. San Joaquin kit fox, giant kangaroo rat, blunt-nosed leopard lizard, and San Joaquin antelope squirrel population monitoring, habitat monitoring, application and appropriate habitat management prescriptions for these species, maintaining movement linkages to western Kern County, and application of adaptive management principles will help meet recovery plan goals to maintain a viable population on the CPNM. Land uses on private land outside the CPNM would continue to threaten the conservation and recovery of these species. However, implementation of the CPNM plan would help offset these negative land uses and environmental threats.

The management of the CPNM to achieve population objectives for pronghorn antelope and tule elk will contribute to maintaining viability of the herds. Habitat management and improvement projects would offset reduced habitat capability and carrying capacity losses on adjacent private lands and other areas within the herd units. Additional habitat conservation actions taking place on the CPER will complement CPNM management.

The CPNM is also one of several recovery areas for federally-protected species including California jewelflower, San Joaquin woollythreads, and Hoover's woollystars (*Eriastrum hooveri,* recently delisted) and has important habitat for other rare plants. Sensitive plant communities (valley sink scrub, vernal pools, and saltbush scrub) are present as well as other plant communities currently more widespread, but diminishing in unprotected lands outside the CPNM.

The recovery of listed plants and the conservation of other rare plant habitat would be enhanced by actions proposed in the RMP for the CPNM. Large, landscape-sized areas of native vegetation would be preserved during a time when similar habitat is being lost elsewhere. In addition, lands protected by the monument and adjacent public lands would continue to provide important habitat for pollinators (BLM 2010).

According to the EIS prepared for the RMP (BLM 2010), implementation of the management actions of the CPNM RMP would result in an overall moderate benefit to habitat structure on the CPNM. Although restoration activities to reintroduce native plants would have minimal impact, there would be a benefit from long-term improvement in native plant species composition.

Bakersfield Field Office of the BLMP Proposed Resource Management Plan

The RMP (BLM 2014) covers about 400,000 acres throughout Kings, San Luis Obispo, Santa Barbara, Tulare, Ventura, Madera, eastern Fresno, and western Kern counties, including lands adjacent to the CPER (Figure 6). Threats to native habitat within the RMP planning area include destruction from conversion to agriculture; fragmentation as intervening natural areas are developed into homes, commercial sites and roads; and degradation from OHV, other recreation activities, and grazing. As habitats are degraded or lost, some native plant and animal populations may decline to such an extent that they meet the criteria for listing as threatened or endangered.

The RMP recommends continued compliance with legal preservation and protection mandates for special-status species; however, it also would continue to allow human activities contributing to the overall trends resulting in loss of natural and cultural resources within the planning area. This cumulative contribution is minimal (anticipated at or about 18,000 acres of surface disturbance over the life of the plan) when compared to the size of the planning area and impacts to biological resources occurring on private land (BLM 2014).

Although the RMP recommends management actions designed to protect and preserve habitat for listed species, the cumulative benefits from the protections afforded by the RMP would not be sufficient to prevent the significant loss of habitat for special-status species over time, throughout the planning area. Within the landscape of the San Joaquin Valley regional conservation strategy, some BLM-administered lands are located within the boundary of a number of reserve areas, habitat corridors, and specialty preserves. The BLM-administered lands currently found within the boundaries of reserves and corridors are identified as ecologically important areas in the draft RMP (labeled "Conserved Lands" on Figure 32).

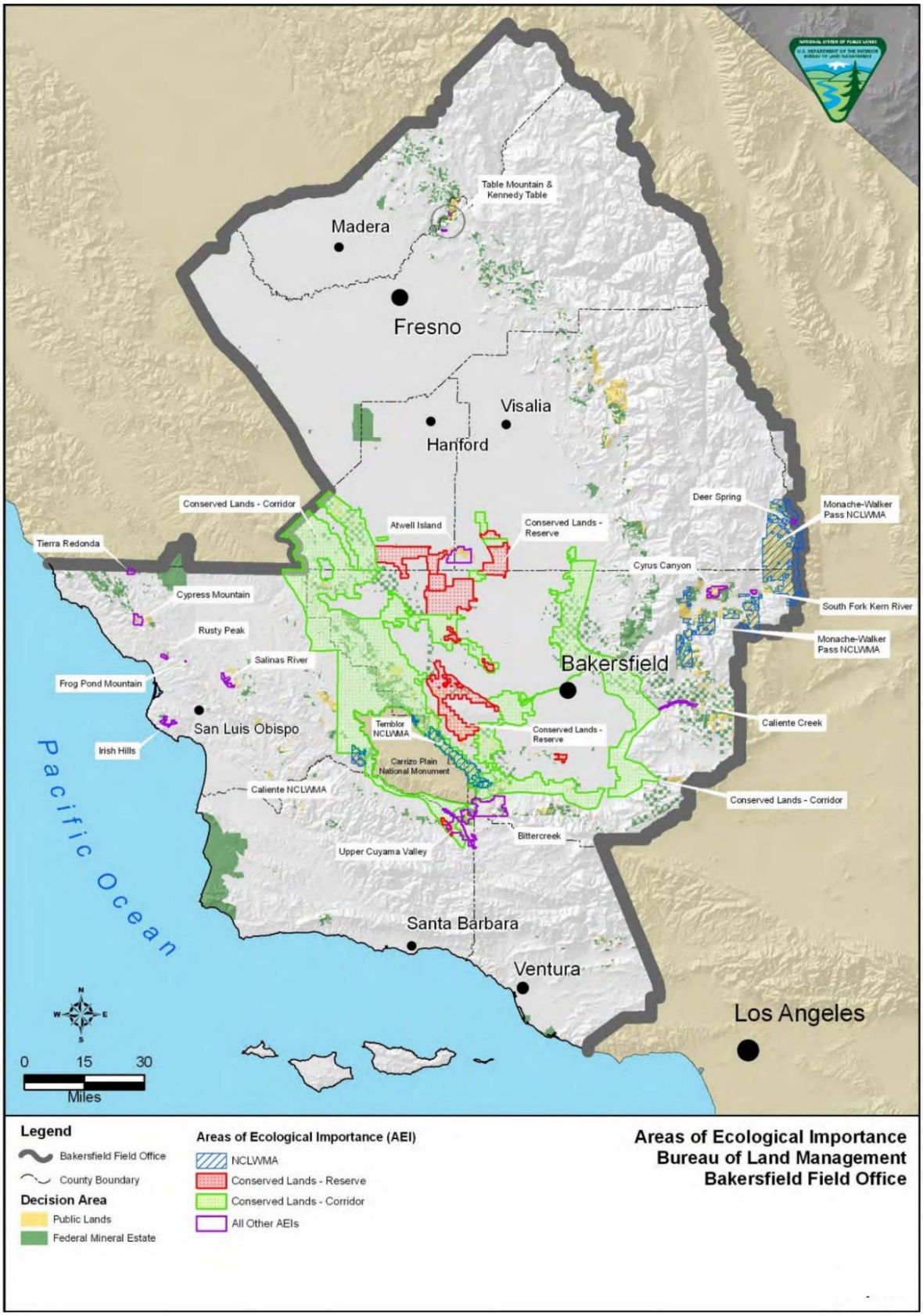

Figure 32: Areas of Ecologically Important Values for the Bakersfield Office RMP

According to the FEIS prepared for the RMP (BLM 2014), the overall trend within the decision area is a continued fragmentation, degradation and loss of natural habitats, followed by a reduction in biodiversity. The disruption of natural ecological processes (e.g., fire, succession) and the introduction of exotic species also impacts biodiversity. With increased human impacts, generalist species and those adapted to disturbance are favored, while rare and specialized species decline. The primary impact to biological resources is a result of the increase in human population and associated impacts from development, other economic activities, and recreation.

In the future, BLM lands covered by the RMP are expected to become increasingly more important in the conservation of biological resources as adjacent unprotected private lands are developed for, or degraded by, human uses. Areas of most concern include populations of rare and special-status species, unique habitats and important linkages (Figure 32). Threats to specific areas and habitats can be identified for some areas within the RMP plan area, and for some areas, BLM has adopted specific policy to guide BLM actions. Because much of the native habitat within the San Joaquin Valley has been lost to agricultural, urban and industrial development, BLM has developed specific protocols and restrictions to protect native habitat and rare species, while allowing a reasonable amount of development in this important oil-producing area.

Land Management Plan for the Los Padres National Forest

The LPNF LMP focuses on the cumulative effect of forest management activities on biological resources within the forests (USFWS 2005). The EIS prepared for the LMP concluded that implementing the actions described in the LMP could result in a high likelihood of maintaining the presence and viability of the biological resources of the LPNF (Section 4.5.1).

According to the EIS, the LPNF LMP is expected to result in less-than-cumulatively-considerable adverse impacts with respect to at-risk plant species (which includes special-status species) within the National Forests (Final EIS, page 401). The FEIS provides an assessment of cumulative impacts for management indicator species (MIS). Table 50 provides a summary of the potential likelihood of improved habitat for these species as result of implementation of the LPNF LMP.

Table 50: Likelihood of Improved Habitat Conditions for Management Indicator Species in Southern California National Forests

Habitat Condition	Management Indicator Species	Likelihood of Improved Habitat
Ecosystem health	Mule deer	High
Fragmentation	Mountain lion	Medium
Aquatic Habitat	Arroyo toad	Medium
Riparian Habitat	Song sparrow	Medium
Oak Regeneration	Blue oak	Low
Oak Regeneration	Engelmann oak	Low
Stand Health	Bigcone Douglas fir	Low
Stand Regeneration	Coulter pine	Medium
Montane Conifer Forest	California spotted owl	Medium
Montane Conifer Forest	California black oak	Medium
Montane Conifer Forest	White fir	Medium

Source: USDA 2005b

The management strategies recommended by the LPNF LMP are expected to have a generally beneficial impact on habitat conditions for the management of indicator species (Table 50). It should be noted that not all of the indicator species occur in the LPNF in the vicinity of the CPER. Nonetheless, the analysis suggests a generally positive cumulative impact on these species. The management actions recommended by the LPNF LMP would allow the populations of species most at risk to remain stable but gaps would remain within the historic species distribution.

Impact 5.4-10 — Cumulative Impact Associated with the Removal of Buildings and Infrastructure

As discussed under Impact 5.4-5, the Draft LMP recommends the removal of dilapidated or unsafe structures and facilities from the CPER that, in some cases, provides roosting or nesting habitat for special-status species and especially bats. Structures removed from lands surrounding the CPER, including federal lands and private properties, could result in the loss of habitat for special-status species.

The management actions and BMPs recommended by the Draft LMP will be applied to ensure maintenance, repair, and demolition activities do not adversely impact special-status species. The removal or repair of infrastructure will be preceded by surveys to determine the presence of special-status species and to identify appropriate practices to protect such species.

Impact 5.4-10 — Conclusions/Summary of Impact

Development of private land in the Carrizo Plain will result in the permanent loss of about 7,800 acres of habitat of various types and quality. Lands set aside to mitigate two solar projects could permanently protect between 9,000 to 11,000 acres. However, the result will be a net loss of habitat in the Carrizo Plain.

Implementation of the management actions included in the RMPs for BLM lands and the LMP for the LPNF surrounding the CPER will contribute to the protection of habitats for special-status species. However, a wider range of uses is allowed on federal lands than on the CPER. Nonetheless, the environmental documents prepared for these plans conclude that, overall, habitat conditions on lands managed by BLM and the USFS are expected to remain stable and, in some instances, to improve over time.

New activities on private property and within federal lands with the potential to adversely impact special-status species will be subject to the permitting requirements of the applicable jurisdiction and subject to compliance with CEQA and NEPA, respectively, which will identify measures to minimize the cumulative loss of habitat for special-status species.

The CPER consists of almost 40,000 acres of land that is permanently protected and managed to provide habitat for special-status species and other important species such as pronghorn, mule deer, and tule elk. Given the scale of habitat loss in the region, the importance of the CPER as a refuge for special-status plants and animals is expected to increase over time. As discussed under impacts 5.4-1 through 5.4-8, implementation of the management actions and BMPs recommended by the Draft LMP is expected to have a less than significant to overall beneficial impact on special-status species as the habitats and vegetation communities of the CPER are maintained, restored, and enhanced. The Draft LMP recommends a range of management actions and BMPs to ensure implementation of the Draft LMP protects and enhances the biological resources of the CPER. Therefore, the contribution of the Draft LMP to the cumulative impact on the loss of habitat for special-status species is considered **less than cumulatively considerable (Class III).**

Impact 5.4-10 — Additional Mitigation

None required.

5.4.15.4 Cumulative Impacts of Vegetation Management Activities

Impact 5.4-11 **Implementation of the vegetation management actions recommended by the Draft LMP, when added to other closely related past, present, and reasonably foreseeable future projects in the region, may adversely impact habitat for special-status species on the CPER and in the region. The contribution of the Draft LMP to this impact is considered less than cumulatively considerable (Class III).**

5.4.15.4.1 Continuation of Managed Livestock Grazing

Managed livestock grazing is used as a vegetation management tool on federal lands surrounding the CPER, subject to the management prescriptions contained in the management plans for the CPNM, the LPNF, BCNWR, and other lands managed by BLM (Section 4.5.1). Each of these management plans was subject to project-specific environmental review in accordance with NEPA. The NEPA compliance documents prepared for these plans concluded that implementation of management plans for these federal lands as they pertain to managed livestock grazing is expected to have a beneficial impact on biological resources.

Livestock grazing has also been approved as a vegetation management tool to enhance habitat for listed species on approximately 20,000 acres of mitigation lands surrounding the Topaz and CVSR solar plants. These lands are owned by both CDFW and Sequoia Riverlands Trust and livestock grazing was specifically identified as a management tool within the Habitat Management Plans for both projects. CEQA review for these plans was analyzed under EIR's for both solar projects and livestock grazing to maintain habitat for listed species was deemed as a necessary measure to help mitigate impacts from their development.

Livestock grazing is also practiced on private properties within the region. Management of grazing on private lands is not subject to discretionary approvals where the consideration of potential impacts to biological resources would be addressed. Accordingly, grazing on private lands could contribute to a cumulative loss of habitat for special-status plants and animals, to the extent that habitat and species that are negatively impacted by grazing are present on private properties in the region.

Managed livestock grazing on the CPER was subject to previous environmental review which concluded that the continuation of grazing would have a less than significant direct, indirect and cumulative impact on biological resources (Section 4.4). As discussed under impact 5.4-2, the continuation of managed livestock grazing beyond the current lease will be preceded by the adoption of a grazing management plan incorporating the elements described in management action V2.1. The discussion under impact 5.4-2 concludes that the continuation of managed grazing guided by the grazing management plan recommended by the Draft LMP is expected to have a beneficial impact on the biological resources of the CPER:

- By creating and maintaining areas of short-structured grassland required by many native species, including several special-status animals;
- By enhancing native plant cover and richness in grasslands, blue oak woodlands, and coastal scrub; and

- By controlling non-native herbaceous plant species to reduce their competitive effects on native plants and the potential for type conversion of shrublands to grassland via the grass-fire cycle.

5.4.15.4.2 Prescribed Burning

Prescribed burning is either currently used, or is recommended for use, as a vegetation management tool on federal lands surrounding the CPER. The precise acreage burned varies from year to year and is determined on a case by case basis to meet specific biological objectives.

As discussed under Impact 5.4-3, the Draft LMP recommends the use of prescribed burning in the chaparral communities of the CPER where a single prescribed burn of about 625 acres may be conducted at some point during the life of the Draft LMP. Prescribed burning has short-term and localized impacts on biological resources, but is expected to have a beneficial effect in vegetation communities that are fire adapted, such as chaparral. Prescribed burning on the CPER and the federal lands surrounding the CPER will have short-term and localized impacts to biological resources, but is expected to have a cumulatively beneficial effect by promoting the growth of native vegetation, helping to control the spread of non-native plants, and by helping to manage the fuel load and reduce the threat of catastrophic wildfire.

5.4.15.4.3 Control of Exotic Species

The management plans of federal lands surrounding the CPER include management actions aimed at controlling the spread in the region of exotic species. These actions include the use of prescribed burning, managed livestock grazing, and the use of topical herbicides. According to the environmental documents prepared for these plans, these efforts are expected to have a beneficial effect on the spread of exotic species.

As discussed under impact 5.4-4, the Draft LMP recommends a range of management actions and BMPs aimed at the control of exotic species. The discussion under impact 5.4-4 concludes that these efforts will have a beneficial impact on a range of special-status plants and animals.

Impact 5.4-11 — Cumulative Impact of Vegetation Management Actions Undertaken on Federal Lands

Carrizo Plain National Monument Resource Management Plan

The CPNM RMP recommends a range of vegetation management strategies to meet the biological objectives for the Monument. A "Vegetation Management Toolbox" (Table II.B.4-1 within BLM 2010) describes each strategy, the methodology and rationale for its use, and the possible uses. The range of potential strategies includes prescribed burning, managed livestock grazing, the use of herbicides, and others. The RMP requires Standard Operating Procedures (SOPs) and ongoing monitoring to ensure vegetation management activities achieve the biological objectives of the CPNM. The SOPs are refined to be site-specific by an interdisciplinary team and applied, as appropriate, in the subsequent site-specific NEPA process prepared for subsequent grazing leases.

The RMP provides for the continuation of livestock grazing and provides for a transition to grazing for vegetation management, only. One of the main objectives for livestock grazing is to meet or exceed the Central California Standards for Rangeland Health adopted by the Secretary of the Interior (BLM 2000). Management actions of the RMP recommend restricting or eliminating grazing

in areas where populations of listed plants have been identified, and the continuation of monitoring to ensure the biological objectives of the RMP are being achieved. The RMP identifies areas where grazing is allowed and where prohibited on the CPNM. These lands are further divided into two sub-categories: those lands where livestock use is allowed to utilize available forage, and those lands where livestock are allowed only as a vegetation management tool to meet other land use plan objectives. The allocations are as follows (BLM 2010):

- Available for livestock grazing: 55,900 acres;
- Available for livestock grazing, but only for the purpose of vegetation management: 117,500 acres; and
- Unavailable for livestock grazing: 33,100 acres.

With regard to non-native plant species, the RMP recommends control strategies that include prescribed burning, mechanical/manual removal, the use of herbicides, and livestock grazing. Management actions recommended by the RMP employ integrated pest management principles specific to the particular exotic species. The SOPs provide guidance for the ongoing management and eradication of nonnative species.

Since 1993, prescribed burns of various size have been conducted on the CPNM lands. These have ranged in size from small experimental burns of 20 acres, to large-scale burns of over 2,000 acres. Prescribed burns have been used to remove accumulations of dead annual vegetation (primarily non-native grasses) and to prepare areas for seeding with native plants. Active restoration has involved pretreatments by burning, followed by planting native species using tractor-driven seeding machinery. The RMP recommends the continued use of prescribed burning to control exotic species, reduce wildfire risk, and encourage native plant growth as part of the overall vegetation management of the CPNM. The procedures for conducting a prescribed burn are the same as for the Department. coordination with fire protection agencies and the SLO APCD is required, as well as project-specific NEPA compliance.

According to the EIS prepared for the RMP (BLM 2010), implementation of the vegetation management actions of the CPNM RMP would result in an overall moderate benefit to habitat structure on the CPNM. Although restoration activities to reintroduce native plants would have minimal impact, there would be a benefit from long-term improvement in native plant species composition.

Bakersfield Field Office of the BLM Resource Management Plan

The RMP (BLM 2014) recommends a variety of vegetation management measures that includes controlling weeds, seeding native species, performing prescribed burns, applying mechanical and chemical vegetation treatments, and livestock grazing to enhance or restore habitat conditions. The plan contains BMPs and SOPs to ensure these strategies are conducted in manner consistent with the biological objectives of the RMP.

With respect to livestock grazing, the RMP allocates land within the decision area as follows (BLM 2014):

- Available for grazing: 328,900 acres; and
- Unavailable for grazing: 66,100 acres.

An additional 7,800 acres in the Atwell Island are identified to allow grazing only for the purpose of vegetation management.

The RMP sets forth specific guidelines for grazing within the San Joaquin Valley where habitat for listed species is present and in riparian areas throughout the decision area. Grazing management limitations are provided for specific listed species that include the California jewelflower, San Joaquin woollythreads, Kern mallow, Hoover's woollystar, Kelso Creek monkeyflower, Kern primrose sphinx moth, and the Tehachapi slender salamander. The objective for livestock grazing is to meet or exceed the Department of Interior Standards for Rangeland Health (BLM 2000).

The RMP recommends treating weed populations using integrated pest management principles, along with monitoring to determine effectiveness of control measures and to ensure that known target weed populations are stable or diminishing. The RMP recommends the elimination of invasive nonnative weed populations before they can spread subject to site-specific NEPA compliance.

According to the EIS prepared for the draft RMP (BLM 2014), the vegetation management activities recommended by the RMP will have an overall beneficial impact on listed species, the overall trend within the decision area is a continued fragmentation, degradation and loss of natural habitats, followed by a reduction in biodiversity. The primary impact to biological resources is a result of the increase in human population and associated impacts from development, other economic activities, and recreation.

Land Management Plan for the Los Padres National Forest

The LPNF LMP contains strategies for vegetation management to address habitat restoration and protection and the control of exotic species. The LMP sets a target of treating 200 - 300 acres of vegetation for wildlife habitat improvement per year (USDA 2005a).

The LMP allows the continuation of livestock grazing on the forest under the livestock grazing program, which designates 141 livestock grazing areas, of which 101 are active. The USFS manages this program for the sustainability of forest resources while providing for livestock forage. The LMP estimates that the current level of managed grazing allotments is 1,080 acres and that the LPNF could support as much as 8,000 acres. The livestock grazing program emphasizes compliance with the Rescission Act of 1995.

The LMP contains program strategies and tactics to guide implementation of management activities to achieve the objectives of the Plan. The strategies and tactics address a range of topics, including resource protection and monitoring, protection of listed species, control of nonnative species, restoration, livestock grazing and rangeland health. Prescribed burning is used as a vegetation management tool to reduce fuel load and to encourage native plant growth.

The EIS prepared for the LMP (USDA 2005b) concluded that implementing the actions described in the LMP, including the continuation of grazing, prescribed burning and the control of exotic species, could result in a high likelihood of maintaining the presence and viability of the biological resources of the LPNF (Section 4.5.1).

Bitter Creek National Wildlife Refuge (BCNWR) Comprehensive Conservation Plan

The Comprehensive Conservation Plan (CCP) for the Hopper Mountain, Bitter Creek and Blue Ridge NWRs was adopted in September 2013 (USFWS 2013). The CCP contains management goals, objectives and strategies to guide the management of the NWR. Habitat management activities recommended for

Bitter Creek NWR include development of an Integrated Pest Management (IPM) Plan with early detection/rapid response to reduce invasive plants and animals and ongoing monitoring to ensure effectiveness. In addition the CCP recommends the use of grazing and other methods on up to 9,000 acres to achieve a mosaic of short, medium, and tall grass to support San Joaquin Valley special-status species (approximately 1,300 acres of short grass), and special-status birds (up to 7,000 acres of mosaic of short to tall grass). Prescribed burning is not recommended as a vegetation management strategy for the Bitter Creek NWR.

Vegetation management on the BCNWR, using managed livestock grazing and strategies to control exotic species, is expected to have a beneficial effect on listed species.

Impact 5.4-11 — Conclusions/Summary of Impact

Based on the NEPA compliance documents prepared for the management plans described above, vegetation management activities on federal lands surrounding CPER are expected to have a generally beneficial impact on listed species. Livestock grazing will continue on a total of about 532,000 acres (Table 51). Of the total acreage where livestock grazing will occur, about 146,000 acres (27%) will be managed to achieve specific vegetation management objectives. All of the grazing areas will be subject to the management actions, SOPs, and BMPs of the management plans described above. The authorization of grazing activities on federal land is also subject to project specific NEPA compliance.

Table 51: Summary of Managed Grazing Acres on Federal Lands Surrounding the CPER

Federal Plans	Acres Available for Grazing	Acres Available for Grazing for Vegetation Management Only	Total
CPNM RMP (BLM 2010)	55,900	117,500	173,400
Bakersfield Field Office RMP (BLM 2014)	328,900	7,800	336,700
LPNF LMP (USDA 2005a)	1,080	—	1,080
Bitter Creek NWR (USFWS 2013)	—	9,000	9,000
CPER (CDFW 2018)	—	12,000	12,000
Total	**358,880**	**146,300**	**532,180**

The acreage of prescribed burning and areas treated for the presence of non-native plant species that may occur on federal lands in the future cannot be estimated from the management plans. However, it will be assumed that the acreage would be comparable to previous years.

Vegetation management activities associated with managed livestock grazing, prescribed burning and the control of exotic species are expected to have a less than significant to beneficial impact on the biological resources of the CPER. As discussed under impacts 5.4-2, 5.4-3, and 5.4-4, the Draft LMP recommends a range of management actions and BMPs to ensure that vegetation management activities enhance the biological resources of the CPER. Therefore, the contribution of the Draft LMP to the cumulative impact on biological resources from the vegetation management actions recommended by the Draft LMP is considered **less than cumulatively considerable (Class III).**

Impact 5.4-11 — Additional Mitigation

None required.

5.4.15.5 Cumulative Impacts to Riparian or Other Sensitive Natural Communities

Impact 5.4-12 Management actions recommended by the Draft LMP, when added to other closely related past, present, and reasonably foreseeable future projects in the region, may adversely impact riparian habitat or other sensitive natural communities identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service. The contribution of the Draft LMP to this impact is considered less than cumulatively considerable (Class III).

Grassland, Desert Scrub, Juniper Woodland and Oak Woodland

As discussed under Impact 5.4.7, management actions recommended by the Draft LMP are expected to have a beneficial impact on these resources. Accordingly, the Draft LMP is expected to have a cumulatively beneficial impact.

Ponds, Wetland, Riparian, and Riverine Communities

Riparian and pond habitats exist on private lands and on public lands managed by BLM, USFWS and the USFS in the region. Activities on federal lands with the potential to adversely impact riparian resources include cattle grazing, mineral exploration and development, road construction and recreation. Livestock grazing in particular has the potential to adversely impact riparian and pond resources where they have not been fenced. Activities on federal lands with the potential to adversely impact riparian resources are subject to environmental review in accordance with NEPA through which project-specific mitigation/avoidance measures are identified. In addition, implementation of the management actions and BMPs of management plans of federal lands will ensure protection of riparian resources on federal land.

Cattle grazing and other activities on private land that do not require discretionary approvals are not subject to environmental review or the permitting requirements of other agencies. Therefore, such activities will contribute to a cumulative adverse impact on riparian resources. As discussed under Impact 5.4-7, above, riparian and pond habitats within the CPER have been fenced to regulate livestock use so that it occurs only where and where needed to maintain or enhance habitat for special-status species. In addition, the Draft LMP recommends management actions and BMPs aimed at managing and restoring riparian and pond habitats within the CPER. The contribution of the Draft LMP to cumulative impacts to riparian and pond habitat is **considered less than cumulatively considerable (Class III).**

Impact 5.4-12: Conclusions/Summary of Impact

As discussed under Impact 5.4-7, surveys of blue oak recruitment on the CPER suggest that blue oaks exhibit a mixed age structure that indicates ongoing recruitment in areas where livestock grazing has been practiced as well as where it has not occurred recently. Accordingly, the discussion under Impact 5.4-7 concludes that the CPER is contributing to the persistence of blue oaks. As discussed under Impact 5.4-2, livestock grazing on the CPER is expected to continue to be used as a vegetation management tool in

accordance with the lease agreement executed in November 2011 unless and until a grazing management plan is adopted as recommended by management action V.2.1 and a subsequent lease is executed based on that plan. Implementation of the management actions recommended in the Draft LMP aimed at protecting and enhancing native vegetation listed under Impacts 5.4-1 through 5.4-8 are expected to continue to have a positive impact on blue oak recruitment on the CPER. Therefore, the contribution of the Draft LMP to cumulative impacts to blue oak recruitment are considered **less than cumulatively considerable (Class III).**

Impact 5.4-12: Additional Mitigation

None required.

5.4.15.6 Cumulative Impacts to the Movement of Resident or Migratory Wildlife

Impact 5.4-13	**Management actions recommended by the Draft LMP, when added to other closely related past, present, and reasonably foreseeable future projects in the region, may interfere with the movement of native resident or migratory fish or wildlife species. The contribution of the Draft LMP to this impact is considered less than cumulatively considerable (Class III).**

Impact 5.4-13 — Cumulative Impact of Regional Development

Ranching and other activities in the Carrizo Plain area has led to the placement of numerous fences, roadways, and other obstacles that potentially impede wildlife movement. Ongoing development in the area, including massive solar energy developments and agricultural operations, continue to degrade the functionality of the remaining linkage. As development and road expansion continues in the region it will become progressively more difficult to maintain critical landscape features required for the passage of native wildlife between the Carrizo Plain and surrounding habitat. The two solar projects (Section 4.5.3) located in the Carrizo Plain have reduced the existing corridor available to wildlife, nearly bisecting the Carrizo Plain into a north and south section (Penrod et al. 2010). For pronghorn and tule elk, the two solar projects have resulted in a substantial reduction in available habitat in this portion of the Carrizo Plain (SLO County 2011a, b).

The recovery plan recommends protecting and enhancing corridors for the movement of San Joaquin kit fox from the Salinas Valley to the Carrizo Plain and San Joaquin Valley (USFWS 1998). The two solar projects present new barriers to movement. When combined with additional development within the other core kit fox populations, these projects have the potential to reduce the size of movement corridors and alter the movement of kit fox.

Mitigation measures adopted for the two solar projects will reduce impacts to wildlife movement by establishing movement corridors for tule elk and pronghorn, by the placement of escape dens and elevating fencing around the arrays for kit fox, and through the removal of fences in key locations around the two projects (SLO County 2011a, b). In addition, the acquisition of mitigation lands (Table 13) permanently preserves habitat adjacent to the projects that provide movement corridors for tule elk, pronghorn and other species. Although these measures are expected to reduce project impacts, the two solar projects were found to contribute to a cumulatively considerable and unavoidable adverse impact on wildlife movement in the region (SLO County 2011a, b).

Development accommodated by the Shandon Community Plan may adversely impact the regional movement of San Joaquin kit fox which will be addressed by project specific CEQA analyses. The population increase anticipated by the SBCAG for the Cuyama Valley is minor (Section 4.5.2.2). However, the placement of fencing and the increase in traffic will contribute to a cumulative impairment of wildlife movement.

Impact 5.4-13 — Management Plans of Federal Land Surrounding the CPER

As discussed under Impact 5.4-6, there are impediments to the movement of wildlife within the Reserve and between it and surrounding public and private land. Management actions included in the CPNM RMP promote maintaining the linkage of natural lands in the CPNM to the San Joaquin Valley by preserving the intact nature of the Temblor Range. Maintaining this link is expected to maintain genetic and population linkages for San Joaquin kit fox, giant kangaroo rat, San Joaquin antelope squirrel, and other species (BLM 2010).

Los Padres Nation Forest Land Management Plan

The LPNF LMP includes the following management actions aimed at facilitating linkage to surrounding habitat (USDA 2005a):

Link 1: Habitat Linkage Planning

Identify linkages to surrounding habitat reserves and other natural areas for maintenance of biodiversity. Collaborate with local government, developers, and other entities to complement adjacent federal and non-federal land use zones and associated design criteria:

- *Participate in regional planning efforts to identify linkages to surrounding habitat reserves and other natural areas for maintenance of biodiversity.*
- *Work with land conservancies, local government and others to secure long-term habitat linkages.*
- *Manage national forest uses and activities to be compatible with maintenance of habitat linkages.*
- *Actively participate with local government, developers, and other entities to protect national forest values at intermix and interface zones.*

Implementing the management actions recommended by the LPNF LMP will contribute to maintaining regional connectivity between the Forest and surrounding land, including the CPER.

Bakersfield Field Office of the BLM Resource Management Plan

The RMP includes the following recommended management actions aimed at facilitating connectivity of conserved lands with the CPER and other lands managed by the Department:

In collaboration and coordination with the USFWS and CDFG (CDFW):

- *Manage public lands within reserves or corridors as conserved land consistent with the direction established by the USFWS and CDFG (CDFW) through the Recovery Plan for Upland Species of the San Joaquin Valley and other pertinent recovery or conservation plans, subject to the underlying statutory authority (Federal land Policy Management Act of 1976)*

- *Manage reserves to restrict surface disturbance on public lands in reserves to not exceed 10 percent of any 640-acre section, aliquot section, or aggregate of adjacent aliquot sections.*
- *Manage corridors to restrict surface disturbance on public lands in corridors to not exceed 25 percent of any 640-acre section, aliquot section, or aggregate of adjacent aliquot sections.*
- *Allow certain areas of high intensity oil and gas development within reserves and corridors to be identified and managed separately from the reserve and corridor system. These areas will not be subject to the 10 percent and 25 percent surface disturbance limit.*
- *Include certain areas outside the reserve and corridor system to be managed as corridors including the application of corridor disturbance restrictions.*

The management actions recommended by the draft LPNF LMP encourage collaboration with the Department in efforts to maintain regional connectivity and wildlife movement corridors.

Impact 5.4-13 –Conclusions/Summary of Impact

Increased use of roads on the CPER and the placement of fencing have the potential to impair the movement of wildlife through the CPER and to surrounding lands (Section 5.4.14.10). However, management actions and BMPs recommended by the Draft LMP listed under Impacts 5.4-1 and 5.4-7 will ensure that the management of the CPER will complement the efforts of federal and other land owners in the area to facilitate the movement of wildlife through the CPER and onto surrounding habitat. For this reason, the cumulative impact the Draft LMP to the movement of native resident or migratory fish or wildlife species is considered **less than cumulatively considerable (Class III).**

Impact 5.4-13: Additional Mitigation

None required.

5.4.15.7 Cumulative Impacts to Another Focal Species — Pronghorn

Impact 5.4-14 Management actions recommended by the Draft LMP, when added to other closely related past, present, and reasonably foreseeable future projects in the region, may adversely impact pronghorn. The contribution of the Draft LMP to this impact is considered less than cumulatively considerable (Class III).

Impact 5.4-14 — Cumulative Impacts of Regional Development

Development on private property in the California Valley has resulted in the permanent conversion of pronghorn habitat, which has significantly fragmented the remaining habitat. Mitigation lands provided by the two large solar project on the Carrizo Plain, and managed by the Department separately from the CPER, are expected to benefit pronghorn (SLO County 2011a, b). However, the cumulative loss of habitat and connectivity associated with these projects is expected to have a cumulatively considerable and unavoidable adverse impact on pronghorn (SLO County 2011a, b).

Impact 5.4-14 — Management Plans of Federal Land Surrounding the CPER

Carrizo Plain National Monument Resource Management Plan

Pronghorn are commonly observed in the northwestern portion of the CPNM, and on adjacent private rangelands and farm fields to the north in California Valley. A separate subherd is found at the southern end of the CPNM and adjacent farm fields in the Cuyama Valley (BLM 2010).

A study of pronghorn habitat suitability, fawn bed site selection, and food habitats was conducted in the CPNM in 2003 and 2004 (Longshore and Lowrey 2008). This study evaluated the suitability of grassland and grassland/scrub habitats occupied by pronghorn in the monument and determined that the best available habitat in the CPNM to be of moderate quality. The study found few areas greater than five square kilometers with a vegetation height considered necessary for pronghorn fawn bed-site concealment. Overall, the study suggests that without habitat rehabilitation, the present-day CPNM may not contain enough suitable habitat to support a viable population of pronghorn antelope. Restoration of native bunchgrasses and shrubs are considered important to improve habitat suitability" (BLM 2010).

To address these concerns, the CPNM RMP recommends a number of management actions relating to the enhancement of pronghorn habitat. These actions include (BLM 2010):

- Support efforts by the Department to monitor CPNM pronghorn populations via continuing aerial reconnaissance and habitat studies;
- Maintain and improve areas of pronghorn fawning and foraging habitat in the Caliente Foothills North and Carrizo Plain North subregions adequate to support 250 pronghorn;
- Allow livestock grazing in key pronghorn habitat only as identified in the Conservation Target Table;
- Include shrubs, tall forbs, and perennial native grasses in restoration seed mixes to provide mosaic of forage resources, habitat structure, and adequate fawning cover (Carrizo Plain North);
- Promote herd travel across the landscape by modifying fences to allow animal passage underneath;
- Protect herd by measures to reduce vehicle collisions; and
- Allow the introduction of pronghorn from other areas if necessary to achieve herd objectives, as long as CPNM habitat is adequate to support target population.

Working collaboratively with the Department to enhance and maintain suitable pronghorn habitat will help offset the impacts of continued habitat loss in the region.

Impact 5.4-14 — Conclusions/Summary of Impact

The Draft LMP recommends a range of management actions aimed at improving conditions favorable to the continued survival of pronghorn on the CPER and on the Carrizo Plain (Draft Section 4.2.3.2 of CDFW 2018). These efforts complement those of BLM for the CPNM. By providing permanent pronghorn habitat and implementing management actions to maintain and improve that habitat, the cumulative impact on pronghorn associated with adoption of the Draft LMP is expected to be **beneficial (Class IV).**

Impact 5.4-14: Additional Mitigation

None required.

5.5 Cultural Resources

5.5.1 Introduction

This section addresses impacts to cultural resources that may occur from implementation of the management actions and best management practices recommended by the Draft LMP. It describes existing environmental conditions within the CPER and broader area, identifies and analyzes potential impacts to cultural resources, and recommends measures to reduce or avoid adverse impacts anticipated from management actions. In addition, it describes existing laws and regulations relevant to cultural, historic and paleontological resources. In some cases, compliance with these existing laws and regulations would serve to reduce or avoid certain impacts that might otherwise occur. This section ends with a discussion of cumulative impacts related to cultural resources.

5.5.2 Sources Used in This Analysis

This analysis is based on a review of applicable law, local planning documents, and publications that include:

- Draft Land Management Plan for the Carrizo Plains Ecological Reserve (CDFW 2018);
- Mitigated Negative Declaration for Grazing Lease Allotment Carrizo Plains Ecological Reserve (Chimineas Ranch), San Luis Obispo County, (CDFW 2011b);
- Cultural resources overview and reconnaissance, Carrizo Plains Ecological Preserve, San Luis Obispo County, California (Whitley 2011);
- The California Code of Regulations;
- The California Health and Safety Code;
- The California Public Resources Code;
- Published studies on the effects of grazing and wildfire on cultural resources (cited below); and
- Consultation with Native American tribes.

Section 10 References provides a complete list of references.

5.5.3 Scoping Issues for Cultural Resources

During the 30-day public review period for the Notice of Preparation for the Draft LMP, written and oral comments were received from agencies, organizations and the public. The following issues relating to cultural resources were raised during the scoping process and are addressed in this section:

- Consult with Native American tribes regarding the presence of cultural resources;
- Determine the sites or areas that are most vulnerable to current and future impacts and adopt management actions necessary to protect and restore cultural resources; and
- Consult with the State Historic Preservation Officer if a project may impact an archaeological site.

5.5.4 Environmental Setting

The following description of the pre-history, history, and existing prehistoric and historic cultural resources of the CPER was derived from the Draft CPER LMP (CDFW 2018).

5.5.4.1 Prehistory

The prehistory of south-central California, including the CPER, has been defined in terms of a four-part cultural chronology (Whitley 2011). The Paleoindian Period, before about 8,500 years before present (YBP), appears to represent the earliest occupation of this portion of California, but it remains poorly understood due to a paucity of identified sites dating to this early epoch. A possible Paleoindian site has been discovered on the nearby CPNM, however, suggesting that the CPER region has been occupied and utilized since that time. The Early Millingstone Period, from about 8,500 to 4,000 YBP, was marked by a heavy reliance on plant foods, primarily seeds, shown by a dominance of groundstone plant processing tools in archaeological sites. A single possible Early Millingstone site has also been identified within the CPNM, indicating that the region continued to be occupied, although by a relatively small population.

Ethnographically, the CPER lies in the territory of the Chumash, close to their boundaries with the Salinan, to the north, and the Yokuts, to the east (Whitley 2011). Each of these tribes subsisted by hunting and gathering rather than farming. This involved a seasonal round with periodic movements typically from larger aggregated villages, occupied during the winter, followed by spring and summer dispersal across the landscape into smaller groups (often individual families) to exploit ripening plant species. Acorns from various species of oak (*Quercus* spp.) were the primary staple, augmented by a variety of different plants and seeds, such as chia (*Salvia columbariae*). Acorns were gathered during the fall and processed by leaching to remove tannins, and provided a reliable staple that could be stored and could support the dozens of occupants residing in the winter aggregation villages. In interior regions, away from the coast or lakeshores, hunting emphasized mule deer but the majority of the animal protein in the diet was obtained from small mammals, such as hares and rabbits, which were often captured with traps and nets (Whitley 2011).

Although there is archaeological and documentary evidence that a small population of Chumash (approximately 30 people) lived within the Carrizo Plain area during the historical period (after about AD 1770), and may have hunted and gathered within the CPER, no historical villages are known to exist within the CPER.

5.5.4.2 History

The CPER region was used historically, starting in the second half of the nineteenth century, for ranching and, in some cases, large-scale farming (Whitley 2011). Initial livestock practices involved Hispanic ranchers who used the territory for grazing, but filed no known land claims in the immediate region. Small-holdings owned by homesteaders were common subsequently but, following the drought of 1895-1896, most of these occupants were bought-out and large-scale ranching became the norm. Large-scale wheat farming became common on the open flats on the wetter, western side of the Carrizo Plain after the turn of the century. The following describes in greater detail the regional land use history and the transitions from livestock grazing, to homesteading, to large-scale farming.

5.5.4.2.1 18th and 19th Centuries

During the late 18th and early 19th centuries, grazing animals from ranches situated east of the Carrizo Plain occasionally ventured onto the plain for forage but no permanent human settlements were established. Early Mexican and Spanish settlements, and the movement of people and goods between them, also occurred predominantly in coastal areas to the north and west of the Carrizo. The La Panza and Caliente ranges to the west of the Carrizo Plain, and the Temblor Range and marshes of the Tulare Basin to the east, acted as formidable barriers to the establishment of permanent settlements on the plain (Eichel 1971).

Following the admission of California to the union in 1850, large areas of the Carrizo Plain became available for purchase and were acquired by land speculators under the California Land Act of 1851. A small handful of San Franciscans, including James and Richard McDonald, George Schultz, and Henry von Bargen, came to own much of the north and considerable acreage in the southern half of the plain (Eichel 1971). The paucity of small parcels of land available for purchase, a condition that persisted until the 1880s, reduced the attractiveness of the Carrizo Plain for settlers.

In the late 1800s, the southern San Joaquin Valley and Tulare Basin were being settled rapidly due to the development of agriculture and construction of a railroad to provide access to markets in San Francisco. The population of western San Luis Obispo County also grew as land previously associated with large Mexican land grants became available for purchase. Because so little land on the Carrizo Plain was available for purchase, however, the area remained essentially unpopulated. This situation changed in 1885 when the Atlantic and Pacific Railroad Company was forced to forfeit rights to land in the northern Carrizo Plain after failing to follow through on plans to build a line connecting Los Angeles and San Francisco (Eichel 1971). Settlers quickly began to move onto and develop 160-acre homesteads on the plain and a few tenant farmers also worked sections of the large, privately owned parcels. The first permanent settlement on the Carrizo Plain, the El Saucito Ranch in the southwestern part of the plain, was built in 1865. Until 1885, seasonally grazed herds of cattle and sheep represented the only commercial use of the plain (Eichel 1971).

Commercial isolation and a challenging local climate constrained the use of agriculture as a viable livelihood on the Carrizo Plain. In the early 1890s the only path to market was a two-day trip along a crude wagon road over the La Panza Mountains to Santa Margarita, the nearest location of a rail connection to San Francisco (Eichel 1971). Productivity of farms on the Carrizo Plain was also limited by the plain's arid climate. Situated in the rain shadow of the Caliente and La Panza mountains, the Carrizo Plain receives little rainfall and the hot, dry conditions and scarcity of permanent sources of year-round water represent considerable challenges for agricultural endeavors and basic subsistence. Between 1885 and 1900, cattle grazing remained the primary form of land use with some dry farming of grain to feed the family and livestock (Eichel 1971). A sequence of severe droughts during this period created great hardships for the settlers, driving the majority to leave the plain by 1900.

5.5.4.2.2 Early 20th Century

Between 1900 and 1940, mining of sodium sulphate deposits around Soda Lake and oil exploration, particularly along the southwestern margin of the plain, brought new transportation and infrastructure developments that slowly improved commercial connectivity of the Carrizo Plain (Eichel 1971). A rail line through McKittrick and across the northern edge of the plain was of particular significance and following its completion large wheat farms began to displace cattle grazing as the primary commercial activity. Patterns of land ownership on the plain, however, remained largely unchanged. While tractors made large-scale

wheat farming possible, their costs were economically prohibitive for most settlers given the low yield of small homesteads. As these residents abandoned their fields, their homesteads were absorbed into larger properties.

Roads out of the plain to McKittrick and over the Pozo Grade were paved in the 1930s, further connecting the plain with outlying regions and markets. In the 1940s more tenant farmers began to arrive in the northern parts of the plain, where some of the large, privately owned land parcels were divided into smaller farms averaging approximately 6,000 acres (Eichel 1971). Most of these farmsteads were located on or near the east-west state road crossing the northern Carrizo Plain. In the southern parts of the plain settlement patterns did not change significantly. There, large holdings were held intact and not rented to tenant farmers so population density remained low.

Laws passed in the 1960s that regulated agricultural production had a profound impact on land use. The Federal Wheat Program of 1967 imposed acreage limitations and price control provisions and thereby restricted farming of the primary cash crop of the Carrizo Plain (Eichel 1971). The result was a depressive economic impact and a shift to the growth of barley. Between 1965 and 1970 much of the central and southern portions of the plain were purchased by Oppenheimer Industries, further consolidating land ownership (Eichel 1971).

In the late 1960s, the previously rural California Valley began to be developed intensively for residential use. Spurred by hope that the California State Water Project would bring water to the area, developers created over 7,000 2.5-acre parcels. However, the water project was ultimately located north of the Carrizo Plain and, in the absence of sufficient clean water to support the development, the parcels remain largely undeveloped.

5.5.4.2.3 Late 20th Century

In recognition of the high conservation value of the Carrizo Plain, owing to its vast area and habitat supporting several endangered species, state and federal agencies and conservation organizations began work to protect the region from future, intensive development. In 1984, The Nature Conservancy (TNC) and BLM began exploring the possibility of acquiring extensive lands in the Carrizo Plain region for conservation and restoration for rare and endangered San Joaquin Valley species, as well as other components of San Joaquin Valley communities. Strategies for acquisition and management of the lands were developed through workshops involving TNC, BLM, the Department, and the USFWS (BLM 2010).

In 1985, the USFWS, BLM, and the Department signed a Memorandum of Understanding to establish the Carrizo Plain Natural Area (CPNA). The objectives of the CPNA were developed by the agencies, which convened a steering committee that included local, state, and federal government officials and representatives of the ranching, oil, gas and mining industries, and environmental groups (BLM 2010).

In 1988, TNC completed the first conservation acquisition within the Carrizo Plain when it purchased 82,000 acres owned by Oppenheimer Industries. In 1988 and 1989, BLM received funding from Congress to acquire 23,000 acres and 28,500 acres, respectively (BLM 2010). The Department, which had protected the 160-acre Elkhorn Unit in 1983, collaborated with TNC to create and expand the Carrizo Plains Ecological Reserve through acquisitions of portions of the American Unit and the entire Panorama Unit in 1988 and 1989, respectively. In the ensuing 15 years, the Department worked with the TNC and the Wildlife Conservation Board to assemble the additional lands of the CPER through expansion of the American Unit and creation of the Chimineas units (CDFW 2018).

5.5.4.3 Archaeological and Historical Resources of the CPER

The CPER has not been systematically surveyed for archaeological sites and other historical resources. No archaeological sites are known on the Panorama and Elkhorn units, though neither unit has been surveyed. A limited amount of systematic surveying has occurred within the American Unit as a result of studies on the CPNM (Whitley, 2003, 2004, 2007). More recently, reconnaissance (non-systematic) surveys have also been completed on the Chimineas units.

Due to differences in survey methods spanning the different eras in which the surveys were conducted, there is some concern for comparability in study results. For example, surveys dating prior to 1990, may not meet current standards for transect interval. Further, since the surveys were conducted on a project basis rather than a representative sampling design, they do not constitute a random sample that yields probabilities of finding various types of cultural resources in different zones (Thomas 1986). The number of studies conducted, however, is sufficient to broadly generalize about the range of cultural resources that reasonably can be expected within the CPER and to assess the likelihood that management actions recommended by the Draft LMP could adversely impact those resources.

Archaeological sites have been previously recorded within the Chimineas units by a variety of individuals, though no one has conducted systematic surveys within the unit. In 2008, the California State University, Bakersfield, Center for Archaeological Research (CAR) conducted a reconnaissance of the units, primarily focused on recording known historical locales (Orfila and Draucker 2008). In 2010, a reconnaissance survey of the CPER was conducted by David S. Whitley, Ph.D. with ASA Affiliates, Inc (Whitley 2011), which is incorporated herein by this reference and attached as Appendix F of the LMP. The purpose of the study was to provide:

- An overview of the setting useful for predicting the density, nature, and range of variation of the cultural resources likely to be found within the CPER;
- Baseline data on previously-recorded cultural resources in the four units, including a brief reconnaissance and preliminary assessment of the known sites; and
- Recommendations and guidelines for the management of CPER cultural resources that fulfill the regulatory requirements of the enabling legislation for CDFW ecological reserves and the California Environmental Quality Act (CEQA), and that result in best management practices.

As part of the work conducted by Whitley in 2011, a geographic Information System (GIS) model was developed to predict prehistoric archaeological site locations within the Chimineas and American units, based partly on the site data collected on the adjacent CPNM and in part on the locations of recorded sites. The model predicted existing CPER site locations at an accuracy rate of 78%, and was used to generate a site sensitivity map for these two units. In general terms, areas with high sensitivity for cultural resources include springs, terraces along drainages, and the confluences of drainages.

In April and May, 2011, a Phase I archaeological investigation (surface reconnaissance and literature search) was conducted for existing areas where livestock congregate in portions of the North and South Chimineas units subject to the grazing lease executed in November 2011 by archaeologist, Kate Ballantyne. Well locations where watering and holding areas could be located in the future were also surveyed. The purpose of the investigation was to determine the likelihood that the congregation of livestock in these areas could adversely impact significant cultural resources that may be present. A total of 34 trough locations were inspected; all displayed discrete cattle impact areas (lack of vegetation and soil deflation). No evidence of

cultural resources was found at any location. Surface surveys were also conducted within the feedlots where visibility was adequate to conclude absence of cultural resources.

An archival records search for the CPER was conducted by the Center for Archaeological Research (CAR) at California State University, Bakersfield in 2008 by Orfila and Draucker, using the site files and records of the Central Coast Information Center at the University of California at Santa Barbara (UCSB). This involved an examination of the National Register of Historic Places (NRHP), the California Register of Historic Places, California Points of Historic Interest, California Inventory of Historic Places, California State Historic Landmarks Registry, as well as the information center files and maps. Also in 2008, the CAR conducted a field reconnaissance of the Chimineas units, primarily focusing on recording known historical and prehistoric locales (Orfila and Draucker 2008).

A field reconnaissance of the CPER conducted by ASM Affiliates, Inc. in 2010 (Whitley 2011) identified new pre-historic and historic sites as well as homesteads with associated structures dating from the "Anglo-American Settlement Period" (1870 to 1900) and the "Large-Scale Farming and Ranching Period" (1900 to 1960). Stone building foundations, fences, cattle facilities, and the remnants of buildings have been documented (Whitley 2011).

5.5.4.3.1 Chimineas Units

Twenty-two archaeological sites are known within the Chimineas units. These include 12 prehistoric villages, camps, pictographs, and lithic workshops, five bedrock mortar (BRM) stations, and one isolated artifact, as well as five historical sites/site components. Some of the sites include both prehistoric and historical components. All but two sites appear to be in good condition.

Although not previously surveyed for its historic significance, the main house at the Chimineas Unit Headquarters has been built around a nineteenth century adobe; however, the architectural fabric of that historical structure is entirely masked by the extensive remodeling and upgrades conducted in the 1990s, prior to the Department's acquisition. For purposes of this analysis, the main house at the Chimineas Unit Headquarters will be considered an historic resource.

5.5.4.3.2 American Unit

Five archaeological surveys have systematically covered portions of the American Unit, primarily as a result of site inventories for the CPNM (Whitley 2003, 2004, 2007). Six archaeological sites have been previously recorded within the unit. Five of the six known sites are prehistoric; one is historical. All are believed to be in good condition.

5.5.4.3.3 Elkhorn and Panorama Units

No archaeological surveys have been conducted on the Panorama or Elkhorn units, and no sites have been previously recorded in either unit. Systematic surveys of surrounding areas within the CPNM have failed to result in the discovery of sites (Whitley 2003, 2004, 2007); however, suggesting that archaeological sensitivity in these areas is low.

5.5.5 Applicable Regulations, Plans and Policies

5.5.5.1 Federal

5.5.5.1.1 The Secretary of the Interior's Standards for the Treatment of Historic Properties

The Department of Interior's Standards for the Treatment of Historic Properties (Standards) are a series of concepts about maintaining, repairing, and replacing historic materials, as well as designing new additions or making alterations (Weeks and Grimmer 1995). The Standards also contain guidelines that offer general design and technical recommendations to assist in applying the Standards to a specific property. Together, they provide a framework and guidance for decision making about work or changes to a historic property. Although the Standards apply to all federally-designated historic resources, they are used by state and local officials to guide decision making for projects affecting nonfederal historic resources.

5.5.5.2 State

5.5.5.2.1 California Environmental Quality Act

Under CEQA, public agencies must consider the effects of their actions on both "historical resources" and "unique archaeological resources." Pursuant to Public Resources Code Section 21084.1, a "project that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment." Section 21083.2 requires agencies to determine whether proposed projects would have effects on "unique archaeological resources."

"Historical resource" is a term with a legally defined meaning (Public Resources Code, Section 21084.1 and State CEQA Guidelines, Section 15064.5 [a], [b]). As defined by state law, "historical resource" includes any resource listed in, or determined to be eligible for listing, in the California Register of Historical Resources (CRHR). The CRHR includes resources listed in or formally determined eligible for listing in the NRHP, as well as some California State Landmarks and Points of Historical Interest.

Properties of local significance that have been designated under a local preservation ordinance (local landmarks or landmark districts) or that have been identified in a local historical resources inventory may be eligible for listing in the CRHR and are presumed to be "historical resources" for purposes of CEQA unless a preponderance of evidence indicates otherwise (Pub. Resources Code, Section 5024.1 and California Code of Regulations, Title 14, Section 4850).

Unless a resource listed in a survey has been demolished, lost substantial integrity, or there is a preponderance of evidence indicating that it is otherwise not eligible for listing, a lead agency should consider the resource to be potentially eligible for the CRHR. In addition to assessing whether historical resources potentially impacted by a proposed project are listed or have been identified in a survey process (Public Resources Code 5024.1 [g]), lead agencies have a responsibility to evaluate them against the CRHR criteria prior to making a finding as to a proposed project's impacts to historical resources (Public Resources Code, Section 21084.1 and State CEQA Guidelines, Section 15064.5 [a][3]). Following CEQA Guidelines Section 21084.5 (a) and (b) a historical resource is defined as any object, building, structure, site, area, place, record, or manuscript that:

a. Is historically or archeologically significant, or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political or cultural annals of California; and

b. Meets any of the following criteria:

    a. Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;

    b. Is associated with the lives of persons important in our past;

    c. Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or

    d. Has yielded, or may be likely to yield, information important in prehistory or history.

Archaeological resources may also qualify as "historical resources" and Public Resources Code 5024 requires consultation with the Office of Historic Preservation when a project may impact historical resources located on state-owned land.

For historic structures, State CEQA Guidelines Section 15064.5, subdivision (b)(3), indicates that a project that follows the Secretary of the Interior's Standards (Section 5.5.5.1), or the Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings (Weeks and Grimmer 1995) shall mitigate impacts to a level of less than significant. Potential eligibility also rests upon the integrity of the resource. Integrity is determined through considering the setting, design, workmanship, materials, location, feeling, and association of the resource.

The CEQA statutes also require lead agencies to consider whether a project will impact "unique archaeological resources." Public Resources Code Section 21083.2, subdivision (g), states that "'unique archaeological resource" means an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

- Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information;
- Has a special and particular quality such as being the oldest of its type or the best available example of its type; or
- Is directly associated with a scientifically recognized important prehistoric or historic event or person.

Treatment options under Section 21083.2 include activities that preserve such resources in place in an undisturbed state. Other acceptable methods of mitigation under Section 21083.2 include excavation and curation or study in place without excavation and curation if the study finds that the artifacts would not meet one or more of the criteria for defining a "unique archaeological resource".

Advice on procedures to identify cultural resources, evaluate their importance and estimate potential effects is given in several official publications, such as the series produced by the Governor's Office of Planning and Research (OPR). The technical advice series produced by OPR strongly recommends that Native American concerns and the concerns of other interested persons and corporate entities, including, but not limited to, museums, historical commissions, associations and societies, be solicited as part of the process of

cultural resources inventory. In addition, California law protects Native American burials, skeletal remains, and associated grave goods regardless of their antiquity and provides for the sensitive treatment and disposition of those remains.

Section 7050.5(b) of the California Health and Safety code specifies protocol when human remains are discovered. The code states:

> *In the event of discovery or recognition of any human remains in any location other than a dedicated cemetery, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains until the coroner of the county in which the human remains are discovered has determined, in accordance with Chapter 10 (commencing with Section 27460) of Part 3 of Division 2 of Title 3 of the Government Code, that the remains are not subject to the provisions of Section 27492 of the Government Code or any other related provisions of law concerning investigation of the circumstances, manner and cause of death, and the recommendations concerning treatment and disposition of the human remains have been made to the person responsible for the excavation, or to his or her authorized representative, in the manner provided in Section 5097.98 of the Public Resources Code.*

State of CEQA Guidelines Section 15064.5, subdivision (e), requires that excavation activities be stopped whenever human remains are uncovered and that the county coroner be called in to assess the remains. If the county coroner determines that the remains are those of Native Americans, the Native American Heritage Commission must be contacted within 24 hours. At that time, the lead agency must consult with the appropriate Native Americans, if any, as timely identified by the Native American Heritage Commission. Section 15064.5 directs the lead agency (or applicant), under certain circumstances, to develop an agreement with the Native Americans for the treatment and disposition of the remains.

In addition to the mitigation provisions pertaining to accidental discovery of human remains, the CEQA Guidelines also require that a lead agency make provisions for the accidental discovery of historical or archaeological resources, generally. Pursuant to Section 15064.5, subdivision (f), these provisions should include:

> *…an immediate evaluation of the find by a qualified archaeologist. If the find is determined to be an historical or unique archaeological resource, contingency funding and a time allotment sufficient to allow for implementation of avoidance measures or appropriate mitigation should be available. Work could continue on other parts of the building site while historical or unique archaeological resource mitigation takes place.*

Senate Bill 18 (Gov. Code, Sections 65352.3 and 65352.4) requires that, prior to the adoption or amendment of a general plan or specific plan proposed on or after March 1, 2005, a city or county must consult with Native American tribes with respect to the possible preservation of, or the mitigation of impacts to, specified Native American places, features, and objects located within that jurisdiction. The Draft LMP is not a general plan or specific plan as defined by Government Code Section 66000 et seq; therefore, formal consultation is not required. However, the Department routinely meets with representatives of Native American Tribes as part of their ongoing management responsibilities for the CPER.

Assembly Bill 52, effective July 1, 2015, establishes that "[a] project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment." (Pub. Resources Code, § 21084.2.) To be considered a "tribal cultural resource," a resource must be either:

1. listed, or determined to be eligible for listing, on the national, state, or local register of historic resources; or
2. a resource that the lead agency chooses, in its discretion, to treat as a tribal cultural resource.

In the latter instance, the lead agency must determine that the resource meets the criteria for listing in the state register of historic resources.

To help determine whether a project may have such an effect, the Public Resources Code requires a lead agency to consult with any California Native American tribe that requests consultation and is traditionally and culturally affiliated with the geographic area of a proposed project. That consultation must take place prior to the determination of whether a negative declaration, mitigated negative declaration, or environmental impact report is required for a project. (Pub. Resources Code, § 21080.3.1.)

If a lead agency determines that a project may cause a substantial adverse change to tribal cultural resources, the lead agency must consider measures to mitigate that impact. Public Resources Code §20184.3 (b)(2) provides examples of mitigation measures that lead agencies may consider to avoid or minimize impacts to tribal cultural resources. AB 52 applies to those projects for which a lead agency has issued a notice of preparation of an environmental impact report or notice of intent to adopt a negative declaration on or after July 1, 2015.

In 2011, Governor Brown issued Executive Order B-10-11 requiring all state agencies to encourage communication and consultation with tribes. Executive Order B-10-11 created the position of Governor's Tribal Advisor to oversee and implement effective government-to-government consultation between the Governor's office and tribes on policies that affect California tribal communities. The Executive Order also states that the Office of the Governor shall meet regularly with the elected officials of California Indian tribes to discuss state policies that may affect tribal communities.

Paleontological resources are classified as non-renewable scientific resources and are protected by state statute (Public Resources Code Chapter 1.7, Section 5097.5, Archeological, Paleontological, and Historical Sites and Appendix F of the State CEQA Guidelines). No state or local agencies have specific jurisdiction over paleontological resources. No state or local agency requires a paleontological collecting permit to allow for the recovery of fossil remains discovered as a result of construction related earth moving on state or private land in a project site.

5.5.6 Standards of Significance

Following PRC Sections 21083.2 and 21084.1, and State CEQA Guidelines Section 15064.5 and Appendix F of the State CEQA Guidelines, cultural resource impacts are considered to be significant if implementation of the proposed project would result in any of the following:

1. cause a substantial adverse change in the significance of an archaeological resource or a historical resource as defined in PRC section 21083.2 and CEQA Guidelines Section15064.5, respectively;
2. directly or indirectly destroy a unique paleontological resource or site or unique geological feature; or
3. disturb any human remains, including those interred outside of formal cemeteries.

State CEQA Guidelines Section 15064.5 defines "substantial adverse change" as physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource is materially impaired.

5.5.7 Impacts Found to Be Less Than Significant

Based on the information provided in the initial study (Appendix B), potential impacts associated with increased recreational use following adoption of the Draft LMP were determined to have a less-than-significant impact on cultural resources.

5.5.8 Project Impacts and Mitigation Measures

The Draft LMP recommends management actions that are intended to meet the biological objectives of the CPER while protecting cultural resources. Table 52 lists the management goals and actions that address the protection of cultural resources of the CPER.

Table 52: LMP Management Goals and Actions that Help Protect Cultural Resources

LMP Section	Topic	Goals[1]	Management Actions[1]	Summary/Relevance to the Protection of Cultural Resources
4.2.1.1	Disturbance Regimes	B1	B1.1, B1.2, B1.3	These goals and management actions promote a better understanding of disturbance regimes such as fire which can adversely impact cultural resources.
4.2.2.1	Grassland Habitat Element	B3a, B3b	B3.1	
4.2.2.2	Coastal Scrub Habitat Element	B6a, B6b	B6.1,	
4.2.2.3	Chaparral Habitat Element	B8a, B8b, B9	B8.1	
4.2.2.4	Desert Scrub Habitat Element	B10a, B10b,	B10.1	
4.2.2.5	Oak Woodland Habitat Element	B12a, B12b, B12c	B12.1,	
4.2.2.6	Juniper Woodland Habitat Element	B14a, B14b, B14c	B14.1	
4.4.1	Fire Management Element	V1	V1.1, V1.2, V1.3	Recommends development of a fire management plan, which will help minimize the adverse impacts of fire on cultural resources.
4.4.2	Grazing Management Element	V2	V2.1, V2.2, V2.3, V2.4, V2.5	Recommends development of a grazing management plan, which will help minimize the adverse impacts of livestock grazing on cultural resources.
4.6.2	Wildlife Observation Element	P2	P2.2	Recommends establishing wildlife viewing areas in locations where they would not have deleterious environmental impacts.
4.6.4	Native American Cultural Use Element	P7	P7.1, P7.2, P7.3	Recommends facilitating use of the CPER by Native Americans.

Table 52: LMP Management Goals and Actions that Help Protect Cultural Resources

LMP Section	Topic	Goals[1]	Management Actions[1]	Summary/Relevance to the Protection of Cultural Resources
4.6.5	Public Access Element	P8	P8.1, P8.2, P8.3, P8.4	Recommends improvements to public access in a manner that protects the resources of the CPER.
4.7.1	Cultural Resource Protection Element	C1, C2, C3	C1.1, C1.2, C1.3, C2.1, C2.2, C2.3, C2.4, C2.5, C3.1, C3.2, C3.3, C3.4	Recommends protecting cultural resources of the CPER.
4.7.2	Cultural Resource Awareness Element	C4	C4.1, C4.2, C4.3	
4.8	Facilities Maintenance Element	F1, F2	F1.1, F1.2, F1.3, F1.4, F1.5, F2.1, F2.2, F2.3	Recommends the application of Best Management Practices for facilities maintenance to protect cultural resources.

Notes:
1. The complete text of recommended management goals and actions is provided in the Section 4 of the Draft LMP (CDFW 2018).

5.5.8.1 Previous Environmental Review

In November 2011, the Department adopted a Mitigated Negative Declaration (MND) and approved a lease agreement authorizing continued managed grazing of about 12,000 acres on portions of the North and South Chimineas units (CDFW 2011b; Section 4.4.1). Managed grazing is practiced on portions of the Chimineas units as a vegetation management tool to establish the short grass structure favored by certain special-status wildlife species. Accordingly, the existing conditions relating to those portions of the CPER reflects this current and ongoing practice.

With regard to the impacts of managed grazing on cultural resources, the adopted MND included a Phase I archaeological investigation by archaeologist, Kate Ballantyne, of areas where cattle currently congregate as well as locations where watering and holding areas could be located in the future. The purpose of the investigation was to determine the likelihood that the congregation of livestock in these areas could adversely impact significant cultural resources that may be present. A total of 34 trough locations were inspected; all displayed discrete cattle impact areas (lack of vegetation and soil deflation) and were carefully surveyed. No evidence of cultural resources was found at any trough location. Surface surveys were also conducted within the feedlots where visibility was adequate to determine absence of cultural resources. The MND concluded that potential impacts to cultural resources from the execution of the lease agreement would be less than significant, so long as the following mitigation measures were applied:

CR-4 The development of any new cattle support facilities (troughs, corrals, etc.) shall be preceded by additional Phase I surveys;

a. If a cultural site is located and impacts cannot be avoided, a Phase 2 testing plan to determine if the site is eligible for listing in the California Register will be conducted;

b. If the site is determined to be eligible for listing in the California Register, either (1) design and implement an appropriate data recovery plan (Phase 3), or (2) relocate the support facility to an area free of significant cultural resources;

In 2005 the Department entered a cooperative agreement with the Cachuma Resource Conservation District and the owner of the ranch that borders the South Chimineas Unit (the Russell Ranch) to enhance riparian habitat along a four-mile portion of the Cuyama River along the shared boundary of the two properties (Section 4.4.2). The project known as the Cuyama River Riparian Enhancement (CRRE) consisted of the installation of four miles of fencing on both the north and south sides of the river to exclude cattle from the riparian vegetation (CRCD 2005). The property owner can graze approximately 200 acres of the South Chimineas Unit during dry years when feed-stock is low on the remaining portions of their ranch. The agreement includes a management plan, which sets forth stocking levels, standards for residual dry matter, and stock rotation. Adoption of the CREE was determined to be Categorically Exempt under the California Environmental Quality Act.

The Draft LMP recommends using grazing management to create and maintain areas of short-statured grassland required by several special-status species; enhance native plant cover and richness in grasslands, blue oak woodlands, and coastal scrub; and control non-native herbaceous plant species in order to reduce their competitive effects on native plants and the potential for type conversion of shrublands to grassland via the grass-fire cycle (CDFW 2018). Any authorization of new or expanded grazing activities will be preceded by the adoption of a grazing management plan following project-specific environmental review. Unless and until a new grazing lease is adopted, or the terms of the CREE are amended, adoption of the Draft LMP will have no impacts to cultural resources associated with continued managed grazing above baseline conditions.

5.5.8.2 Methodology

The management actions recommended by the Draft LMP were reviewed and assessed for their potential to adversely impact the archaeological and historical resources of the CPER identified in the Section 5.5.4. The Geographic Information System (GIS) model developed to predict prehistoric archaeological site locations within the Chimineas and American units (Whitley 2011) was used to assist in the identification of areas of the CPER where management actions could adversely impact cultural resources.

5.5.8.3 Ground Disturbing Activities – New Construction and Maintenance

Impact 5.5-1	**Ground-disturbing activities that may result from construction or maintenance activities following adoption of the Draft LMP have the potential to adversely impact existing cultural resources and previously-undiscovered resources. This impact is considered less than significant (Class III) because of mitigation provided by management actions and Best Management Practices incorporated into the project description.**

Activities that involve the construction, maintenance, modification or removal facilities on the CPER, such as the construction of wildlife viewing platforms, water systems, water tanks, and trails could potentially impact cultural resources. Although the precise number, size, and location of new facilities to be constructed is not known at this time, ground disturbance such as trenching, surface modification (grading), the clearing of vegetation, and the use of construction equipment have the potential to adversely impact cultural resources.

Previous archaeological investigations of the Chimineas units suggest the potential for human remains to be discovered. In the event future management activities reveal the presence of human remains, the provisions of Section 7050.5(b) of the California Health and Safety Code and State CEQA Guidelines Section 15064.5, subdivision (e) must be followed.

Impact 5.5-1 — Best Management Practices Recommended in the Draft LMP to Mitigate Potential Impacts to Cultural Resources from New Construction and Maintenance

BMP CR-1. To ensure that ongoing and routine Reserve activities, including road maintenance, public use, and vegetation management, do not adversely impact cultural resources, the Department will:

- Re-route roads through known sites to non-sensitive areas, or cap existing roads within site areas; and
- Fence-off archaeological sites at springs or water troughs and other areas of intensive livestock use including corrals, and/or move livestock facilities to non-sensitive areas.

BMP CR-2. If any prehistoric, archaeological, or fossil artifact or resource is uncovered during ground-surface-disturbing activities, all such activities shall stop and a qualified professional as determined by the Department shall be retained to evaluate the finds and recommend appropriate action.

BMP CR-3. All ground-surface-disturbing activities must stop if any human remains are uncovered, and the San Luis Obispo County Coroner must be notified according to Section 7050.5 of California's Health and Safety Code. If the remains are determined to be Native American, the procedures outlined in CEQA Section 15064.5 (d) and (e) shall be followed.

BMP CR-4. In all areas that have not been previously surveyed by archaeologists, the Department shall conduct Phase I cultural resource surveys before authorizing ground-surface-disturbing activities (e.g., grading or excavation). Should significant cultural resources be discovered, the Department shall apply strategies to protect such resources which may include, but are not limited to, the following:

- Passive site preservation (avoidance) in-place;
- Requiring the presence of a qualified professional during ground-disturbing activities;
- Covering with a layer of fill;
- Excavation, removal and curation in an appropriate facility under the direction of a qualified professional;
- Installing carefully-placed fencing or barriers around site boundaries;
- Capping site areas with non-cultural soils;
- Revegetating disturbed or altered site areas;
- Monitoring the conditions of sites periodically; and
- Closing areas from public entry using signage indicating that an area is sensitive.

BMP CR-5. In cases where a project may result in adverse impacts to known archaeological resources, and site avoidance may not be feasible, the Department shall conduct a Phase II archaeological survey to:

- Determine the extent and significance of site resources;
- Establish whether the site(s) is/are eligible for listing on the California Register of Historical Resources; and
- Identify mitigation strategies to protect significant resources as described in BMP CR-4.

BMP CR-6. The construction of any new cattle support facilities (troughs, corrals, etc.) shall be preceded by additional Phase I surveys.

- If a cultural site is located and cannot be avoided, implement a Phase 2 testing plan to determine if the site is eligible for listing in the California Register.
- If the site is determined to be eligible for listing in the California Register, either 1) design and implement an appropriate data recovery plan (Phase 3), or 2) relocate the support facility to an area free of significant cultural resources.

Impact 5.5-1 — Conclusions/Summary of Impact

Construction activities have the potential to disturb or damage existing and previously undiscovered cultural resources. However, these impacts are expected to be less than significant because:

- The design and location of new facilities will be informed by previous cultural resource studies and by the GIS model identifying areas with a higher probability of featuring cultural resources;
- The management actions recommended by the Draft LMP will not involve extensive grading or construction activities and will employ hand tools or small hand-held gasoline powered equipment wherever possible;
- The BMPs included in the Draft LMP recommend locating earth disturbing activities in areas of previous disturbance to the extent feasible;
- Implementation of the management actions and BMPs included the Draft LMP require the conduct of pre-construction surveys for cultural resources at which time appropriate mitigation measures will be identified and implemented as required by CEQA; and
- New construction will be subject to project-specific CEQA compliance which will identify the appropriate project-specific BMPs to apply to ensure cultural resources are protected.

For these reasons, construction-related impacts to cultural and historical resources are considered **less than significant (Class III).**

Impact 5.5-1 — Additional Mitigation

None required.

5.5.8.4 Prescribed Burning

Impact 5.5-2	**The Draft LMP recommends the use of prescribed burning as a vegetation management tool. Prescribed burning has the potential to adversely impact surface and sub-surface cultural resources as well as historic sites and structures. This impact is considered less than significant (Class III) because of mitigation provided by management actions and Best Management Practices incorporated into the project description.**

Prescribed fire is the application of prescribed burning in a skilled manner, under exacting weather conditions, in a definite place, to achieve specific results (Wade and Lunsford 1989). These objectives may include a reduction of fuel load as a means of reducing the number and size of future fires, and also for the improvement of habitat for certain species. The Draft LMP recommends the use of prescribed burning to promote the regeneration of native vegetation, to control exotic plants, and to help reduce fuel loads and thus reduce the risk of catastrophic fire within a portion of the North Chimineas Unit. Fire management for prescribed burning will be designed based on the biological and vegetation management goals outlined in the Draft LMP, by biologists and fire practitioners with regional experience, and implemented in coordination with fire protection agencies and with input from adjacent landowners.

Prescribed burning will be concentrated in the fire-adapted chaparral communities of the CPER, some of which have not burned in almost 100 years. Chaparral communities occupy about 1,250 acres of the CPER located primarily on the higher elevation areas of the western Chimineas units (CDFW 2018; Figure 4). This analysis assumes that implementation of the LMP vegetation management elements will include a single burn of about 625 acres of the chaparral community over the next 25 years either through naturally occurring wildfires or through a single prescribed burn. The precise location of a prescribed burn to be applied following adoption of the Draft LMP will be determined through the preparation of the fire management plan.

According to research compiled by the Bureau of Land Management (Winthrop 2004), the impact of fire on cultural resources, and the appropriate ways to manage for these effects, are context dependent. Fire itself is dependent on a suite of variables which change across the landscape; fire in grassland is likely to produce different effects to cultural materials than fire in chaparral. Different types of archaeological materials, such as varieties of toolstone or types of ceramics may react differently in similar fire-related circumstances (Winthrop 2004).

Certain characteristics of prescribed fires have the potential to minimize impacts to cultural resources. For example, fires can be controlled and prescriptions for a particular burn can be modified to minimize impacts to known cultural resources. Vulnerable cultural resources can be identified in advance and appropriate protection measures and management responses identified. Wildland fires, on the other hand, are generally more destructive to cultural resources, since they include both uncontrolled fire effects and the effects of fire suppression.

The potential impacts of prescribed burning on known and not-yet-discovered cultural resources on the CPER will be a function of the likelihood that such resources are present in a burn area, the extent to which such resources may be harmed by fire, and the effects of fire (size and intensity) following adoption of the Draft LMP.

- *The likelihood that cultural resources, including historic sites and structures, are present in the prescribed burn area and the potential for these resources to be harmed by fire.*

  Prescribed burning will be concentrated in the chaparral communities found in the northern and western portions of the North Chimineas Unit. As discussed in Section 5.5.4.3, twenty-two archaeological sites featuring a range of resources have been identified within the two Chimineas units. Based on previous studies (Whitley 2011) potential archaeologically important areas within these units include springs and associated flats, terraces and ridges; terraces and ridges above significant drainages, currently with or without surface water; and terraces and canyon mouths along the Cuyama River Valley/Highway 166. A review of the sensitivity map produced by this predictive model suggests a high likelihood of finding previously undiscovered archaeological resources within the areas where prescribed burning is expected to occur, in particular along drainages. Three previously discovered sites containing archaeological or historic resources are located in areas where chaparral communities are found on the CPER, and five additional known sites are located on the periphery of chaparral (Whitley 2011).

  The specific type and extent of cultural resources that may impacted by a given prescribed burn are unknown at this time. Prescribed burning could adversely impact existing archaeological resources such as prehistoric villages, camps, and pictographs. The following is a summary of the potential effects of prescribed fire on particular categories of resources (Winthrop 2004):

  Lithic Material. Fire can affect chipped and groundstone tools, primarily through changes in morphology rather than in chemistry. Residues on artifacts are not necessarily destroyed by fire. Hotter temperatures and longer exposure to fire increase its effects on lithic materials (Winthrop 2004).

  Organic Material. Organic materials will usually burn or alter at lower temperatures than inorganic items. Artifacts (e.g., basketry, digging sticks, clothing, textiles) and features (e.g., structures, bow-stave trees, wikiups, dendroglyphs) made of or containing organics such as wood, leather and hide, or cordage will need protection or treatment before any fire burns through a site containing such items. Bone and shell can sustain some degree of burning without complete destruction. Fire may produce complex interactions which affect these baseline temperatures, however. Historical materials such as metals and plastic may melt or be mis-shaped by fire. Metal alloys may react differently, and metal artifacts/ materials which do not melt may warp (Winthrop 2004).

  Rock Art. Fire has a high potential for damage to rock art. Though there are no specific temperature guidelines for rock art, fire effects include soot smudging and discoloration from smoke, which obscure the rock art images; degradation of the rock surface from spalling, exfoliation, and increased weathering; changes in organic paints due to heat; and damage to rock varnish which may destroy its potential to date the art (Winthrop 2004).

  Fire Suppression. Fire suppression activities have considerable potential to damage archaeological and historic sites and materials from many activities, including fire break construction (hand line and dozer line), establishment of helicopter bases, fire camps, and related activities (Winthrop 2004).

  Archaeological Sites in General. Lastly, there are a number of potential fire effects to cultural resources which do not depend upon their specific materials, including:

- Increased visibility from vegetation burn-off and consequently greater vulnerability to vandalism;
- Physical damage to sites from snags/ trees falling;
- Soil erosion and loss of archaeological data;
- Increased damage from rain, new drainage patterns, and floods; and
- Increased rodent and insect activity within site soil matrix.

- *The effects of fire following adoption of the Draft LMP (including a fire management plan) and whether it poses a greater threat to cultural materials than in the past.*

Fires of varying size and intensity have affected the CPER region an average of about once every 6 years between 1917 and 2015 (Table 35, Section 5.3.11.4). Although a prescribed burn would be designed to reduce the frequency and intensity of naturally-occurring fires, the effectiveness of prescribed burning to reduce the area burned by future fires is not clear (Price et al. 2012). However, it is well documented that wildfires spread more slowly and with lower intensity in areas with reduced fuels (Fernandes and Botelho 2003). For purposes of this analysis it is assumed that prescribed burning as recommended by the Draft LMP will reduce the number and intensity of wildfires in the chaparral communities of the CPER, compared with baseline conditions. Despite this, the possibility remains that a prescribed burn could adversely impact existing or previously undiscovered cultural resources.

Impact 5.5-2 — Best Management Practices Recommended in the Draft LMP that Mitigate Potential Impacts to Cultural Resources from Prescribed Burning

BMP CR-10. To protect existing and previously undiscovered cultural resources, the Department will implement the following, as applicable, prior to the implementation of a prescribed burn:

- Conduct a reconnaissance-level cultural resources survey of the affected area to identify and avoid vulnerable cultural resources;
- Manually reduce fuels on and/or around vulnerable sites;
- pile debris offsite;
- Create fire breaks near or around sites;
- Use retardant or foam to protect structures;
- Wrap structures in fire-proof materials to protect from fire;
- Remove logs or other heavy fuels from vulnerable sites or features (e.g., clear snags off bedrock mortars), or cover with foam or retardant prior to burn;
- Flush cut and cover stumps with dirt, foam, or retardant, where burnout could affect subsurface cultural resources;
- Modify burn plans to minimize effects to cultural resources, such as burning when duff has high moisture;
- Identify and reduce hazard trees next to structures;
- Use low-intensity backing fire in areas near historic features;

- Saturate ground and vegetation adjacent to vulnerable structures with water, foam, or gel before burning;
- Preburn site at lower intensity than planned for surrounding areas;
- Limit fire intensity and duration over vulnerable sites;
- Use a fast-moving, higher-intensity fire over lithic scatters, where rock materials are vulnerable to longer-duration heating;
- Wrap carved trees, dengroglyphs, and other such features in fire-retardant fabric;
- Limb carved trees to reduce ladder fuels, where possible;
- Cover rock art in fire retardant fabric;
- Minimize fuels and smoke near rock art; and
- Cover fuels near rock art with foam, water, or retardant, avoiding the rock art.

Impact 5.5-2 — Conclusions/Summary of Impact

The use of prescribed fire has the potential to adversely impact existing and previously undiscovered cultural resources. However, these impacts are expected to be **less than significant** because:

- To accomplish the desired fuel management and biological objectives of the Draft LMP, a small total area of the CPER will be subject to prescribed burning (about 625 acres, or less than 2% of the CPER);
- Reducing the fuel load by prescribed burning is expected to reduce the number, size, and intensity of wildfires on the CPER and the associated impacts of such fires on cultural resources; and
- Implementation of the management actions and BMPs included in the Draft LMP will ensure the protection of cultural resources from the effects of prescribed burning. For these reasons, this impact is considered **less than significant (Class III).**

Impact 5.5-2 — Additional Mitigation

None required.

5.5.8.5 Disturbance or Damage to Historic Structures

Impact 5.5-3	**Management actions recommended by the Draft LMP may adversely impact historic structures. This impact is considered less than significant (Class III) because of mitigation provided by management actions and Best Management Practices incorporated into the project description.**

The Garcia Cabin homestead which consists of a 19th century cabin may qualify as an historic resource. In addition, the main house at the Chimineas Unit Headquarters has apparently been built around a nineteenth century adobe. However, the architectural fabric of that historical structure is now entirely masked by the extensive remodeling and upgrades in the 1990s, prior to the Department's acquisition.

No built environment or structures inventory has been completed for any of the units of the CPER for purposes of determining whether any buildings would qualify as an historical resource within the definition prescribed by Public Resources Code Section 21084.1 and State CEQA Guidelines, Section 15064.5 [a], [b]). Accordingly, for purposes of this analysis the Garcia Cabin homestead and the main ranch house on the North Chimineas Unit will be treated as historic resources.

Impact 5.5-3 — Best Management Practices Recommended in the Draft LMP that Mitigate Potential Impacts to Historic Structures

BMP CR-7. Where a project may result in a substantial change to a built structure 50-years of age or older, the Department shall conduct an architectural assessment of the integrity and significance of the structure to establish whether the structure is eligible for listing on the California Register of Historical Resources. This process will not be necessary for those structures which have already been evaluated by a qualified professional and that were determined not to be significant.

BMP CR-8. Where a project may result in a substantial adverse change to a structure determined to be eligible for listing on the California Register of Historical Resources, the Department shall prepare a treatment/data recovery plan in consultation with the State Historic Preservation Officer, and implement the approved plan. The treatment plan should be consistent with the Department of Interior Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings (Weeks and Grimmer 1995).

Impact 5.5-3 - Conclusions/Summary of Impact

Potential impacts to historic structures associated with adoption of the Draft LMP are considered **less than significant** because:

- The Draft LMP does not recommend management actions that would result in direct impacts to historic structures on the CPER; and
- The Draft LMP includes management actions and BMPs aimed at preserving these resources.

A future survey of built structures on the CPER may identify one or more structures that are eligible for listing on the CRHP. In the meantime, CEQA requires that existing resources such the Chimineas Ranch House and Garcia homestead be treated as though they are eligible for listing. Accordingly, the Draft LMP recommends management actions and BMPs to ensure compliance with the relevant provisions of CEQA regarding the protection of historical structures. For these reasons, impacts to historic structures associated with the Draft LMP are considered **less than significant (Class III)**.

Impact 5.5-3 - Additional Mitigation

None required.

5.5.8.6 Disturbance of Paleontological Resources

Impact 5.5-4 **Management actions recommended by the Draft LMP could result in the disturbance of paleontological resources (i.e., fossils and fossil formations). This impact is considered less than significant (Class III) because of mitigation provided by management actions and Best Management Practices incorporated into the project description.**

A search of the University of California, Berkeley Museum of Paleontology collections database (UCBMP 2012) did not identify any previously documented paleontological resources within the boundaries of the CPER. However, microfossils have been found at the head of Morales Canyon at the base of the Caliente Range in the Cuyama Valley, which is within two miles of boundary of the South Chimineas Unit. The sensitivity of the CPER for paleontological resources has not been assessed and no formal paleontological investigations were identified for the area. Consequently, implementation of management actions recommended by the Draft LMP that involve ground disturbance could impact undiscovered paleontological resources.

Impact 5.5-4 — Best Management Practices Recommended in the Draft LMP that Mitigate Potential Impacts to Paleontological Resources

BMP CR-9. If surface-disturbing activities reveal the presence of significant paleontological resources, a Paleontological Mitigation Plan (PMP) shall be prepared by a qualified paleontologist which includes at least the following:

- General fieldwork and laboratory methods proposed;
- Curation practices; and
- Mitigation measures adequate for the recovery of a sample of significant fossils that may be applied to rock units determined to contain significant paleontological resources, if those rock units cannot be avoided by project planning. Such measures may include, but are not limited to, the following:
    - Recovering a sample of fossiliferous material prior to construction;
    - Monitoring construction and halting work to recover important fossils; and
    - Cleaning, identification, and cataloging of fossil specimens collected for curation and research purposes.

Impact 5.5-4 — Conclusions/Summary of Impact

Implementation of the management actions and BMPs listed above will reduce potential impacts to paleontological resources to **less than significant (Class III)**.

5.5.9 Cumulative Impacts and Mitigation Measures

This subsection is an analysis of the Draft LMP's contribution to cumulative impacts to cultural, historical, and paleontological resources (Section 5.1.4).

5.5.9.1 Cumulative Setting

The cumulative setting for cultural and historical resources includes the Carrizo Plain, Elkhorn Plain, Cuyama Valley, and the southern San Joaquin Valley. Paleontological resources have been documented in the general area of the CPER and may be found in the Quaternary Alluvium, Paso Robles Formation, and elsewhere in the Monterey Shale formation. Because these formations underlie much of San Luis Obispo, Santa Barbara and Kern Counties, the geographic extent for cumulative impacts to paleontological resources is the boundary of each county.

5.5.9.2 Disturbance of Cultural Resources

Impact 5.5-5	**Implementation of the management actions recommended by the Draft LMP, when added to other closely related past, present, and reasonably foreseeable future projects in the region, could contribute to further disturbance of cultural resources (i.e., prehistoric sites, historic sites, and isolated artifacts and features), paleontological resources and human remains. This impact is considered less than cumulatively considerable (Class III).**

Regional growth and development would contribute to potential conflicts with cultural, historical, and paleontological resources. These resources include archaeological resources associated with Native American activities and historic resources associated with settlement, farming, and economic development.

Activities in the region with the potential to result in cumulatively considerable impacts to cultural resources include activities undertaken on federal lands surrounding the CPER as well as development on private properties (Section 4.5).

5.5.9.2.1 Present and Future Land Use/Reasonably Foreseeable and Approved Development Projects

Large-scale energy development in the form of photovoltaic solar arrays is in various stages of construction in the California Valley and western Kern County (Section 4.5.3). Energy development projects alone comprise over 18,000 acres in the region. Construction activities and the resulting improvements could result in the disturbance of existing or previously undiscovered cultural resources.

Previously-approved and reasonably-foreseeable future private development projects are subject to the permitting requirements of local governments including San Luis Obispo, Kern, and Santa Barbara Counties, and are subject to environmental review in accordance with CEQA. The CEQA statutes set forth a rigorous process for the discovery and protection of cultural resources associated with development projects including, in some instances, consultation with Native American tribes and pre-construction surveys (Section 5.5.5). The environmental review process must identify mitigation measures to reduce significant impacts relating to cultural resources. Within the California Valley, previously approved solar projects (Topaz Solar Farm and California Valley Solar Farm) have both completed the environmental review process and are subject to conditions of approval/mitigation measures that require the protection of cultural resources (SLO County 2011a, b).

Carrizo Plain National Monument Resource Management Plan

The CPNM consists of 246,817 acres stretching from Soda Lake on the north to Highway 166 to the south. In April 2010, BLM adopted an FEIS and approved an RMP for the CPNM (Section 4.5.1). The RMP includes specific management objectives aimed at protecting and enhancing cultural and historic resources. These objectives include the following (BLM 2010):

- Protect and preserve significant cultural resources from natural and human-caused disturbances such as erosion and vandalism at archaeological sites.
- Objective CUL-2(P): Maintain and enhance open dialogue with Native Americans to participate in planning and consultation processes.
- Objective CUL-3(P): Ensure opportunities for Native American traditional plant gathering, cultural activities, and ceremonial rites.
- Objective CUL-4(I): Provide for the removal of invasive nonnative plants while retaining the integrity of historic property landscapes.
- Objective CUL-5(P): Encourage partnerships, research, interpretation, and educational opportunities with the public, scientific, and educational communities, Native Americans, conservation groups, and other interested parties.
- Objective CUL-6(P): Place priority on acquisition of significant cultural resources in the monument should non-federal land become available.
- Objective CUL-7(P): Protect Painted Rock while allowing guided groups and self-guided visitor access.
- Objective CUL-8(P): Restrict access and protect sites that are at high risk from human-caused impacts.
- Objective CUL-9(P): Enhance conservation efforts for long-term preservation of rock art sites affected by natural agents and inadvertent human impacts to preserve cultural values and provide public enrichment for future generations.
- Objective CUL-10(I): Focus cultural and natural history interpretive and education awareness information at on-site field locations or an appropriate viewing distance with less emphasis on multiple indoor public facilities.
- Objective CUL-11(P): Retain selected representative examples of historic machinery and equipment in situ in the monument as part of the historic landscape.
- Objective CUL-12(I): Recognize the importance of preserving historic ranching and farming buildings and structures in the monument.

In addition to the management objectives listed above, the RMP includes specific manage actions to implement and achieve each objective. The RMP also includes Best Management Practices aimed at protecting cultural and historic resources (BLM 2010).

Activities undertaken on federal lands with the potential to adversely impact the environment are also subject to compliance with NEPA. Under NEPA the federal agency with approval authority is required to identify potential adverse impacts to cultural resources and to recommend protective measures to minimize such impacts.

Bakersfield Field Office of BLM Resource Management Plan

The Bakersfield Field Office of BLM RMP provides goals and objectives and "decisions" for the protection of cultural resources to guide implementation including (BLM 2014):

- Allocate evaluated cultural resources within the decision area as "scientific use" for study, determination of eligibility and appropriate recordation, pending assignment to another use category;
- Eliminate, relocate, or redesign uses following site specific NEPA that may result or have resulted in impacts on significant cultural resources including places of traditional cultural and religious importance to Native Americans;
- Restore or stabilize cultural resources when they are damaged or deteriorating; and
- Identify lands containing significant cultural resources as open to fluid mineral leasing unless otherwise closed, subject to major constraints as described in the Controlled Surface Use (CSU) - Cultural Resources stipulation.

In addition, the Proposed RMP recommends a number of BMPs aimed at protecting cultural resources (BLM 2014).

Activities undertaken on federal lands with the potential to adversely impact the environment are also subject to compliance with NEPA. Under NEPA the federal agency with approval authority is required to identify potential adverse impacts to cultural resources and to recommend protective measures to minimize such impacts.

Los Padres National Forest Land Management Plan

The LPNF LMP recommends using an adaptive management approach focusing not only on developed sites, but on dispersed recreation uses as well (USDA 2005a). This additional emphasis would be beneficial to protection of biodiversity as demand for use of National Forest System lands increases, especially around the boundaries adjacent to urban development.

The LPNF LMP recommends the following actions to protect cultural resources within the forest (USDA 2005a):

- Within this planning cycle, document all known significant cultural properties to identify any activity that does or has the potential to adversely affect, or does not complement the site. Develop measures to mitigate the adverse effects or impacts;
- Use partnerships to implement site management plans for heritage resource sites, focusing on those sites with recognized significance or are at risk from public or land use effects; and
- Evaluate historic sites for appropriate management. Develop site management plans for noteworthy heritage resources wherever they occur.

Like the BLM RMPs, the LPNF LMP includes BMPs aimed at protecting cultural resources and activities undertaken on federal lands with the potential to adversely impact the environment are also subject to compliance with NEPA.

Impact 5.5-5 — Conclusions/Summary of Impact

Previously approved and reasonably foreseeable development activities in the Carrizo Plain, California Valley, Cuyama Valley, and southern San Joaquin Valley have the potential to adversely impact cultural and historic resources. However, previously approved and future development is subject to the permitting requirements of the applicable jurisdiction and subject to compliance with CEQA which require the lead agency to identify measures to mitigate the cumulative effect of development on cultural resources. Similarly, implementation of the management actions adopted by (or recommended for adoption by), federal lands surrounding the CPER, along with compliance with the permitting and environmental review procedures of federal law will address potential cumulative impacts to cultural resources associated with activities on federal lands.

Lastly, as discussed under impacts 5.5-1 through 5.5-3, the Draft LMP includes a range of management actions and BMPs aimed at ensuring the protection of cultural resources on the CPER. Compliance with the cultural resources protection provisions of CEQA, together with implementation of the management actions and BMPs included in the Draft LMP (CDFW 2018) is expected to reduce impacts to cultural resources associated with the Draft LMP to a less than significant level. Therefore, the contribution of the Draft LMP to the cumulative impact on cultural and historic resources is considered **less than cumulatively considerable (Class III).**

Impact 5.5-5 — Additional Mitigation

None required.

5.6 Geology and Soils

5.6.1 Introduction

This section discusses the geologic, soil, and related resources of the CPER and identifies the related potential environmental impacts associated with implementation of the management actions recommended by the Draft LMP. The discussion addresses existing environmental conditions on the CPER and in the area, identifies and analyzes environmental impacts, and recommends measures to reduce or avoid adverse impacts anticipated from management actions included in the Draft LMP. In addition, it discusses existing laws and regulations relevant to geology and soil resources. In some cases, compliance with these existing laws and regulations would serve to reduce or avoid certain impacts that might otherwise occur with the implementation of the projects. This section ends with a discussion of cumulative impacts related to geologic and soil resources.

5.6.2 Sources Used in This Analysis

This analysis is based on a review of applicable law, local planning documents, and publications including:

- Draft Land Management Plan for the Carrizo Plains Ecological Reserve (CDFW 2018);
- Mitigated Negative Declaration for Grazing Lease Allotment Carrizo Plains Ecological Reserve (Chimineas Ranch), San Luis Obispo County, (CDFW 2011b);
- U.S. Department Agriculture Natural Resource Conservation Service Web Soil Survey (USDA 2012); and
- A Review of Planned Grazing and Rangeland Management Actions at the Carrizo Plains Ecological Reserve by LD Ford Rangeland Conservation Science (Van Hoorn and Ford 2013; Appendix E).

References for these and other resources cited are provided in Section 10 References.

5.6.3 Scoping Issues for Geology and Soils

During the 30-day public review period for the Notice of Preparation for the Draft LMP, written and oral comments were received from agencies and the public. The following issue relating to geology and soils was raised during the scoping process and is addressed in this section:

- The EIR should consider the effects of livestock grazing on streambank erosion.

5.6.4 Environmental Setting

The following description of the geology and soils of the CPER was derived from the Draft CPER LMP (CDFW 2018).

5.6.4.1 Topography and Local Geology

Land within the CPER was formed through a complex series of tectonic and geological processes that collectively produced a diversity of geological formations, soil types, and topographic features. Shaped over

millions of years, this variation in the physical environment is a fundamental determinant of patterns of distribution, abundance, and diversity of flora and associated fauna observed on the CPER today.

5.6.4.2 Geologic History of San Luis Obispo County

Approximately 180 million years ago (MYA) the lands associated with eastern San Luis Obispo County including those currently within the CPER were below sea level and were part of the continental shelf of North American. At the present location of the Coast Ranges, a marine trench occurred where the eastward-moving Pacific Plate was being subducted under the North American Plate. This trench had previously been located near the base of what is now the Sierra Nevada Mountain Range, but shifted westward at the end of the Jurassic Period. Sediments that ultimately became the Great Valley Sequence were deposited in the space between these two trenches: volcanically-derived Great Valley Ophiolite overlain by terrestrial runoff and organic layers produced by the accumulation of dead marine planktonic organisms. At the subduction zone, differences in the physical properties of various sediment types, changes in pressure and variation in the degree of actual subduction and re-extrusion created a 'mélange' that ultimately became the Franciscan Formation that is relatively abundant in the present-day Coast Range Mountains. This concurrent creation and deposition of the Great Valley and Franciscan formations occurred towards the end of the Jurassic Period and beginning of the Cretaceous Period. As the rate of subduction began to decrease, the resulting production of Franciscan sediments decreased and marine-derived sediments and terrestrial runoff continued to accumulate (Chipping 1987).

Around 40 MYA, a combination of tectonic uplift (mountain building) and dropping sea levels brought lands associated with this continental shelf to the surface and into the terrestrial environment. Changes in plate motion between 25 and 20 MYA gave rise to the San Andreas Fault and a transition from a subduction plate boundary to a pattern of slip/strike lateral movement with the Pacific Plate traveling north past the North American Plate (Chipping 1987).

Intrusion of the ocean via low lying areas near Santa Cruz and Santa Barbara led to the inundation of most of the Central Valley and the deposition of marine-derived sediments that ultimately formed the Vaqueros and Rincon formations. Increasing volcanic activity to the east towards the end of the Oligocene and start of the Miocene (approximately16 MYA) produced copious amounts of ash that created the Obispo Formation. The Monterey formation was also created around this time through mixing of terrestrial runoff and marine organic sediments and the Pismo Formation was subsequently deposited over it.

Most of the Coast Ranges were still submerged during this time (late Pliocene and Pleistocene) but mountain building was underway and the extent and depth of marine intrusion into this inland sea were gradually decreasing. Land was folded, faulted, and pushed upwards and sea levels fell as ice caps formed during the ice ages. The uplift was relatively slow, however, allowing time for erosion of elevated surfaces to accumulate as alluvium, as in the Paso Robles Formation. The movement of water across highly variable geologic formations that varied in their degree of resistance to erosion created a rugged and varied topography and several deep valleys. Additionally, the uplift occurred in bursts with erosion in intervening periods often creating broad terraces, further adding to the topographic heterogeneity of the area (Chipping 1987).

The Carrizo Plain itself initially drained north via the ancestral Salinas River but as uplift continued to elevate the northern end of the valley, this drainage was cut off and water was forced to flow south towards to lowest part of the plain at Soda Lake—a closed drainage basin created by warping of the bedrock along the San Andreas fault (Chipping 1987, BLM 2010). The saline lake contains the salts dissolved from the

weathering of rocks, which concentrate on the lake floor as the water evaporates (Chipping 1987).

5.6.4.3 Soils and Soil Erosion

Soils of the Carrizo Plain and surrounding regions are highly variable due in part the distinctly different parent materials brought together at the confluence of the Pacific and North American plates (BLM 2010). Soils within the CPER were classified and mapped as part of four separate soil surveys:

- Eastern San Luis Obispo County (Oster and Vinson 2003): covers 33,818 acres (85.4%) of the CPER including all of the American, Panorama, and Elkhorn units and all but the southern and western portions of the Chimineas units.
- Northern Santa Barbara Area (Shipman 1972): covers 12% of the CPER in the South Chimineas Unit.
- Los Padres National Forest (O'Hare and Hallock 1980): covers 2.6% of the CPER, on the western side of the Chimineas units.

Following the organizational scheme used in a soil survey conducted in and around the Carrizo Plain (Oster and Vinson 2003), soils of the CPER can be classified into three general soil map units: soils on the valley floor, soils on alluvial flats, alluvial fans, flood plains, and terraces, and soils on hills and mountains. Soils on the valley floor account for 529 acres or just over 1% of the total area of the CPER (CDFW 2018). They account for 13% of the Panorama Unit, 2% of the American Unit, and are essentially unrepresented in both the Elkhorn and Chimineas units. Soils on alluvial flats, alluvial fans, flood plains, and terraces account for roughly 7,188 acres, or 18% of the CPER, and cover 93% of the Elkhorn Unit, 78% of the Panorama Unit, 23% of the American Unit, and 11% of the Chimineas units. Soils on hills and mountains account for 30,372 acres or just under 77% of the total area of the CPER. These soils make up the vast majority of the area within the Chimineas (84%) and American (75%) units but represent. only about 10% of both the Elkhorn and Panorama units (Table 53; CDFW 2018).

In general, approximately 72% of soils within the larger CPNM are classified as sandy or loamy while the remaining 28% are clay soils associated with the valley floor, Elkhorn Plain, and in isolated belts within the Caliente Mountains (BLM 2010). Soils on the CPER have a low to moderate susceptibility to erosion as summarized on Table 54. Figures 33 and 34 illustrate the locations of the soil types within the Reserve.

Table 53: Dominant Soil Types of the Carrizo Plains Ecological Reserve

	American Unit		Chimineas Units		Elkhorn Unit		Panorama Unit		CPER (Total)	
Soil Type	**Acres**	**Percent**	**Acres**	**Percent**	**Acres**	**Percent**	**Acres**	**Percent**	**Acres**	**Percent**
Alluvial Soils	1,468.5	23.2	3,319.2	11.0	149.3	93.0	2,251.6	77.7	7,188.6	18.2
Bolson Floor	136.0	2.1	8.3	0.0			384.4	13.3	528.6	1.3
Hills and Mountains	4,736.5	74.7	25,363.3	84.0	11.3	7.0	261.7	9.0	30,372.8	76.7
Subtotal Unclassified	0	0	1,506.7	5.0	0	0	0	0	1,506.7	3.8
Total	**6,341.0**	**100.0**	**30,197.5**	**100.0**	**160.6**	**100.0**	**2,897.7**	**100.0**	**39,596.8**	**100.0**

Sources: CDFW 2018, Oster and Vinso 2003, Shipman 1972 and O'Hare and Hallock 1980

Table 54: Dominant Soils of the CPER and their Susceptibility to Erosion

Soils	CPER Acres	CPER Percent	Characteristics	Susceptibility to Erosion	
				K Factor[1]	Susceptibility
Beam-Panoza-Hillbrick complex	7,295.3	18.4%	fine, sandy loam soils derived from the weathering of soft, calcareous shale, conglomerate, or sandstone	0.28	Low/Moderate
Seaback-Panoza-Jenks complex	3,653.9	9.2%	loam soils	0.28	Low/Moderate
Tajea-Saltos	2,854	7.2%	very shallow to moderately deep, well drained, loam, clay loam and sandy clay loam soils found on moderate to very steep slopes	0.21	Low/Moderate
San Timoteo-San Andreas-Bellyspring	2,561	6.5%	moderately deep, well drained sandy loam soils formed from weathered sedimentary rocks	0.26	Low/Moderate
Panoza-Beam complex	2,307	5.8%	Well drained residuum weathered from sandstone, shale, or conglomerate	0.24	Low/Moderate
Shedd silty clay loam	1,749.3	4.4%		0.28	Low/Moderate
Gaviota-Saltos-Rock outcrop	1,461	3.7%	Well drained residuum weathered from sandstone, shale, or conglomerate	0.28	Low/Moderate
Aido clay	1,454.3	3.7	Well drained residuum weathered from calcareous shale or fine-grained sandstone	0.17	Low
Padres sand loam	1,314.1	3.3%	Very deep, well drained alluvial material from sedimentary rocks	0.28	Low/Moderate
Polonio clay loam	1,197.7	3.0%	Very deep, well drained alluvial material from calcareous sedimentary rocks	0.24	Low/Moderate
Chicote complex	466.2	1.2%	Moderately well drained alluvium derived from sedimentary rocks and lacustrine sediments	0.43	Moderate/High
Sub-Total:	26,314	62.7%			
Various[2]	13,186	37.3%			
Total	**39,500**	**100%**			

Sources: as in Table 53

Notes:

1. Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and permeability. Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.
2. Various soils comprising less than 1% of the CPER.

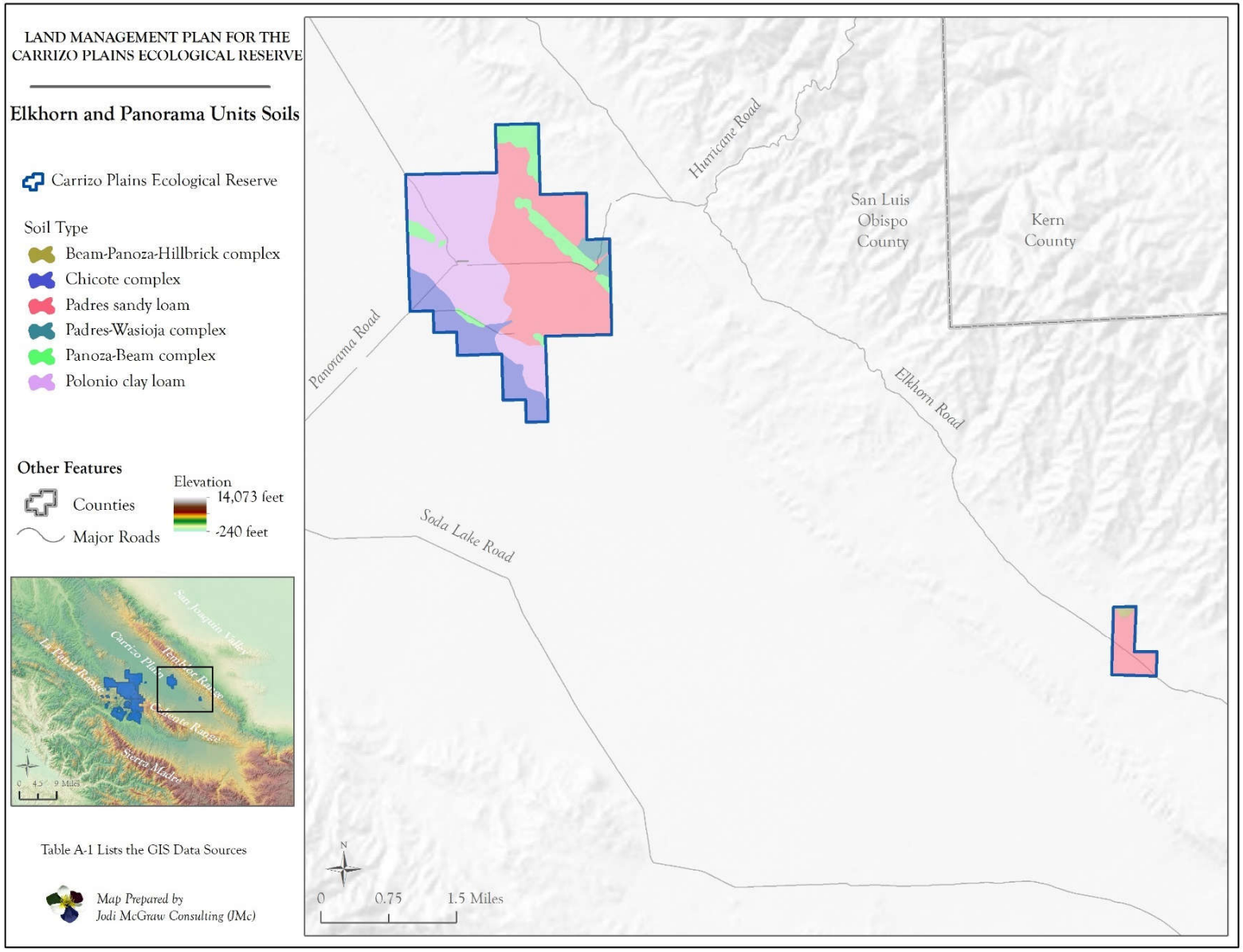

Figure 33: Soil Types of the Elkhorn and Panorama Units

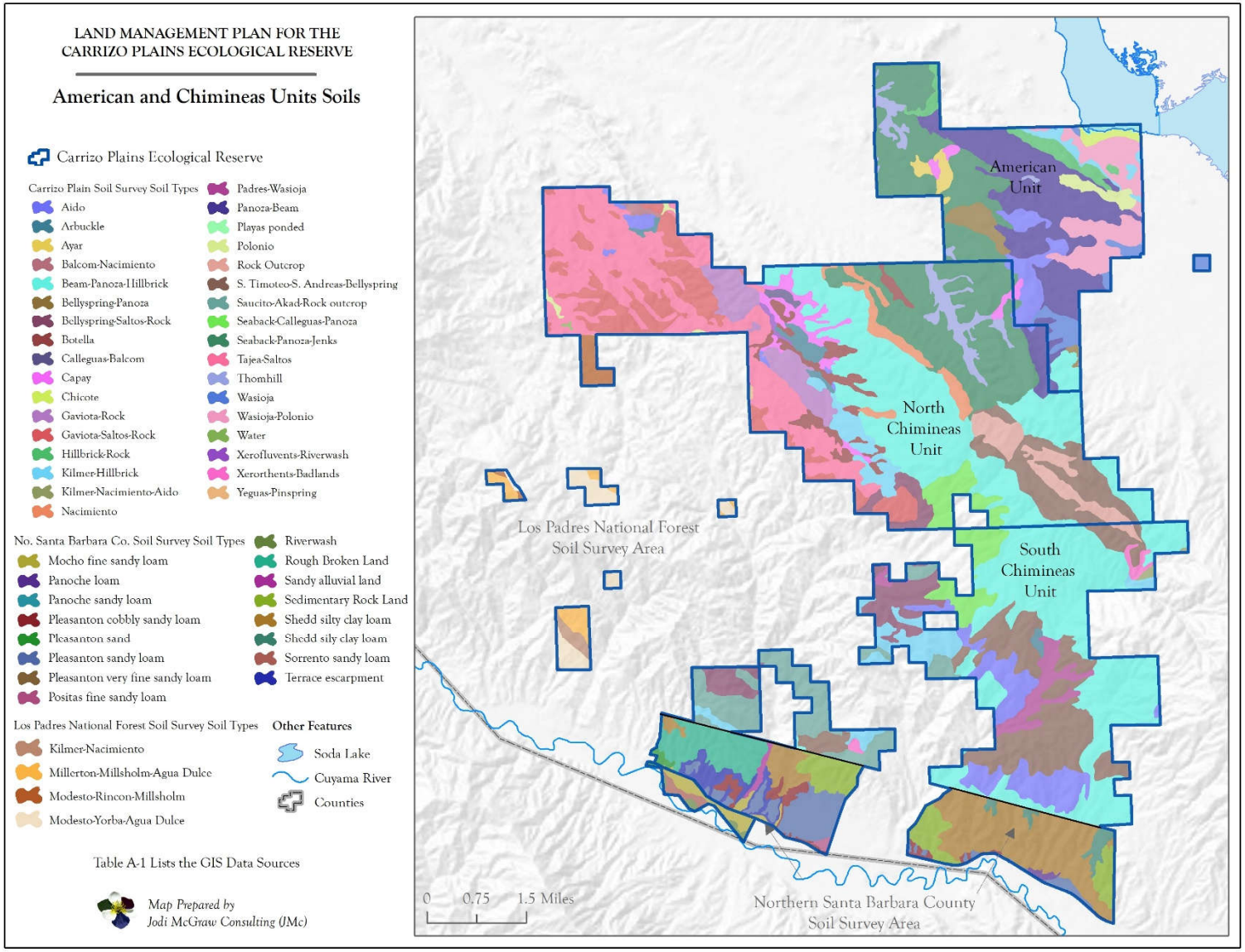

Figure 34: Soil Types of the Chimineas and American Units

5.6.5 Applicable Regulations, Plans and Policies

5.6.5.1 State

5.6.5.1.1 California Building Code

Construction projects undertaken by state agencies are subject to the California Building Standards Code, or the California Building Code (CBC), Part 1 through 12 of Title 24 of the California Code of Regulations (CCR) as interpreted and enforced by the office of the California Department of General Services, Division of the State Architect (DSA). The CBC establishes guidance for foundation design, shear wall strength, and other structurally related concerns. The CBC modified previous regulations for specific conditions found in California and included a large number of more detailed and/or more restrictive regulations. For example, the CBC includes common engineering practices requiring special design and construction methods that reduce or eliminate potential expansive soil-related impacts. The CBC requires structures to be built to withstand ground shaking in areas of high earthquake hazards and the placement of strong motion instruments in larger buildings to monitor and record the response of the structure and the site of seismic activity. Compliance with CBC regulations ensures the adequate design and construction of building foundations to resist soil movement. In addition, the CBC also contains drainage requirements in order to control surface drainage and to reduce seasonal fluctuations in soil moisture content.

5.6.5.2 Local

5.6.5.2.1 San Luis Obispo County General Plan Safety Element

San Luis Obispo County adopted its Safety Element in 1999 (SLO County 1999). One of seven mandatory general plan elements required by state law, the safety element covers all of the mandatory topics prescribed by Section 65300.5 of the California Government Code, including emergency preparedness, flooding, fire hazards, geologic and seismic risk, and other hazards affecting the county. Although the policies and programs of the County General Plan do not apply to state properties, the safety element contains a wealth of information regarding hazards affecting eastern San Luis Obispo County in the vicinity of the CPER which was used in the preparation of this EIR.

5.6.5.2.2 San Luis Obispo County Local Hazard Mitigation Plan

The Disaster Mitigation Act (DMA) of 2000, also commonly known as "The 2000 Stafford Act Amendments" (the Act), constitutes an effort by the federal government to reduce the rising cost of disasters. The Act stresses the importance of mitigation planning and disaster preparedness prior to an event. Mitigation Planning Section 322 of the Act requires local governments to develop and submit mitigation plans in order to qualify for the Hazard Mitigation Grant Program (HMGP) project funds. It also increases the amount of HMGP funds available to states meeting the enhanced planning criteria, and enables these funds to be used for planning activities.

In July, 2011, San Luis Obispo County adopted an update to the county's Local Hazard Mitigation Plan (LHMP) consistent with the requirements of the Disaster Mitigation Act (SLO County 2011c). The LHMP addresses the risks associated with the following hazards: earthquakes/liquefaction, floods, landslides, tsunami and seiche, wildfire, extreme weather, coastal storm / coastal erosion, biological agents, and pest infestation and disease.

5.6.6 Standards of Significance

Appendix F of the CEQA Guidelines states that impacts to a geologic, soils, or mineral resource is considered significant if project implementation would result in any of the following:

1. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury or death, involving:
    a. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault;
    b. Strong seismic ground shaking;
    c. Seismic-related ground failure, including liquefaction; and
    d. Landslides.
2. Result in substantial soil erosion or the loss of topsoil.
3. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project.
4. The placement of structures on expansive soil creating substantial risks to life or property.

5.6.7 Impacts Found to be Less Than Significant

Based on the supporting evidence provided in the initial study (Appendix B), impacts relating to the following topics were found to be less than significant:

- Exposure of people or property to the rupture of a known earthquake fault, seismic ground shaking, ground failure, or landslide;
- Locate structures on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse;
- Result in the construction of structures on expansive soil; and
- Locate structures on soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems.

5.6.8 Project Impacts and Mitigation Measures

The Draft LMP recommends a range of management actions aimed at protecting and enhancing the habitats of the CPER, which in turn will help protect soils and minimize erosion. Table 55 provides a list of recommended management goals and actions that address soils and geologic resources of the CPER.

Table 55: LMP Management Goals and Actions that Address Soils and Geologic Resources

LMP Section	Topic	Goals[1]	Management Actions[1]	Summary/ Relevance to the Protection of Soils and Geologic Resources
4.2.2.1	Grassland habitat	B3	B3.1, B3.2	Recommend habitat management actions that will help maintain healthy soils and minimize erosion.
4.2.2.2	Coastal scrub habitat	B6a, B6b	B6.1, B6.2	
4.2.2.3	Chaparral habitat	B8a, B8b	B8.1, B8.2	
4.2.2.5	Oak woodland habitat	B12a, B12b	B12.2	
4.2.2.6	Juniper woodland habitat	B14a, B14b, B14c	B14.2	
4.2.2.7	Riparian and riverine habitat	B16a, B16b, B16c	B16.1, B16.2, B17.1	Encourages efforts to increase the extent and diversity of riparian plants and animals. Promotes research to help inform management actions aimed at protecting riparian habitat and the associated soils.
4.2.2.8	Wetland habitat	B18, B19	B18.1, B18.2, B19.1	Promotes maintaining and enhancing wetland habitats and associated soil conditions.
4.2.2.9	Pond habitat	B20	B20.1	Recommends regulating livestock access to ponds which to promote establishment and growth of native vegetation within and along pond margins, which in turn will help protect soils and minimize erosion.
4.2.3.1	Special-Status Species	B24, B25	B24.4, B24.5, B25.1, B25.3	Management actions to enhance the habitats for special-status species will promote healthy soils and minimize erosion.
4.3.1	Scientific Research Element	S1	S1.1, S1.2, S1.3, S1.4, S1.5, S1.6	Promotes increased understanding of the ecology and management needs of the species, communities, and ecosystems of the CPER which in turn will help inform management actions to protect soils.
4.3.2	Monitoring Element	S2	S2.1, S2.2, S2.3, S2.4, S2.5, S2.6	
4.3.3	Adaptive Management Element	S3	S3.1, S3.2, S3.3, S3.4	
4.4.1	Fire Management Element	V1	V1.1, V1.2, V1.3	Recommends the use of fire and managed livestock grazing as vegetation management tools in a manner that promotes healthy soil conditions.
4.4.2	Grazing Management Element	V2	V2.1, V2.2, V2.3, V2.4, V2.5	

Table 55: LMP Management Goals and Actions that Address Soils and Geologic Resources

LMP Section	Topic	Goals[1]	Management Actions[1]	Summary/ Relevance to the Protection of Soils and Geologic Resources
4.6.5	Public Access Element	P8	P8.1, P8.2, P8.3, P8.4	Recommends maintaining the road system serving the CPER and establishing all-weather access to the Reserve headquarters, which will help minimize erosion.
4.8	Facilities Maintenance Element	F1, F2	F1.1, F1.2, F1.3, F1.4, F1.5, F1.6, F1.7, F1.8, F2.1, F2.2, F2.3	Recommends the maintenance and improvement of infrastructure serving the CPER including roads and parking areas. Encourages maintenance activities that avoid negative impacts to resources of the Reserve.
4.9	Management and Monitoring Coordination Element	M1, M2, M3	M1.1, M1.2, M1.3, M1.4, M1.5, M2.1, M2.2, M2.3, M2.4, M3.1, M3.2, M3.3, M3.4	Recommends actions to resolve conflicts among management actions to ensure that the goals of the various elements of the LMP are achieved.

Notes:
1. The complete text of recommended management goals and actions is provided in Section 4 of the Draft LMP (CDFW 2018)

5.6.8.1 Previous Environmental Review

In November 2011, the Department adopted a Mitigated Negative Declaration (MND) and approved a lease agreement authorizing continued managed grazing of about 12,000 acres on portions of the North and South Chimineas units (CDFW 2011b; Section 4.4.1). Managed grazing is practiced on portions of the Chimineas units as a vegetation management tool to establish the short grass structure favored by certain special-status wildlife species. Accordingly, the existing conditions relating to soils and geology of those portions of the CPER reflects this current and ongoing practice. With regard to the impacts of managed grazing on soils and erosion, the adopted MND concluded that adoption of the lease agreement will have a less-than-significant impact.

In 2005, the Department entered a cooperative agreement with the Cachuma Resource Conservation District and the owner of the ranch that borders the South Chimineas Unit (the Russell Ranch) to enhance riparian habitat along a four-mile portion of the Cuyama River along the shared boundary of the two properties (CRCD 2005, Section 4.4.2). The project known as the Cuyama River Riparian Enhancement (CRRE) consisted of the installation of four miles of fencing on both the north and south sides of the river to exclude cattle from the riparian vegetation. In exchange for excluding grazing along the river, the agreement allows the property owner to graze approximately 200 acres of the South Chimineas Unit during dry years when feed-stock is low on the remaining portions of their ranch. The agreement includes a management plan, which sets forth stocking levels, standards for residual dry matter, and stock rotation. Adoption of the CREE was determined to be Categorically Exempt under the California Environmental Quality Act.

The Draft LMP recommends using grazing management to create and maintain areas of short-statured grassland required by several special-status species; enhance native plant cover and richness in grasslands, blue oak woodlands, and coastal scrub; and control non-native herbaceous plant species in order to reduce their competitive effects on native plants and the potential for type conversion of shrublands to grassland via the grass-fire cycle (CDFW 2018).

New or expanded grazing activities will be preceded by the adoption of a grazing management plan following project-specific environmental review. Unless and until a new grazing lease is adopted, or the terms of the CREE are amended, adoption of the Draft LMP will have no impacts to soils, erosion or geologic resources associated with continued managed grazing above baseline conditions.

5.6.8.2 Methodology

The baseline conditions were evaluated for their potential to be affected by management actions recommended by the Draft LMP. The study area for the analysis was defined as the CPER, which consists of five units. The current condition and quality of these soil resources, as described in the Environmental Setting (Section 4), was used as the baseline against which to compare potential impacts. Potential impacts to soils and geologic resources were identified based on the predicted interaction between the management actions recommended by the Draft LMP with the affected resources.

The analysis of potential impacts to soils and erosion associated with the use of managed livestock grazing as a grazing management tool was augmented by a review of planned grazing and rangeland management actions of the Draft LMP prepared by LD Ford Rangeland Conservation Science (Van Hoorn and Ford 2013) which is included as Appendix E.

5.6.8.3 Erosion from Construction Activities

Impact 5.6-1	**Ground-disturbing activities that may result from the construction of new facilities recommended by the Draft LMP have the potential to adversely impact soils and result in soil erosion. This impact is considered less than significant (Class III) because of mitigation provided by management actions and Best Management Practices incorporated into the project description.**

The management actions recommended by the Draft LMP are aimed at maintaining and improving the natural structure and species composition of the vegetation found on the CPER. Management actions to regulate livestock access to riparian areas, and to restore native vegetation, are expected to have beneficial impacts on soils by stabilizing streambanks and reducing erosion, compaction, and sedimentation. Protecting the ecological and hydrological functions of creeks, ponds, and springs should also have indirect beneficial effects on soils. In addition, managing motor vehicle speeds and maintaining adequate vegetative cover within the CPER, as recommended by the Draft LMP, will reduce the generation of fine particulate matter with an expected beneficial effect on soils.

However, certain management actions recommended by the Draft LMP may have short-term, localized effects involving some soil loss or loss of soil productivity. Management actions that reduce vegetative cover, such as prescribed burning, may temporarily expose soil to localized short-term erosion in the treated area.

If earth-moving equipment is used for construction activities, soil would undergo some localized compaction which could slow vegetation re-growth and lead to longer-term erosion.

Activities that involve the construction, maintenance, modification or removal of facilities on the CPER, such as the construction of educational facilities, wildlife viewing platforms, water systems, water tanks and trails could result in soil erosion. As discussed in Section 3.11.5, the total area affected by new construction would be about 1.7 acres. Grading and site preparation activities would remove topsoil, disturbing and potentially exposing the underlying soils to erosion from a variety of sources, including wind and water. In addition, construction activities generally involve the use of water to suppress dust, which may further erode the topsoil as the water moves across the ground.

Although the precise number, size, and location of new facilities to be constructed is not known at this time, ground disturbance such as trenching, surface modification (grading), the clearing of vegetation, and the use of construction equipment have the potential to adversely impact soils and result in soil erosion.

Impact 5.6-1 — Mitigation Provided by Compliance with Existing Regulations

Compliance with the California Building Code ensures the adequate design and construction of building foundations to resist soil movement. In addition, the CBC contains drainage requirements to control surface drainage and reduce seasonal fluctuations in soil moisture content which minimize erosion.

Construction activities involving clearing, grading, or excavation that causes soil disturbance on one or more acres (or any project involving less than one acre that is part of a larger development plan and includes clearing, grading, or excavation) would be subject to coverage under the State's National Pollutant Discharge Elimination System (NPDES) General Construction Storm Water Permit. The Department is required to prepare and comply with a Storm Water Pollution Prevention Plan (SWPPP) that specifies Best Management Practices (BMPs) to avoid soil erosion and associated pollution of waterways and is also required to report any water pollution and remediate the pollution occurrence.

Impact 5.6-1 — Best Management Practices Recommended by the Draft LMP that Mitigate Potential Impacts to Soil Erosion Associated with Construction Activities

BMP G-1. The Department shall comply with relevant provisions of the California Environmental Quality Act (CEQA) prior to a decision to approve an activity with the potential to adversely impact the environment.

BMP G-2. The Department shall consult with other agencies with permit approval authority over aspects of management activities undertaken within the Reserve, to identify the relevant permit practices and to ensure compliance with applicable state and federal regulations.

BMP G-3. Management activities undertaken in accordance with the LMP shall meet the applicable permitting and regulatory practices of federal and state agencies, including, but not limited to, the following:

- California Department of Fish and Wildlife;
- U.S. Fish and Wildlife Service;
- State Water Resources Control Board;
- U.S. Army Corps of Engineers (Section 404 of the Clean Water Act);

- San Luis Obispo Air Pollution Control District; and
- California Department of Forestry and Fire Protection (CalFire).

BMP GEO-1. Soil-disturbing activities shall be avoided during periods of runoff, or when soils are wet and muddy, in order to minimize damage.

BMP GEO-2. Ground-surface-disturbing activities shall be designed to minimize wind and water erosion.

BMP WQ-1. To protect water quality, the Department shall apply the following best management practices (BMPs) as applicable.

- Identify the most sensitive natural areas and, where possible, leave them undeveloped. To the extent possible, set back areas of ground disturbance from creeks, wetlands, and riparian habitats and preserve trees. Conform the site along natural land forms, avoid excessive grading and disturbance of vegetation and soils, and mimic the site's natural drainage patterns. Where possible, concentrate ground disturbance on portions of the site with less permeable soils, and preserve areas that can promote infiltration.
- To the extent possible, limit overall coverage of impervious surfaces. Where possible, detain and retain runoff throughout the site. Use drainage design elements such as depressed landscape areas, vegetated buffers, and bioretention facilities consisting of a shallow surface reservoir, a layer of imported planting medium, and a gravel underlayer with perforated pipe underdrains.
- Use permeable pavements, such as crushed aggregate, turf block, unit pavers, pervious concrete, or pervious asphalt could be substituted for impervious concrete or asphalt paving.
- Direct runoff to bioretention facilities, flow-through planters, dry wells, or cisterns. Consider directing runoff to facilities designed to detain and treat runoff before letting it seep away slowly. Dry wells or infiltration basins may be used if soils are sufficiently permeable and geotechnical considerations allow.

BMP WQ-2. For new construction activities with the potential to disturb more than one acre of land, a Notice of Intent (NOI) shall be filed with the Regional Water Quality Control Board to be covered under the State National Pollutant Discharge Elimination System (NPDES) General Construction Permit for discharges of storm water associated with construction activity. A Storm Water Pollution Prevention Plan (SWPPP) must be developed and implemented for each site.

BMP WQ-3. The Department shall apply runoff-control measures to minimize discharge of surface pollutants into drainage systems associated with new construction. Examples of such measures include, but are not limited to, the following:

- The use of "bioswales" and similar features (such as infiltration trenches, filter trips, and vegetated buffers) to trap contaminants;
- Installation of grease/oil separators to keep these contaminants out of storm runoff; and
- Minimizing pesticide use.

BMP WQ-4. Water diversions shall divert the minimum necessary amount. Float valves or other devices shall be installed to control diversion amounts.

BMP WQ-5. Natural drainage patterns shall be preserved to the greatest extent possible.

BMP DC-1. New trails within the Reserve shall:

- Be consistent with all relevant Best Management Practices and consistent with the overall goals and objectives of the Reserve;
- Be designed to avoid sensitive resources;
- Be located on existing unpaved roads wherever possible;
- Follow the natural topography wherever possible;
- Minimize ground-surface disturbance, removal of vegetation, and grading;
- Minimize or avoid the use of culverts, bridges, and retaining walls; and
- Incorporate connections to existing parking areas.

BMP DC-2. New or expanded parking areas shall:

- Be located and designed to provide adequate pullout and turnaround area, sight distance and spacing between parking areas and other driveways to ensure public safety;
- Be consistent with all relevant Best Management Practices and consistent with the overall objectives of the Reserve;
- Incorporate signage and visitor information as necessary to inform visitors;
- Avoid sensitive resources;
- Be located at existing established parking areas or other disturbed areas wherever possible;
- Minimizes ground-surface disturbance, removal of vegetation, and grading;
- Incorporate a permeable surface to minimize erosion and to protect surface water quality; and
- Take advantage of natural topography, vegetation, and other physical features to provide screening from public view.

Compliance with these management actions BMPs will ensure potential soil erosion impacts associated with construction activities will be **less than significant (Class III).**

Impact 5.6-1 — Additional Mitigation

None are required.

5.6.8.4 Soil Erosion Associated with Managed Livestock Grazing

Impact 5.6-2 **The Draft LMP recommends the use of managed livestock grazing as a vegetation management tool. Managed livestock grazing has the potential to adversely impact soils and result in the loss of soil from erosion. This impact is considered less than significant (Class III) because of mitigation provided by management actions and Best Management Practices incorporated into the project description.**

Livestock grazing can disturb soils and biological soil crusts and remove and trample vegetation, which can result in soil erosion. Jones (2000), in a quantitative review of 54 grazing studies in the arid west, reported that 11 of 16 environmental condition variables examined showed significant detrimental effects of livestock grazing, including for cryptogamic crust cover, soil/water infiltration rate, soil erosion, and liter biomass. Livestock hooves break and trample soil crusts and create germination sites for weedy species. Movement of livestock across non-level landscapes results in a generalized net movement of soil down slope; even moderate slopes are likely to suffer soil erosion under moderate grazing pressure (Mwendera et al. 1997).

Impacts to riparian areas may include loss of vegetation, soil disturbance, sedimentation, changes in water quality, and changes in channel morphology (Hoorman and McCutcheon 2005). Livestock trails alter water flow patterns and erode steep terrain. Concentrated and repeated livestock hoof action compacts soil, such as that around water troughs or under shade trees (BLM 2014). On intermittent streams draining grazed oak woodland watersheds, cattle will concentrate along streambanks resulting in an increase in bare ground. However, the impact of cattle grazing on streambank erosion is unclear (George et al. 2004)

Studies on grazing and soil compaction generally find that exposure to livestock grazing results in soil compaction and that soil compaction increases with grazing intensity (Roberson 1996). Compaction is directly related to soil productivity because it reduces water and air movement into and through the soil and therefore reduces water and air available to plant roots.

The effects of grazing tend to be related to the intensity and timing of grazing. Higher-intensity grazing, and grazing during the plant reproductive season tends to have greater impacts on plant species (BLM 2014). Riparian areas are more susceptible during the hot season, when livestock congregate in the cooler, moister, riparian area (BLM 2014). Soil crusts are more susceptible to long-term damage during the dry season, when dormancy prevents their growth and repair and results in more potential for soil erosion by wind (BLM 2014).

As with other components of vegetation management, following adoption of the Draft LMP managed grazing will be conducted within an adaptive management framework that will be detailed in a grazing management plan and a grazing lease. The grazing management plan will be developed based on the goals for the resources of the CPER outlined in the Draft LMP. The grazing plan will be prepared by biologist(s) with regional experience in their respective fields and will be developed in consideration of fire and exotic plant management elements as a component of coordinated vegetation management (CDFW 2018).

Managing grazing to achieve standards for residual dry matter (RDM) can help minimize potential erosion impacts associated with grazing (Bartolome et al. 2002). Residual dry matter is the old plant material left standing or on the ground at the beginning of a new growing season. It indicates the combined effects of the previous season's forage production and its consumption by grazing animals of all types (Bartolome et

al. 2002). Properly managed RDM can be expected to provide a high degree of protection from soil erosion and nutrient losses (Bartolome et al. 2002). Accordingly, BMP 20 recommends the inclusion of specific measurable objectives, such as RDM, to be included in a grazing management plan to guide managed livestock grazing in a manner that protects soils and surface water quality.

Impact 5.6-2 — Best Management Practices Recommended by the Draft LMP that Mitigate Potential Impacts to Soil Erosion Associated with Continued Managed Livestock Grazing

The BMPs listed above for impact 5.6-1 also apply to this impact.

BMP BIO-10. Areas supporting special-status aquatic species shall be avoided to the greatest extent possible.

BMP BIO-20. Any authorization, or reauthorization, of new or expanded grazing activities will be preceded by the adoption of a grazing management plan following compliance with the California Environmental Quality Act. Such a Grazing Management Plan shall set forth at least the following:

- Specific goals, objectives and performance standards (targets) that define the desired habitat conditions to be achieved through grazing as a management tool, which are based upon the resource protection and enhancement goals of the LMP.
- Performance standards that are measurable, objective, and relevant to grazing management while incorporating the flexibility necessary for effective adaptive management.
- Grazing prescriptions, which identify how grazing will be conducted to attain the various goals, objectives, and performance standards. Grazing prescriptions will include:
    - animal class: the kind of animals, in terms of species, breed, and age;
    - spatial distribution: which portions of the reserve will be grazed;
    - temporal distribution: when animals will be grazing; and
    - density of animals: the number of grazing animals within each area to be grazed.

  Grazing prescriptions and methods will be developed based upon a review of the best available scientific literature examining the effects of various types grazing, based on the seasonality, intensity, and frequency, on biological systems, and the site-specific conditions of the reserve.
- Grazing facilities, such as water and fencing, that are currently present or that would be needed.
- Methods to avoid or minimize impacts of grazing on special-status species, special communities, cultural resources, and public uses.
- Performance standards such as minimum standards for residual dry matter (RDM) and/or grass height to ensure the protection of water and soil quality.

- Monitoring protocols and performance standards that will be used to assess effective implementation of the grazing prescriptions.
- Lease management requirements to ensure compliance and cooperation between the grazing permittee and Department staff.

BMP BIO-22. The Department will adjust grazing prescriptions or eliminate grazing following restoration treatments, if necessary to protect populations of vulnerable species and/or facilitate establishment of newly planted sites.

BMP BIO-23. Where possible, water for livestock shall be piped away from the riparian zone. If possible, livestock water sources shall be kept on year-round for use by native animals.

Impact 5.6-2 — Conclusion/Impact Summary

The continuation of managed grazing is expected to have a **less-than-significant impact (Class III)** on soils and soil erosion on the CPER because:

- Grazing is currently used as a vegetation management tool on the CPER in accordance the terms of the 2011 lease agreement (CDFW 2011b) and the CRRE (CRCD 2005), which were approved previously and subject to separate environmental review. The MND prepared for the 2011 Lease Agreement concluded that the continuation of managed grazing in accordance with the terms of the lease will have a less-than-significant impact on soil resources and erosion. The Categorical Exemption adopted for the CRRE concluded that the CRRE would have a less-than-significant impact on soils. A similar conclusion was reached for the prescribed grazing programs on the mitigation lands surrounding the new solar plants in California Valley.
- The Draft LMP does not authorize or recommend any additional locations or increases in the intensity of grazing allowed on the CPER, nor does it recommend any changes to the 2011 Lease Agreement or the terms of the CRRE. Rather, new or expanded grazing activities will be preceded by the adoption of a grazing management plan following project-specific environmental review. The precise details of the grazing management plan recommended by the Draft LMP are expected to incorporate the elements described in management action V2.1 and BMP BIO-20.
- The elements listed in Management Action V.2.1 and BMP BIO-20 are based in part on an analysis of grazing management strategies by Van Hoorn and Ford (2013), which is attached as Appendix E and incorporated herein by reference. The analysis and recommendations are based on the following:
    - An examination of the physical characteristics, habitats and species of the CPER contained in the Draft LMP;
    - A field investigation of current conditions on the CPER;
    - A review of the grazing management methodologies and standards contained in the November 2011 lease agreement (CDFW 2011b);
    - A review of scientific literature regarding special-status species that occur, or may occur, on the CPER; and
    - The most recent report for the Carrizo Plain Ecosystem Project (Prugh and Brashares 2012).

- The elements listed in Management Action V.2.1 and BMP BIO-20 are intended to bolster the use of adaptive management with regard to grazing and to ensure that the grazing management plan defines specific objectives and performance standards upon which the effectiveness of grazing management may be assessed. For example, retaining the necessary RDM will protect soil erosion and nutrient loss that could otherwise be caused by high intensity livestock grazing (Bartolome et al. 2002). By incorporating these elements into a grazing management plan, it is expected that grazing will minimize adverse effects on soil erosion while ensuring the objectives of the Draft LMP will be achieved.
- Unless and until a grazing management plan is adopted, and a grazing lease is adopted, or the terms of the CRRE are amended, grazing will continue at baseline conditions.
- Implementation of the management actions and BMPs listed above will ensure that the continuation of managed grazing will have a less-than-significant impact on soils and erosion.

Impact 5.6-2 — Additional Mitigation

None required.

5.6.8.5 Soil Erosion Associated with Prescribed Burning

Impact 5.6-3	**The Draft LMP recommends the use of prescribed burning as a vegetation management tool. Prescribed burning has the potential to adversely impact soils and result in the loss of soil from erosion. This impact is considered less than significant (Class III) because of mitigation provided by management actions and Best Management Practices incorporated into the project description.**

Fire, especially wildfire, has the potential to create major, widespread, long-term negative impacts to soils. It can impact physical, chemical, hydrological, and microbial properties of soil, expose soil to accelerated erosion by destroying soil-holding vegetation in the short term, and change or destroy fire intolerant plant communities in the long term. The degree to which soils are affected by fire, and how much impact a fire has on an ecosystem, are largely determined by how severely a fire burns. Fire severity reflects the duration and amount of energy that is released and available to alter various components of an ecosystem, whereas burn severity reflects the impact of fire on soils owing to heat at the soil surface (Erickson and White 2008).

Prescribed burning will be concentrated in the fire-adapted chaparral communities of the CPER, some of which have not burned in almost 100 years. Chaparral communities occupy about 1,250 acres of the CPER located primarily on the higher elevations of the western Chimineas units (CDFW 2018, Figure 4). This analysis assumes that implementation of the LMP vegetation management elements will include a single burn of about 625 acres of the chaparral community during the next 25 years either through naturally occurring wildfires or through a single prescribed burn. The precise location of a prescribed burn to be applied following adoption of the Draft LMP will be determined through the preparation of the fire management plan.

Prescribed fires, by design, tend to be less severe than wildfires, resulting in less impact on soil. Soil burn severity from both wild and prescribed fires is rarely uniform across a burned area. Likely negative impacts of severe fire on soils include destruction of the protective vegetation canopy and forest floor, a significant loss of soil carbon and nitrogen, and reduced infiltration capacity, which can lead to erosion by wind and water which in turn may cause increased runoff and sediment input into streams.

A study conducted in Southern California (Wohlgemuth et al. 2007) concluded that soil water repellency and thus runoff was lower after a severe fire in areas of native chaparral than in areas converted to grassland, suggesting that landscape conversion may contribute to erosion following a fire. In general, the capacity of soils to repel rainfall following a fire, along with the increased potential for erosion, is more likely to occur in areas of the CPER possessing the following characteristics:

- In coarse-textured soils which are more easily coated with organics than fine-textured soils;
- In chaparral areas (Figure 4); and
- In areas of high burn severity.

It should be noted that the effect of water repellency on soil erosion by runoff is strongly influenced by the amount and duration of rainfall following a fire.

The time of year that a prescribed burn occurs also affects the associated impacts to soils. Prescribed burns are often conducted during cooler seasons such as spring or fall. A prescribed burn may consume more organic matter in the fall when fuels are drier than in the spring (Knapp et al. 2009). Because of the 'patchiness' of early season burns, erosion associated with prescribed burning may be minimized.

Whether changes to soils as a result of fire are beneficial or detrimental will depend on the burn objectives. Burns at times of the year when soils (and fuels) are still moist may limit the amount of soil heating and leave a greater amount of duff unconsumed, which could reduce the threat of erosion. Fire suppression activities such as the construction of fire breaks (removing swaths of vegetation to limit the spread of a wildfire) can also impact soils via exposure to erosion, disturbance, and compaction if heavy equipment is used. Conversely, fire can also be used to manage vegetation, creating positive impacts for native plant and wildlife communities; and by reducing build-up of fuels it can be used to help prevent large-scale wildfires that might not only burn much larger areas but also may burn at higher and more destructive temperatures.

Fires of varying size and intensity have affected the CPER an average of about once every 6 years between 1917 and 2015 (Table 35, Section 5.3.11.4). Although prescribed burns would be designed to reduce the frequency and intensity of naturally-occurring fires, the effectiveness of prescribed burning to reduce the area burned by future fires is not clear (Price et al. 2012). However, it is well documented that wildfires spread more slowly and with lower intensity in areas with reduced fuels (Fernandes and Botelho 2003). For purposes of this analysis it is assumed that prescribed burning as recommended by the Draft LMP will reduce the number and intensity of wildfires in the chaparral communities of the CPER, compared with baseline conditions.

Impact 5.6-3 — Best Management Practices Recommended by the Draft LMP that Mitigate Potential Impacts to Soil Erosion Associated with Prescribed Burning

BMP G-1. The Department shall comply with relevant provisions of the California Environmental Quality Act (CEQA) prior to a decision to approve an activity with the potential to adversely impact the environment.

BMP G-2. The Department shall consult with other agencies with permit approval authority over aspects of management activities undertaken within the Reserve, to identify the relevant permit practices and to ensure compliance with applicable state and federal regulations.

BMP G-3. Management activities undertaken in accordance with the LMP shall meet the applicable permitting and regulatory practices of federal and state agencies, including, but not limited to, the following:

- California Department of Fish and Wildlife;
- U.S. Fish and Wildlife Service;
- State Water Resources Control Board;
- U.S. Army Corps of Engineers (Section 404 of the Clean Water Act);
- San Luis Obispo Air Pollution Control District; and
- California Department of Forestry and Fire Protection (CalFire).

BMP AQ-7. Prescribed burning shall be conducted in full compliance with the provisions of Rule 502 of the San Luis Obispo County Air Pollution Control District (SLO APCD) Rules and Procedures, including (but not limited to) the following:

- Approval of a burn permit by the SLO APCD at least 72 hours prior to the burn date;
- Preparation and approval of a Smoke Management Plan by the SLO APCD;
- Air quality monitoring, as may be required by the Air Pollution Control Officer;
- Consultation with the SLO APCD and surrounding air quality districts in advance of the burn date; and
- Participation in the Prescribed Fire Information Reporting System (PFIRS).

Impact 5.6-3 — Conclusions/Summary of Impact

In the areas where prescribed burning is likely to occur, soils would experience a temporary and localized increase in erosion until the vegetation returns. These impacts are considered less than significant due to the following factors:

- To accomplish the desired fuel management and biological objectives, a small total area of the CPER will be subject to prescribed burning (about 625 acres, or less than 1% of the CPER);
- A single fire during the 25-year timeframe is anticipated, thus the potential impacts to soils and erosion will be infrequent;
- The potential for increased erosion would be temporary until the vegetation returns;
- The use of prescribed fire is expected to reduce the number, frequency and intensity of future wildfires in the area, thereby reducing the potential for erosion associated with such fires; and
- Prescribed burning will be designed to enhance the natural community structure and species composition of vegetative communities where such burns occur, thereby improving soil conditions.

Lastly, compliance with the management actions and BMPs described above will ensure potential soil erosion impacts associated with prescribed burning will be **less than significant (Class III).**

Impact 5.6-3 — Additional Mitigation

None are required.

5.6.9 Cumulative Impacts and Mitigation Measures

This subsection is an analysis of the Draft LMP's contribution to cumulative impacts to soil resources (Section 5.1.4).

5.6.9.1 Cumulative Setting

The cumulative setting for soil related impacts includes the units of the CPER together with the watersheds of the Carrizo Plain and Cuyama Valley.

5.6.9.2 Cumulative Impacts Associated with Soil Erosion

Impact 5.6-4	**Implementation of the management actions recommended by the Draft LMP, when added to other closely related past, present, and reasonably foreseeable future projects in the region, would contribute to cumulative impacts associated with soil erosion impacts. This is considered a less than cumulatively considerable impact (Class III).**

The cumulative impact to soils and soil erosion is a function of:

- the type and quantity of proposed, planned, reasonably foreseeable, and approved development projects in the area;
- land use practices in the area; and
- activities and management practices on surrounding federal lands managed by the U.S. Forest Service and the Bureau of Land Management.

5.6.9.2.1 Present and Future Land Use/Reasonably Foreseeable and Approved Development Projects

Land uses in the region with the potential to result in cumulatively considerable impacts to soil erosion include dry-land farming and grazing, and activities undertaken on federal lands surrounding the CPER (Section 4.5.1). In addition, energy development in the form of photovoltaic solar arrays has been completed in California Valley. These projects (Topaz Solar Farm and California Valley Solar Farm) comprise 6,100 acres of developed area (Section 4.5.3). Construction activities and the resulting increase in impervious surfaces will increase runoff and the potential for the erosion of topsoil.

It should be noted that new development is subject to environmental review in accordance with CEQA, and must demonstrate compliance with federal and state water quality standards. Previously approved solar projects in the California Valley (Topaz Solar Farm and California Valley Solar Farm) completed the environmental review process and are subject to conditions of approval/mitigation measures that reduce potential for soil erosion impacts to a less than significant level (SLO County 2011a, b). Comparable conditions/mitigation measures can be expected to be applied to future development projects in the region. It should be noted that dryland farming was eliminated on over 1,000 acres of mitigation lands associated with the solar projects. The cessation of dryland farming will reduce soil erosion in these areas.

Carrizo Plain National Monument Resource Management Plan

The CPNM consists of 246,817 acres stretching from Soda Lake on the north to Highway 166 to the south. In April, 2010, BLM adopted a FEIS and approved a RMP for the CPNM (BLM 2010; Section 4.5.1.1).

The RMP includes management actions aimed at minimizing soil erosion including (BLM 2010):

- Action SOIL-1(I*): Identify and evaluate erosion problems and implement corrective actions as needed.
- Action SOIL-2(I): Limit fugitive dust pollution by reducing disturbance to soils.
- Action SOIL-3(S): Incorporate BMPs into project authorizations to minimize erosion/sedimentation and conserve biological soil crusts.
- Action SOIL-4(S): Develop and implement BMPs to reduce the threat of exposure of area residents, visitors, and employees to valley fever.
- Action SOIL-5(S): Assess/inventory soils within CPNM for proper functioning condition using criteria such as Rangeland Health Standards and Guidelines.
- Action SOIL-6(I*): Identify and evaluate erosion problems and implement corrective actions as needed. Develop strategies to improve conditions on soils that are eroding. Priority will be given to human-caused problems that impact natural community processes or areas inhabited by special-status species.
- Action SOIL-7(S): Conserve/minimize impacts to areas that contain biological soil crusts.
- Action SOIL-8(I*): Consider seasonal closures to areas of sensitive soils.
- Action SOIL-9(I*): Consider seasonal closures on roads where excessive ruts occur to prevent road proliferation and resulting soil impacts such as erosion.

In addition, the RMP recommends several BMPs aimed at minimizing soil erosion.

Bakersfield Field Office of the BLM Resource Management Plan

The BLM RMP for other lands managed by the Bakersfield Field Office provides goals and objectives for water quality protection as well as recommended "decisions" to guide implementation including (BLM 2014):

Objectives

- Manage soils to meet or exceed the Soil Standard of Rangeland Health, as indicated by ground or plant cover, diversity of plant species, minimal evidence of accelerated wind and water erosion and the presence of the biological soil crusts where appropriate.

Decisions

- Design BLM programs and management activities and authorize projects to minimize impacts on soil productivity by implementing BMPs. Specifically minimize disturbance of the following soils types:
    - Serpentine Soils;

- Soils supporting "Biological Crusts" – hosting communities of cyanobacteria, mosses, lichens and liverworts;
- Soils highly susceptible to erosion or compaction; and
- Soils hosting high levels of Valley Fever spores.

In addition, the Proposed RMP recommends several BMPs aimed at minimizing soil erosion.

Los Padres National Forest Land Management Plan

The LPNF LMP recommends the following actions to protect soils (USDA 2005a):

- Maintain or restore soil properties and productivity to ensure ecosystem health (soil microbiota and vegetation growth), soil hydrologic function, and biological buffering capacity;
- Assess and manage geologic resources and hazards to integrate earth science principles and relationships into ecosystem management, reduce risks to people and resources, and interpret and protect unique values;
- Maintain watershed integrity by replacing or disposing of displaced soil and rock debris in approved placement sites; and
- Evaluate ecosystem health. Indicators used in the evaluation include, but are not measures of riparian structure and function; the amount and distribution of noxious weeds and invasive, nonnative species; soil health; threatened, endangered, proposed sensitive species habitat; rare plant species vigor; plant community composition and structure; sensitive heritage resources; and water quality. Adjust livestock management necessary.

The LPNF LMP also includes BMPs aimed at maintaining and improving water quality.

Impact 5.6-4 — Conclusions/Summary of Impact

Activities undertaken on private properties as well as federal lands surrounding the CPER have the potential to contribute to the cumulative loss of soil from erosion. With respect to development projects, as discussed above, each project is subject to compliance with CEQA and/or NEPA and must demonstrate compliance with applicable building codes relative to the protection of soils.

The agencies governing federal lands surrounding the CPER have adopted management plans and BMPs to protect soils from erosion. Development on federal land is also subject to compliance with NEPA which requires the assessment of potential impacts to soils and the identification of mitigation measures to minimize soil erosion impacts.

Lastly, as discussed under impacts 5.6-1 through 5.6-3, the Draft LMP includes a range of management actions and BMPs to ensure that activities undertaken on the CPER following adoption of the Draft LMP will mitigate their impact on soil erosion. Therefore, the contribution of the Draft LMP to the cumulative impacts of soil erosion is considered **less than cumulatively considerable (Class III).**

Impact 5.6-4 — Additional Mitigation Measures

None required.

5.7 Hazards

5.7.1 Introduction

The section analyzes the potential to create hazards to public health and safety associated with implementation of the management actions recommended by the Draft LMP. The following discussion addresses existing environmental conditions on the CPER and in the area, identifies and analyzes environmental impacts, and recommends measures to reduce or avoid adverse impacts anticipated from management actions included in the Draft LMP. In addition, existing laws and regulations relevant to hazards are described. In some cases, compliance with these existing laws and regulations would serve to reduce or avoid certain impacts that might otherwise occur with the implementation of the management actions recommended by the Draft LMP. This section ends with a discussion of cumulative impacts related to hazards.

Section 5.8 Hydrology and Water Quality analyzes hazards associated with flooding, Section 5.3 Air Quality and Climate Change analyzes hazards associated with air pollution, and Section 5.9 Public Services assesses potential impacts to fire protection services.

5.7.2 Sources Used in This Analysis

This analysis is based on a review of applicable law, local planning documents, and publications including:

- Draft Land Management Plan for the Carrizo Plains Ecological Reserve (CDFW 2018);
- San Luis Obispo County Emergency Operations Plan (SLO County 2005);
- San Luis Obispo County Fire Management Plan (SLO County and CalFire 2009);
- San Luis Obispo County Local Hazard Mitigation Plan (SLO County 2011c); and
- Information on disease provided by the Centers for Disease Control and Prevention (CDC 2012 and 2013).

References for these and other resources cited are provided in Section 10 References.

5.7.3 Scoping Issues for Issues Relating to Hazards and Public Safety

During the 30-day public review period for the Notice of Preparation for the Draft LMP, written and oral comments were received from agencies and the public. The following issues relating to hazards were raised during the scoping process and are addressed in this section:

- New parking areas that may be established along Highway 166 have the potential to impact the safe operation of the highway; and
- The DEIR should evaluate the use of herbicides and pesticides on the CPER.

5.7.4 Environmental Setting

The following description of the CPER was derived largely from the Draft CPER LMP (CDFW 2018).

5.7.4.1 Hazards Associated with Wildfires

The CPER experiences recurring wildfire, which is a natural component of the disturbance regime within the ecosystem. The CPER features areas of moderate and high fire risk (Figure 35; CalFire 2006) The fire hazard is influenced by several factors, including the age of vegetation (i.e., time since last fire), climate, and topography, and vegetation management programs that may have been implemented.

5.7.4.1.1 Fuel Type and Conditions

Certain vegetative communities exhibit a greater susceptibility to fire (Table 56; Figures 21 and 35). Within the CPER, chaparral presents a very high fire hazard, as it burns with intense heat and the amount of fuel available to burn can be very high if the area has not been recently burned or is not otherwise managed to reduce fire risk. Dead plant material as the result of insect or disease infestations can increase fire hazard. Table 56 summarizes the fire hazard associated with the vegetative communities of the CPER.

Table 56: Fire Hazard Associated with the Vegetation Elements of the CPER

Element	Acres	Dominant Species	Fire Hazard
Grassland	21,306	Slender wild oats, wild oat, rattail fescue, vetch, redstem filaree, red brome, fiddlenecks, common monolopia	High
Coastal Scrub	4,625	Sparse to moderate cover of soft woody shrubs with herbaceous plants in between	High
Chaparral	1,251	Moderate to dense cover of sclerophyllous shrubs with herbaceous cover limited to canopy gaps, except following fire.	Very High
Desert Scrub	4,770	Sparse to moderate cover of a variety of primarily soft-leaved shrubs found in desert and transitional areas with herbaceous plants in between	Moderate
Oak Woodland	3,547	Sparse to dense cover of trees with shrubs and/or herbs in the understory	Moderate
Juniper Woodland	3,037	Moderate to dense cover of trees with shrubs and/or herbaceous plants in the understory	Moderate
Riparian and Riverine	261	Sparse to moderate cover (rarely dense) of shrubs with scattered clumps of large trees	Low
Wetland	107	Very sparse to moderately dense cover of herbaceous plants.	Low
Ponds	7.4	Variable, with some featuring just aquatic species and others featuring emergent plants as well as wetland and riparian species on the margins.	Low
Cliffs snf Rocks Outcrops	10	Relative sparse cover of primarily herbaceous species and some shrubs	Low
Total	**38,921**		

Sources: CDFW 2018, Katelman 2010

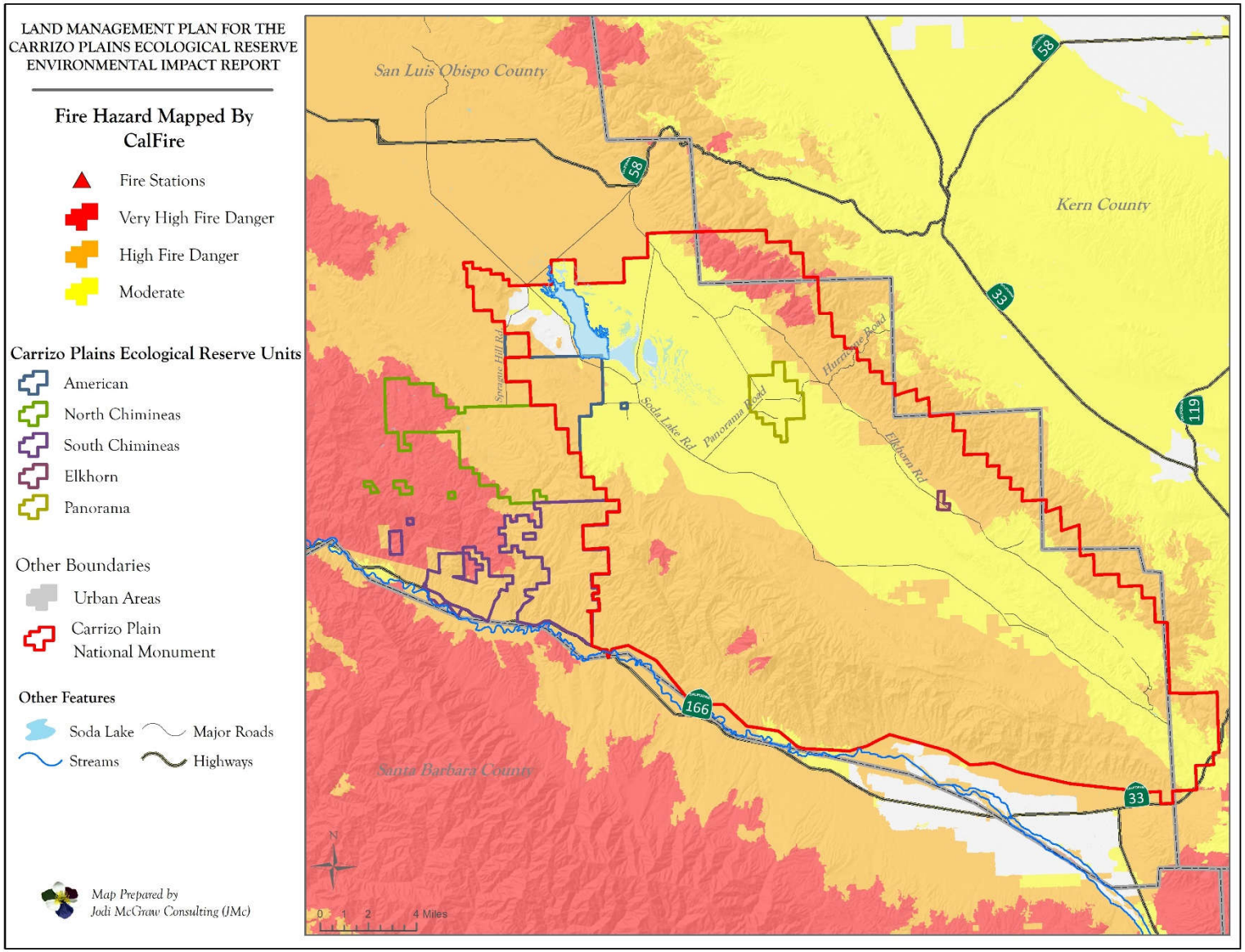

Figure 35: Fire Hazard and Fire Stations

5.7.4.1.2 Topographic Factors

The CPER occurs within and west of the Carrizo Plain within the Caliente, Temblor, and La Panza range mountains, which feature steep, rugged terrain as well as rolling foothills adjacent to the plain. Steep terrain increases the spread of fire, which burns faster uphill. Generally, when the gradient of a slope doubles, the rate of spread of a fire will also double. Steep topography also channels air flow, thereby creating wind patterns that can promote fire spread. Limited accessibility in steep areas, which typically lack roads, impedes fire suppression.

5.7.4.1.3 Climate

The CPER features a Mediterranean climate characterized by hot, dry summers and cool, relatively wet winters (Section 5.8.3.1). Precipitation occurs primarily between November and April, mainly in the form of rain but occasionally as snow at higher elevations. Because summers are generally hot and dry, the risk of wildfires is highest in late summer and early fall. Fog and cool weather that are common in the coastal regions help to maintain moisture levels in vegetation along the coast, which helps to minimize fire risk. The hot and dry conditions of the inland mountains and valleys of the county, however, can quickly desiccate vegetation resulting in an increased fire risk.

Wind patterns can also affect wildfire intensity and behavior. As wind velocity increases, the rate of fire spread also increases. Gusty and erratic wind conditions can cause a fire to spread irregularly, making it difficult to predict its path and effectively deploy fire suppression forces.

Relative humidity is also an important fire-related weather factor. As humidity levels drop, vegetation moisture levels decrease, thereby increasing the likelihood that plant material will ignite and burn.

5.7.4.1.4 Fire History

Fire history within the CPER region has been variable and reflects the natural disturbance regime of the various vegetation types within the region and influences from human inhabitants. Prior to the arrival of European and Mexican settlers in California, the Chumash people, who lived in Santa Barbara and San Luis Obispo counties, used fire to manage natural plant communities and promote the growth and/or reproduction of plant species that were collected for food. According to the written accounts of Spanish missionaries and settlers during the eighteenth century, the Chumash used fire to promote the growth of various herbs, bulbs, seed plants, and green shoots for consumption (Timbrook et al. 1982). The effects of such frequent burning by Native Americans on the structure and dynamics of plant communities have been debated. While some suggest that burning maintained grasslands and savannas in areas that otherwise converted to chaparral during periods of fire suppression, as occurred following arrival of European settlers in California, others have argued this floristic transition is the result of more frequent fires in recent times (Burcham 1974, p 119-120, cited in Timbrook 1982).

The recent fire history has been catalogued by the California Department of Fire Protection and Forestry (CalFire). Though not complete, the database generally includes fires of at least 300 acres; fires on U.S. Forest Service land that are least 10 acres are also included (CalFire 2015).

There have been no historic mapped fires in either the Panorama or Elkhorn units. Three fires have been recorded within the American Unit (Table 35, Figure 18). In 1981, The Washburn Ranch fire, which was ignited by equipment use, burned 2,813 acres in the central portion of the unit. In 1996, 2,230 acres in

roughly the same area burned again by the Overlook fire, which was an escaped prescribed fire. A powerline sparked the American Fire in 1997, which burned 860 acres in the southern half of the unit.

The Chimineas units have experienced 16 recorded fires (Table 35, Figure 18). Between 1917 and 1957, five unnamed fires burned between 43 and 8,396 acres of land occurring within the present-day Chimineas units. In 1979, the Spanish Ranch fire burned 751 acres in the South Chimineas Unit. The Washburn Ranch fire of 1981 burned 137 acres of the northeastern corner of the North Chimineas Unit. The Spanish fire of 1982 burned 220 acres in the Cuyama Management Unit of the South Chimineas Unit. The Spanish fire of 1998 and the Spanish fire of 2003 burned 100 and 23 acres, respectively in the West Grantline Management Unit of the South Chimineas Unit. The Overlook and American fires that largely affected the American Unit also burned 1 and 180 acres, respectively, in the North Chimineas Unit. In 1997, the Logan fire burned 4,596 acres of land across both Chimineas units, and included portions of the CRP South, Cuyama, Garcia, Gifford, Gillam, Red Tank, Saltos, Taylor, and White Rock management units. The Cuyama fire of 2006 burned 379 acres is the East Grantline Management Unit of the South Chimineas Unit. The Rancho 2 fire, which was sparked by equipment use in 2006, burned 112 acres along the Cuyama River in the Cuyama Management Unit. The 2010 Cotton fire, which was ignited by a vehicle traveling Highway 166, burned 730 acres in the East Grantline and Taylor management units of the South Chimineas Unit. A portion of this area burned in a fire in 2008 that was not mapped by CalFire presumably due to its small size. The 2012 Caliente Fire, which was ignited by lightning, burned 144 acres on the western slope of the Caliente Mountains in the South Chimineas Unit (Figure 12). The 2013 Branch Fire, which burned a total of 490 acres mostly on the Los Padres National Forest, affected a small portion (approx. 2 acres) of the North Chimineas Unit.

Though it can be difficult to generalize aspects of the fire regime of the region based on the available data, it would appear that Highway 166 and the associated ranches along it may provide ignition sources for fires affecting the South Chimineas Unit of the CPER. It also appears that fires burning within densely vegetated Los Padres National Forest to the west can spread into the Chimineas units, owing to the prevailing westerly winds. Though there have been no recorded fires in the Panorama and Elkhorn units, small fires (<2,000 acres) occasionally occur within the Carrizo Plain. The lower frequency of fire likely reflects the reduced flammability of the desert scrub and sparser grassland vegetation in this area, relative to the coastal scrub, and chaparral in the western portions of the Chimineas units.

5.7.4.2 Disease Vectors

A disease vector is any organism capable of transmitting the causative agent of human disease or capable of producing human discomfort or injury, including mosquitoes, flies, fleas, cockroaches, mites, rats, or fungi. The accumulation of organic waste acts as an attractor for flies, fleas, cockroaches, and rodents and other mammals, which can be carriers of various human diseases. In addition, any depressed areas, ponds, or drainage channels provide areas for the breeding of mosquitoes, which can be carriers of the West Nile Virus, a potentially-fatal disease in humans.

5.7.4.2.1 Valley Fever

The American, Panorama, and Elkhorn units of the CPER are in areas that may harbor the fungus found in the soil of dry, low rainfall areas, which causes coccidioidomycosis, commonly known as Valley Fever. According to the Centers for Disease Control (CDC 2013), Valley Fever can infect the respiratory system and may, in rare instances, spread from the lungs to the rest of the body and cause more severe conditions such a meningitis or even death. Valley Fever cannot spread from person to person; in most people the

infection will go away on its own, but for people who develop severe infections or chronic pneumonia, medical treatment is necessary. The spores[8] that cause Valley Fever live in the soils of the southwestern United States in areas of low rainfall; they can become airborne when the soil is disturbed including by farming, construction activities, and wind. Infection rates are highest in California from June to November when soils are driest.

5.7.4.2.2 Anthrax

Anthrax is a naturally occurring disease of animals (e.g., sheep, goats, and cattle) caused by the bacterium *Bacillus anthracis*. The bacteria live in the soil in many parts of the world, where their protective outer coats enable them to withstand harsh or adverse conditions that would normally kill bacteria. Animals can get anthrax by ingesting anthrax spores from the soil. Anthrax can be controlled by vaccination of animals.

According to the CDC (2012), humans can become infected with anthrax by handling products from infected animals or by breathing in anthrax spores from infected animal products like wool. People can also become infected with gastrointestinal anthrax by eating undercooked meat from infected animals.
In most cases, early treatment with antibiotics can cure cutaneous (skin) anthrax. Even if untreated, 80 percent of people who become infected with cutaneous anthrax survive. Gastrointestinal anthrax is more serious because between one-fourth and more than one-half of cases lead to death. Inhalation anthrax is much more severe; in 2001, about one-half of the cases of inhalation anthrax associated with terrorist attacks ended in death (CDC 2012). Anthrax is not known to spread from one person to another.

Most anthrax outbreaks occur in areas where animals have previously died of anthrax, as the spores remain viable for many years; spores over 35 years old have been able to cause the disease. Often, the outbreaks occur after climatic changes such as heavy rain, flooding, or drought, which bring spores to the ground surface and may concentrate the spores in low spots. Working the land may also bring the spores up to the soil surface (Kirk and Hamlen 2005). During 1984, an anthrax outbreak occurred in the Carrizo Plain that affected 12 general areas. This outbreak was associated with the movement of an infected band of sheep and dumping of the carcasses from this band in several locations.

5.7.4.3 Motor Vehicle Safety

Regional access to the CPER is provided by State Highway 166 which crosses the southerly portion of the South Chimineas Unit and provides public access to the unit via Chimineas Ranch Road, which is 36 miles east of Santa Maria (approximately 100,0000 inhabitants) in Santa Barbara County, and 50 miles west of Taft (approximately 9,300 inhabitants) in Kern County. Highway 58 traverses the northern portion of the Carrizo Plain and provides access to the CPER from the north from U.S. Highway 101 in San Luis Obispo County and Interstate Highway 5 in Kern County (Figure 3).

County roads provide the primary local access to the CPER. The main access route bringing visitors to the Carrizo Plain, Soda Lake Road connects Highway 58 near California Valley to Highway 166 just west of Maricopa. Soda Lake Road traverses the western portion of the Carrizo Plain and the northeast portion of the American Unit. It provides access to the Department's Painted Rock Ranch via Painted Rock Ranch Road. From Soda Lake Road, the North Chimineas Unit and the western portion of the American Unit can be accessed via Sprague Hill Road (also known as Soda Lake-San Diego Creek Road).

[8] A spore can be thought of as a cell that is dormant (asleep) but may come to life with the right conditions.

On the eastern side of Carrizo Plain, Elkhorn Road, which traverses the foothills the Temblor Range, provides access to the Elkhorn Unit from State Highway 58 to the north and State Highway 166 via Soda Lake Road from the south. Elkhorn Road also provides access to the eastern portion of the Panorama Unit, which can also be reached from Soda Lake Road to the west via Panorama Road.

The California Highway Patrol (CHP) provides safety and law enforcement patrol for highways 166 and 58 in cooperation with the San Luis Obispo County Sheriff's Department.

5.7.4.3.1 State Highway 166

Highway 166 is a two-lane highway connecting Highway 101 near Santa Maria (60 miles west) with Interstate 5 (45 miles east). Near the CPER, Highway 166 exhibits frequent turns and dips. According to the Statewide Integrated Traffic Records System (SWITRS) six traffic accidents were reported on Highway 166 in the vicinity of the CPER between 2001 and 2011 which resulted in no fatalities (CHP 2011). Overall, the total number of accidents on Highway 166 declined each year. Highway 166 is designated as a state truck route for terminal Access, which limits the trailer length to 48 feet. Speed limits along Highway 166 near the CPER vary from 45 to 55 miles per hour.

Highway 166 is designated as the transport route for explosives and for the transport of fuming nitric acid, anhydrous hydrazine, and liquid nitrogen tetroxide in cargo tanks. Highway 166 is also used in the transport of natural gas liquids, anhydrous ammonia, and liquefied petroleum products. Highway 166 is officially designated as on-call by the California Highway Patrol (CHP), which means that CHP responds to calls received.

The Highway 166 Task Force was created after accident history on this state highway indicated that statewide thresholds were exceeded. Representatives of the Santa Barbara County Association of Governments (SBCAG), the California Highway Patrol (CHP), Caltrans, and the San Luis Obispo Council of Governments (SLOCOG) meet at least twice a year, and more frequently when needed, to identify problem areas and secure funding for safety and operational improvements.

5.7.4.3.2 Soda Lake Road

Soda Lake Road is a two-lane County–maintained road that connects Highway 58 on the north with Highway 166 to the south through the California Valley and the CPNM. The portion of Soda Lake Road that passes through the northern CPNM and the American Unit of the CPER is paved and maintained by the County. Soda Lake Road is unpaved south of the cut-off to Painted Rock Ranch. Between 2010 and 2012, there were no traffic accidents recorded on Soda Lake Road. Because of the unpaved surface within the majority of the CPNM, the roadway may be impassible at certain times of the year. The roadway is fairly straight and speeds average 40 miles per hour.

5.7.5 Applicable Regulations, Plans and Policies

5.7.5.1 Federal

5.7.5.1.1 National Weather Service

Under extreme fire weather conditions, the National Weather Service (NWS) issues Red Flag Warnings, which indicate that any ignition could result in a large-scale damaging wildfire. The NWS region

encompassing the CPER is the Los Angeles/Oxnard Region, and the Carrizo Plain is within the San Luis Obispo Interior Valleys Zone. Red Flag Warning criteria as of June 1, 2010 for the Los Angeles/Oxnard Region include dry fuels plus any one of the following: (1) relative humidity 15 percent or less with sustained winds of 25 mph or greater or frequent gusts of 35 mph or greater (for a duration of 6 hours or more), (2) relative humidity 10 percent or less with sustained winds 15 mph or greater or frequent gusts 25 mph or greater (for a duration of 6 hours or more), (3) widespread and/or significant dry lightning, and (4) other unusual but significant meteorological and/or fuel conditions. The average number of days for which the San Luis Obispo Interior Valleys zone has been under a Red Flag Warning is two days per year, with a minimum of zero days and a maximum of six days over a six-year period (NWS 2010).

5.7.5.2 Occupational Safety and Health Administration

The mission of the national Occupational Safety and Health Administration (OSHA) is to ensure the safety and health of America's workers by setting and enforcing standards; providing training, outreach, and education; establishing partnerships; and encouraging continual improvement in workplace safety and health. OSHA staff establishes and enforces protective standards and reaches out to employers and employees through technical assistance and consultation programs. OSHA standards are listed in Title 29 CFR Part 1910.

5.7.5.3 U.S. Environmental Protection Agency

The U.S. Environmental Protection Agency (EPA), Region IX, has developed Risk-Based Screening Levels (RBSLs) for toxic compounds in soil. The RBSLs are health risk standards that have been developed for a wide range of toxic compounds, including volatile organic compounds, metals, semi-volatile organic compounds, and pesticides. Achieving RSBLs is typically accomplished by following the remediation recommendations of a Soil Sampling and Analysis Plan to determine the presence and extent of any residual herbicides, pesticides, and fumigants.

5.7.5.4 State

5.7.5.4.1 Fire Hazard Severity

California has enacted statewide laws aimed at reducing wildfire hazards in wildland-urban interface areas. These regulations cover topics such as fire prevention, vegetation management, notification and penalties, fire hazard severity zones, defensible space, setbacks, and exemptions. The state's Fire Hazard Zoning Field Guide (CalFire 2000) provides guidance for fire risk reduction.

5.7.5.4.2 California Public Resources Code/Vegetation Management Program

CalFire has a fuel reduction program called the Vegetation Management Program, which has limited funding to conduct fuel management activities to prevent high-intensity wildfire through fuel modification. If brush can be kept at the medium fuel load level, then the intensity of fire can be reduced substantially.

5.7.5.5 Local

5.7.5.5.1 San Luis Obispo County Fire Management Plan

The 2009 Fire Management Plan prepared by the San Luis Obispo County Fire Department in coordination with CalFire aims to increase the safety of residents and firefighters during wildland fires and to reduce the costs and losses associated with wildland fires (SLO County and CalFire 2009). The document includes a risk assessment and an action plan for education, inspection, and fuel treatment.

5.7.5.5.2 Community Wildfire Protection Plan

The Community Wildfire Protection Plan (CWPP) is an update of the 2009 Fire Management Plan. Accordingly, the CWPP is being developed to address fire protection planning efforts occurring in the County to minimize wildfire risk to communities, assets, firefighters, and the public. The CWPP process is intended to provide a forum for identifying values at risk from wildfire, which may include people, property, natural resources, cultural values, economic interests, and infrastructure. Development of the CWPP implements the goals and objectives of the California Fire Plan at the local level (SLO County and CalFire 2013b).

5.7.5.5.3 Safety Element of the San Luis Obispo County General Plan

The Safety Element of the San Luis Obispo County General Plan has two main principles: to be ready for disaster, and to manage development to reduce risk (SLO County 1999). The Safety Element covers hazards related to flooding, geology, fire, hazardous materials, and other causes. Although land within the CPER is not subject to local land use regulations, all of the land in San Luis Obispo County surrounding the CPER that is not owned by the federal or state governments is subject to the policies and programs of the Safety Element.

5.7.5.6 San Luis Obispo County Emergency Operations Plan

The Emergency Operations Plan (EOP) provides guidance, procedures, and county policies pertaining to emergency planning and response within the unincorporated county (SLO County 2005). It is not the intent of the EOP to supersede the response procedures or emergency response plans that have been prepared by other agencies, such as CalFire or city fire departments. Rather, the EOP provides support for the agencies that have the primary responsibility for responding to an emergency incident. The EOP is comprised of five emergency plans: 1) Earthquake Response Plan; 2) Hazardous Materials Emergency Response Plan; 3) Dam Failure Evacuation Plan; 4) Nuclear Power Plant Emergency Response Plan; and 5) Storm Emergency Plan (SLO County 2005).

5.7.5.7 San Luis Obispo County Local Hazard Mitigation Plan

The Disaster Mitigation Act (DMA) of 2000, also commonly known as "The 2000 Stafford Act Amendments" (the Act), constitutes an effort by the federal government to reduce the rising cost of disasters. The Act stresses the importance of mitigation planning and disaster preparedness prior to an event. Mitigation Planning Section 322 of the Act requires local governments to develop and submit mitigation plans in order to qualify for the Hazard Mitigation Grant Program (HMGP) project funds. It also

increases the amount of HMGP funds available to states meeting the enhanced planning criteria, and enables these funds to be used for planning activities.

In July, 2011, San Luis Obispo County adopted an update to the county's Local Hazard Mitigation Plan (LHMP) consistent with the requirements of the Disaster Mitigation Act (SLO County 2011c). The LHMP addresses risks associated with the following hazards:

- Earthquakes/Liquefaction;
- Floods;
- Landslides;
- Tsunami and Seiche;
- Wildfire;
- Extreme Weather;
- Coastal Storm / Coastal Erosion;
- Biological Agents; and
- Pest Infestation and Disease.

5.7.5.8 San Luis Obispo Air Pollution Control District Rule 502 - Agricultural and Prescribed Burning

Rule 502 applies to all agricultural and prescribed burning in the county and is intended to implement the Smoke Management Guidelines of Article J, Subchapter 2 of Title 17 California Code of Regulations and the San Luis Obispo County Air Pollution Control District Smoke Management Program. In sum, a burn permit must be issued by the San Luis Obispo Air Pollution Control District (SLO APCD) for any prescribed burn and is valid only for the days and times prescribed on the permit. A Smoke Management Plan must be submitted for review and approval by the SLO APCD at least 14 days prior to the burn.

5.7.5.9 San Luis Obispo County Fire Department/CalFire Burn Permit

During the fire season between May 1st and end of the declared fire season, a burn permit is required in accordance with Section 4423(b) of the Public Resources Code (SLO County and CalFire 2013a).

5.7.6 Standards of Significance

Based on criteria derived from Appendix F in the CEQA Guidelines, the Draft LMP would result in a significant impact to the environment or to human health and safety if it would:

1. Expose people or structures to a substantial risk of loss, injury, or death involving wildland fires;
2. Impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan; or
3. Create a substantial hazard to people or the environment by mobilizing existing contamination or generating disease vectors.

5.7.7 Impacts Found to Be Less Than Significant

Based on the supporting evidence provided in the initial study (Appendix B), the following impacts have been determined to be less than significant:

- Hazards to the public or the environment through the routine transport, use, or disposal of hazardous materials;

- Hazards to the public or the environment associated with reasonably foreseeable upset and/or accident conditions involving the release of hazardous materials into the environment;
- The emission of hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school;
- Location on a site which is included on a list of hazardous materials sites;
- Location within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport;
- Location in proximity to a private airstrip; and
- Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.

5.7.8 Project Impacts and Mitigation Measures

Table 57 lists the recommended management goals and actions that will help minimize hazards to people, property and resources of the CPER as the Draft LMP is implemented.

5.7.8.1 Previous Environmental Review

In November 2011, the Department adopted a Mitigated Negative Declaration (MND) and approved a lease agreement authorizing continued managed grazing of about 12,000 acres on portions of the North and South Chimineas units (Figure 5; CDFW 2011b). Under the terms of the lease, grazing activities would be subject to a range of restrictions, standards, monitoring and remediation activities. The lease agreement set specific standards for biomass and residual dry matter (RDM) to be maintained in all grazed areas, to protect the soil and create and maintain desired habitat conditions for the special-status animal species (Section 4.4.1).

Table 57: LMP Management Goals and Actions that Address Hazards

LMP Section	Topic	Goals[1]	Management Actions[1]	Summary/ Relevance to the Protection of People and Property from Hazards
4.2.1.1	Disturbance Regimes	B1	B1.1, B1.2, B1.3	Support for research to inform fire management to maintain and enhance natural communities while minimizing hazards associated with the natural processes of CPER.
4.4.1	Fire Management Element	V1	V1.1, V1.2, V1.3	Fire management guided by a fire management plan will help reduce the risk of large-scale wildfires.
4.4.2	Grazing Management Element	V2	V2.1, V2.2, V2.3, V2.4, V2.5	Managed livestock grazing will help reduce the fuel load on portions of the CPER.
4.5	Exotic Plant Management Element	V3	V3.1, V3.2, V3.3, V3.4, V3.5, V3.6, V3.7, V3.8	Reducing exotic plant cover will help reduce the fuel load while enabling native species to become re-established.

Table 57: LMP Management Goals and Actions that Address Hazards

LMP Section	Topic	Goals[1]	Management Actions[1]	Summary/ Relevance to the Protection of People and Property from Hazards
4.6.1	Environmental Education Element	P1	P1.1, P1.2, P1.3	Facilitate better understanding of the natural processes of the CPER and will inform the public of management actions intended to minimize hazards.
4.6.6	Public Safety Element	P9, P10	P9.1, P9.2, P9.3, P9.4, P10.1, P10.2, P10.3, P10.4, P10.5	Encourages compliance with relevant safety codes and coordination with public safety agencies. Recommends preparation of an emergency response plan.
4.6.7	Community Outreach and Involvement Element	P11	P11.1, P11.2	Foster partnerships among stakeholders for the protection of the resources of the CPER.
4.6.8	Unauthorized Public Use Element	P12	P12.1, P12.2, P12.3, P12.4, P12.5, P12.6, P12.7	Ensure public safety regulations are enforced.
4.8	Facilities Maintenance Element	F1, F2	F1.1, F1.2, F1.3, F1.4, F1.5, F1.6, F1.7, F1.8, F2.1, F2.2, F2.3	Ensure facilities of the CPER are maintained in a safe condition and that hazardous materials are used in accordance with relevant laws.
4.9	Management and Monitoring Coordination Element	M1, M2, M3	M1.1, M1.2, M1.3, M1.4, M1.5, M2.1, M2.2, M2.3, M2.4, M3.1, M3.2, M3.3, M3.4	Ensure management actions are coordinated with other agencies.

Notes:

1. The complete text of recommended management goals and actions is provided in Section 4 of the Draft LMP (CDFW 2018)

With regard to the impacts of managed grazing on hazards to the public, the adopted MND concluded that execution of the lease agreement would have a less-than-significant impact and could have a beneficial impact to the extent that grazing helps reduce the fuel load on the CPER (CDFW 2011b).

In 2005 the Department entered a cooperative agreement with the Cachuma Resource Conservation District and the owner of the ranch that borders the South Chimineas Unit (the Russell Ranch) to enhance riparian habitat along a four-mile portion of the Cuyama River along the shared boundary of the two properties (Section 4.4.2). Known as the Cuyama River Riparian Enhancement (CRRE), the project installed four miles of fencing on both the north and south sides of the river to exclude cattle from the riparian vegetation. In exchange for excluding grazing along the River, the agreement allows the property

owner to graze approximately 200 acres of the South Chimineas Unit during dry years when feed-stock is low on the remaining portions of their ranch. The agreement includes a management plan which sets forth stocking levels, standards for residual dry matter, and stock rotation. Adoption of the CREE was determined to be Categorically Exempt under CEQA.

The Draft LMP recommends the continued use of managed livestock grazing on the CPER as a vegetation management tool. New or expanded grazing activities will be preceded by the adoption of a grazing management plan following project-specific environmental review. Unless and until a new grazing lease is adopted, or the terms of the CREE are amended, adoption of the Draft LMP will have no impacts to hazards to the public associated with continued managed grazing above baseline conditions.

5.7.8.2 Methodology

Impacts associated with wildland fires were assessed by comparing the historic number and intensity of fires on the CPER with the number and intensity of fires likely to occur following adoption and implementation of the management actions and BMPs recommended by the Draft LMP.

Information from the CDC and the University of California, Davis were used to assess the risk of disease vectors on the CPER, and the extent to which management actions recommended by the Draft LMP would contribute to this risk.

Traffic hazards are assessed based on the speed, alignment, and history of traffic accidents on a given roadway, and how recommended management actions could adversely impact safety.

5.7.8.3 Risk of Wildland Fires

Impact 5.7-1	**Management actions recommended by the Draft LMP could result in an increased risk of wildland fires. This impact is considered less than significant (Class III) because of mitigation provided by management actions and Best Management Practices incorporated into the project description.**

The CPER is in a region where wildfire is a large concern. Within the CPER, fire plays an important role in maintaining the diverse mosaic of communities of various successional (seral) stages, and thus greatly contributes to the CPER's native species diversity. Fire is a major component of the natural disturbance regime of many of the CPER's communities, including the chaparral and oak woodlands, and creates and maintains habitat for many native species, including mule deer. As a result, fire can be an effective landscape-level vegetation management tool for attaining the biological goals of the CPER (CDFW 2018).

Unnatural fire ignitions associated with human activities, particularly along Highway 166 and other roads, may negatively impact the biological systems, cultural resources, and facilities of the CPER, as well as pose a threat to public safety and property. Due to the proximity to human development and the associated threat to lives and property, fire protection agencies responsible for land within the CPER will continue to actively suppress wildfires (CDFW 2018).

5.7.8.3.1 Prescribed Burning

The Draft LMP recommends the use of prescribed burning to maintain natural community structure and species composition in fire-adapted communities, to control the spread of exotic plant species, and to help

manage the fire fuel load on the CPER. Fire management in the CPER will be designed based on the biological and vegetation management goals outlined in the LMP, by biologists and fire practitioners familiar with regional experience, and implemented in coordination with fire protection agencies and with input from adjacent landowners (CDFW 2018).

Potential prescribed burns will target the fire-adapted chaparral communities, some of which have not burned in almost 100 years. Chaparral communities occupy about 1,250 acres of the CPER located primarily on the higher and western elevations of the North Chimineas Unit. This report assumes that approximately 625 acres of the chaparral community (or 50 percent) would be burned over the next 25 years through either by a single prescribed burn or a wildfire (Section 3.11.4). The precise location and timing of a prescribed burn to be conducted following adoption of the Draft LMP will be determined through the preparation of a fire management plan (CDFW 2018).

Although relatively rare, prescribed fire can escape the desired burn area. Out of over 35,000 prescribed burns conducted nationwide between 1996 and 2005, 273 (0.78%) escaped the boundaries of the desired burn area (Dether and Black 2005). Burn plans designates a boundary for the prescribed fire and any burning that occurs outside of this boundary is technically an escape, though it may only burn a small area and cause no property damage or injury.

Prescribed burning also produces smoke, which is a mixture of toxic particles and gases. If not carefully managed, smoke can be a nuisance to residents, and it can adversely impact community health. Smoke can contribute levels of pollution that exceed health protective air quality standards (Section 5.3.11.4).

5.7.8.3.2 Construction, Maintenance and Restoration Activities

The use of motorized mechanical equipment for construction, maintenance, and restoration activities could result in an increased risk of human-caused wildfire ignitions over the timeframe of the Draft LMP. The Chimineas units feature land that is a high risk of wildfire (Figure 35; Section 5.7.4.1). During extreme weather conditions, a fire originating on the CPER could quickly spread and pose a risk to life and property.

5.7.8.4 Increased Use of the CPER

The number of visitors to the CPER is currently low, averaging about 1.4 visitor days per day between 2003 and 2012 (Section 4.2). Following adoption of the LMP, the number of visitors is expected to increase slightly to about two visitor days per day. The slight increase in visitors would slightly increase the risk of human-induced wildfire ignitions. The Draft LMP does not recommend expanding allowable uses of the CPER to include camping, cooking, or the use of private or off-road vehicles, which would further increase the risk of fire. Therefore, the additional risk of fires associated with increased use of the CPER under the Draft LMP is expected to be slight.

Impact 5.7-1 — Mitigation Provided by Compliance with Existing Regulations

SLO APCD Rule 502. Regulations for the management of smoke from agriculture and prescribed burning are set forth in the Smoke Management Guidelines of Article J, Subchapter 2 of Title 17 California Code of Regulations. At the local level, these regulations are implemented by the SLO APCD through Rule 502. In sum, any person or agency who intends to undertake a prescribed burn must first obtain a burn permit from the SLO APCD. A burn permit sets forth the precise time, date and conditions under which a

prescribed burn will be permitted to protect air quality and public safety. To obtain a burn permit, an applicant must submit a smoke management plan at least 72 hours prior to the burn date. For a large-sized prescribed burn (greater than 250 acres), a smoke management plan must contain at least the following:

- Location, types, and amounts of material to be burned;
- Expected date of the fire from ignition to extinction;
- Identification of responsible personnel, including telephone contacts;
- Procedures for reporting of public smoke complaints and for public notification and education, including appropriate signage at burn sites.
- Identification and location of all potentially affected smoke sensitive sites in nearby areas.
- Identification of meteorological conditions necessary for burning;
- The smoke management criteria the land manager or his/her designee will use for making burn ignition decisions;
- Projections, including a map, of where the smoke from burns is expected to travel, both day and night;
- Specific contingency actions, including fire suppression or containment plans, that will be taken if smoke impacts occur or meteorological conditions deviate from those specified in the smoke management plan;
- An alternative to burning evaluation;
- Projects meeting National Environmental Policy Act and/or California Environmental Quality Act requirements will be considered to have complied with this provision; and
- APCO-approved monitoring provisions, which may include visual monitoring, ambient particulate matter monitoring or other monitoring.

The requirements for a burn permit and smoke management plan are aimed at ensuring that prescribed burning does not adversely impact air quality or public safety. In addition, the SLO APCD recommends discussing any planned prescribed burns with SLO APCD staff to ensure impacts to air quality are minimized and no health standards will be violated. They recommend burns be conducted when meteorological conditions allow for proper dispersion of smoke to minimize impacts to sensitive receptors. Adjacent air districts in Santa Barbara County and the San Joaquin Valley should also be consulted to keep the public informed of potential impacts to air quality. The SLO APCD also recommends that the Department ensure that a representative participate on the Prescribed Burn One O'clock Coordination Call conducted by the California Air Resources Board and local air districts.

San Luis Obispo County Fire Department/CalFire Burn Permit. During the fire season between May 1st and end of the declared fire season, a burn permit is required in accordance with Section 4423(b) of the Public Resources Code (Section 5.7.5.3). The SLO County Fire Department issues burn permits for agricultural burns, which requires the following:

- Inspection per Battalion Chief requirements;
- CalFire LE-5 Permit;
- APCD Agricultural Bun Permit and paid $25.00 fee;

- Burn on permissive burn days only;
- Permittee must call 1-800-834-2876 before burning;
- Burning during daylight hours only; and
- Any burn over 100 tons of piled material or 10 acres of standing vegetation requires a Smoke Management Plan.

Impact 5.7-1 — Best Management Practices Recommended in the Draft LMP that Mitigate Potential Impacts Associated with Wildland Fires

BMP G-1. The Department shall comply with relevant provisions of the California Environmental Quality Act (CEQA) prior to a decision to approve an activity with the potential to adversely impact the environment.

BMP G-2. The Department shall consult with other agencies with permit approval authority over aspects of management activities undertaken within the Reserve, to identify the relevant permit practices and to ensure compliance with applicable state and federal regulations.

BMP G-3. Management activities undertaken in accordance with the LMP shall meet the applicable permitting and regulatory practices of federal and state agencies, including, but not limited to, the following:

- California Department of Fish and Wildlife;
- U.S. Fish and Wildlife Service;
- State Water Resources Control Board;
- U.S. Army Corps of Engineers (Section 404 of the Clean Water Act);
- San Luis Obispo Air Pollution Control District; and
- California Department of Forestry and Fire Protection (CalFire).

BMP AQ-7. Prescribed burning shall be conducted in full compliance with the provisions of Rule 502 of the San Luis Obispo County Air Pollution Control District (SLO APCD) Rules and Procedures, including (but not limited to) the following:

- Approval of a burn permit by the SLO APCD at least 72 hours prior to the burn date;
- Preparation and approval of a Smoke Management Plan by the SLO APCD;
- Air quality monitoring, as may be required by the Air Pollution Control Officer;
- Consultation with the SLO APCD and surrounding air quality districts in advance of the burn date; and
- Participation in the Prescribed Fire Information Reporting System (PFIRS).

BMP HZ-13. To minimize the potential for wildfire ignitions associated with management activities, the Department shall require the following as applicable:

- All internal-combustion engines, stationary and mobile, shall be equipped with spark arresters that are in good working order;
- Light trucks and cars with factory-installed mufflers in good conditions, only, shall be used on roads, which shall be cleared of potential ignition sources;
- Equipment parking areas and small stationary engine sites shall be cleared of all extraneous flammable materials;
- Construction and maintenance personnel shall be trained and equipped to extinguish small fires to prevent them from growing into more serious threats;
- Construction techniques that utilize non-motorized equipment shall be used wherever feasible; and
- Smoking shall be:
    - Prohibited in wildland areas;
    - Prohibited during a Red Flag Warning (period of extreme fire danger) issued for the project area;
    - limited to paved or cleared areas lacking vegetation that are located at least 30 feet of any combustible material storage area (including fuels, gases, and solvents).

BMP HZ-14. The use of motorized equipment for construction and maintenance activities shall cease during conditions of extreme weather conducive to wildfire ignitions. To minimize the likelihood of starting a wildfire, when a Red Flag Warning is issued by the National Weather Service for the Reserve area (which is defined by the National Weather Service as "San Luis Obispo County Interior Valleys"), all construction and maintenance activities shall cease. The Department shall ensure implementation of a system that allows for receipt of Red Flag Warning each day prior to the start of construction activities.

BMP HZ-15. The Department shall minimize the potential for human-caused wildfires by carrying water or fire extinguishers and shovels in all Department vehicles and equipment used on the Reserve. The use of shields, protective mats, or use of other fire preventative methods shall be used during grinding and welding to minimize the potential for fire. Personnel shall be trained regarding the fire hazard as part of the pre-construction awareness education program (BIO-31). Prescribed burning activities shall be conducted according to an approved burn plan.

BMP HZ-16. Prescribed burning shall be conducted in full compliance with the policies and regulations of the California Department of Forestry and Fire Protection (CalFire), including (but not limited to) the following:

- Inspection per Battalion Chief Practices;
- Issuance of a CalFire LE-5 Permit;
- Issuance of an APCD Agricultural Bun Permit from the SLO APCD;
- Burn on permissive burn days only;
- Permittee must call 1-800-834-2876 before burning;

- Burning must be conducted during daylight hours only; and
- Prepare a Smoke Management Plan for any burn over 100 tons of piled material or 10 acres of standing vegetation as required by Public Resources Code §4423(b).

Impact 5.7-1 — Conclusions/Summary of Impacts

The potential risk to the public associated with prescribed burning and construction activities following adoption of the Draft LMP is expected to be **less than significant** because:

- Prescribed burns will be designed to reduce the frequency and intensity of naturally-occurring fires. Although the effectiveness of prescribed burning at reducing wildfire frequency is not clear (Price et al. 2012), it is well documented that wildfires spread more slowly and with lower intensity in areas with reduced fuels (Fernandes and Botelho 2003). For purposes of this analysis it is assumed that prescribed burning as recommended by the Draft LMP will reduce the number and intensity of wildfires in the chaparral communities of the CPER, compared with baseline conditions.
- Prescribed burns will be approximately 625 acres and undertaken only when conditions are conducive to containment. Prescriptions for a particular prescribed burn can be modified to minimize the potential for escape and the associated damage to surrounding lives and property. Vulnerable structures can be identified in advance and appropriate protection measures and management responses identified.
- Compliance with the permitting requirements of SLO APCD Rule 502 and CalFire Burn Permit help ensure that a prescribed burn minimizes the risk to public health and safety.

Lastly, implementation of the management actions and BMPs described above will ensure risks to public safety associated with the Draft LMP will be **less than significant (Class III).**

Impact 5.7-1 — Additional Mitigation

None are required.

5.7.8.5 Risk Associated with Disease Vectors

Impact 5.7-2	**The construction of new facilities recommended by the Draft LMP has the potential to result in a hazard to the public or the environment by mobilizing disease vectors that may be present in the soils of the CPER. This impact is considered less than significant (Class III) because of mitigation provided by management actions and Best Management Practices incorporated into the project description.**

The construction of trails, parking areas, educational facilities and wildlife viewing platforms; the relocation of roads to avoid significant cultural resources; and the placement of water tanks and the extension of waterlines will involve ground disturbance that could mobilize the spores that cause Valley Fever. As discussed in Section 5.7.4.6.1, the fungus that causes Valley Fever occurs in soils in areas of low rainfall, high summer temperatures, and moderate winter temperatures, such as those found on the CPER. Construction activities could cause the fungal spores to become airborne, potentially putting construction personnel, CDFW staff, and wildlife at risk of contracting Valley Fever. Although most cases of Valley Fever are mild, with more than one-half of infected people either having no symptoms or experiencing flu-like symptoms and never seek medical attention, in extreme cases the disease can be fatal (CDC 2013).

Portions of the CPER may also harbor naturally occurring anthrax in the soil (Section 5.7.4.6.2). This disease may pose a potentially fatal hazard to construction workers or CDFW staff during removal of a deceased anthrax-infected animal from the CPER. Additional risks to wildlife and pets would occur if they were to come into contact with an expired anthrax-infected animal. The hazard to personnel, pets, and wildlife would be substantially reduced by ensuring that livestock handling is limited to trained personnel, carcass disposal follows accepted practices, and that personnel are trained to understand the risk of handling animal carcasses.

Impact 5.7-2 — Best Management Practices Recommended in the Draft LMP that Mitigate Potential Impacts Associated with Diseases

BMP AQ-1. To mitigate the emission of fugitive dust associated with use of Reserve roads and parking areas, the Department shall implement at least one of the following:

- Install and maintain an all-weather surface on the primary access road with material that minimizes the emission of fugitive dust such that fugitive dust emissions do not impact off-site areas; or,
- Maintain the roadway or parking area with a dust suppressant such that fugitive dust emissions do not impact off-site areas; or,
- Limit traffic speeds on unpaved roads to 15 mph.

BMP AQ-2. To reduce vehicle miles associated with special events, meetings, and management activities on the Reserve, the Department shall encourage the following:

- The use of carpools/vanpools; and
- Establishing a shuttle service or Park-and-Ride lots from areas outside the Reserve.

BMP AQ-4. To minimize potential air quality impacts associated with the emission of fine particulate matter associated with construction activities, the Department shall apply the following, as applicable:

- During construction activities, unpaved roads shall be effectively stabilized of dust emissions;
- When large, earth-moving equipment is used for construction/demolition activities, fugitive dust emissions will be controlled by presoaking or otherwise applying water to the construction/demolition area;
- Following the addition of earthen materials to, or the removal of earthen materials from, the surface of outdoor storage piles, said piles shall be effectively stabilized of fugitive dust emissions utilizing sufficient water or chemical stabilizer/suppressant;
- Limit traffic speeds on unpaved roads to 15 mph;
- Suspend excavation and grading activity when winds exceed 20 mph;
- Limit area subject to excavation, grading, and other construction activity at any one time and reduce the amount of the disturbed area, where possible;

- All roadways, driveways, sidewalks, etc. to be paved should be completed as soon as possible after grading unless seeding or soil binders are used; and
- All of these fugitive dust mitigation measures shall be shown on applicable grading and building plans.

BMP HZ-9. To reduce the risk of livestock transmitting anthrax to Department staff and others visiting or working on the Reserve, the Department shall ensure that all personnel are trained to be aware of the risk of naturally-occurring anthrax being transmitted to humans from a diseased animal carcass. In addition, the following Best Management Practices shall be followed:

- Livestock carcasses shall be handled only by properly trained livestock handlers, veterinarians, or health officials;
- Animal carcass disposal shall follow accepted practice if the death is potentially related to anthrax; and
- All suspected cases of anthrax shall be immediately reported to the animal's veterinarian, the San Luis Obispo County Agricultural Commissioner, and the California Department of Food and Agriculture's Animal Health and Food Safety Services Division.

BMP HZ-10. To reduce the risk of Valley Fever to Department staff and others visiting or working on the Reserve, the Department shall implement all of the following:

- Ensure that all personnel are trained to be aware of the risk of Valley Fever and to recognize the symptoms; and
- Establish procedures to follow in the event of the onset of symptoms, including the provision of prompt medical attention, and notice to CDFW staff and the San Luis Obispo County Department of Public Health.

BMP HZ-11. When conducting management activities in areas of the Reserve with the potential to mobilize spores associated with Valley Fever, the Department shall implement the following, as applicable:

- Implement all of the Best Management Practices relating to the control of dust during construction activities;
- Provide National Institute for Occupational Safety and Health (NIOSH)-approved respirators for workers. Workers should be medically evaluated, fit-tested, and properly trained on the use of the respirators, and a full respiratory protection program in accordance with the applicable Cal/OSHA Respiratory Protection Standard (8 CCR 5144) should be in place;
- Avoid eating and smoking where dust is being actively generated and provide separate, clean eating areas with hand-washing facilities;
- Avoid outdoor operations during unusually windy conditions;
- Limit ground-disturbing activities during the fall to essential jobs only, as the risk of cocci infection is higher during this season.

- When working in dusty conditions, clothing should be changed after work every day, preferably at the work site;
- Train workers to recognize that cocci may be transported offsite on contaminated equipment, clothing, and shoes, and consider installing boot-washing stations; and
- Post warnings onsite and consider limiting access to visitors, especially those without adequate training and respiratory protection.

Impact 5.7-2 — Conclusions/Summary of Impact

Implementation of the management actions and the BMPs described above will ensure potential impacts associated with disease vectors are **less than significant (Class III)**.

Impact 5.7-2 — Additional Mitigation

None required.

5.7.8.6 Risk Associated with Residual Levels of Chemicals Used in Past Farming Operations

Impact 5.7-3	**The construction of new facilities recommended by the Draft LMP has the potential to expose construction workers and CDFW staff to potentially hazardous concentrations of environmentally-persistent pesticides and herbicides. This impact is considered less than significant (Class III) because of mitigation provided by management actions and Best Management Practices incorporated into the project description.**

Chlorinated pesticides, such as DDT and toxaphene, were extensively used throughout California farmlands prior to their prohibition in the mid-1970s. Other chemicals, such as herbicides, may still be present in the soils of the CPER where cultivation occurred. There is no history of cultivation on the Elkhorn Unit; however, the Panorama Unit was under cultivation in 1980. Although there is no definitive information regarding the type of crops being grown, it was likely dry land farmed with barley or a similar dry-farm crop. Land within the American Unit was in cultivation for barley when it began to be acquired by TNC in 1988. Dry-land farming for grain (wheat and barley) has occurred on the flat and rolling hills in the northern part of the Northern Chimineas Unit, as well as the ancient river terraces in the South Chimineas Unit. As mapped by the BLM, an estimated 6,585 acres on the North Chimineas Unit was in cultivation in the 1980s. Cultivation ceased in the late 1990s (CDFW 2018).

Impact 5.7-3 — Best Management Practices Recommended in the Draft LMP that Mitigate Potential Impacts to Public Health Associated with Environmentally-Persistent Pesticides and Herbicides

BMP HZ-12. In areas where public serving facilities are to be constructed and where Phase 1 environmental surveys have not been completed, the Department will develop and implement a Soil Sampling and Analysis Plan to determine the presence and extent of any residual herbicides, pesticides, and fumigants on historically-farmed land. The plan should document the areas proposed for sampling, the procedures for sample collection, the laboratory analytical methods to be used, and the pertinent regulatory threshold levels for

determining proper excavation, handling, and, if necessary, treatment or disposal of any contaminated soils. Results of the laboratory testing and recommended resolutions for excavation, handling, dust control, and treatment/disposal of material found to exceed regulatory practices shall be submitted to the Department prior to construction.

Impact 5.7-3 — Conclusion/Summary of Impact

Implementation of the management actions and BMPs described above will ensure that potential impacts associated with persistent chemicals associated with past farming activities are **less than significant (Class III)**.

Impact 5.7-3 — Additional Mitigation

None required.

5.7.8.7 Safety Issues Associated with New or Expanded Parking Areas

Impact 5.7-4	**The construction of new or expanded parking areas along Highway 166 or Soda Lake Road could result in a safety hazard to motorists entering or leaving the parking area, and a hazard to traffic on these roads. This impact is considered less than significant (Class III) because of mitigation provided by management actions and Best Management Practices incorporated into the project description.**

The number of visitors to the CPER is currently small; an average of about 1.4 visitor days per day between 2003 and 2012 (Section 4.2). Following adoption of the LMP, the number of visitors is expected to increase slightly to about two visitor days per day (Section 3.11.2). Thus, the demand for new or additional parking is expected to be correspondingly small.

Because existing parking areas are sufficient to accommodate peak daily use and special events expected on the CPER in the future, the Draft LMP does not recommend the construction of new parking areas. However, the Department may provide additional parking at new wildlife viewing platforms and trails as a convenience to the public. New or expanded parking areas would consist of unpaved areas with signage and an entry gate as needed, comparable to those existing at present along Highway 166. The new areas would feature two to four spaces and require about 1,600 square feet (0.03 acres) for parking and back-up/turnaround.

Because of the speed, sight distance and roadway alignment, vehicles turning into and out of new parking areas could create a traffic hazard to other motor vehicles on the highway.

Impact 5.7-4 — Best Management Practices Recommended in the Draft LMP that Mitigate Potential Impacts to Public Safety Associated with New Parking Areas

BMPs listed under impact 5.7-1 apply to this impact.

BMP DC-2. New or expanded parking areas shall:

- Be located and designed to provide adequate pullout and turnaround area, sight distance and spacing between parking areas and other driveways to ensure public safety;
- Be consistent with all relevant Best Management Practices and consistent with the overall objectives of the Reserve;
- Incorporate signage and visitor information as necessary to inform visitors;
- Avoid sensitive resources;
- Be located at existing established parking areas and/or disturbed areas wherever possible;
- Minimizes ground surface disturbance, removal of vegetation and grading;
- Incorporate a permeable surface to minimize erosion and to protect surface water quality; and
- Take advantage of natural topography, vegetation and other physical features to provide screening from public view.

Impact 5.7-4 — Conclusions/Summary of Impact

Because of the straight alignment of the roadway, low traffic volumes, and relatively low speed, the installation of new parking areas along Soda Lake Road is not expected to create a traffic hazard.

New or expanded parking areas along Highway 166 could result in safety hazards to vehicles entering or exiting the parking lot and to vehicles on Highway 166. However, implementation of the management actions and BMPs described above will ensure that potential safety impacts associated with the construction of new or expanded parking areas are **less than significant (Class III)**.

Impact 5.7-4 — Additional Mitigation

None required.

5.7.9 Cumulative Impacts and Mitigation Measures

This section analyzes the Draft LMP's contribution to cumulative impacts relating to hazards to the public (Section 5.1.4).

5.7.9.1 Cumulative Increased Risk of Wildfires

Impact 5.7-5	**Implementation of the management actions recommended by the Draft LMP, when added to other closely related past, present, and reasonably foreseeable future projects in the region as well as the management actions on surrounding federal lands, may contribute to a cumulative increased risk from fire. This impact is considered less than cumulatively considerable (Class III).**

The CPER is located in area that is prone to wildfires and has experienced numerous fires of varying size and intensity in the past (Section 5.7.4). The cumulative risk of wildfires is a function of human activity in the area, especially along Highway 166, and activities on surrounding federal lands managed by the U.S. Forest Service and the Bureau of Land Management.

5.7.9.1.1 Present and Future Land Use/Reasonably Foreseeable and Approved Development Projects

Land uses in the region with the potential to contribute to the cumulative risk of wildfire include ranching, motor vehicle traffic on roadways, and activities undertaken on federal lands surrounding the CPER. Grazing on private ranches is the most widespread land use in the region. Day-to-day operations on cattle ranches may involve the use of flammable materials for fuel, welding, and other activities that can result in accidental fires, which can also ignite from use of mechanical equipment including vehicles and tractors.

Energy development in the form of photovoltaic solar arrays has been developed on over 18,000 acres in California Valley and western Kern County (Table 12). Construction and facilities operation activities can include the use and storage of flammable materials and fuels, the use of motorized construction equipment, and welding which serve to temporarily increase the potential for fire.

Each development project undertaken on private property is subject to environmental review in accordance with the CEQA. Under CEQA, the approval authority must identify mitigation measures to reduce significant impacts relating to fire risk. Previously approved solar projects in the California Valley (Topaz Solar Farm and California Valley Solar Farm) have both completed the environmental review process and are subject to conditions of approval/mitigation measures that require the application of fire protection procedures during construction and operation of each facility (SLO County 2011a, b). These procedures reduce potential fire risk associated with these projects to a less than significant level. Comparable conditions/mitigation measures can be expected to be applied to future development projects in the region.

Carrizo Plain National Monument Resource Management Plan

The Units of the CPER are adjacent to land within the CPNM, which is governed by a RMP adopted by the Bureau of Land Management (BLM 2010). The RMP sets forth a management structure for the CPNM similar to that recommended by the Draft LMP, including the use of an adaptive management and monitoring process as well as management strategies that emphasize vegetation and habitat management through livestock grazing and fire management using prescribed burning. Prescribed fire is also used on an annual basis to reduce hazardous fuels around developments and along road corridors. Dead vegetation, often dominated by tumbleweeds, is piled and burned (BLM 2010).

According to the RMP, the wildland fire suppression strategy for the CPNM is to limit individual fire size to 100 acres 80 percent of the time. It is estimated that approximately 20 percent of fires could meet these conditions, with fire size averaging 1,000 acres (page II-33 of BLM 2010). The RMP sets the target area burned by unplanned wildland fire per decade at 10,000 acres and the decadal target for prescribed fire at 10,000 acres. Up to 4,000 acres per decade are targeted for fuels treatment using non-fire methods, such as mowing or other mechanical treatment. To meet the target acreage for prescribed burning of 10,000 acres per decade, prescribed fires of 1,000 acres per year would be undertaken (BLM 2010).

The CPNM allows camping in designated areas, as well as dispersed camping and the use of private vehicles, including off-road vehicles on existing roads. These activities increase the risk of wildfire ignition from human-caused sources.

The RMP includes management actions aimed at minimizing the risk of wildfires. These actions include:

- Actively suppress fires that threaten life, facilities, or private property;
- Actively suppress fires that threaten fire-sensitive natural or cultural resources, such as saltbush or other vulnerable shrub communities, Alvord and blue oak stands, and National Register properties. Active suppression could include aerial attack, mobile attack, handline construction, or dozer line construction (outside of sensitive cultural site areas). Utilize mobile attack in preference to more disturbing methods such as dozer line construction;
- In other areas, apply a confine strategy, where fires are suppressed when they reach the nearest existing control feature, such as a road;
- Utilize Minimum Impact Suppression Tactics (MIST) for fires burning within the Caliente Mountain Wilderness Study Area (17,984 acres). Use MIST to the extent possible, considering other values at risk to be protected, in the remaining primitive recreation management zones, which include an additional 44,471 acres; and
- While considering the above assumptions, the incident commander retains the authority during initial attack to undertake whatever actions are deemed appropriate based on current and anticipated conditions and resource availability (while considering restrictions to protect sensitive natural and cultural resources). For example, a confine strategy may not be appropriate in times of extremely hot and dry conditions or when multiple incidents in a geographic area have depleted available suppression resources.

Bakersfield Field Office BLM Resource Management Plan

The RMP for other lands managed by the BLM Bakersfield Field Office provides goals and objectives for wildland fire ecology and management as well as recommended "decisions" to guide implementation (BLM 2014). It recommends implementation of the "*…full range of wildland fire and fuels management, including prescribed fire…*" (p. 55 of BLM 2014). Target acreages for the use of prescribed burning are not provided. The RMP includes management actions for fire management and suppression consistent with those of the CPNM.

New development on federal lands is also subject to the National Environmental Policy Act (NEPA) which requires the approval authority to identify potential impacts and mitigation measures, including those relating to wildfire risk.

Los Padres National Forest Land Management Plan

The Los Padres National Forest, which adjoins the Chimineas units of the CPER to the west, allows a wide range of recreation and resource utilization activities including camping, hunting, and private vehicle access to certain areas. The Land Management Plan for the Los Padres National Forest (LPNF LMP) recommends the use of prescribed burning to reduce fuel loads and to enhance resource benefits. More specifically, the LPNF LMP includes the following objective (USDA 2005a):

> *Reduce the number of high risk/high value, and high and moderate risk acres using both mechanical treatments and prescribed fire. Identify and schedule for treatment in the high risk and high value acres near communities, including the installation of Wildland/Urban Interface (WUI) Defense and Threat Zone vegetation the present a significant threat to entire communities.*

The LPNF LMP recommends the continuation of current fire suppression practices, with greater emphasis on community protection; also, "confine-and-contain" suppression strategies will be used in the more remote portions of the national forest to reduce costs of suppression and to restore forest health, where and when appropriate. All wildfires will be suppressed as either direct or future threats to communities. Vegetation treatments would be designed to improve forest health, protect communities, and limit wildfire patch size, with community protection as the primary emphasis.

As with the CPNM, new development in the national forest is subject to the provisions of NEPA.

Impact 5.7-5: Conclusions/Significance of Impact Following Mitigation

Activities allowed on federal lands surrounding the CPER managed by the USFS and the BLM have the potential to result in human-induced wildfires, in addition to those starting from natural causes. However, each agency has adopted policies and implementation measures to help ensure the risk associated with wildfires is being minimized to the extent feasible.

Implementation of the management actions and BMPs discussed above under impacts 5.7-1 through 5.7-4 will ensure that the contribution of the Draft LMP to this cumulative risk is **less than cumulatively considerable (Class III).**

Impact 5.7-5 — Additional Mitigation

None required.

5.7.9.2 Cumulative Impacts of Mobilizing Disease Vectors

Impact 5.7-6	**The construction of new facilities recommended by the Draft LMP, together with construction associated with previously approved and reasonably foreseeable development in California Valley and western Kern County, may contribute to a cumulative increase in the hazard to the public and the environment from the mobilization of disease vectors. This impact is considered less than cumulatively considerable (Class III) because of mitigation in the form of additional or revised management actions and Best Management Practices incorporated into the project description.**

Construction activities implemented over time following adoption of the Draft LMP, in conjunction with other activities from reasonably foreseeable development projects in the California Valley and western Kern County, have the potential to mobilize disease vectors in the soil, thereby increasing the risk of exposure to the public and the environment. However, the Department BMPs include:

- Minimize the generation of dust from construction activities;
- Ensure that all construction personnel and CDFW staff are trained regarding the risk of naturally occurring disease vectors and the procedures to be followed in the event of potential exposure; and

- Protect construction worker and CDFW staff from the disease vectors and to avoid circumstances which increase the risk of exposure.

Impact 5.7-6 — Conclusion/Summary of Impact

By implementing the management actions and BMPs described above under impact 5.7-2, the contribution of the Draft LMP to the cumulative impact is considered **less than cumulatively considerable (Class III).**

Impact 5.7-6 — Additional Mitigation

None required.

5.7.9.3 Cumulative Risk Associated with Residual Levels of Chemicals Used in Past Farming Operations

Impact 5.7-7	**The construction of new facilities recommended by the Draft LMP, together with construction activities associated with previously approved and reasonably foreseeable development in California Valley and western Kern County, may contribute to a cumulative increased risk from environmentally-persistent pesticides and herbicides. This impact is considered less than cumulatively considerable (Class III) because of mitigation in the form of additional or revised management actions and Best Management Practices incorporated into the project description.**

The geographic scope of the potential exposure of construction workers and CDFW personnel associated with the presence of chemicals in the soil associated with past farming practices is limited to a given construction site.

Impact 5.7-7 — Conclusions/Summary of Impact

The construction of visitor-serving facilities such as educational buildings, trails and wildlife viewing platforms is expected to result in small areas of surface disturbance which in turn will help minimize potential exposure. In addition, implementation of the management actions and BMPs recommended for impact 5.6-3 will ensure that potential impacts associated with the Draft LMP are **less than cumulatively considerable (Class III).**

Impact 5.7-7 — Additional Mitigation

None required.

5.8 Hydrology and Water Quality

This section addresses impacts related to hydrology and water quality associated with implementation of the management actions recommended by the Draft LMP. It describes existing environmental conditions on the CPER and in the area, identifies and analyzes environmental impacts, and recommends measures to reduce or avoid adverse impacts anticipated from management actions included in the Draft LMP. In addition, it describes existing laws and regulations relevant to water resources. In some cases, compliance with these existing laws and regulations would serve to reduce or avoid certain impacts that might otherwise occur with the implementation of the Draft LMP. This section ends with a discussion of cumulative impacts related to water resources.

5.8.1 Sources Used in This Analysis

This analysis is based on a review of applicable law, local planning documents, and publications including:

- Draft Land Management Plan for the Carrizo Plains Ecological Reserve (CDFW 2018);
- Mitigated Negative Declaration for Grazing Lease Allotment Carrizo Plains Ecological Reserve (Chimineas Ranch), San Luis Obispo County, (CDFW 2011b);
- Water Quality Control Plan for the Central Coast Basin (RWQCB 2011);
- The 2006 Clean Water Act (CWA) Section 303(d) List of Water Quality Limited Segments from the State Water Resources Control Board (SWRCB);
- California's Groundwater (CDFW 2003);
- Federal Emergency Management Agency flood hazard maps (FEMA 2011); and
- A Review of Planned Grazing and Rangeland Management Actions at the Carrizo Plains Ecological Reserve by LD Ford Rangeland Conservation Science (Van Hoorn and Ford 2013; Appendix E).

References for these and other resources cited are provided in Section 10 References.

5.8.2 Scoping Issues for Hydrology and Water Quality

During the 30-day public review period for the Notice of Preparation for Draft LMP, written and oral comments were received from agencies and the public. The following issue relating to hydrology and water quality was raised during the scoping process and is addressed in this section:

- The EIR should assess the impacts of grazing on water quality.

5.8.3 Environmental Setting

The following description of the CPER was derived largely from the Draft CPER LMP (CDFW 2018B).

The CPER contains more than 100 miles of drainages which currently support 259 acres of riparian communities. Riparian and riverine communities within the CPER have been impacted by previous hydrologic modifications, including the installation of dams; historic land uses including farming and

grazing; the invasion and spread of non-native plants such as tamarisk; and the impacts of non-native animals, including predatory fish and wild pigs.

5.8.3.1 Climate and Meteorology

The CPER features a Mediterranean climate characterized by hot, dry summers and cool, relatively wet winters. Precipitation occurs primarily between November and April, mainly in the form of rain but occasionally as snow at higher elevations. Within the region, precipitation exhibits three main gradients according to latitude, longitude, and elevation, with precipitation greater in the north and west than south and east, and greater at higher elevation than at lower elevation. Winter storms generated over the Pacific Ocean that move northwest to southeast across the region are typical. This directionality results in a lower rainfall in the Inner Coast Range Mountains when compared to the Outer Coast Range Mountains. In addition, a greater amount of rain falls on the Caliente and La Panza ranges, leaving the Carrizo Plain and the Temblor Range in the rain shadow and receiving less precipitation, particularly in the south and southeast. Temperatures generally vary inversely with elevation and tend to be highest on the valley floor and lower in mountain and foothill regions (CDFW 2018).

Temperature and precipitation data collected by the National Weather Service Cooperative Observer Program (COOP) meteorological sensor located at the New Cuyama fire station (elevation 2,160 feet, along State Highway 166 on the southern side of the Caliente Range) between January 1974 and December 2015 were obtained from the Western Regional Climate Center (WRCC 2016) and were analyzed to generate monthly averages. Summer high temperatures are generally near 90°F, winter highs near 60°F. Average temperatures range from approximately 75°F to 46°F. Mean annual rainfall over the survey period was 7.3 inches. Monthly averages ranged from 1.5 inches in February to 0.04 inches in June (Table 58).

Table 58: Mean Monthly and Annual Daily Maximum and Minimum Temperature and Precipitation at the New Cuyama Weather Station

Variable	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Maximum Temperature (°F)	60.9	62.1	65.4	70.8	79.8	88.3	94.4	93.1	87.7	78.0	66.6	60.7	75.5
Minimum Temperature (°F)	32.6	34.3	36.7	39.0	44.6	50.5	56.2	54.8	51.1	43.4	35.5	31.7	42.4
Precipitation (inches)	1.36	1.49	1.43	0.44	0.22	0.04	0.08	0.10	0.34	0.29	0.52	1.00	7.3

Source: WRCC 2016

The weather of the CPER can differ greatly between years, and this interannual variability has important implications for the biological systems of the CPER and its effective management. Of particular importance is interannual variability in precipitation, which during the period of record has ranged from just 16% of average or 1.2 inches in 2013 to 248% of average or 18.1 inches in 1998. Consecutive years of below-average rainfall are not uncommon, as was observed between 1984-86, 1988-90, 1999-2000, 2002-2004, 2006-09, and most recently 2011-2015. These drought periods alter the structure and species composition of the vegetation, particularly the herb-dominated grasslands, by influencing plant productivity. They can have important implications for animal populations, particularly small mammals such as the endangered giant kangaroo rat, and their predators including the endangered San Joaquin kit fox.

5.8.3.2 Existing Drainage Features

5.8.3.2.1 Watersheds

The CPER spans three watersheds (Figure 36 and 37). The Panorama and Elkhorn units, as well as much of the American Unit, are located in the Carrizo Plain Watershed, which encompasses the entire Carrizo Plain and extends to the crest of the Caliente Range in the southern third of the plain and then descends into the Caliente foothills and ultimately to the valley floor in the center and northern regions of the plain. The Carrizo Plain Watershed also underlies a small area on the northeast of the North Chimineas Unit (CDFW 2018).

The rest of the Chimineas units is split between the Estrella Watershed in the north and the Cuyama Watershed in the south. The North Chimineas unit occurs at the southern end of the Estrella Watershed, which extends between the La Panza Range and San Juan Hills but includes northern regions of the Caliente Range and foothills and parts of the Carrizo Plain west of Soda Lake. It covers 31% of the total area of the CPER and includes the northern and western areas of the American Unit not associated with the Carrizo Plain Watershed as well as northern and western portions of the North Chimineas Unit. The Cuyama Watershed has its northern boundary along the crest of the Caliente Range and extends south into the Cuyama River Valley and Santa Barbara County and east into the Los Padres National Forest and the Inner Coast Ranges. It accounts for 46% of the total area of the CPER and is associated with the southern two-thirds of the Chimineas units (CDFW 2018).

5.8.3.2.2 Surface Water

Located within the Carrizo Plain Watershed, the Elkhorn Unit features several short, unnamed ephemeral drainages, totaling approximately 1.2 stream miles, which convey seasonal rainfall from the Temblor Range down to the Elkhorn Plain (CDFW 2018).

The eastern portion of the Panorama Unit features five mapped seasonal drainages totaling 2.7 linear miles that deliver waters from the Temblor Range, Elkhorn Plain, and Panorama Hills to the northeastern and eastern portions of the Panorama Unit. No mapped drainages occur in the western half of the unit (CDFW 2018).

Running primarily east to west, approximately16 linear miles of unnamed, ephemeral streams drain the foothills of the Caliente Range within the American Unit (Figure 36). Of these, 14 miles drain the eastern slopes and occur in the Carrizo Plain Watershed while two drain the western slopes within the Estrella Watershed. The American Unit contains four known springs: one in the northwestern portion of the unit, one near the northern border, and the other two are located approximately a half mile west of the former American Ranch area. The Painted Rock Ranch parcel contains no streams, creeks, or seasonal drainages (CDFW 2018).

The American Unit contains a small portion of Soda Lake in its northeastern corner (Figure 36). Though the lake's dimensions vary seasonally and inter-annually, the CPER features approximately a 42-acre portion of the 2,540-acre saline lake, including 2.14 miles of shoreline (USGS 2010). This saline lake dries completely during years with average or below average precipitation, leaving the lake bed covered with sulfate and carbonate salts (BLM 2010). Owing to its occurrence along the lake's perimeter, the portion of the lake within the American Unit is often dry. The American Unit also features the 0.1-acre Pridmore

pond: a perennial pond that is supplied by pumped well water and is located in the southeastern portion of the unit (CDFW 2018).

The Chimineas units feature approximately 111 linear miles of drainages, which are associated with four main streams (Figure 36). All of the streams are ephemeral or intermittent, except the Cuyama River—a perennial stream in the South Chimineas Unit, which is fed by 66.4 miles of drainages on the western slopes of the Caliente Range (CDFW 2018).

The 5.3-mile long Carrizo Creek, which includes the confluence with Saltos Canyon Creek, is located within the center of the Chimineas Units and drains in to the Cuyama River. Located in the North Chimineas Unit, within the Estrella Watershed, San Juan Creek drains the southern La Panza Mountains and features 34.7 miles of drainages. These include the mainstem of San Juan Creek on the west of the unit as well as the 21.1-mile Barrett Creek within the north-central portion of unit (CDFW 2018).

The Chimineas units feature 14 known seeps and springs. Six of the springs are utilized to supply water to livestock for vegetation management. The units also contain 12 ponds. Of the eleven of the ponds created by prior landowners to supply water for livestock, ten are located within the drainages of San Juan and Barrett creeks in the North Chimineas Unit, while the other is located in the Feed Lot Management Unit in the South Chimineas Unit, and was supplied by a pump. One pond was created by the Department to provide water for wildlife. The ponds range in area from 0.1 to 13.4 acres, based on the Department's mapping of their wetted perimeter in 2007; however, their wetted area varies greatly due primarily due to interannual variability in rainfall and all of the ponds dried up during the drought of 2011-2015 (CDFW 2018).

5.8.3.2.3 Surface Water Quality

Limited water quality data exist for surface water bodies in the vicinity of the CPER, as summarized below.

Cuyama River. The USGS collects limited water quality data at the stream gauge on the river above Twitchell Reservoir, at Buckhorn Canyon. Between 1996-1999, dissolved solids (TDS) levels were relatively high, reflecting the predominance of young sedimentary rocks and soils in the watershed from which minerals are readily leached (Everett et al 2013). The nutrient values are very low despite the presence of cattle and agriculture throughout the Cuyama Valley.

Soda Lake. In 2010, water quality in Soda Lake was impaired by un-ionized ammonia (EPA 2010). However, a standard for total maximum daily load (TMDL) for Soda Lake has not been established.

5.8.3.3 Flooding

Areas along the Cuyama River and Soda Lake are subject to flooding during a 100-year flood (FEMA 2011). Figure 36 shows areas along the Cuyama River which have a statistical likelihood of flooding of 0.02% per year, or once every 500 years. The 500-year floodplain is fairly narrow and is generally confined to the creek banks. In addition, Soda Lake is subject to flooding following major storm events. The American Unit contains a very small portion of the lake which may experience flooding with a statistical likelihood of 1% per year, or about one time in 100 years.

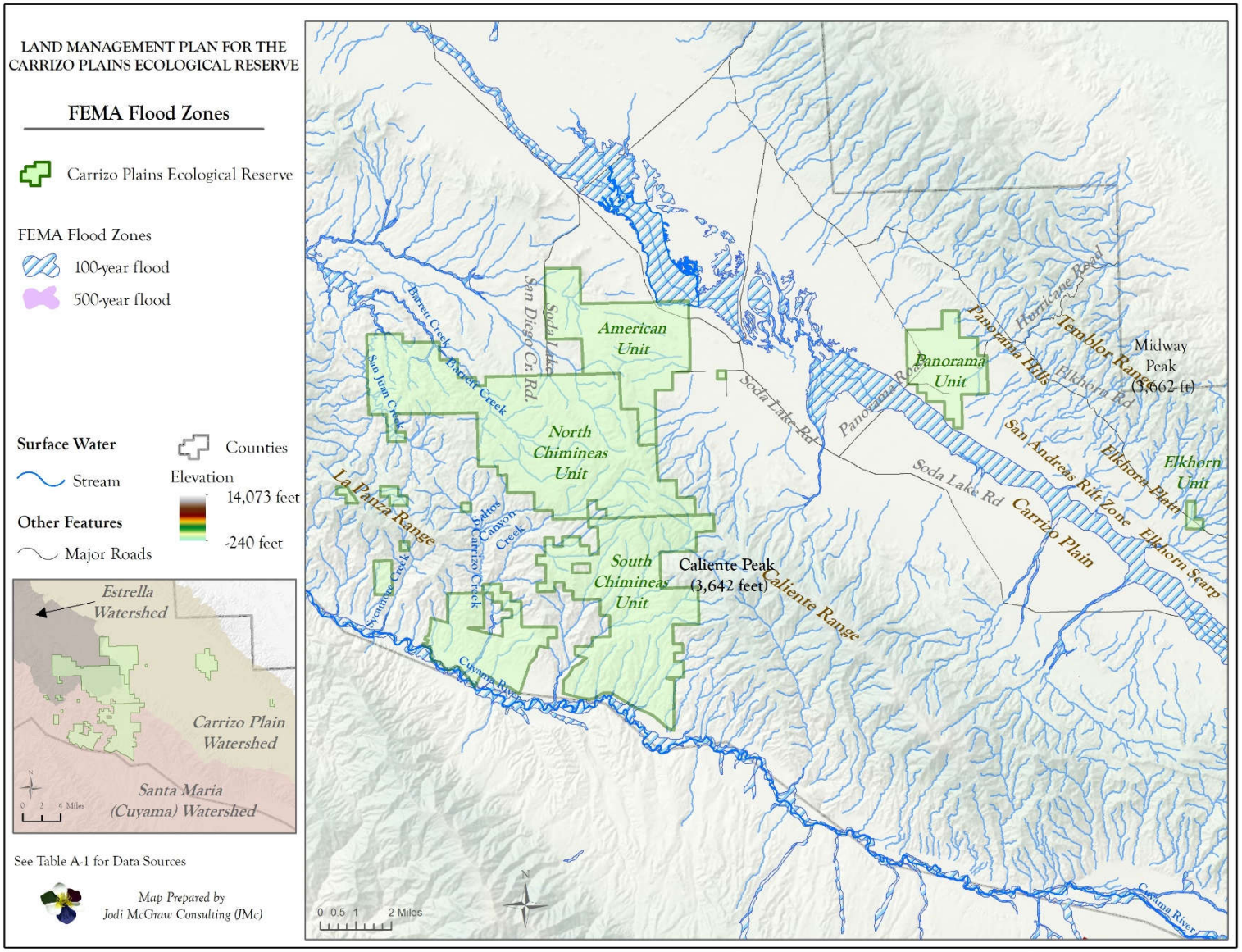

Figure 36: Flood Hazard Areas Mapped by the Federal Emergency Management Agency

5.8.3.4 Groundwater

Three groundwater basins underlie portions of the CPER (CDFW 2018).

5.8.3.4.1 Carrizo Plain Groundwater Basin

The Carrizo Plain Groundwater Basin (Groundwater Basin Number 3-19; CDFW 2003) underlies the Panorama and Elkhorn units and the northeastern portion of the American Unit (Figure 37). The 173,000 -acre (270-square-mile) basin, which is situated between the Temblor Range to the east and the Caliente Range and San Juan Hills to the west, has internal drainage to Soda Lake and is transected by the San Andreas Fault. Annual precipitation in the basin ranges from 7 to 9 inches. Published hydrogeologic information for this basin is compiled from older reports and may not be representative of current conditions (CDWR 2003).

The groundwater storage capacity is estimated to be 400,000 AF; however, the actual amount in groundwater storage is unknown. There is one small public water system serving the local school (part of the Atascadero Unified School District). All other pumping in the basin is for agricultural and residential purposes by overlying users. Taking into consideration the methodologies used in previous studies, historical groundwater levels, and water quality, the safe yield of the basin to base planning decisions on is 8,000 – 11,000 AFY (CDWR 2003).

Groundwater samples from 79 wells collected from 1957 to 1985 show total dissolved solids concentration ranging from 161 to 94,750 mg/l (CDWR 2003). Groundwater in the lower alluvium and upper Paso Robles Formation that both underlie Soda Lake are highly mineralized. Groundwater deeper in the confined Paso Robles Formation is of higher quality. Groundwater in the Morales Formation is likely to be brackish.

Constraints on water availability in the basin include physical limitations and water quality issues. The small yield of the Carrizo Plain Groundwater Basin relative to its large size and the naturally high levels of total dissolved solids in areas (e.g., Soda Lake) suggest that water availability in the region is limited (CDWR 2003). Other than water quality issues associated with the internal drainage structure of the basin, other constraints are not well defined.

5.8.3.4.2 Big Springs Groundwater Basin

A small portion of the Big Springs groundwater basin underlies the northwest corner of the American Unit (Figure 37). Published hydrogeologic information for this basin is very limited. The main water-bearing unit in the basin is Quaternary age alluvium (CDWR 2003). No additional information is available describing the basin hydrogeology. There are no municipal or public water purveyors in the basin; all pumping is for agricultural purposes by overlying users. No information is available for the basin yield or water quality.

Constraints on water availability in the Big Spring basin are primarily based on physical limitations. Shallow alluvial deposits are typically limited by available storage capacity and are therefore susceptible to drought impacts. In the Big Spring area, the alluvial aquifer also overlies and recharges the underlying consolidated rock formations. Water availability in the consolidated rock reservoirs is highly variable, depending on the local structure, available storage capacity, and access to source of recharge (CDWR 2003).

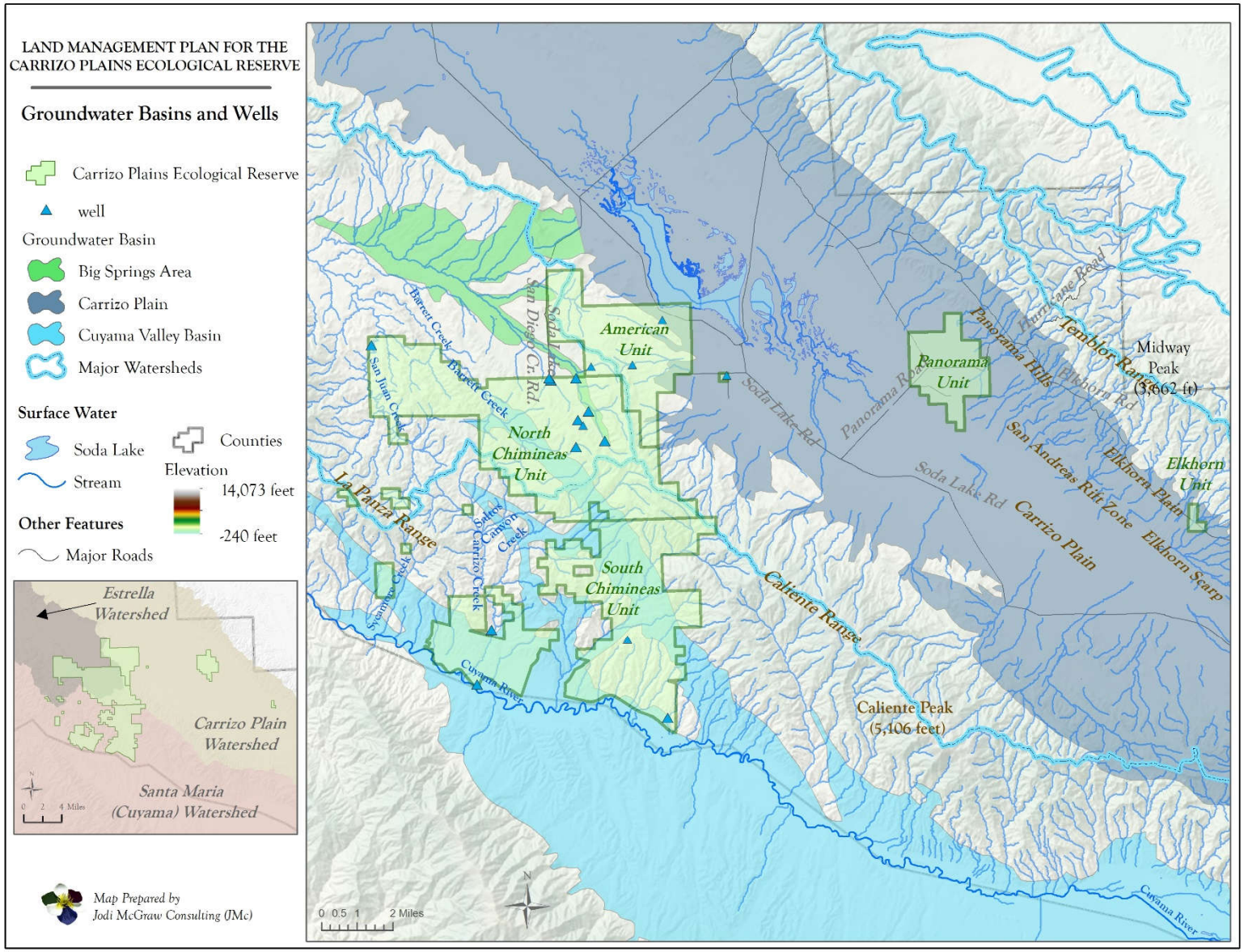

Figure 37: Groundwater Basins and Wells near the CPER

5.8.3.4.3 Cuyama Valley Groundwater Basin

The Cuyama Valley Basin, which underlies portions of the Chimineas units (Figure 37), occurs within the east-trending valley which bounded on the north by the Caliente Range and on the southwest by the Sierra Madre Mountains and is drained by the Cuyama River. Average annual precipitation ranges from 7 inches to 15 inches per year (CDWR 2003).

In the mid-1940s, water levels in the central portion of the basin were very shallow whereas water levels in the southern and eastern part of the basin were several hundred feet deep (SBCWA 1996). Water levels dropped from 2 to 8 feet per year between 1947 and 1996 (Singer 1970). Hydrographs show that groundwater levels have dropped about 150 feet in the west-central during the last 40 to 50 years (CDWR 1998). Groundwater movement is to the northwest, parallel to the Cuyama River.

The total storage capacity is estimated at 259,000 AF for the portion of the basin within the boundaries of Ventura County (Ventura County 2001). The total storage capacity is estimated at 2,100,000 acre feet while the useable storage capacity is estimated at 400,000 acre feet (CDWR 1975).

Because of constant cycling and evaporation of irrigation water, water quality in the basin has been deteriorating (CDWR 1975). Groundwater near the Caliente Range has high salinity, which has been attributed to seepage out of the basement marine rocks. Nitrate content reached 400 mg/L in some shallow wells (CDWR 2003).

Preparation of a groundwater management plan for this basin began in 2017.

5.8.4 Applicable Regulations, Plans and Policies

5.8.4.1 Federal

5.8.4.1.1 Federal Emergency Management Agency

In 1968, the U.S. Congress created the National Flood Insurance Program (NFIP) in response to the rising cost of taxpayer-funded disaster relief for flood victims and the increasing amount of damage caused by floods. The NFIP makes federally-backed flood insurance available for communities that agree to adopt and enforce floodplain management ordinances to reduce future flood damage. The NFIP is managed by FEMA, which is responsible for conducting floodplain studies and publishing Flood Insurance Rate Maps (FIRM) that delineate flood hazard areas (e.g., FEMA 2011).

5.8.4.1.2 Executive Order 11988

Executive Order 11988 (Floodplain Management) addresses floodplain issues related to public safety, conservation, and economics. It generally requires federal agencies constructing, permitting, or funding a project in a floodplain to do the following:

- Avoid incompatible floodplain development;
- Be consistent with the standards and criteria of the NFIP; and
- Restore and preserve natural and beneficial floodplain values.

5.8.4.1.3 Clean Water Act

The federal Clean Water Act (CWA, 33 USC 1251-1376), as amended by the Water Quality Act of 1987, is the major federal legislation governing water quality. The objective of the CWA is "to restore and maintain the chemical, physical, and biological integrity of the Nation's water." Important applicable sections of the federal CWA are as follows:

- Sections 303 and 304 provide for water quality standards, criteria, and guidelines.
- Section 401 requires an applicant for any federal permit that proposes an activity which may result in a discharge to "waters of the United States" to obtain certification from the state that the discharge will comply with other provisions of the Act. The local Regional Water Quality Control Board (RWQCB) provides certification.
- Section 402 establishes the National Pollutant Discharge Elimination System (NPDES), a permitting system for the discharge of any pollutant (except for dredge or fill material) into waters of the United States. Administered by the RWQCB, the permit program is discussed further below.
- Section 404 establishes a permit program for the discharge of dredge or fill material into waters of the United States. The U.S. Army Corps of Engineers administers this permit program.

5.8.4.1.4 Total Maximum Daily Loads

Under CWA Section 303(d) and California's Porter-Cologne Water Quality Control Act of 1969 (Section 5.8.4.2.3), the State of California is required to establish beneficial uses of state waters and to adopt water quality standards to protect those beneficial uses. Section 303(d) establishes the Total Maximum Daily Load (TMDL) process to assist in guiding the application of state water quality standards, requiring the states to identify waters whose water quality is "impaired" (affected by the presence of pollutants or contaminants), and to establish a TMDL or the maximum quantity of a particular contaminant that a water body can assimilate without experiencing adverse effects on the beneficial use(s) identified for that water body. TMDLs are generally stakeholder-driven processes that involve investigation of sources and their loading (pollution input), make load allocations, and identify an implementation plan and schedule. Where stakeholder processes are not effective, TMDLs can be established by the RWQCBs or the EPA.

5.8.4.1.5 National Pollutant Discharge Elimination System

Runoff water quality is regulated by the National Pollutant Discharge Elimination System (NPDES) Nonpoint Source Program (established through the federal Clean Water Act). The NPDES Nonpoint Source Program objective is to control and reduce pollutants to water bodies from nonpoint discharges. The Program is administered by the California Regional Water Quality Control Boards.

5.8.4.2 State

5.8.4.2.1 California State Water Resources Control Board

Responsibility for administering California water rights procedures lies with the California State Water Resources Control Board (SWRCB), which also is responsible for managing and administering various federal and state water quality control programs. Procedures are provided by statute, but the board has the authority to establish rules and regulations to help it carry out its work. All board activities are governed by

state water policy and are administered in accordance with policies and procedures in the California Water Code.

The SWRCB carries out its water quality protection authority through the adoption of specific Water Quality Control Plans. These plans establish water quality standards for particular bodies of water. California water quality standards are composed of three parts: the designation of beneficial uses of water, water quality objectives to protect those uses, and implementation programs designed to achieve and maintain compliance with the water quality objectives.

The SWRCB has adopted the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California. This policy provides implementation measures for numerical criteria contained in the California Toxics Rule, promulgated in May 2000 by the EPA (SWRCB 2005). When combined with the beneficial use designations in the Basin Plan (Section 5.8.4.2.2), these documents establish statewide water quality standards for toxic constituents in surface waters.

5.8.4.2.2 Central Coast Regional Water Quality Control Board

The Central Coast RWQCB is responsible for the protection of beneficial uses of water resources within the CPER. The RWQCB uses planning, permitting, and enforcement authorities to meet this responsibility, and has adopted the Central Coast Region Water Quality Control Plan (Basin Plan) to implement plans, policies, and provisions for water quality management. Beneficial uses of surface waters are described in the Basin Plan and are designated for major surface waters and their tributaries. In addition to identification of beneficial uses, the Basin Plan also contains water quality objectives that are intended to protect the beneficial uses of the basin. The RWQCB has region-wide and water body-specific beneficial use water quality objectives.

The RWQCB has set water quality objectives for all surface waters in the region concerning bacteria, bioaccumulation, biostimulatory substances, color, dissolved oxygen, floating material, oil and grease, population and community ecology, pH, salinity, sediment, settleable material, suspended material, sulfide, tastes and odors, temperature, toxicity, turbidity, and ammonia. Water quality objectives for groundwater include standards for bacteria, chemical constituents, radioactivity, tastes and odors, and toxicity.

5.8.4.2.3 Porter-Cologne Water Quality Act

The Porter-Cologne Water Quality Control Act (California Water Code §§ 13000 et seq.), as amended, provides for protection of the quality of all waters of the state for use and enjoyment by the people of California. It further provides that all activities that may affect the quality of waters of the state shall be regulated to obtain the highest water quality that is reasonable, considering all demands being made and to be made on those waters. The Act authorizes the SWRCB and the regional boards to oversee responsibility for the coordination and control of water quality within California.

5.8.4.2.4 Drinking Water Standards

Title 22 of the California Code of Regulations (CCR) outlines drinking water standards in the State of California. Maximum Contaminant Levels (MCL) for various contaminants are identified and are made enforceable regulatory standards under the federal Safe Drinking Water Act. MCL standards must be met by all public drinking water systems to which they apply. Primary MCLs can be found in 22 CCR Sections

64431–64444. Specific regulations for lead and copper are in 22 CCR Section 64670 et seq. Secondary MCLs that address the taste, odor, and appearance of drinking water are found in 22 CCR Section 64449.

5.8.4.2.5 General Construction Permit

Projects disturbing more than one acre of land during construction are required to file a Notice of Intent (NOI) with the RWQCB to be covered under the State NPDES General Construction Permit for discharges of storm water associated with construction activity. A project proponent must propose control measures that are consistent with the State General Permit. A Storm Water Pollution Prevention Plan (SWPPP) must be developed and implemented for each site covered by the general permit. An SWPPP should include Best Management Practices (BMPs) designed to reduce potential impacts to surface water quality throughout the construction and life of the project.

In addition, projects disturbing more than one acre, but less than five acres of land during construction are required to file a NOI with the RWQCB to be covered under the State NPDES General Construction Permit for discharges of storm water associated with construction activity. A project proponent must propose control measures that are consistent with the State General Permit. A SWPPP must be developed and implemented for each site, as noted above under General Construction Permit.

5.8.5 Standards of Significance

In accordance with Appendix F of the CEQA Guidelines impacts associated with implementation of the Draft LMP would be considered significant and would require mitigation if it would:

1. Violate any water quality standards or waste discharge requirements.
2. Generate substantial stormwater runoff and/or alter surface water drainage patterns that would result in an increased severity of flooding within the Study Area or downstream.
3. Significantly degrade surface water or groundwater quality directly or indirectly;
4. Substantially deplete groundwater resources to such an extent that it would impact existing surface water features that rely on groundwater;
5. Substantially degrade groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted); or
6. Conflict with applicable local, state, and/or federal policies and standards associated with water resources.

5.8.6 Impacts Found to Be Less Than Significant

Based on the supporting evidence provided in the initial study (Appendix B), the following impacts have been determined to be less than significant:

- Impacts associated with groundwater supplies and groundwater recharge;
- Impacts associated with the contribution of stormwater runoff that would exceed the capacity of drainage systems serving the CPER;

- Impacts associated with the placement of housing or other structures in an area subject to the 100-year flood or that would impede or re-direct flood flows;
- Impacts associated with the exposure of people or structures to a significant risk of loss, injury or death from flooding;
- Impacts associated with a seiche, tsunami, or mudflow.

5.8.7 Project Impacts and Mitigation Measures

Table 59 summarizes the goals and management actions that will mitigate potential impacts to water quality associated implementation of the Draft LMP.

Table 59: LMP Management Goals and Actions that Address Hydrology and Water Resources

LMP Section	Topic	Goals[1]	Management Actions[1]	Summary/ Relevance to the Protection of Hydrologic Resources
4.2.1.1	Disturbance Regimes	B1	B1.1, B1.2, B1.3	Recommends support for research to inform fire management, which will contribute to the protection of soils and surface water quality.
4.2.2.1	Grassland Habitat Element	B3a, B3b	B3.1	Enhancing habitats of the CPER will in turn help promote the protection of soils and surface water quality.
4.2.2.2	Coastal Scrub Habitat Element	B6a, B6b	B6.1,	
4.2.2.3	Chaparral Habitat Element	B8a, B8b, B9	B8.1	
4.2.2.4	Desert Scrub Habitat Element	B10a, B10b,	B10.1	
4.2.2.5	Oak Woodland Habitat Element	B12a, B12b, B12c	B12.1,	
4.2.2.6	Juniper Woodland Habitat Element	B14a, B14b, B14c	B14.1	
4.2.3.1	Special-status species	B24, B25	B24.1, B24.2, B24.3, B24.4, B24.5, B25.1, B25.2, B25.3, B25.4	Enhancing habitat for special-status species will help promote healthy soils and minimize erosion and the degradation of surface water quality.
4.3.1	Scientific Research Element	S1	S1.1,	Promotes increased understanding of the ecology and management needs of the species, communities, and ecosystems of the CPER, which in turn will help inform management actions to protect water quality.
4.3.2	Monitoring Element	S2	S2.2, S2.3, S2.4, S2.5, S2.6	
4.3.3	Adaptive Management Element	S3	S3.1, S3.2, S3.3, S3.4	

Table 59: LMP Management Goals and Actions that Address Hydrology and Water Resources

LMP Section	Topic	Goals[1]	Management Actions[1]	Summary/ Relevance to the Protection of Hydrologic Resources
4.4.1	Fire Management Element	V1	V1.1, V1.2, V1.3	Vegetation management using fire and managed livestock grazing will help preserve healthy soils and protect surface water quality.
4.4.2	Grazing Management Element	V2	V2.1, V2.2, V2.3, V2.4, V2.5	
4.6.5	Public Access Element	P8	P8.1, P8.2, P8.3, P8.4	Maintaining the road system serving the CPER and establishing all-weather access to the Reserve headquarters will help minimize erosion and the degradation of surface water quality.
4.8	Facilities Maintenance Element	F1, F2	F1.1, F1.2, F1.3, F1.4, F1.5, F1.6, F1.7, F1.8, F2.1, F2.2, F2.3	Encourages maintenance activities that avoid negative impacts to resources of the CPER such as water quality.
4.9	Management and Monitoring Coordination Element	M1, M2, M3	M1.1, M1.2, M1.3, M1.4, M1.5, M2.1, M2.2, M2.3, M2.4, M3.1, M3.2, M3.3, M3.4	Resolving conflicts among management actions to ensure that the goals of the various elements of the LMP are achieved.

Notes:

1. The complete text of recommended management goals and actions is provided in Section 4 of the Draft LMP (CDFW 2018)

5.8.7.1 Previous Environmental Review

In November 2011, the Department adopted a Mitigated Negative Declaration (MND) and approved a lease agreement authorizing continued managed grazing of about 12,000 acres on portions of the North and South Chimineas units (Figure 5; CDFW 2011b). Managed grazing is practiced on portions of the Chimineas units as a vegetation management tool in part to maintain the short grass structure favored by certain special-status animals. Accordingly, the existing conditions relating to hydrology and water quality of those portions of the CPER reflects this current and ongoing practice. With regard to the impacts of managed grazing on hydrology and water quality, the adopted MND concludes that adoption of the Lease Agreement will have a less-than-significant impact.

In 2005, the Department entered a cooperative agreement with the Cachuma Resource Conservation District and the owner of the ranch that borders the South Chimineas Unit (the Russell Ranch) to enhance riparian habitat along a four-mile portion of the Cuyama River along the shared boundary of the two properties (Section 4.4.2). Known as the Cuyama River Riparian Enhancement (CRRE), the project consisted of the installation of four miles of fencing on both the north and south sides of the river to exclude cattle from the riparian vegetation. In exchange for excluding grazing along the River, the agreement allows the property owner to graze approximately 200 acres of the South Chimineas Unit during

dry years when feed-stock is low on the remaining portions of their ranch. The agreement includes a management plan which sets forth stocking levels, standards for residual dry matter, and stock rotation (CRCD 2005). Adoption of the CREE was determined to be Categorically Exempt under the California Environmental Quality Act.

The Draft LMP recommends using grazing management to create and maintain areas of short-statured grassland required by several special-status species; enhance native plant cover and richness in grasslands, blue oak woodlands, and coastal scrub; and control non-native herbaceous plant species in order to reduce their competitive effects on native plants and the potential for type conversion of shrublands to grassland via the grass-fire cycle (CDFW 2018).

New or expanded grazing activities will be preceded by the adoption of a grazing management plan following project-specific environmental review. Unless and until a new grazing lease is adopted, or the terms of the CREE are amended, adoption of the Draft LMP will have no impacts to hydrology and water quality associated with continued managed grazing above baseline conditions.

5.8.7.2 Methodology

The baseline conditions described above in Section 5.8.3 Environmental Setting have been evaluated for their potential to be affected by management actions recommended by the Draft LMP. The study area for the analysis was defined as the set of existing water resources overlain by the CPER. The current condition and quality of these water resources (Section 5.8.3) was used as the baseline against which to compare potential impacts. Potential impacts to hydrology and water quality were identified based on the predicted interaction between the management actions recommended by the Draft LMP with the affected resources.

5.8.7.3 Potential Degradation of Surface Water Quality from Construction Activities

Impact 5.8-1	**Ground-disturbing activities that may result from the construction of new facilities recommended by the Draft LMP have the potential to adversely impact surface water quality. This impact is considered less than significant (Class III) because of mitigation provided by management actions and Best Management Practices incorporated into the project description.**

Activities that involve the construction, maintenance, modification or removal of facilities on the CPER, such as the construction of wildlife viewing platforms, water systems, water tanks, and trails, would require surface disturbance such as grading and site preparation activities. Exposed topsoil would in turn be exposed to rainfall at certain times of the year. Rain falling on exposed soils can generate runoff laden with sediment, which can degrade the quality of receiving surface water bodies such as creeks, ponds, and springs.

Although the precise number, size and location of new facilities to be constructed is not known at this time, ground disturbance such as trenching, surface modification (grading), the clearing of vegetation, and the use of construction equipment have the potential to expose soils and result in the degradation of surface water quality.

Impact 5.8-1 — Mitigation Provided by Compliance with Existing Regulations

Construction activities involving clearing, grading, or excavation that causes soil disturbance on one or more acres would be subject to coverage under the State's NPDES General Construction Storm Water

Permit. In these circumstances, the Department is required to prepare and comply with a SWPPP that specifies BMPs to avoid soil erosion and associated pollution of waterways and is also required to report any water pollution and remediate the pollution occurrence.

Impact 5.8-1 — Best Management Practices Recommended in the Draft LMP that Mitigate Potential Impacts to Surface Water Quality Associated with the Construction of New Facilities

BMP G-1. The Department shall comply with relevant provisions of the California Environmental Quality Act (CEQA) prior to a decision to approve an activity with the potential to adversely impact the environment.

BMP G-2. The Department shall consult with other agencies with permit approval authority over aspects of management activities undertaken within the Reserve, to identify the relevant permit practices and to ensure compliance with applicable state and federal regulations.

BMP G-3. Management activities undertaken in accordance with the LMP shall meet the applicable permitting and regulatory practices of federal and state agencies, including, but not limited to, the following:

- California Department of Fish and Wildlife;
- U.S. Fish and Wildlife Service;
- State Water Resources Control Board;
- U.S. Army Corps of Engineers (Section 404 of the Clean Water Act);
- San Luis Obispo Air Pollution Control District; and
- California Department of Forestry and Fire Protection (CalFire).

BMP GEO-1. Soil-disturbing activities shall be avoided during periods of runoff, or when soils are wet and muddy, in order to minimize damage.

BMP GEO-2. Ground-surface-disturbing activities shall be designed to minimize wind and water erosion.

BMP WQ-1. To protect water quality, the Department shall apply the following best management practices (BMPs) as applicable.

- Identify the most sensitive natural areas and, where possible, leave them undeveloped. To the extent possible, set back areas of ground disturbance from creeks, wetlands, and riparian habitats and preserve trees. Conform the site along natural land forms, avoid excessive grading and disturbance of vegetation and soils, and mimic the site's natural drainage patterns. Where possible, concentrate ground disturbance on portions of the site with less permeable soils, and preserve areas that can promote infiltration.
- To the extent possible, limit overall coverage of impervious surfaces. Where possible, detain and retain runoff throughout the site. Use drainage design elements such as depressed landscape areas, vegetated buffers, and bioretention facilities consisting of a shallow surface reservoir, a layer of imported planting medium, and a gravel underlayer with perforated pipe underdrains.

- Use permeable pavements, such as crushed aggregate, turf block, unit pavers, pervious concrete, or pervious asphalt could be substituted for impervious concrete or asphalt paving.
- Direct runoff to bioretention facilities, flow-through planters, dry wells, or cisterns. Consider directing runoff to facilities designed to detain and treat runoff before letting it seep away slowly. Dry wells or infiltration basins may be used if soils are sufficiently permeable and geotechnical considerations allow.

BMP WQ-2. For new construction activities with the potential to disturb more than one acre of land, a Notice of Intent (NOI) shall be filed with the Regional Water Quality Control Board to be covered under the State National Pollutant Discharge Elimination System (NPDES) General Construction Permit for discharges of storm water associated with construction activity. A Storm Water Pollution Prevention Plan (SWPPP) must be developed and implemented for each site.

BMP WQ-3. The Department shall apply runoff-control measures to minimize discharge of surface pollutants into drainage systems associated with new construction. Examples of such measures include, but are not limited to, the following:

- The use of "bioswales" and similar features (such as infiltration trenches, filter trips, and vegetated buffers) to trap contaminants;
- Installation of grease/oil separators to keep these contaminants out of storm runoff; and
- Minimizing pesticide use.

BMP WQ-4. Water diversions shall divert the minimum necessary amount. Float valves or other devices shall be installed to control diversion amounts.

BMP WQ-5. Natural drainage patterns shall be preserved to the greatest extent possible.

Impact 5.8-1 — Conclusion/Summary of Impact

Implementation of the management actions and BMPs described above will ensure that the potential the degradation of surface water quality associated with construction will be **less than significant (Class III).**

Impact 5.8-1 — Additional Mitigation

None are required.

5.8.7.4 Water Quality Degradation Associated with Prescribed Burning

Impact 5.8-2	**The Draft LMP recommends the use of prescribed burning as a vegetation management tool. Prescribed burning has the potential to expose soils which in turn could result in the degradation of surface water quality. This impact is considered less than significant (Class III) because of mitigation provided by management actions and Best Management Practices incorporated into the project description.**

The Draft LMP recommends the use of prescribed burning as a vegetation management tool. Fire, especially wildfire, has the potential to expose large areas of soil to rainfall, which can cause erosion and degrade surface water quality. Potential prescribed burns will target the fire-adapted chaparral communities, some of which have not burned in almost 100 years. These communities occupy about 1,250 acres of the CPER located primarily on the higher and western elevations of the Chimineas units. For purposes of this analysis, 625 acres of the chaparral community (approximately 50 percent) are assumed to be burned during the next 25 years. This goal may be accomplished either by a single prescribed burn or wildfire (Section 3.11.4). The precise location and timing of a prescribed burn to be conducted following adoption of the Draft LMP will be determined through the preparation of a fire management plan (CDFW 2018). However, the management objective of burning at least 625 acres of chaparral would likely be achieved by conducting a single prescribed burn of about 625 acres once during the next 25 years.

Prescribed fires, by design, tend to be less severe than wildfires, resulting in less impact on soil. Soil burn severity from both wild and prescribed fires is rarely uniform across a burned area. Likely negative impacts of severe fire on soils include destruction of the protective vegetation canopy and forest floor, a significant loss of soil carbon and nitrogen, and reduced infiltration capacity; this, in turn, can lead to erosion by wind and water which in turn may cause increased runoff and sediment input into streams. A study conducted in Southern California (Wohlgemuth et al. 2009) concluded that soil water repellency (i.e., runoff) was lower after a severe fire in areas of native chaparral than in areas converted to grassland, suggesting that landscape conversion may contribute to erosion following a fire. In general, the capacity of soils to repel rainfall following a prescribed fire, along with the increased potential for the degradation of surface water quality, is more likely to occur in areas of the CPER possessing the following characteristics:

- In coarse-textured soils which are more easily coated with organics than fine-textured soils;
- In chaparral areas (shown on Figure 4); and
- In areas of high burn severity.

It should be noted that the effect of water repellency on soil erosion by runoff is strongly influenced by the amount and duration of rainfall following a fire.

The time of year that a prescribed burn occurs also affects the associated impacts to surface water quality. Prescribed burns are often conducted during cooler seasons such as spring or fall when rainfall on the CPER is possible but less likely than during the winter. Intense rainfall immediately following a prescribed burn would result in a significant but temporary increase in sediment-laden runoff.

Fire suppression activities such as construction of fire lines (removing a swath of vegetation to limit the spread of a wildfire) can also expose soils to rainfall which in turn can result in the degradation of surface runoff.

Impact 5.8-2 — Best Management Practices Recommended in the Draft LMP that Mitigate Potential Impacts to Surface Water Quality Associated with Prescribed Burning

BMP G-1 through BMP G-3 apply to this impact.

BMP AQ-7. Prescribed burning shall be conducted in full compliance with the provisions of Rule 502 of the San Luis Obispo County Air Pollution Control District (SLO APCD) Rules and Procedures.

Impact 5.8-2 — Conclusions/Summary of Impact

The areas where prescribed burning is likely to occur would experience a temporary and localized degradation of surface water quality until vegetation regenerates to the pre-fire level where soil is stabilized the plant copies and roots. These impacts are considered less than significant due to the following factors:

- Fires of varying size and intensity have affected the CPER an average of about once every 6 years between 1917 and 2015 (Section 5.3.11.4). Although prescribed burns would be designed to reduce the frequency and intensity of naturally-occurring fires, the effectiveness of prescribed burning in southern coastal California (including San Luis Obispo County) to reduce the area burned by future fires is not clear (Price et al. 2012). However, it is well documented that wildfires spread more slowly and with lower intensity in areas with reduced fuels (Fernandes and Botelho 2003). For purposes of this analysis it is assumed that prescribed burning as recommended by the Draft LMP will reduce the number and intensity of wildfires in the chaparral communities of the CPER, compared with baseline conditions, with a corresponding reduction to surface water impacts associated with such fires.
- The area to be burned by a prescribed burn would be small (approximately 625 acres).
- The potential for decreased surface water quality would be temporary until the vegetation regenerates.
- Prescribed burning will be designed to regenerate native plant communities that might otherwise become senescent, thereby improving soil conditions and the capacity of soils to resist erosion from runoff.

Lastly, implementation of the management actions and BMPs described above will ensure that the potential degradation of surface water quality associated with prescribed burning will be **less than significant (Class III).**

Impact 5.8-2 — Additional Mitigation

None are required.

5.8.7.5 Potential Degradation of Groundwater Quality from Construction Activities

Impact 5.8-3 **Construction activities could result in the discharge of polluted and/or sediment-laden runoff potentially degrading groundwater quality. This impact is considered less than significant (Class III) because of mitigation provided by management actions and Best Management Practices incorporated into the project description.**

Management actions that would result in surface disturbance and soil exposure such as grading or trenching could generate runoff containing sediments from exposed soils. The total area expected to be disturbed by construction activities is estimated to be about 1.7 acres (Table 4, Section 3.11.5). Increased sediments, and any other constituents in the runoff, could potentially effect groundwater conditions if not properly treated with water quality controls as runoff percolates into the soil.

The California Storm Water Best Management Practices Handbook prepared by the California Stormwater Quality Association (CSQA 2003) concludes that water quality control features, such as infiltration basins, have been successful in controlling water quality and avoiding groundwater quality impacts. As runoff infiltrates into the ground, particulates and attached contaminants such as metals and nutrients are removed as they become attached to soil particles. Dissolved constituents are also absorbed by soil particles.

Impact 5.8-3 — Best Management Practices Recommended in the Draft LMP that Mitigate Potential Impacts to Groundwater Quality Associated with the Construction of New Facilities

The BMPs described under impact 5.8-1 apply to this impact.

BMP WQ-6. As staffing and funding allow, the Department will regularly monitor water quality and quantity in wells on the Reserve for evidence of subsidence, changes in groundwater levels, toxic substances, mineral intrusion, and other contaminants and shall take remedial actions as necessary to protect groundwater quantity and quality. Such remedial actions may include, but are not limited to, the following:

- Treatment and/or blending of groundwater where necessary to meet safe drinking water standards;
- The abandonment of wells that either adversely impact surrounding wells or that do not meet safe drinking water standards; and
- Where feasible and consistent with the objectives of this LMP, the increased use of surface supplies to reduce dependence on groundwater supplies.

Impact 5.8-3 — Conclusion/Summary of Impact

Implementation of the management actions and BMPs described above will ensure that the potential degradation of groundwater quality associated with the management actions recommended by the Draft LMP will be **less than significant (Class III).**

Impact 5.8-3 — Additional Mitigation

None are required.

5.8.7.6 Degradation of Surface Water Quality Associated with the Continuation of Managed Livestock Grazing

Impact 5.8-4 **The Draft LMP recommends the continued use of grazing as a vegetation management tool. Grazing has the potential to adversely impact soils and result in the loss of soil from erosion which in turn may adversely impact surface water quality. This impact is considered less than significant (Class III) because of mitigation provided by management actions and Best Management Practices incorporated into the project description.**

Livestock grazing can disturb soils and biological soil crusts, and remove and trample vegetation, which can result in soil erosion that adversely impacts surface water quality. In a review of 54 grazing studies in the arid west (Jones 200), significant detrimental effects of livestock grazing were reported on shrub cover, grass cover, seedling survival, cryptogamic crust cover, soil/water infiltration rate, soil erosion, and litter biomass. Movement of livestock across non-level landscapes results in a generalized net movement of soil down slope; even moderate slopes are likely to suffer soil erosion under moderate grazing pressure (Mwendera et al. 1997), which in turn can degrade surface water quality. Impacts to riparian areas include vegetation removal, soil disturbance, and sedimentation, changes which can adversely impact water quality. Livestock

trails alter water flow patterns and erode steep terrain and can be an important mode of sediment transport into stream channels (George et al. 2004).

The effects of livestock grazing on soil compaction depends on the intensity (Roberson 1996). Compaction affects soil productivity because it reduces water and air movement into and through the soil and therefore their availability to plant roots. Infiltration rate, the rate at which water enters the soil as opposed to puddling or running off, is often used as a measure of soil compaction. Heavy grazing has been shown to decrease infiltration in a number of soil types (Roberson 1996).

The effects of grazing on water quality tend to be related to the intensity and timing of grazing. Riparian areas are more susceptible during the hot season, when livestock congregate in the cooler, moister, riparian area (BLM 2014). The removal of riparian vegetation can lead to erosion along stream banks with a corresponding adverse impact on water quality (Hoorman and McCutcheon 2005). Soil crusts are more susceptible to long-term damage during the dry season, when dormancy prevents their growth and repair (BLM 2014).

Managing grazing to achieve standards for residual dry matter (RDM) can help minimize erosion and the associated impacts to surface water quality (Bartolome et al. 2002). Maintaining sufficient RDM will protect soil from erosion and nutrient loss, thus reducing reduce the sediment load in surface water. Accordingly, BMP BIO-20 recommends the inclusion of specific measurable objectives, such as minimum RDM, to be included in a grazing management plan to guide managed livestock grazing in a manner that protects soils and surface water quality (Bartolome et al. 2002).

As with other components of vegetation management, managed grazing will be conducted within an adaptive management framework that will be detailed in the grazing management plan, which will be developed based on the goals outlined in the LMP (CDFW 2018). The grazing plan will be prepared by a biologist(s) with regional experience in their respective fields. It will be developed in consideration of fire and exotic plant management elements as part of coordinated vegetation management (CDFW 2018).

Impact 5.8-4 — Best Management Practices Recommended in the Draft LMP that Mitigate Potential Impacts to Surface Water Quality Associated with the Continuation of Managed Livestock Grazing

The BMPs described above under Impact 5.8-1 apply to this impact.

BMP BIO-10. Areas supporting special-status aquatic species shall be avoided to the greatest extent possible.

BMP BIO-20. Any authorization, or reauthorization, of new or expanded grazing activities will be preceded by the adoption of a grazing management plan following compliance with the California Environmental Quality Act. Such a Grazing Management Plan shall set forth at least the following:

- Specific goals, objectives and performance standards (targets) that define the desired habitat conditions to be achieved through grazing as a management tool, which are based upon the resource protection and enhancement goals of the LMP.
- Performance standards that are measurable, objective, and relevant to grazing management while incorporating the flexibility necessary for effective adaptive management.

- Grazing prescriptions, which identify how grazing will be conducted to attain the various goals, objectives, and performance standards. Grazing prescriptions will include:
    - animal class: the kind of animals, in terms of species, breed, and age;
    - spatial distribution: which portions of the reserve will be grazed;
    - temporal distribution: when animals will be grazing; and
    - density of animals: the number of grazing animals within each area to be grazed.

  Grazing prescriptions and methods will be developed based upon a review of the best available scientific literature examining the effects of various types grazing, based on the seasonality, intensity, and frequency, on biological systems, and the site-specific conditions of the reserve.
- Grazing facilities, such as water and fencing, that are currently present or that would be needed.
- Methods to avoid or minimize impacts of grazing on special-status species, special communities, cultural resources, and public uses.
- Performance standards such as minimum standards for residual dry matter (RDM) and/or grass height to ensure the protection of water and soil quality.
- Monitoring protocols and performance standards that will be used to assess effective implementation of the grazing prescriptions.
- Lease management requirements to ensure compliance and cooperation between the grazing permittee and Department staff.

BMP BIO-22. The Department will adjust grazing prescriptions or eliminate grazing following restoration treatments, if necessary to protect populations of vulnerable species and/or facilitate establishment of newly planted sites.

BMP BIO-23. Where possible, water for livestock shall be piped away from the riparian zone. If possible, livestock water sources shall be kept on year-round for use by native animals.

Impact 5.8-4 — Conclusion/Impact Summary

The continuation of managed grazing is expected to have a **less-than-significant impact (Class III)** on water quality because:

- Grazing is currently used as a vegetation management tool on the CPER in accordance the terms of the 2011 lease agreement (CDFW 2011b) and the CRRE (CRCD 2005), which were approved previously and subject to separate environmental review. The MND prepared for the lease agreement concluded that the continuation of managed grazing in accordance with the terms of the lease will have a less-than-significant impact on surface water quality (CDFW 2011b). The Categorical Exemption adopted for the CRRE concluded that the CRRE would have a less-than-significant impact on soils. Substantial riparian vegetation has grown within the Cuyama River corridor where the CRRE was implemented.

- The Draft LMP does not authorize or recommend any changes to the location or intensity of grazing on the CPER. Rather, new or expanded grazing activities will be preceded by the adoption of a grazing management plan following project-specific environmental review. The grazing management plan recommended by the Draft LMP will incorporate the elements described in management action V2.1 and BMP BIO-20.
- The elements listed in Management Action V.2.1 and BMP BIO-20 are based in part on an analysis of grazing management strategies for the CPER prepared by LD Ford Rangeland Conservation Science (Van Hoorn and Ford 2013) which is attached as Appendix E and incorporated herein by reference. The analysis and recommendations are based on the following:
    - An examination of the physical characteristics, habitats and species of the CPER contained in the Draft LMP;
    - A field investigation of current conditions on the CPER;
    - A review of the grazing management methodologies and standards contained in the November 2011 lease agreement;
    - A review of scientific literature regarding special-status species that occur, or may occur, on the CPER; and
    - Recent published reports for the Carrizo Plain Ecosystem Project.
- The elements listed in Management Action V.2.1 and BMP BIO-20 are intended to bolster the use of adaptive management with regard to grazing and to ensure that the grazing management plan defines specific objectives and performance standards upon which the effectiveness of grazing management may be assessed. For example, properly managed RDM can be expected to provide a high degree of protection from soil erosion and nutrient loss associated with livestock grazing (Bartolome et al. 2002). By incorporating these elements into a grazing management plan, it is expected that future grazing leases will continue to minimize adverse effects on water quality while ensuring the management objectives of the Draft LMP will continue to be achieved.
- Unless and until a grazing management plan is adopted, and a new grazing lease is adopted, or the terms of the CRRE are amended, grazing will continue at baseline conditions.
- Implementation of the management actions and BMPs listed above will ensure that the continuation of managed grazing will be conducted in a manner that protects water quality.

Impact 5.8-4 — Additional Mitigation

None required.

5.8.8 Cumulative Impacts and Mitigation Measures

This section analyzes the Draft LMP's contribution to cumulative impacts to hydrology and water quality (Section 5.1.4).

5.8.8.1 Cumulative Setting

The geographic scope of the cumulative analysis for water quality includes the watersheds of the California Valley, the Carrizo Plain, and Cuyama Valley. The cumulative setting includes proposed, planned,

reasonably foreseeable, and approved projects and management plans within the region (Section 4.5), as well as the contribution of activities contemplated within the CPER in accordance with the Draft LMP.

5.8.8.2 Cumulative Degradation of Water Quality

Impact 5.8-5	**Management actions recommended by the Draft LMP, when added to other closely related past, present, and reasonably foreseeable future projects in the region, could contribute to a cumulative degradation of water quality. This impact is considered less than significant (Class III) because of mitigation provided by management actions and Best Management Practices incorporated into the project description.**

The cumulative impact to surface water quality is a function of:

- The type and quantity of proposed, planned, reasonably foreseeable, and approved development projects in the area;
- Land use practices in the area; and
- Activities and management practices on surrounding federal lands managed by the U.S. Forest Service and the Bureau of Land Management.

5.8.8.2.1 Present and Future Land Use/Reasonably Foreseeable and Approved Development Projects

Land uses in the region with the potential to result in cumulatively considerable impacts to water quality include dry-land farming and grazing, and activities undertaken on federal lands surrounding the CPER (Section 4.5.1). Grazing is the most widespread land use in the region, and occurs within the CPNM and LPNF as well as private land.

In addition, energy development in the form of photovoltaic solar arrays has been constructed and is now operating in California Valley. These previously approved energy development projects in the California Valley (Topaz Solar Farm and California Valley Solar Farm) comprise 6,100 acres of developed area (Table 12). Construction activities and the resulting increase in impervious surfaces will increase runoff and the potential for the degradation of water quality.

Development of private land is subject to environmental review in accordance with CEQA, and must demonstrate compliance with federal and state water quality standards. Previously approved solar projects in the California Valley (Topaz Solar Farm and California Valley Solar Farm) have both completed the environmental review process and are subject to conditions of approval/mitigation measures that reduce potential water quality impacts to a less than significant level (SLO County 2011a, b). Comparable conditions/mitigation measures can be expected to be applied to future development projects in the region.

Carrizo Plain National Monument Resource Management Plan

The CPNM consists of 246,817 acres stretching from Soda Lake on the north to Highway 166 to the south (Section 4.5.1.1). The RMP for the CPNM includes management actions aimed at minimizing the degradation of surface water quality including (BLM 2010):

- Action WTR-1(S): Inventory/monitor wetland, riparian, and spring sites.
- Action WTR-2(I*): Fence/protect wetland, riparian, and spring areas as necessary to meet or exceed proper functioning condition.
- Action WTR-3(I*): Any spring improvements and/or new water developments will undergo evaluation and an approval process that would include an appropriate level of environmental analysis (NEPA) by BLM.
- Action WTR-4(I*): Provide water for livestock, wildlife, and administrative use from wells rather than from natural springs and/or surface waters where it is determined that these uses are detrimental to the spring and/or surface waters.
- Action WTR-5(S): Continue to monitor and remove tamarisk, bull thistle, and other noxious weeds from wetland areas.
- Action WTR-6(S): Use native plants in wetland areas to restore degraded springs or streams.

In addition, the RMP recommends several BMPs aimed at maintaining and improving water quality (BLM 2010).

Bakersfield Field Office of the BLM Resource Management Plan

The RMP governing management of approximately 17 million acres of BLM lands administered by the Bakersfield Field Office (Section 4.5.1.3) provides goals and objectives for water quality protection as well as recommended "decisions" to guide implementation, including (BLM 2014):

- Design BLM program and management activities and authorize projects to meet water quality standards and maintain beneficial uses by implementing such measures as state-approved BMPs (Management Measures for Polluted Runoff) within the Central Coast, South Coast and Tulare basins.
- Implement management actions to reduce non-point source pollution contributing to impaired water quality in any basin or segment listed as impaired in accordance with Section 303(d) of the Clean Water Act (e.g., a segment of Salinas River).
- Implement BMPs for riparian/wetland health for maintenance of vegetation cover and diversity, and the physical stability of stream banks.
- Applications for water developments or diversions on public lands would be approved only if resource objectives including wildlife, riparian, and livestock grazing needs, have been met.
- Complete state water rights reporting requirements to maintain existing licenses and continue water diversion and use authorizations. Apply for new licenses and use authorizations as appropriate.

In addition, the RMP recommends several BMPs aimed at maintaining and improving water quality (BLM 2014).

Los Padres National Forest Land Management Plan

The LPNF LMP (Section 4.2.1.2) recommends the following actions to protect surface water quality (USDA 2005a):

- Assess impacts of existing and proposed groundwater extractions and tunneling projects and proposals to assure that developments will not adversely affect aquatic, riparian or upland ecosystems and other uses, resources or rights (e.g., tribal water rights).
- Promote water conservation at all national forest administrative and authorized facilities. Protect and improve water quality by implementing best management practices and other project-specific water quality protection measures for all national forest and authorized activities. When reviewing non-forest water-related projects that may affect national forest resources, include appropriate conservation and water quality mitigation measures in the review response.
- Conserve and protect high-quality water sources in quantities adequate to meet national forest needs.
- Take corrective actions to eliminate the conditions leading to state listing of 303(d) impaired waters on National Forest System land. For those waters that are both on and off National Forest System land, ensure that Forest Service management does not contribute to listed water quality degradation.
- Actively pursue water rights and water allocation processes to secure instream flows and groundwater resources for current and future needs sufficient to sustain native riparian dependent resources and other national forest resources and uses.
- Identify the need for and encourage the establishment of water releases which mimic nature flow patterns, for current and future use, to maintain instream flow needs including channel maintenance, and to protect and eliminate impacts on riparian dependent resources.
- Participate in all Federal Energy Regulatory Commission licensing and re-licensing efforts on National Forest System land to ensure sufficient consideration and protection is provided for riparian-dependent resources. Incorporate instream flow, riparian, and other natural resource management requirements into 4(e) license conditions. Monitor water development projects to ensure that instream flows are meeting riparian dependent resource needs.
- To maintain or improve habitat containing threatened, endangered, proposed, candidate, and special-status species, coordinate activities with the Department, NOAA Fisheries, USFWS, SWRCB, and other appropriate agencies involved in recommending instream flow and surface water requirements for waterways. Coordinate with federal, tribal, state and local governments and private entities to secure the instream flow needed to maintain, recover, and restore dependent resources, channel conditions and aquatic habitat.

The LPNF LMP also includes BMPs aimed at maintaining and improving water quality (USDA 2005a).

Impact 5.8-5 — Conclusion/Summary of Impact

Activities undertaken on private properties as well as federal lands surrounding the CPER have the potential to contribute to the cumulative degradation of water quality. Activities on private land that do not require an entitlement from one or more government agency are not subject to the environmental review process, but are nonetheless subject to certain water quality requirements adopted by the RWQCB. With respect to private development projects, as discussed above, each project is subject to compliance with CEQA and must demonstrate compliance with applicable water quality standards.

The agencies governing federal lands surrounding the CPER have adopted management actions and BMPs to ensure compliance with federal clear water laws. In addition, new development on federal lands is subject

to compliance with NEPA. Under NEPA the approval authority must identify potentially significant impacts and recommend mitigation measures to reduce those impacts.

Lastly, the management actions and BMPs described above for impacts 5.8-1 through 5.8-4 will ensure that activities undertaken on the CPER following adoption of the Draft LMP will mitigate their impact on water quality. Therefore, the contribution of the Draft LMP to the cumulative degradation of water quality is considered **less than cumulatively considerable (Class III).**

Impact 5.8-5 — Additional Mitigation

None required.

5.9 Public Services and Fire Protection

This section addresses impacts associated with the provision of fire protection services that may result from implementation of the management actions recommended by the Draft LMP. It addresses existing fire protection service providers to the CPER in the area, identifies and analyzes environmental impacts, and recommends measures to reduce or avoid adverse impacts anticipated from management actions included in the Draft LMP. In addition, this section describes existing laws and regulations relevant to the provision of fire protection services. In some cases, compliance with these existing laws and regulations would serve to reduce or avoid certain impacts that might otherwise occur with the implementation of the Draft LMP. This section ends with an assessment of the cumulative impacts related to fire protection services.

Impacts related to hazards associated with wildland fires are addressed in section 5.7 Hazards.

5.9.1 Sources Used in This Analysis

This analysis is based on a review of applicable law, local planning documents, and publications including:

- Draft Land Management Plan for the Carrizo Plains Ecological Reserve (CDFW 2018);
- Mitigated Negative Declaration for Grazing Lease Allotment Carrizo Plains Ecological Reserve (Chimineas Ranch), San Luis Obispo County, (CDFW 2011b);
- San Luis Obispo County Emergency Operations Plan (SLO County 2005);
- San Luis Obispo County Fire Management Plan (SLO County and CalFire 2009);
- San Luis Obispo County Local Hazard Mitigation Plan (SLO County 2011c); and
- The Bureau of Land Management Bakersfield Office Resource Management Plan and Final Environmental Impact Statement (BLM 2014); and
- Resource Management Plan for the Carrizo Plain National Monument (BLM 2010).

References for these and other resources cited are provided in Section 10 References.

5.9.2 Scoping Issues for Public Services

During the 30-day public review period for the Notice of Preparation for the Draft LMP, written and oral comments were received from agencies and the public. The following issue relating to public services was raised during the scoping process and is addressed in this section:

- The EIR should assess the impacts associated with increased demand for police service.

Information provided in the Initial Study (Appendix B) concludes that impacts to police protection are less than significant.

5.9.3 Environmental Setting — Fire Protection

5.9.3.1 Hazards Associated with Wildfires

Section 5.7.4.1 provides an overview of the hazards associated with wildfires in the CPER region. The CPER experiences recurring wildfire, which is a natural component of the ecosystems in the region. Land within the Reserve is at moderate to high fire risk (Figure 35; CalFire 2006). The fire hazard is influenced by several factors, including the age of vegetation (i.e., time since last fire), climate, and topography, and vegetation management programs that may have been implemented.

5.9.3.2 Fire History

Section 5.3.11.4 discusses the fire history of the CPER region, which has been variable and reflects the natural disturbance regime of the various vegetation types within the region and influences from human inhabitants. The recent history of fire in the region has been catalogued by CalFire (2015). The database includes fires of at least 300 acres and fires on USFS land that are least 10 acres (Table 35, Figure 18).

5.9.3.3 Emergency Services

The isolation of the CPER complicates emergency medical response and emergency preparedness. Emergency medical transportation may take up to two hours depending on the availability of resources. The California Highway Patrol staffs a helicopter that responds to medical emergencies in the area. However, depending on the availability of the helicopter, response may be delayed. Ground ambulances are dispatched from San Luis Obispo or Kern counties depending on the location of the incident. There are no public phones located within the CPER. Cell phones service is spatially patchy and incomplete.

Public safety and law enforcement activities are handled by specialists within the Department, BLM, and the San Luis Obispo County Sheriff's Department. Search-and-rescue operations are handled by the San Luis Obispo and Kern County sheriffs' offices. The Department has one game warden assigned to southeastern San Luis Obispo County to provide wildlife law enforcement. Additionally, the California Highway Patrol conducts aerial patrols, and the San Louis Obispo County sheriff's office provides general law enforcement capabilities.

The California Department of Forestry and Fire Protection (CalFire) functions as the San Luis Obispo County Fire Department (SLCFD) under a contract with the County of San Luis Obispo. The SLCFD operates with 180 full-time equivalent state employees, supplemented by between 100 state seasonal firefighters, 300 County paid-call and reserve firefighters, and 120 state inmate firefighters (SLO County and CalFire 2016).

In California, the five federal fire management agencies and CalFire have entered an agreement known as the California Master Cooperative Wildland Fire Management and Stafford Act Response Agreement (known as the CFMA). This agreement provides the framework for the mutual cooperation of the fire management agencies to suppress fires on intermingled private and public land within the state. Through this agreement and with oversight from the California Wildfire Coordinating Group (CWCG), the state has been divided into Direct Protection Areas (DPAs), delineated by boundaries regardless of statutory responsibility where fire protection is assumed by administrative units of either federal or state agencies. Therefore, in some areas a federal fire protection agency such as the BLM may be responsible for protecting

lands other than public land, and in other areas another federal or state agency is responsible for suppression on public lands. The fire protection agencies serving the CPER (CalFire and BLM) are covered by the CFMA agreement.

Regardless of the actual responsibility for a specific area, the closest available fire suppression resources will respond to a given fire under the mutual aid agreements also included in the CFMA. BLM meets annually with the Central Coast Operations group, which features representatives of all local, state, and federal fire suppression agencies in the region, to discuss fire suppression tactics and special suppression considerations. The Central Coast Operating Plan (CCO 2012) includes a modified suppression plan for the CPNM that outlines suppression tactics to be used to minimize effects to sensitive resources. Limitations include using bulldozers only when necessary to protect life or property or other identified sensitive resources, minimizing new line construction and off-road travel, and restricting aerial retardant drops on rock outcrops and waterways. Minimum impact suppression tactics will be utilized within the Caliente Mountain Wilderness Study Area and other areas having wilderness characteristics. The plan also requires that a BLM resource advisor be requested for all fires to advise suppression forces on resource issues.

The CPER lies within the DPA of BLM except for the northwest portion of the North Chimineas Unit, which is within the DPA for CalFire (Figure 38). Cooperative agreements for fire suppression exist with the surrounding county fire departments (Kern, and Santa Barbara), with the state of California, and the USFS. The closest BLM fire station is the Midway Station, currently located in Taft, with a drive time of approximately 60 minutes.

There is one County/CalFire fire station serving the area (Station 42) located at 13080 Soda Lake Road in California Valley (Figure 35). Station 42 is staffed 24 hours Tuesday through Thursday with two paid staff members: a Fire Captain and Fire Apparatus Engineer. These paid staff are responsible for emergency response as well as the administration and training of 15 Paid-Call Firefighters (local volunteers). Local volunteers respond to fire emergencies from the California Valley Station with paid staff during these three mid-week days. On days when the station is not staffed (Friday through Monday), only local volunteers respond, if available. Response times to the different units of the CPER will vary from 20 – 40 minutes. Backup emergency response, if needed, would come from the La Panza Fire Station 41, located at 5398 Pozo Road, Santa Margarita, with an estimated response time of 40 to 50 minutes during the summertime only and if available. The next closest station that is staffed year round is the Parkhill Station 40, located at 6140 Parkhill Road, Santa Margarita, with a response time of greater than 60 minutes (SLO County and CalFire 2016). In addition to these resources, Santa Barbara County has a staffed year round station in New Cuyama (Station 41) and the USFS has a seasonally staffed engine at Pine Canyon. Both of these stations are located on Highway 166 and have an approximately 30 minute response time to the South Chimineas unit.

Company 42 members are dispatched via radio pager to all incidents in Carrizo Plain, and are responsible for equipment operation when permanent staff is off duty. In addition to Company 42, Carrizo Plain is home to EMS 42. EMS 42 is trained in emergency medical situations, and serves as the primary emergency care responders during medical emergencies (SLO County and CalFire 2016).

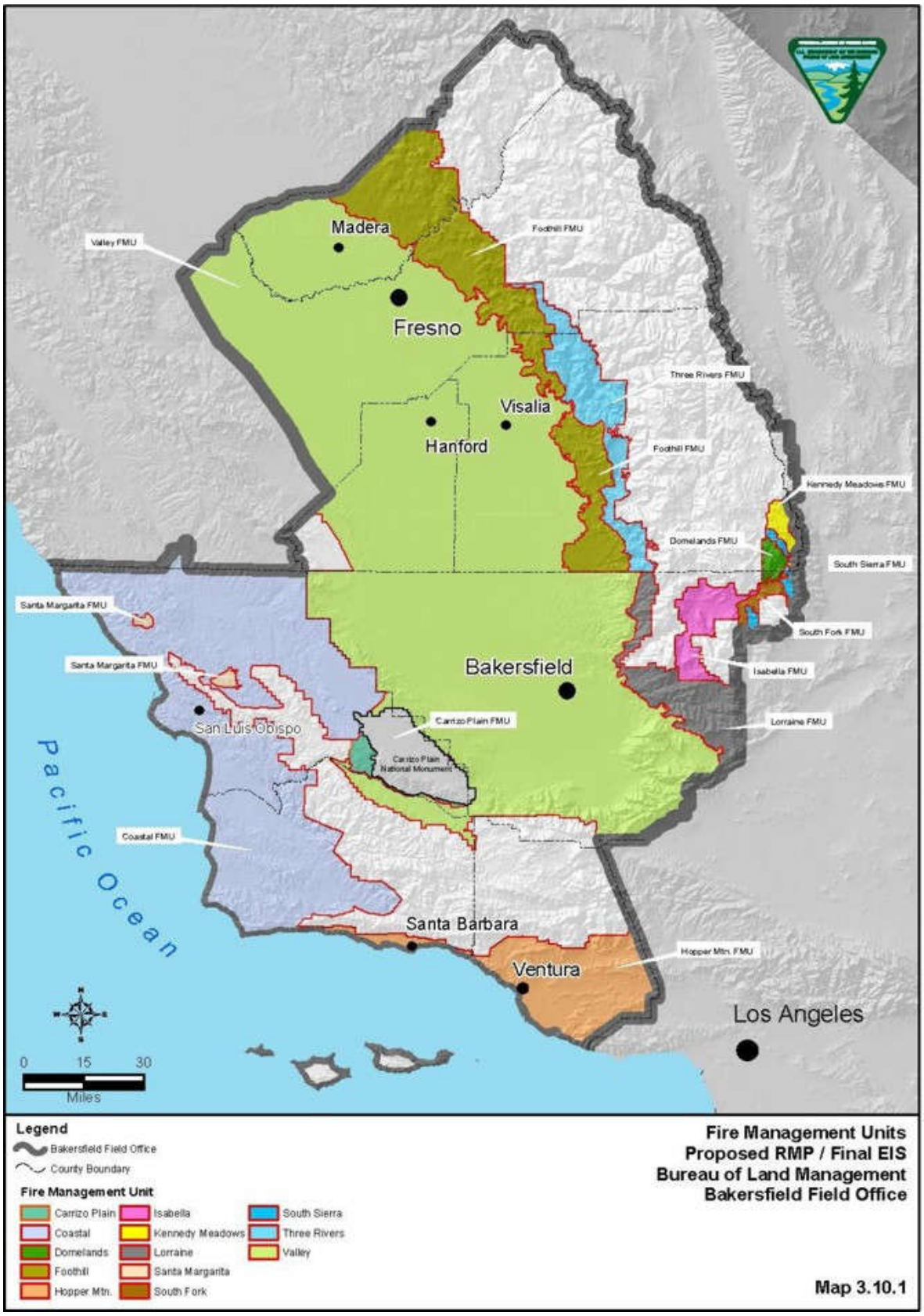

Figure 38: BLM Fire Protection Responsibility Areas (BLM 2014)

5.9.4 Applicable Regulations, Plans and Policies

5.9.4.1 Federal

5.9.4.1.1 California Wildland Fire Coordinating Group – California Master Cooperative Wildland Fire Management and Stafford Act Response Agreement

As described above, the five federal fire management agencies in California and CalFire have entered into an agreement known as the California Master Cooperative Wildland Fire Management and Stafford Act Response Agreement (CFMA). This agreement provides the framework for the mutual cooperation of the fire management agencies to suppress fires on intermingled private and public land within the state. Through this agreement and with oversight from the California Wildfire Coordinating Group (CWCG), the state has been divided into direct protection areas (DPAs), delineated by boundaries regardless of statutory responsibility where fire protection is assumed by administrative units of either federal or state agencies. The CWCG is established to provide an interagency approach to wildland fire management and all-risk support on all land ownerships within the State of California. The purpose of CWCG is to further interagency cooperation, communications, coordination, and to provide interagency fire management direction and all-risk support for the Northern and Southern California Geographical Areas.

5.9.4.2 State

5.9.4.2.1 California Occupational Safety and Health Administration

In accordance with California Code of Regulations Title 8 Sections 1270 "Fire Prevention" and 6773 "Fire Protection and Fire Equipment," the California Occupational Safety and Health Administration (CAL-OSHA) has established minimum standards for fire suppression and emergency medical services. The standards include, but are not limited to, guidelines on the handling of highly combustible materials, fire hose sizing requirements, restrictions on the use of compressed air, access roads, and the testing, maintenance and use of all firefighting and emergency medical equipment.

5.9.4.2.2 Emergency Response/Evacuation Plans

State law authorizes the Office of Emergency Services (OES) to prepare a Standard Emergency Management System (SEMS) program, which sets forth measures by which a jurisdiction should handle emergency disasters. Noncompliance with SEMS could result in the state withholding disaster relief from the non-complying jurisdiction in the event of an emergency disaster. The preservation of life, property, and the environment is an inherent responsibility of local, state, and federal government. OES coordinates the responses of other agencies including the CHP and the county sheriff and fire departments.

5.9.4.2.3 Fire Hazard Severity

California has enacted statewide laws aimed at reducing wildfire hazards in wildland-urban interface areas. These regulations cover topics such as fire prevention, vegetation management, notification and penalties,

fire hazard severity zones, defensible space, setbacks, and exemptions. The state's Fire Hazard Zoning Field Guide (CalFire 2000) provides guidance for fire risk reduction.

5.9.4.2.4 California Public Resources Code/Vegetation Management Program

CalFire has a fuel reduction program called the Vegetation Management Program, which has limited funding to conduct fuel management activities to prevent high-intensity wildfire through fuel modification. If brush can be kept at the medium fuel load level, then the intensity of fire can be reduced substantially.

5.9.4.2.5 California Fire Plan

The California Board of Forestry and CalFire have developed the California Fire Plan in an effort to reduce the overall costs and losses from wildfire in California (CalFire 2010). The primary purpose of wildland fire protection in California is to protect human health and safety together with the wide range of assets found on California wildlands, including: timber, range, recreation, water and watersheds, plants, air quality, cultural and historic resources, unique scenic areas, buildings, and wildlife, plants, and ecosystem health (CalFire 2010).

The California Fire Plan defines a standard for measuring the level of fire protection service provided in an area, considers assets at risk, incorporates the cooperative interdependent relationships of wildland fire protection providers, provides for public stakeholder involvement, and creates a fiscal framework for policy analysis. A key product of the plan is the development of wildfire safety zones to reduce the risks to residents and firefighters from future large wildfires.

The California Fire Plan defines an assessment process for measuring the level of service provided by the fire protection system for wildland fire. This measure can be used to assess CalFire's ability to provide an equal level of protection to sites with similar land types, as required by Pubic Resources Code Section 4130. This measure is the percentage of fires that are successfully controlled before unacceptable costs are incurred. Knowledge of level of service will help define the risk to wildfire damage faced by public and private assets in wildlands (CalFire 2010).

5.9.4.3 Local

5.9.4.3.1 San Luis Obispo County Fire Management Plan

The Fire Management Plan is a planning document of CalFire/San Luis Obispo County Fire Department that aims to increase the safety of residents and firefighters during wildland fires and to reduce the costs and losses associated with wildland fires. The document includes a risk assessment and an action plan for education, inspection, and fuel treatment (SLO County and CalFire 2009).

5.9.4.3.2 Community Wildfire Protection Plan

The Community Wildfire Protection Plan (CWPP) is an update of the 2009 Fire Management Plan. Accordingly, the CWPP is being developed to address fire protection planning efforts occurring in the County to minimize wildfire risk to communities, assets, firefighters, and the public. The CWPP process is intended to provide a forum for identifying values at risk from wildfire, which may include people, property, natural resources, cultural values, economic interests, and infrastructure. Development of the

CWPP implements the goals and objectives of the California Fire Plan at the local level (SLO County and CalFire 2013b).

5.9.4.3.3 Safety Element of the San Luis Obispo County General Plan

The Safety Element of the San Luis Obispo County General Plan has two main principles: to be ready for disaster, and to manage development to reduce risk (SLO County 1999). The Safety Element covers hazards related to flooding, geology, fire, hazardous materials, and other causes. Although state-owned land within the CPER is not subject to local land use regulations, all of the land surrounding the CPER that is not owned by the federal or state governments is subject to the policies and programs of the Safety Element.

5.9.4.3.4 San Luis Obispo County Emergency Operations Plan

The Emergency Operations Plan (EOP) provides guidance, procedures, and county policies pertaining to emergency planning and response within the unincorporated county (SLO County 2005). It is not the intent of the EOP to supersede the response procedures or emergency response plans that have been prepared by other agencies, such as CalFire or city fire departments. Rather, the EOP provides support for the agencies that have the primary responsibility for responding to an emergency incident. The EOP is comprised of five emergency plans: 1) Earthquake Response Plan; 2) Hazardous Materials Emergency Response Plan; 3) Dam Failure Evacuation Plan; 4) Nuclear Power Plant Emergency Response Plan; and 5) Storm Emergency Plan (SLO County 2005).

5.9.4.3.5 San Luis Obispo County Local Hazard Mitigation Plan (LHMP)

The Disaster Mitigation Act (DMA) of 2000, also commonly known as "The 2000 Stafford Act Amendments" (the Act), constitutes an effort by the federal government to reduce the rising cost of disasters. The Act stresses the importance of mitigation planning and disaster preparedness prior to an event. Mitigation Planning Section 322 of the Act requires local governments to develop and submit mitigation plans in order to qualify for the Hazard Mitigation Grant Program (HMGP) project funds. It also increases the amount of HMGP funds available to states meeting the enhanced planning criteria, and enables these funds to be used for planning activities.

In July, 2011, San Luis Obispo County adopted an update to the county's Local Hazard Mitigation Plan (LHMP) consistent with the requirements of the Disaster Mitigation Act (SLO County 2011c). The LHMP addresses risks associated with the following hazards:

- Earthquakes/Liquefaction;
- Floods;
- Landslides;
- Tsunami and Seiche;
- Wildfire;
- Extreme Weather;
- Coastal Storm / Coastal Erosion;
- Biological Agents; and
- Pest Infestation and Disease.

5.9.5 Standards of Significance

State CEQA Guidelines Appendix F states that a significant impact to fire protection and emergency services would occur if implementation of the proposed project would:

> *"result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services."*

Based on this standard, a significant adverse impact would occur if LMP actions resulted in the need for new firefighting facilities to achieve and maintain an acceptable level of fire protection through the timeframe of the Draft LMP.

5.9.6 Impacts Found to Be Less Than Significant

Based on the supporting evidence provided in the initial study (Appendix B), adoption and implementation of the Draft LMP would not result in substantial adverse impacts associated with the provision of new or physically altered government facilities, the construction of which could cause significant environmental impacts in order to maintain acceptable service ratios, response times, or other performance objectives for the following public services:

- Police protection;
- Schools;
- Parks; and
- Other public facilities.

5.9.7 Project Impacts and Mitigation Measures

Table 60 summarizes the management goals and actions recommended by the Draft LMP that will help mitigate potential impacts to fire protection services.

Table 60: LMP Management Goals and Actions that Address Public Safety

LMP Section	Topic	Goals[1]	Management Actions[1]	Summary/ Relevance to Public Safety
4.4.1	Fire Management Element	V1	V1.1, V1.2, V1.3	Fire management guided by a fire management plan will help reduce the risk of large-scale wildfires.
4.4.2	Grazing Management Element	V2	V2.1, V2.2, V2.3, V2.4, V2.5	Managed livestock grazing will help reduce the fuel load on portions of the CPER.
4.5	Exotic Plant Management Element	V3	V3.1, V3.2, V3.3, V3.4, V3.5, V3.6, V3.7, V3.8	Reducing exotic plant cover will help reduce the fuel load while enabling native species to become re-established.
4.6.1	Environmental Education Element	P1	P1.1, P1.2, P1.3	These management actions will help facilitate better understanding of the natural processes of the CPER and will inform the public of management

				actions intended to minimize hazards associated with fire and public use of the Reserve.
4.6.6	Public Safety Element	P9, P10	P9.1, P9.2, P9.3, P9.4, P10.1, P10.2, P10.3, P10.4, P10.5	Encourages compliance with relevant safety codes and coordination with public safety agencies. Recommends preparation of an emergency response plan.
4.6.8	Unauthorized Public Use Element	P12	P12.1, P12.2, P12.3, P12.4, P12.5, P12.6, P12.7	Will help ensure public safety regulations are enforced.
4.8	Facilities Maintenance Element	F1, F2	F1.1, F1.2, F1.3, F1.4, F1.5, F1.6, F1.7, F1.8, F2.1, F2.2, F2.3	Will ensure facilities of the CPER are maintained in a safe condition and that hazardous materials are used in accordance with relevant laws.
4.9	Management and Monitoring Coordination Element	M1, M2, M3	M1.1, M1.2, M1.3, M1.4, M1.5, M2.1, M2.2, M2.3, M2.4, M3.1, M3.2, M3.3, M3.4	Will help ensure management actions and fire protection efforts are coordinated with other agencies.

Notes:

1. The complete text of recommended management goals and actions is provided in Section 4 of the Draft LMP (CDFW 2018).

5.9.7.1 Methodology

The future demand for fire protection services and facilities was assessed based on the management actions recommended by the Draft LMP, the expected increase in visitors, staff, and researchers on the CPER, and the expected increase in special events. Representatives of CalFire/San Luis Obispo County Fire Department and BLM were asked to assess the need for the construction of additional fire protection facilities to maintain an acceptable level of fire protection for the CPER based on the recommended management actions and additional use of the CPER.

5.9.7.2 Increased Demand for Additional Fire Protection Facilities

Impact 5.9-1 **Increased use of the CPER by visitors, CDFW staff, researchers, and attendees of special events, combined with activities associated with the management actions recommended by the Draft LMP could generate the need for additional fire protection facilities, the construction of which could result in an adverse physical impact on the environment. This impact is considered less than significant (Class III) because of mitigation provided by management actions and Best Management Practices incorporated into the project description.**

Recreational visitors, CDFW staff, and researchers currently averages about 14 persons per day within the CPER. Following adoption of the Draft LMP, daily use of the CPER is expected to increase from about 14

to 24 persons per day, an increase of about 10 persons per day (Section 3.11.2, Table 3). The Draft LMP recommends the construction of additional visitor-serving facilities such as wildlife viewing platforms. In addition, the Draft LMP recommends providing an all-weather roadway access to the Chimineas Unit Headquarters building on the North Chimineas Unit (CDFW 2018).

The increase in the average number of persons on the CPER on a given day will, in turn, incrementally increase the potential demand for fire protection and emergency services and a potential increase in accidental wildfire ignitions.

The assessment of the potential increased risk of wildfire associated with implementation of the management actions recommended by the Draft LMP found that construction activities and prescribed burning have the potential to result in accidental wildfires; however, prescribed burning is expected to result in a slightly lower overall wildfire risk in the chaparral communities (Section 5.7.8.3.1).

Impact 5.9-1— Mitigation Provided by Compliance with Existing Regulations

San Luis Obispo County Fire Department/CalFire Burn Permit. During the fire season between May 1st and end of the declared fire season, a burn permit is required in accordance with Section 4423(b) of the Public Resources Code (Section 5.7.5.3). The SLO County Fire Department issues burn permits for agricultural burns, which requires the following (SLO County and CalFire 2013a):

- Inspection per Battalion Chief requirements;
- CalFire LE-5 Permit;
- APCD Agricultural Bun Permit and paid $25.00 fee;
- Burn on permissive burn days only;
- Permittee must call 1-800-834-2876 before burning;
- Burning during daylight hours only; and
- Any burn over 100 tons of piled material or 10 acres of standing vegetation requires a Smoke Management Plan.

Impact 5.9-1 — Best Management Practices Recommended in the Draft LMP that Mitigate Potential Impacts to Fire Protection Services

BMP G-1. The Department shall comply with relevant provisions of the California Environmental Quality Act (CEQA) prior to a decision to approve an activity with the potential to adversely impact the environment.

BMP G-2. The Department shall consult with other agencies with permit approval authority over aspects of management activities undertaken within the Reserve, to identify the relevant permit practices and to ensure compliance with applicable state and federal regulations.

BMP G-3. Management activities undertaken in accordance with the LMP shall meet the applicable permitting and regulatory practices of federal and state agencies, including, but not limited to, the following:

- California Department of Fish and Wildlife;
- U.S. Fish and Wildlife Service;
- State Water Resources Control Board;
- U.S. Army Corps of Engineers (Section 404 of the Clean Water Act);
- San Luis Obispo Air Pollution Control District; and
- California Department of Forestry and Fire Protection (CalFire).

BMP HZ-13. To minimize the potential for wildfire ignitions associated with management activities, the Department shall require the following as applicable:

- All internal-combustion engines, stationary and mobile, shall be equipped with spark arresters that are in good working order;
- Light trucks and cars with factory-installed mufflers in good conditions, only, shall be used on roads, which shall be cleared of potential ignition sources;
- Equipment parking areas and small stationary engine sites shall be cleared of all extraneous flammable materials;
- Construction and maintenance personnel shall be trained and equipped to extinguish small fires to prevent them from growing into more serious threats;
- Construction techniques that utilize non-motorized equipment shall be used wherever feasible; and
- Smoking shall be:
    - Prohibited in wildland areas;
    - Prohibited during a Red Flag Warning (period of extreme fire danger) issued for the project area;
    - limited to paved or cleared areas lacking vegetation that are located at least 30 feet of any combustible material storage area (including fuels, gases, and solvents).

BMP HZ-14. The use of motorized equipment for construction and maintenance activities shall cease during conditions of extreme weather conducive to wildfire ignitions. To minimize the likelihood of starting a wildfire, when a Red Flag Warning is issued by the National Weather Service for the Reserve area (which is defined by the National Weather Service as "San Luis Obispo County Interior Valleys"), all construction and maintenance activities shall cease. The Department shall ensure implementation of a system that allows for receipt of Red Flag Warning each day prior to the start of construction activities.

BMP HZ-15. The Department shall minimize the potential for human-caused wildfires by carrying water or fire extinguishers and shovels in all Department vehicles and equipment used on the Reserve. The use of shields, protective mats, or use of other fire preventative methods shall be used during grinding and welding to minimize the potential for fire. Personnel shall be trained regarding the fire hazard as part of the pre-construction awareness education

program (BIO-31). Prescribed burning activities shall be conducted according to an approved burn plan.

BMP HZ-16. Prescribed burning shall be conducted in full compliance with the California Department of Forestry and Fire Protection (CalFire), including (but not limited to) the following:

- Inspection per Battalion Chief Practices;
- Issuance of a CalFire LE-5 Permit;
- Issuance of an APCD Agricultural Bun Permit from the SLO APCD;
- Burn on permissive burn days only;
- Permittee must call 1-800-834-2876 before burning;
- Burning must be conducted during daylight hours only; and
- Prepare a Smoke Management Plan for any burn over 100 tons of piled material or 10 acres of standing vegetation as required by Public Resources Code §4423(b).

Conclusions/Summary of Impact

To assess the need for new or expanded fire protection facilities to maintain an acceptable level of fire protection and emergency response, the project description (including the potential increase in use of the CPER) was reviewed by representatives of the San Luis Obispo County Fire Department who would be the first responders to the CPER in the event of a fire, as outlined in the CFMA. Based on that review, their conclusion is that adoption and implementation of the Draft LMP will not require any additional fire protection facilities for CalFire (A. Peters, pers. comm.).

The majority of lands within the CPER are within the DPA of BLM (Section 5.9.4). Accordingly, BLM was asked to review the project description for the Draft LMP to assess the potential impact on the provision of fire protection facilities. Based on that review, with the responsibility for fire protection planning adoption and implementation of the Draft LMP will not require any additional fire protection facilities for BLM (C. Ryan, pers. comm.).

Although potential impacts to fire protection and emergency services is expected to be less than significant, compliance with existing regulations of SLO APCD and CalFire, along with implementation of the management actions and BMPs described above will minimize the risk of wildfires and the demand for fire protection services in the future following adoption of the Draft LMP. Therefore, impacts associated with the demand for fire protection are considered **less than significant (Class III).**

Impact 5.9-1— Additional Mitigation

None required.

5.9.8 Cumulative Impacts and Mitigation Measures

This section provides an analysis of the Draft LMP's contribution to cumulative impacts to public services with respect to fire protection (Section 5.1.4).

5.9.8.1 Cumulative Setting

The setting for cumulative impacts to fire protection services includes the California Valley and the Carrizo Plain.

5.9.8.2 Cumulative Increased Demand for Additional Fire Protection Facilities

Impact 5.9-2 **Increased use of the CPER associated with implementation of the Draft LMP, when added to other closely related past, present, and reasonably foreseeable future projects in the region, and activities on surrounding federal lands could generate the need for additional fire protection facilities the construction of which could have a cumulative adverse physical impact on the environment. This impact is considered less than cumulatively considerable (Class III).**

As discussed in the Environmental Setting, the CPER is located in an area that is prone to wildfires and has experienced numerous fires of varying size and intensity in the past. The cumulative risk of wildfires and the increased demand for fire protection services and facilities is a function of human activity in the region, the nature and size of development projects on private properties, and activities on surrounding federal lands managed by the USFS and BLM.

5.9.8.3 Present and Future Land Use/Reasonably Foreseeable and Approved Development Projects

Land uses in the region with the potential to contribute to the cumulative demand for fire protection include increased motor vehicle traffic on roadways, increased development on private properties, and activities undertaken on federal lands surrounding the CPER. Grazing on private ranches is the most widespread land use in the region. Day-to-day operations on cattle ranches may involve the use of flammable materials for fuel, welding, and other activities that can result in accidental fires, which can also ignite from use of mechanical equipment including vehicles and tractors.

Energy development in the form of photovoltaic solar arrays had been completed or is being proposed on over 18,000 acres in California Valley and western Kern County (Table 12). Construction, maintenance, and operation of the solar farms can include the use and storage of flammable materials and fuels, the use of motorized construction equipment, and welding which serve to temporarily increase the potential for fire. The temporary influx of construction workers can also increase the potential for fires as a result of increased motor vehicle traffic and smoking.

Private development projects are subject to the permitting requirements of local governments including San Luis Obispo, Kern, and Santa Barbara counties. To mitigate the demand for new or expanded public facilities caused by development, each county has adopted development impact fees in accordance with Government Code Section 66000 et seq. Under this program, private development is required to pay a fee

that is proportional to the incremental demand for a particular facility needed to serve such development. The amount of the fees must be justified by a supporting study (fee justification study) which identifies the new or expanded facilities needed to serve expected demand into the future and apportions these costs to new development. New development in the region is required to pay the appropriate fees for new or expanded fire protection facilities commensurate with the type and size of development.

Each development project undertaken on private property is subject to environmental review in accordance with CEQA. Under CEQA, the approval authority must identify mitigation measures to reduce significant impacts relating to fire risk. Previously approved solar projects in the California Valley (Topaz Solar Farm and California Valley Solar Farm) have both completed the environmental review process and are subject to conditions of approval/mitigation measures that required the application of fire protection procedures during construction and operation of each facility (SLO County 2011a, b). These procedures reduce potential fire risk associated with these projects to a less than significant level. Comparable conditions/mitigation measures can be expected to be applied to future development projects in the region.

Compliance with the environmental review and permitting procedures applied to private development will reduce the cumulative impact for the demand for fire protection associated with these projects to a less than significant level.

Carrizo Plain National Monument Resource Management Plan

The Units of the CPER are adjacent to federal land managed by BLM as part of the CPNM (Section 4.5.1.1). The CPNM is within the direct fire protection area of BLM, with the exception of small inclusions of private land in Kern County, which is a state responsibility area. BLM maintains cooperative agreements for fire suppression with the Kern, San Luis Obispo, and Santa Barbara county fire departments. The closest BLM fire station is the Midway Station in Taft, with a drive time of approximately 30 minutes. CalFire, which staffs a fire station in California Valley, currently provides the closest source of fire suppression resources to the CPNM (Section 5.9.3.3). BLM meets annually with the Central Coast Operations group, consisting of representatives of all the local, state, and federal fire suppression agencies in the area, to discuss fire suppression tactics and special suppression considerations for all lands.

Management of CPNM is governed by a RMP (BLM 2010), which sets forth a management structure for the CPNM similar to that recommended by the Draft LMP, including the use of an adaptive management and monitoring process as well as management strategies that emphasize vegetation/habitat management through livestock grazing and fire management using prescribed burning. Prescribed fire is also used on an annual basis to reduce hazardous fuels around developments and along road corridors. Dead vegetation, often dominated by tumbleweeds, is piled and burned (BLM 2010).

According to the RMP, the wildland fire suppression strategy for the CPNM is to limit individual fire size to 100 acres 80 percent of the time. It is estimated that approximately 20 percent of fires could meet these conditions, with fire size averaging 1,000 acres (page II-33 of BLM 2010). The RMP sets the target area burned by unplanned wildland fire per decade at 10,000 acres and the decadal target for prescribed fire at 10,000 acres. Up to 4,000 acres per decade are targeted for fuels treatment using non-fire methods, such as mowing or other mechanical treatment. To meet the target acreage for prescribed burning of 10,000 acres per decade, prescribed fires of 1,000 acres per year would be undertaken (BLM 2010).

The RMP includes management actions aimed at minimizing the risk of wildfires and the corresponding demand for fire protection. These actions include:

- Actively suppress fires that threaten life, facilities, or private property.
- Actively suppress fires that threaten fire sensitive natural or cultural resources, such as saltbush or other vulnerable shrub communities, Alvord and blue oak stands, and National Register properties. Active suppression could include aerial attack, mobile attack, handline construction, or dozer line construction (outside of sensitive cultural site areas). Utilize mobile attack in preference to more disturbing methods such as dozer line construction.
- In other areas, apply a confine strategy, where fires are suppressed when they reach the nearest existing control feature, such as a road.
- Utilize MIST for fires burning within the Caliente Mountain WSA (17,984 acres). Use MIST to the extent possible, considering other values at risk to be protected, in the remaining primitive recreation management zones, which include an additional 44,471 acres.
- While considering the above assumptions, the incident commander retains the authority during initial attack to undertake whatever actions are deemed appropriate based on current and anticipated conditions and resource availability (while considering restrictions to protect sensitive natural and cultural resources). For example, a confine strategy may not be appropriate in times of extremely hot and dry conditions or when multiple incidents in a geographic area have depleted available suppression resources.

Bakersfield Field Office Proposed Resource Management Plan

The Bakersfield Field Office of the Bureau of Land Management administers 400,000 acres of public land throughout Kings, San Luis Obispo, Santa Barbara, Tulare, Ventura, Madera, eastern Fresno, and western Kern Counties, including lands adjacent to the CPER (Section 4.5.1.3). The RMP for these lands provides goals and objectives for wildland fire ecology and management as well as recommended "decisions" to guide implementation (BLM 2014). The Proposed Plan recommends implementation of the "*…full range of wildland fire and fuels management, including prescribed fire…*" (page 55, BLM 2014). Target acreages for the use of prescribed burning are not provided. The RMP includes management actions for fire management and suppression consistent with those of the CPNM.

Los Padres National Forest 2005 Land Management Plan

The Los Padres National Forest adjoins the Chimineas units of the CPER to the west. The Forest allows a wide range of recreation and resource utilization activities including camping, hunting, and private vehicle access to certain areas. The LPNF LMP (Section 4.5.1.2) recommends the continuation of current fire suppression practices, except there would be a much greater emphasis on community protection; also, confine and contain suppression strategies will be used in the more remote portions of the national forests to reduce costs of suppression and to restore forest health, where and when appropriate. All wildfires will be suppressed as either direct or future threats to communities. Vegetation treatments would be designed to improve forest health, protect communities, and limit wildfire patch size, with community protection as the primary emphasis (USDA 2005a).

Impact 5.9-2 — Conclusions/Summary of Impact

As discussed above, the increased demand for fire protection facilities associated with previously approved and reasonably foreseeable private development will be subject to the permitting and environmental review procedures of the relevant government jurisdictions. The collection of development impact fees, combined

with mitigation measures and conditions of approval derived from the permitting and CEQA compliance process is expected to reduce the cumulative contribution of these projects to a less than significant level.

Activities allowed on federal lands surrounding the CPER managed by the USFS and the BLM have the potential to result in human-induced wildfires. Each agency has adopted policies and implementation measures to address the demand for fire protection facilities to the extent feasible.

Lastly, as discussed under Impact 5.9-1, the demand for additional fire protection facilities associated with the Draft LMP is expected to be slight and is not expected to result in the need for the construction of new or expanded fire protection facilities, based on the comments of the respective fire protection providers serving the CPER. Thus, the contribution of the Draft LMP to the cumulative demand for fire protection facilities is considered **less than cumulatively considerable (Class III).**

Impact 5.9.2 — Additional Mitigation

None required.

6 Cumulative Impacts

This section provides a summary of the cumulative impacts associated with implementation of the Draft LMP, which is discussed in each of the topical sections of this EIR (e.g., Sections 5.2.9, 5.3.12, etc.). Cumulative impacts are the result of combining the potential effects of the project, implementation of management actions as outlined in the Draft LMP, with other planned and foreseeable development and resource management plans in the region (Section 4.5).

6.1 Introduction

As discussed in Section 5.1.4, the California Environmental Quality Act (CEQA) requires that an Environmental Impact Report (EIR) contain an assessment of the cumulative impacts that could be associated with the proposed project. According to State CEQA Guidelines Section 15130(a), "*an EIR shall discuss cumulative impacts of a project when the project's incremental effect is cumulatively considerable*." "Cumulatively considerable" means that the incremental effects of an individual project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects (as defined by Section 15130).

6.2 Consideration of Cumulative Impacts

This EIR employs both the "list of past, present, and probable future projects" approach as well as the "summary of projections" approach based on the geographic area of the analysis (Table 61). The list of past, present, and probable future projects is provided in Table 12 of Section 4.5. The summary of projections refers to forecasts of future growth to be accommodated by applicable land use plans in the region. The determination of whether the Draft LMP's impact on cumulative conditions is *considerable* is based on several factors including the consideration of applicable public agency standards as well as consultation with public agencies and expert opinion.

All of the projects listed in Table 12 have, are, or will be required to undergo their own independent environmental review under CEQA (e.g., SLO County 2011a, b). Significant adverse impacts of the cumulative projects would be required to be reduced, avoided or minimized through the application and implementation of mitigation measures. The net effect of these mitigation measures is assumed to be a general lessening of the potential for a contribution to cumulative impacts.

6.3 Cumulative Setting

A general description of the cumulative setting is provided in Section 5.1.4.2. In addition, each environmental issue area evaluated in the Draft EIR identifies its own cumulative setting and cumulative impact analysis (see Sections 5.2 through 5.9).

6.4 Cumulative Impacts Analysis

This section summarizes the cumulative impacts from Sections 5.2 through 5.9 that would result from implementation of the Draft LMP and future development and resource management programs in the vicinity. Sections 5.2 through 5.9 provide further discussion of these cumulative impacts.

Table 61: Summary of Projections for Cumulative Impacts Analysis

Impact Section	Geographic Scope of Analysis
5.2 Aesthetic and Visual Resources	Carrizo Plain (including the CPNM), Elkhorn Plain, the west end of the Cuyama Valley, and land within the Caliente Range and Los Padres National Forest within five miles of the CPER.
5.3 Air Quality and Climate Change	The area governed by the SLO APCD 2001 Clean Air Plan (SLO APCD 2001).
5.4 Biological Resources	The Carrizo Plain and surrounding areas (including the CPNM and land within the LPNF) in San Luis Obispo County, the eastern Cuyama Valley in Santa Barbara County, and the natural areas of western Kern County.
5.5 Cultural Resources	Cultural Resources: The Carrizo Plain, Elkhorn Plain, Cuyama Valley and the southern San Joaquin Valley.
	Paleontological resources: San Luis Obispo, Santa Barbara, and Kern counties, the geographic extent of the main formations supporting fossils (Quaternary Alluvium, Paso Robles Formation, and Monterey Shale formation).
5.6 Geology and Soils	The units of the CPER together with the watersheds of the Carrizo Plain and Cuyama Valley.
5.7 Hazards	Fire Hazard: the Carrizo Plain, Elkhorn Plain, the Cuyama Valley, and that portion of the Caliente Range extending west from the Chimineas units into the Los Padres National Forest.
	Disease vectors: the five units of the CPER.
	Motor vehicle safety: southeast San Luis Obispo County and northern Santa Barbara County.
5.8 Hydrology and Water Quality	The watersheds of California Valley, the Carrizo Plain, and Cuyama Valley.
5.9 Public Services: Fire Protection	The California Valley and the Carrizo Plain.

Aesthetic and Visual Resources (Section 5.2)

Previously approved and reasonably foreseeable development activities in California Valley and the region will significantly alter the visual character of the area. However, new development will be subject to the permitting requirements of the applicable jurisdiction and subject to compliance with CEQA which will help minimize the cumulative degradation of visual qualities.

Implementation of the management actions and BMPs recommended by the Draft LMP is expected to have an overall beneficial impact on the visual qualities of the CPER as the habitats and vegetative communities are maintained, restored and enhanced. As discussed under Impacts 5.2-1 through 5.2-7, the Draft LMP recommends a range of management actions and BMPs to ensure implementation of the Draft LMP complements the visual qualities of the CPER. In addition, implementation of management plans on

federal lands surrounding the CPER will contribute to the protection of the visual qualities of these areas. Therefore, the contribution of the Draft LMP to the cumulative impact on aesthetic and visual resources is considered **less than cumulatively considerable (Class III).**

Air Quality and Climate Change (Section 5.3)

Climate Change

The Draft LMP will have a less than cumulatively considerable impact on climate change because:

- The Draft LMP is consistent with an adopted Climate Action Plan (SLO County 2011d) for the area.
- The estimate of greenhouse gas emissions associated with a typical day plus a special event day provided in Table 34 indicates that total greenhouse gas emissions associated with these activities will fall well below the SLO APCD threshold of significance of 1,150 MT CO2e/year.
- The various vegetation management treatments recommended by the Draft LMP are designed to mimic the beneficial effects of natural disturbances, which remove biomass (i.e., grazing and prescribed fire). However, grazing and periodic fires (about one fire every six years on the Chimineas units between 1917 and 2015) are part of the baseline conditions (Section 5.3.11.4).
- Implementation of the management actions of the Draft LMP will enhance vegetation communities, which in turn will help maintain the capacity of the CPER for GHG sequestration.
- Although the regulation of greenhouse gas emissions associated with motor vehicle use is beyond the authority of the Department, the Draft LMP recommends BMPs to reduce motor vehicle use associated with management of the CPER (CDFW 2018).

The Draft LMP recommends a wide range of management actions specifically aimed at improving the native habitats that will, in turn, help maintain the capacity of the CPER to sequester greenhouse gases from the atmosphere. The adaptive management strategies outlined in the Draft LMP will ensure that the threat to special-status plants and animals associated with climate change will be addressed to the extent possible over the timeframe of the LMP. By applying these actions, exposure of the resources of the CPER to the effects of climate change will be reduced to a level that is **less than cumulatively considerable (Class III**).

Cumulative Effects of Ongoing Management Actions

Air quality impacts associated with construction activities and ongoing management actions are considered **less than cumulatively considerable (Class III)** because:

- The Draft LMP is consistent with the 2001 Clean Air Plan (SLO APCD 2001) and subsequent amendments which demonstrates attainment of the state ozone and PM PM_{10} standards (Impact 5.3-5); and
- New construction will be subject to project-specific CEQA compliance, which will identify the appropriate project-specific BMPs to be applied to mitigate potential impacts to air quality. This in turn will mitigate project-level and cumulative air quality impacts to a less than significant level.

Biological Resources (Section 5.4)

Cumulative Loss of Habitat for Special-status Species

Development of private land in the Carrizo Plain will result in the permanent loss of about 7,800 acres of habitat of various types and quality. Mitigation lands associated with the two solar projects could result in the permanent protection of between 12,000 to 15,000 acres (Table 13). However, the result will be a net loss of habitat in the Carrizo Plain.

Implementation of the management actions included in resource management plans for federal lands surrounding the CPER will contribute to the protection of habitats for special-status species. However, a wider range of uses is allowed on federal lands than on the CPER. Nonetheless, the environmental documents prepared for these plans conclude that, overall, habitat conditions on lands managed by BLM and the USFS are expected to remain stable and, in some instances, to improve over time (USDA 2005a, BLM 2010, BLM 2014).

New activities on private property and within federal lands with the potential to adversely impact special-status species will be subject to the permitting requirements of the applicable jurisdiction and subject to compliance with CEQA and NEPA, respectively, which will identify measures to minimize the cumulative loss of habitat for special-status species.

The CPER consists of almost 40,000 acres of land that is permanently protected and managed for the purpose of providing habitat for special-status species and other important species such as pronghorn, mule deer and tule elk. Given the scale of habitat loss in the region, the importance of the CPER as a refuge for special-status plants and animals is expected to increase over time. As discussed under Impacts 5.4-1 through 5.4-8, implementation of the management actions and BMPs recommended by the Draft LMP is expected to have a less than significant to overall beneficial impact on special-status species as the habitats and vegetation communities of the CPER are maintained, restored and enhanced. The Draft LMP recommends a range of management actions and BMPs to ensure implementation of the Draft LMP protects and enhances the biological resources of the CPER.

Therefore, the contribution of the Draft LMP to the cumulative impact on the loss of habitat for special-status species is considered **less than cumulatively considerable (Class III).**

Cumulative Impacts of Vegetation Management Activities

Based on the NEPA compliance documents prepared for the management plans described above, vegetation management activities on federal lands surrounding the CPER are expected to have a generally beneficial impact on listed species. Livestock grazing will continue on a total of about 532,000 acres (Table 51). Of the total acreage where managed livestock grazing will occur, about 146,000 acres (27%) will be managed to achieve specific vegetation management objectives. All of the grazing areas will be subject to the management actions, standard operating procedures/best management practices of their respective management plans. The authorization of grazing activities on federal land is also subject to project specific NEPA compliance.

The acreage of prescribed burning and areas treated for the presence of nonnative plant species that may occur on federal lands in the future cannot be estimated from the management plans. However, it will be assumed that the acreage would be comparable to previous years.

Vegetation management activities associated with managed livestock grazing, prescribed burning, and the control of exotic species are expected to have a less than significant to beneficial impact on the biological resources of the CPER. As discussed under Impacts 5.4-2, 5.4-3, and 5.4-4, the Draft LMP recommends a range of management actions and BMPs to ensure that vegetation management activities enhance the biological resources of the CPER. Therefore, the contribution of the Draft LMP to the cumulative impact on biological resources from the vegetation management actions recommended by the Draft LMP is considered **less than cumulatively considerable (Class III).**

Cumulative Impacts to Riparian or Other Sensitive Natural Communities

As discussed under Impact 5.4-7, blue oaks exhibit a mixed age structure indicating ongoing recruitment, including in areas where livestock grazing has been practiced (Figure 19). Accordingly, the discussion of Impact 5.4-7 concludes that the CPER is contributing to the preservation and recruitment of blue oaks. As discussed under Impact 5.4-2, livestock grazing on the CPER is expected to continue to be used as a vegetation management tool in accordance with the lease agreement executed in November 2011 (CDFW 2011b) unless and until a grazing management plan is adopted as recommended by management action V.2.1 and a subsequent lease is executed based on that plan. Implementation of the management actions recommended in the Draft LMP aimed at protecting and enhancing native vegetation listed under Impacts 5.4-1 through 5.4-8 are expected to continue to have a positive impact on blue oak recruitment on the CPER. Therefore, the contribution of the Draft LMP to cumulative impacts to blue oak recruitment are considered **less than cumulatively considerable (Class III).**

Cumulative Impacts to the Movement of Resident or Migratory Wildlife

Increased use of roads on the CPER and the placement of fencing have the potential to impair the movement of wildlife through the CPER and to surrounding lands (Section 5.4.14.10). However, management actions and Best Management Practices recommended by the Draft LMP listed under Impacts 5.4-1 and 5.4-7 will ensure that the management of the CPER will complement the efforts of federal and other land owners in the area to facilitate the movement of wildlife through the CPER and onto surrounding habitat. For this reason, the cumulative impact the Draft LMP to the movement of native resident or migratory fish or wildlife species is considered **less than cumulatively considerable (Class III).**

Cumulative Impacts to Another Focal Species: Pronghorn

The Draft LMP recommends a range of management actions aimed at improving conditions favorable to the continued survival of pronghorn on the CPER and on the Carrizo Plain (Draft LMP Section 4.2.3.2; CDFW 2018). These efforts complement the efforts of BLM for the CPNM (BLM 2010). By providing permanent pronghorn habitat and implementing management actions to maintain and improve that habitat, the cumulative impact on pronghorn associated with adoption of the Draft LMP is expected to be **beneficial (Class IV).**

Cultural Resources (Section 5.5)

Disturbance of Cultural Resources

Previously approved and reasonably foreseeable development activities in the Carrizo Plain, California Valley, Cuyama Valley, and southern San Joaquin Valley have the potential to adversely impact cultural and

historic resources. However, development is subject to the permitting requirements of the applicable jurisdiction and subject to compliance with CEQA, which requires the lead agency to identify measures to mitigate the cumulative effect of development on cultural resources. Similarly, implementation of the management actions adopted (or recommended for adoption) by, federal lands surrounding the CPER, along with compliance with the permitting and environmental review procedures of federal law will address potential cumulative impacts to cultural resources associated with activities on federal lands.

As discussed under Impacts 5.4-1 through 5.4-3, the Draft LMP includes a range of management actions and BMPs aimed at ensuring the protection of cultural resources on the CPER. Compliance with the cultural resources protection provisions of CEQA, together with implementation of the management actions and BMPs included in the Draft LMP is expected to reduce impacts to cultural resources associated with the Draft LMP to a less than significant level. Therefore, the contribution of the Draft LMP to the cumulative impact on cultural and historic resources is considered **less than cumulatively considerable (Class III).**

Geology and Soils (Section 5.6)

Cumulative Impacts Associated with Soil Erosion

Activities undertaken on private properties as well as federal lands surrounding the CPER have the potential to contribute to the cumulative loss of soil from erosion. With respect to development projects, as discussed above, each project is subject to compliance with CEQA and/or NEPA and must demonstrate compliance with applicable building codes relative to the protection of soils.

The agencies governing federal lands surrounding the CPER have adopted management plans and BMPs to protect soils from erosion (USDA 2005a, BLM 2010, and BLM 2014). Development on federal land is also subject to compliance with NEPA which requires the assessment of potential impacts to soils and the identification of mitigation measures to minimize soil erosion impacts.

As discussed under Impacts 5.6-1 through 5.6-3, the Draft LMP includes a range of management actions and BMPs to ensure that activities undertaken on the CPER following adoption of the Draft LMP will fully mitigate their impact on soil erosion. Therefore, the contribution of the Draft LMP to the cumulative impacts of soil erosion is considered **less than cumulatively considerable (Class III).**

Hazards (Section 5.7)

Cumulative Increased Risk of Wildfires

Activities allowed on federal lands surrounding the CPER managed by the USFS and the BLM have the potential to result in human-induced wildfires, in addition to those starting from natural causes. However, each agency has adopted policies and implementation measures to help ensure the risk associated with wildfires is being minimized to the extent feasible.

Implementation of the management actions and BMPs discussed above under Impacts 5.7-1 through 5.7-4 will ensure that the contribution of the Draft LMP to this cumulative risk is **less than cumulatively considerable (Class III).**

Cumulative Impacts of Mobilizing Disease Vectors

By implementing the management actions and BMPs described above under Impact 5.7-2, the contribution of the Draft LMP to the cumulative impact is considered **less than cumulatively considerable (Class III).**

Cumulative Risk Associated with Residual Levels of Chemicals Used in Past Farming Operations

The construction of visitor-serving facilities is expected to result in small areas of surface disturbance which in turn will help minimize potential exposure. In addition, implementation of the management actions and BMPs recommended for Impact 5.6-3 will ensure that potential impacts associated with the Draft LMP are **less than cumulatively considerable (Class III).**

Hydrology and Water Resources (Section 5.8)

Cumulative Degradation of Water Quality

Activities undertaken on private properties as well as federal lands surrounding the CPER have the potential to contribute to the cumulative degradation of water quality. Each private development project is subject to compliance with CEQA and must demonstrate compliance with applicable water quality standards. Activities on private land that do not require an entitlement from one or more government agency are not subject to the environmental review process, but are nonetheless subject to certain water quality requirements adopted by the RQQCB.

The agencies governing federal lands surrounding the CPER have adopted management actions and BMPs to ensure compliance with federal clean water laws (USDA 2005a, BLM 2010, and BLM 2014). In addition, new development on federal lands is subject to compliance with NEPA, under which the approval authority must identify potentially significant impacts and recommend mitigation measures to reduce those impacts.

Lastly, the management actions and BMPs described above for Impacts 5.8-1 through 5.8-4 will ensure that activities undertaken on the CPER following adoption of the Draft LMP will mitigate their impact on water quality. Therefore, the contribution of the Draft LMP to the cumulative degradation of water quality is considered **less than cumulatively considerable (Class III).**

Public Services – Fire Protection (Section 5.9)

Cumulative Increased Demand for Additional Fire Protection Facilities

The increased demand for fire protection facilities associated with development will be subject to the permitting and environmental review procedures of the relevant government jurisdictions. The collection of development impact fees, combined with mitigation measures and conditions of approval derived from the permitting and CEQA compliance process is expected to reduce the cumulative contribution of these projects to a less than significant level.

Activities allowed on federal lands surrounding the CPER managed by the USFS and the BLM have the potential to result in human-induced wildfires. Each agency has adopted policies and implementation measures to address the demand for fire protection facilities to the extent feasible (USDA 2005a, BLM 2010, and BLM 2014).

Lastly, as discussed under Impact 5.9-1, the demand for additional fire protection facilities associated with the Draft LMP is expected to be slight and is not expected to result in the need for the construction of new or expanded fire protection facilities, based on the comments of the respective fire protection providers serving the CPER. Thus, the contribution of the Draft LMP to the cumulative demand for fire protection facilities is considered **less than cumulatively considerable (Class III).**

7 Growth-Inducing Impacts and Other CEQA Topics

This section discusses growth-inducing impacts, significant irreversible environmental changes/irretrievable commitment of resources and significant and unavoidable environmental impacts.

7.1 Growth-Inducing Impacts

7.1.1 Definition

The CEQA Guidelines Section 15126.2(d) requires that an EIR evaluate the growth-inducing impacts of a proposed action. A growth-inducing impact is defined by the CEQA Guidelines as:

> *The way in which a proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Included in this are projects which would remove obstacles to population growth…It is not assumed that growth in an area is necessarily beneficial, detrimental, or of little significance to the environment.*

A project can have direct and/or indirect growth inducement potential. Direct growth inducement would result if a project, for example, involved construction of new housing. A project would have indirect growth inducement potential if it established substantial new permanent employment opportunities (e.g., commercial, industrial, or governmental enterprises) or if it would involve a construction effort with substantial short-term employment opportunities that would indirectly stimulate the need for additional housing and services to support the new employment demand. Similarly, a project would indirectly induce growth if it would remove an obstacle to additional growth and development, such as removing a constraint on a required public service. A project providing an increased water supply in an area where water service historically limited growth could be considered growth-inducing.

The CEQA Guidelines further explain that the environmental effects of induced growth are considered indirect impacts of the proposed action. These indirect impacts or secondary effects of growth may result in significant, adverse environmental impacts. Potential secondary effects of growth include increased demand on other community and public services and infrastructure, increased traffic and noise, and adverse environmental impacts such as degradation of air and water quality, degradation or loss of plant and animal habitat, and conversion of agricultural and open space land to developed uses.

Growth inducement may constitute an adverse impact if the growth is not consistent with or accommodated by the land use plans and growth management plans and policies for the area affected. Local land-use plans provide for land-use development patterns and growth policies that allow for the orderly expansion of urban development supported by adequate urban public services, such as water supply, roadway infrastructure, sewer service, and solid waste service.

7.1.2 Growth-Inducing Effects of the Draft LMP

The Draft LMP will be used to guide the management of the CPER to protect threatened and endangered native plants and animals and their habitats (Section 3.7) as required by Section 1580 of the California Fish and Game Code. Section 1580 states that the Fish and Game Commission may adopt regulations for the occupation, use, operation, protection, enhancement and administration of ecological reserves. Activities allowed on an ecological reserve are further defined by Section 1585 which states:

> *1585. Notwithstanding Section 1580, which sets forth the primary purposes of ecological reserves, the department may construct facilities and conduct programs in ecological reserves it selects to provide natural history education and recreation if those facilities and programs are compatible with the protection of the biological resources of the reserve. As provided in Sections 1764 and 1765, the department may control access, use, and collect fees for selected ecological reserves.*

The regulations governing the use of ecological reserves are further defined in the California Code of Regulations (Title 14, Division1, Subdivision 2, Chapter 11, Sections 550 and 630). Sections 550 and 630 provide a general list of allowed and prohibited activities on ecological reserves as well as regulations that apply to specific reserves including the CPER. The list of allowable uses is consistent with the objectives outlined in Section 1580 and are limited to those that support the biological objectives for ecological reserves.

Growth inducing impacts associated with adoption and implantation of the Draft LMP are considered to be less than significant (Class III) because:

- Sections 1580 and 1585 of the Fish and Game Code, and the list of general rules and regulations for ecological reserves provided in Sections 550 and 630 of the Code of Regulations, prohibit the construction of facilities or structures on an ecological reserve such as significant new housing or employment opportunities that result in growth-inducing impacts.
- The Draft LMP does not recommend the construction of new facilities or infrastructure that would support significant new housing or employment. The facilities and improvements recommended by the Draft LMP are minor and consistent with the limitations in the above-listed statutes.
- The increase in staffing and facility use on the CPER following adoption of the Draft LMP is expected to be small (Table 3, Section 3.11.2).

7.2 Significant Irreversible Environmental Effects

CEQA Guidelines Sections 21100(b)(2) and 21100.1(a) require that EIRs prepared for the adoption of a plan, policy, or ordinance of a public agency must include a discussion of significant irreversible environmental changes of project implementation. In addition, CEQA Guidelines Section 15126.2(c) describes irreversible environmental changes as:

> *Uses of nonrenewable resources during the initial and continued phases of development may be irreversible since a large commitment of such resources makes removal or nonuse thereafter unlikely. Primary impacts and, particularly, secondary impacts (such as highway improvement which provide access to a previously inaccessible area) generally commit future generations to similar uses. Also irreversible damage can result from environmental accidents associated with the project.*

Adoption and implementation of the Draft LMP is not expected to result in significant irreversible environmental effects, of the significant commitment of nonrenewable resources because:

- The Draft LMP does not involve the development of land which would result in significant irreversible impacts to the environment. Construction of the facilities recommended by the Draft LMP could result in the permanent loss of about 1.7 acres of habitat on the 39,000-acre reserve.

The analysis provided in the topical sections of this EIR conclude that this loss is less than significant and less than cumulatively considerable.

- The CPER will be managed through an adaptive management framework, in which monitoring is used to evaluate the effectiveness of management, which is then adjusted, as necessary, to enhance the ability to achieve the goals of the plan. By continuing to apply adaptive management, the effects of the management actions recommended by the Draft LMP will not be "irreversible" and will be adjusted as needed to achieve the biological objectives over time.

7.3 Significant and Unavoidable Environmental Effects

CEQA Guidelines Section 15126.2(b) requires an EIR to discuss unavoidable significant environmental effects, including those that can be mitigated but not reduced to a level of insignificance. In addition, Section 15093(a) of the CEQA Guidelines allows the decision-making agency to determine whether the benefits of a proposed project outweigh the unavoidable adverse environmental impacts of implementing the project. The Department can approve a project with unavoidable adverse impacts if it adopts a "Statement of Overriding Considerations" setting forth the specific reasons for making such a judgment.

The topical analyses provided in Sections 5.2 through 5.9 of this EIR conclude that adoption and implementation of the Draft LMP will not result in any significant and unavoidable impacts.

8 Alternatives

8.1 Introduction

Section 15126.6(a) of the CEQA Guidelines provides the following guidance with respect to the consideration of alternatives in an EIR:

> "*…an environmental impact report (EIR) shall describe and analyze a range of reasonable alternatives to a project. These alternatives should feasibly attain most of the basic objectives of the project, while avoiding or substantially lessening one or more of the significant environmental impacts of the project. An EIR need not consider every conceivable alternative to a project, nor is it required to consider alternatives that are infeasible. The discussion of alternatives shall focus on those which are capable of avoiding or substantially lessening any significant effects of the project, even if they impede the attainment of the project objectives to some degree or would be more costly*." (State CEQA Guidelines Section 15126.6[b]).

The Guidelines also specify that the discussion of alternatives should not be remote or speculative; however, the assessment of alternatives need not be presented in the same level of detail as the assessment of the proposed project.

8.2 Alternatives Considered in this EIR

Several factors were considered in determining the range of alternatives analyzed in this EIR and the level of analytical detail that is provided. These factors include: 1) the nature of the significant impacts of the proposed project (the Draft LMP); 2) the ability of alternatives to avoid or lessen the significant impacts associated with the project; 3) the ability of the alternatives to meet the objectives of the project; and 4) the feasibility of the alternatives. In addition, the alternatives were derived by considering the following sources of information:

- Comments provided by the public, organizations and government agencies during the public outreach phase of the Draft LMP;
- Comments from the public, organizations and government agencies received during the comment period on the Notice of Preparation and public scoping meeting; and
- The findings and conclusions of the topical sections of this EIR with respect to potentially significant impacts.

The following summarizes the alternatives considered in this EIR, which are described in greater detail below.

Alternative 1: The No-Project Alternative. The No-Project Alternative is required by CEQA. Under the No-Project Alternative, the Draft LMP would not be adopted and management of the CPER would continue as it has since the Reserve was formed. All of the management and monitoring activities described in Section 4 would continue. These activities include:

- Installation of fencing along creeks and around springs;
- Ongoing research and monitoring of various species;

- Efforts to control and where feasible, eradicate, exotic species; and
- Managed grazing for vegetation management.

Alternative 2: Adoption of the Draft LMP Without Managed Grazing. Under this alternative, all of the management actions and Best Management Practices recommended by the Draft LMP would be adopted but managed livestock grazing would not be included as a vegetation management tool.

Alternative 3: Increased-Public-Access Alternative. Under this alternative, the Draft LMP would be adopted and would allow for a wider level of access to the CPER and a wider range of allowable activities, including:

- Unsupervised day use access for hiking, only, on the North Chimineas Unit;
- Development of a more extensive trail system for hiking than proposed by the Draft LMP; and
- Construction of more facilities for wildlife viewing on the North Chimineas Unit.

Each alternative will result in different levels of environmental impacts while affording a reasonable range of options for the consideration of decision makers with respect to the management of the CPER. These alternatives constitute an adequate range of reasonable alternatives as required under State CEQA Guidelines Section 15126.6.

8.3 Alternative Considered but Rejected

In accordance with Section 15126.6(c) of the CEQA Guidelines, this section identifies alternatives that were considered by the lead agency but were rejected as infeasible; for each, it briefly explains the reasons underlying the lead agency's determination.

Unsupervised Motor Vehicle Access and Hunting on the North and South Chimineas Units. Under this aspect of the Increased-Public-Access Alternative, unsupervised motor vehicle access and unsupervised hunting would be allowed on both Chimineas units. Motor vehicle access would be allowed from the north via Sprague Hill (San Diego Creek) Road and from the south through the South Chimineas Unit from Highway 166 via Carrizo Canyon Road.

Currently, the Department provides limited, supervised weekend drive-on hunt opportunities within the North Chimineas Unit which a limited number of permits are issued through drawings. Permitees must attend an orientation prior to each hunt, in which Department staff review the regulations as well as site-specific restrictions including the drivable routes, which are designed to protect the biological and cultural resources as well as public safety. Under this aspect of the Increased-Public-Access Alternative, unsupervised hunting would be allowed on the North Chimineas Unit, as well as unsupervised motor vehicle access on both Chimineas units.

In 2007, the number of visitor days to the CPNM was 87,000. Assuming one-half that number visit the North Chimineas Unit, it would receive as many as 43,000 visitor days, or an average of about 119 visitors per day. All of these visitors would be expected to arrive by motor vehicle using the existing unimproved roads from Soda Lake Road on the north and Highway 166 to the south.

The number of motor vehicles and unsupervised visitors has the potential to result in adverse effects that are inconsistent with the purpose and intent of the Reserve, including:

- Disturbance of wildlife from motor vehicle use and hikers;
- Significant increase in the generation of fine particulates (PM_{10}) from motor vehicles using Reserve roads;
- Increased hazards to motorists driving the Reserve's narrow, unimproved roads, especially during wet conditions;
- Increased potential for motor vehicle accidents at the access to Highway 166;
- Increased mortality to wildlife species from motor vehicles;
- Increased risk to hikers and staff using the Chimineas Unit Headquarters;
- Increased risk of accidental wildfire ignitions;
- Increased erosion and sedimentation;
- Potential damage to previously undiscovered cultural resources;
- Increased potential for litter and vandalism;
- Lack of staffing for increased maintenance and enforcement associated with the increased number of visitors; and
- Increased risk of poaching.

For these reasons, unsupervised hunting and motor vehicle access to the Chimineas units was considered but rejected as infeasible.

Camping, Bike Riding and Equestrian Use. Title 14, Division 1 of the California Code of Regulations prohibits camping, biking, and equestrian use on Ecological Reserves. These aspects of the Increased-Public-Access Alternative were considered and rejected because they are prohibited by state law.

Visitor Center at the North Chimineas Unit Headquarters. The possibility of establishing a visitor center at the North Chimineas Unit Headquarters (former Chimineas Ranch House) was considered infeasible because the lack of staffing necessary to maintain, manage, and regulate motor vehicle access to the facility.

Mowing and Prescribed Burning as A Substitute for Grazing. One of the objectives of the LMP is to provide areas of short-grass structure for certain species such as San Joaquin kit fox and burrowing owl (CDFW 2018). Under this alternative, mowing and prescribed burning would be used to provide a comparable area of short grass structure in areas of the North Chimineas Unit where grazing is allowed. This alternative was rejected as infeasible because:

- The portion of the North Chimineas Unit where grazing is allowed covers about 13,000 acres. Mowers that are suitable for slopes up to 40 degrees typically cut a swath of about six feet in width. The large area, varied terrain and other physical features of the areas where grazing is currently allowed make mowing this area impractical to achieve the objectives of the LMP.

- A prescribed burn may only be conducted when specific environmental conditions are met. These conditions may not occur in a given year. Typically, a prescribed burn is conducted in the fall when conditions are conducive for controlling the spread of the fire. However, growth of annual grasses occurs in winter/spring so conditions would not be favorable during the summer nesting season for certain species, such as burrowing owl, that benefit from the short-grass structure. Therefore, the narrow timeframe during which the regulatory and environmental constraints may be satisfied while avoiding sensitive makes the use of prescribed burning infeasible to achieve the objectives of the LMP.

8.4 Feasibility of Alternatives to Accomplish the Basic LMP Objectives

When addressing feasibility, the CEQA Guidelines Section 15126.6(c) states:

> *"…among the factors that may be taken into account when addressing the feasibility of alternatives are site suitability, economic viability, availability of infrastructure, general plan consistency, jurisdictional boundaries, and whether the applicant can reasonably acquire, control or otherwise have access to alternative sites."*

An EIR need only examine in detail those alternatives that could feasibly meet most of the basic objectives of the project. Table 62 compares each of the three alternatives with the stated objectives of the Draft LMP. Except for the No-Project Alternative, the alternatives meet most of the basic objectives of the Draft LMP (Section 3.7).

Table 62: Feasibility of Alternatives to Accomplish the Basic Objectives of the Land Management Plan

	Feasibility of Alternatives to Accomplish Project Objectives		
Objective of the LMP for the CPER (CDFW 2007)	**No Project[1]**	**No Grazing**	**Increased Public Access**
To guide the adaptive management of habitats, species, and programs described herein to achieve the Department's mission to protect and enhance wildlife values.	Yes[1]	No	Yes
To serve as a guide for appropriate public uses of the property.	Yes[1]	Yes	No
To serve as a descriptive inventory of the species and habitats which occur on or use this property.	Yes[1]	Yes	Yes
To provide an overview of the property's operation and maintenance, and personnel requirements to implement management goals. It serves as a budget planning aid for annual regional budget preparation.	Yes[1]	Yes	Yes
To provide a description of potential and actual environmental impacts and subsequent mitigation that may occur during management, and provide the environmental documentation to comply with state and federal statutes and regulations.	Yes[1]	Yes	Yes

Notes

1. Subject to funding by the State Legislature, the Department is required to prepare a land management plan for the CPER by Section 1019(a) of the California Fish and Wildlife Code. Although required by CEQA, the No-Project Alternative would not satisfy this statutory requirement.

The following is a comparative analysis of the potential, significant environmental impacts associated with each alternative, based on the topical analyses provided in Sections 5.2 through 5.9. For each topical issue, the relevant impacts are identified and followed by a brief discussion of the significance of the impact under each alternative, and a comparison of the how the significance of the impact changes (if at all) for each alternative when compared with the impacts associated with the Draft LMP.

One of the main objectives of the Draft LMP is to set forth a framework for the management of the CPER that will have a beneficial effect on the habitat and populations of threatened or endangered plant and animal species. However, the purpose of this EIR is to disclose the "*substantial effects on the environment*" of the Draft LMP where "substantial effect" is defined by CEQA Guidelines Section 15382:

> *"Significant effect on the environment" means a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project, including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance.*

Accordingly, the analysis of alternatives does not consider whether the potential beneficial impacts of a given alternative "outweigh" the potential adverse impacts.

8.5 Alternative 1 — The No-Project Alternative

8.5.1 Description and Assumptions

The purpose of the No-Project Alternative is to allow decision makers to compare the impacts of approving the proposed project with the impacts of not approving the proposed project. CEQA Guidelines section 15126.6(e)(3)(A) specifically states that when the project under evaluation is the adoption or revision of a land use or regulatory plan, the "no project" alternative will be the continuation of the existing management structure and activities. For purposes of assessing the impacts of the No-Project alternative relative to the Draft LMP, the following assumptions were used:

- The management actions and BMPs recommended by the Draft LMP would not be applied. However, current and ongoing management activities would continue (Section 4) and management activities with the potential to adversely impact the environment would continue to be subject to project-specific CEQA compliance.
- Grazing would continue in accordance with the prescriptions outlined in the current grazing lease (CDFW 2011b). Stocking levels and areas to be grazed would not exceed baseline conditions.
- The North Chimineas Unit would remain closed to public access, except through the Department's managed hunting program and for access to special events at the Chimineas Unit Headquarters.
- Monitoring of species and research would continue (Section 5.4.5). Systematic sampling procedures would be applied and the locations of sensitive species observed during these efforts would continue to be recorded.
- Populations of listed plant and animal species would reflect previous and ongoing management actions on the CPER (Section 5.4.5).

- Total staffing, research, maintenance, and recreational use of the CPER would continue to average about 14 persons per day (Section 4.2).
- Efforts to control exotic species using grazing and post-emergent herbicides would continue at baseline levels.
- Prescribed burning would not be employed without separate CEQA analysis.
- Riparian and wetland habitats would continue to be fenced from livestock except where necessary to provide the habitat conditions preferred by special-status species.
- Improvements to the water distribution system and the placement of additional watering locations for wildlife and livestock would continue.
- Special events would continue to be held at the Chimineas Unit Headquarters on the North Chimineas Unit an average of six times per year with about 30 attendees each (Table 3).

8.5.2 No-Project Alternative — Analysis of Impacts Relative to the Draft LMP

8.5.1.1 Aesthetic and Visual Resources

Under the No-Project Alternative, the visual and aesthetic qualities of the CPER would remain at baseline conditions. Adverse but less-than-significant impacts associated with the following activities in the Draft LMP would be comparable: construction of trails, wildlife viewing facilities, new or expanded parking areas; the placement of water tanks and associated wildlife watering facilities; road relocation to protect cultural resources; and the installation of exclusion fencing along riparian and wetland areas (Section 5.2.8). Visual impacts associated with the continuation of managed livestock grazing would remain at baseline conditions.

Under the No-Project Alternative, ongoing management actions to preserve and enhance habitats for listed species would be expected to continue to have a beneficial effect on the visual qualities of the Reserve from the control of exotic species and the protection of riparian areas from livestock. The repair and maintenance of facilities would continue at current levels. Regulations governing public use of the CPER would continue; the potential for litter and the degradation of resources on the CPER would remain at baseline conditions.

The potential benefits to visual resources associated with implementing the management actions and BMPs recommended by the Draft LMP may not be realized fully under the No-Project Alternative. Guidelines for the design of new construction to protect visual resources may not be adopted. However, activities associated with the continuation of current management actions would be subject to project-specific CEQA compliance. Mitigation measures derived from the CEQA process would help ensure that potential impacts to visual resources from ongoing management activities would be reduced to a less than significant level.

8.5.1.2 Air Quality and Climate Change

Under the No-Project Alternative, emissions associated with the construction of trails, wildlife viewing facilities, new or expanded parking, the placement of water tanks and wildlife watering facilities, and road relocation to protect cultural resources would be avoided (Section 5.3.11.1).

The number of motor vehicle trips per day associated with staffing, research, recreation and special events would remain at baseline levels (Section 4.2). Therefore, emissions associated with increased motor vehicle

trips following adoption of the Draft LMP would be avoided. The generation of particulate matter (PM_{10} and $PM_{2.5}$) associated with travel on the CPER's unpaved roads would remain at present levels.

Air quality impacts associated with prescribed burning would be reduced as prescribed burns are conducted less frequently (Section 5.3.11.4). The benefits to air quality associated with a reduction in the number, frequency and intensity of wildfires on the CPER as a result of prescribed burning would also be reduced.

With regard to climate change, the capacity of vegetation on the CPER to sequester greenhouse gases would remain at baseline conditions. The continuation of current management actions would be consistent with the County's EnergyWise Plan (SLO County 2011d).

Management actions with the potential to adversely impact air quality would continue to be subject to project-specific CEQA compliance, the permitting requirements of the SLO APCD (Section 5.3.8.3.3) and existing CDFW regulations which restrict vehicle speeds to 15 mph. Mitigation measures derived from the CEQA process would help ensure that the thresholds of significance for air quality impacts applied by the SLO APCD would not be exceeded. However, the Draft LMP recommends several BMPs aimed at maintaining and improving air quality on the CPER compared with baseline conditions. Specifically, to mitigate the generation of particulate matter (PM_{10} and $PM_{2.5}$) associated with the use of unpaved roads on the CPER, the management actions and BMPs recommend the following (CDFW 2018):

- Install an all-weather surface on the access road to the Chimineas units, or apply an APCD-approved a dust suppressant; and
- Establish a shuttle service and/or carpools/vanpools to serve special events.

In the absence of comparable mitigation measures, the emission of particulate matter under the No-Project Alternative would be greater than the Draft LMP.

8.5.1.3 Biological Resources

Previous and ongoing management actions relating to biological resources include vegetation management (livestock grazing and the control of exotic species) as well as fencing to exclude livestock from riparian and wetland areas to promote habitat conditions favored by certain listed species. The continuation of these activities would be expected to have a beneficial impact on the resources of the Reserve and on populations of special-status species.

Under the No-Project Alternative, adverse but less-than-significant impacts associated with the permanent conversion of 1.7 acres of habitat for special-status species associated with the construction of new or expanded facilities would be avoided (Section 5.4.14.3). However, the continued expansion of water lines and watering troughs under the No-Project Alternative would result in a comparable loss of habitat that would occur over a longer timeframe because of funding availability and project-specific CEQA compliance. Adverse but less-than-significant impacts to special-status species associated with increased maintenance of facilities would also be reduced compared with the LMP along with the temporary impacts to biological resources associated with prescribed burning (Section 5.4.14.5).

Impacts to special-status species associated with the continuation of managed grazing (Section 5.4.14.4) would remain at baseline conditions. Impacts associated with the management of exotic species (Section 5.3.14.6) would also be similar to those of the proposed project since active control of invasive species would continue. However, the benefits of implementing the strategies recommended by the Draft LMP might not be realized as quickly.

Best Management Practices included in the Draft LMP recommend the use of wildlife-friendly fencing. Fencing installed through the continuation of existing management activities would also be expected to be wildlife friendly. Therefore, impacts to the movement of wildlife under the No-Project Alternative would be comparable to those expected under the Draft LMP (Section 5.4.14.10).

Under the No-Project Alternative, management actions of the Draft LMP for the protection and enhancement of pronghorn habitat would continue. The impact of continuing management actions relative to pronghorn is unknown but would be informed by continued monitoring.

8.5.1.4 Cultural Resources

Under the No-Project Alternative, the potential for disturbance of cultural resources associated with the following activities would be comparable to impacts proposed in the Draft LMP: construction of trails, wildlife viewing facilities, new or expanded parking areas (Section 5.5.8.3). Adverse but less-than-significant impacts to cultural resources from prescribed burning would also be comparable since funding and subsequent CEQA analyses would be required regardless of whether the LMP is adopted (Section 5.5.8.4). The No-Project Alternative would have a less-than-significant impact on historical structures (Section 5.5.8.5) and paleontological resources (Section 5.5.8.6), which is comparable to the project.

The Draft LMP recommends management actions and BMPs to protect cultural resources (Tale 52, Section 5.5.8), such as:

- Create and maintain an updated database of the cultural resources that have yielded or have the potential to yield information important to the prehistory or history of the reserve;
- Support efforts to document the history of human activities at the reserve; and
- Prepare an "inadvertent discovery plan" to be followed when cultural resources are encountered and have the potential to be adversely impacted by projects involving ground-surface disturbance.

Under the No-Project Alternative, the benefits of these management actions and BMPs would not be fully realized. However, activities on the CPER with the potential to adversely impact cultural resources would continue to be subject to project-specific CEQA compliance. Compliance with the procedures outlined by Public Resources Code sections 21083.2 and 21084.1, and State CEQA Guidelines Section 15064.5 will ensure the protection of cultural resources from future management activities.

8.5.1.5 Geology and Soils

Under the No-Project Alternative, adverse but less-than-significant impacts to soils and erosion associated with the construction or expansion of facilities recommended by the Draft LMP would be comparable but would occur over a longer time period as a result of funding availability and project-specific CEQA (Section 5.6.8.3), as would adverse but less-than-significant impacts to soils associated with prescribed burning (Section 5.6.8.5). Some less-than-significant minor and temporary soil erosion would continue to occur from the installation and maintenance of water lines and other earth-disturbing activities, from the continued use of unpaved roads, and from the continuation of managed livestock grazing. In addition, soil resources of the CPER would continue to be managed in accordance with current management practices and the prescriptions for grazing described in the grazing lease.

The Draft LMP recommends management actions and Best Management Practices to protect and enhance soils and prevent soil erosion (Table 55, Section 5.6.8). Although the management actions and BMPs of the Draft LMP may not be applied under the No-Project Alternative, construction activities and new management activities with the potential to adversely impact soils and produce soil erosion would continue to be subject to project-specific CEQA compliance. Comparable mitigation measures derived from the CEQA process would help ensure that soil resources of the CPER are protected from new construction and management activities in the absence of the Draft LMP. In addition, construction activities would be subject to compliance with federal and state water quality and building code requirements (Section 5.6.5).

8.5.1.6 Hazards and Hazardous Materials

Under the No-Project Alternative, fuel management associated with the continuation of managed grazing will continue to help reduce the risk and intensity of wildfires originating in areas where managed grazing is currently practiced. At the same time, the potential for accidental wildfire ignitions associated with construction activities recommend by the Draft LMP would be avoided if the new construction activities did not occur (Section 5.7.8.3.2). The benefits of prescribed burning on reducing wildfire risk by reducing fuel loads would be comparable since project specific CEQA would be required regardless of whether the LMP was in place.

The risk of exposure of CDFW staff, construction workers and the public to disease vectors for Valley Fever and Anthrax would remain at baseline conditions (Section 5.7.4) as would the potential for exposure to persistent pesticides and herbicides from previous farming activities (Section 5.7.8.6). The Draft LMP recommends management actions and BMPs to minimize these risks, including:

- Developing and implementing a facilities maintenance and safety plan;
- Educating and training CDFW staff, researchers and construction workers of the risks associated with naturally occurring Anthrax and Valley Fever;
- Establishing procedures to be followed in the event of exposure; and
- Implementing construction practices to minimize surface disturbance and exposure.

Under the No-Project Alternative, the Department would continue to implement practices to protect construction workers and staff, and the associated risk of exposure to disease vectors would be comparable.

Safety issues associated with the construction of new or expanded parking would be avoided.

8.5.1.7 Hydrology and Water Quality

Under the No Project alternative, adverse but less-than-significant impacts to water quality associated with the construction or expansion of facilities recommended by the Draft LMP would be reduced compared with the Draft LMP (Section 5.8.7.3), as would adverse but less-than-significant impacts to water quality associated with prescribed burning (Section 5.8.7.4).

Less than significant impacts to water quality would continue to occur under the No-Project Alternative from the installation and maintenance of water lines and other earth-disturbing activities, from the continued use of unpaved roads, and from managed grazing.

The Draft LMP recommends several BMPs aimed at protecting water quality (Table 59 and Section 5.8.7). In the absence of comparable measures outside the Draft LMP, the continuation of existing management

and construction practices could result in greater impacts to hydrology and water quality when compared with the Draft LMP. However, management actions with the potential to adversely impact water quality would continue to be subject to project-specific CEQA compliance. Mitigation measures derived from the CEQA process would help ensure that potential impacts to water quality associated with the continuation of current management activities remains less than significant. In addition, construction activities would continue to be subject to compliance with federal and state water quality and building code requirements (Section 5.8.4).

8.5.1.8 Public Services – Fire Protection

As with the Draft LMP, no new fire protection facilities would be needed under the No-Project Alternative (Section 5.9.7); the demand for fire protection and associated facilities would remain at baseline conditions.

8.5.3 Conclusions Regarding the No-Project Alternative

Most of the construction activities associated with the Draft LMP would occur under the No-Project Alternative, but over a longer timeframe and subject to project-specific CEQA compliance. As a result impacts associated with aesthetic and visual resources, biological resources, cultural resources, geology and soils, hazards, hydrology and water quality, would be comparable than those expected under the Draft LMP. Potential impacts associated with public services relating to fire protection would be about the same. Potential impacts to air quality would be slightly worse, but would remain less than significant.

Under the No-Project Alternative, the benefits to habitat for listed species associated with implementation of the management actions and BMPs recommended by the Draft LMP may not be fully realized. All of the management actions currently being implemented by the Department would continue and conditions on the CPER relative to habitat for, and populations of, listed species and target species on the CPER would be expected to continue to improve. Overall, the No-Project Alternative would result in similar adverse impacts to the environment compared to those associated with the Draft LMP.

8.6 Alternative 2 – The No-Grazing Alternative

8.6.1 Description and Assumptions

Under the No-Grazing Alternative, all of the management actions and BMPs recommended by the Draft LMP would be adopted and implemented except that managed grazing would be discontinued. For purposes of assessing the impacts of the No-Grazing Alternative relative to the Draft LMP, the following assumptions were used:

- The management of livestock grazing under the Draft LMP will be subject to a range of restrictions, standards, monitoring, and remediation activities, and guided by a Grazing Management Plan adopted following project specific CEQA compliance. Grazing will be managed to minimize impacts to special-status plants during the flowing period. Grazing lease agreements will set specific standards for biomass, and residual dry matter (RDM).
- Management of the CPER would be guided by the management actions recommended by the Draft LMP and subject to applicable BMPs, except those relating to managed grazing.
- Activities with the potential to adversely impact the environment would be subject to project-specific environmental review.

- The North Chimineas Unit would remain closed to public access, except through the Department's managed hunting program and for access to special events at the Chimineas Unit Headquarters.
- Construction activities associated with trails, wildlife viewing, water tanks, and parking, would be identical to the Draft LMP as would average daily recreational use.
- Fuel management through prescribed burning would be applied as recommended by the Draft LMP; the use of additional fuel management actions, such as a wider use of prescribed burning or mowing was considered but rejected as infeasible.
- Staffing and average daily traffic would be reduced by one (associated with the cattle manager).

8.6.2 No-Grazing Alternative — Analysis of Impacts Relative to the Draft LMP

8.6.2.1 Aesthetic and Visual Resources

Under the No-Grazing Alternative, adverse but less-than-significant impacts associated with the construction of trails, wildlife viewing facilities, new or expanded parking, the placement of water tanks and wildlife watering facilities, and the installation of exclusion fencing would be identical to the Draft LMP (Section 5.2.8). Grazing infrastructure such as pens, corrals, and exclusion fences could potentially be removed, resulting in a more "natural" visual landscape.

In the absence of grazing, vegetation would assume a larger stature, particularly in herbaceous-dominated communities such as grasslands. The areas where managed grazing is conducted are composed of native and exotic plants and grazing is used, in part, to control the spread of exotic species. Following the cessation of grazing, the formerly grazed areas would likely become increasingly dominated by dense exotic plants which would assume a larger proportion of the plant cover. This proliferation of exotic plant species would detract from the visual character of the CPER.

To the extent that currently grazed areas assume a more "natural" appearance as the visual effects of grazing recede, the No-Grazing Alternative would result in a slight improvement to the visual qualities of the areas where grazing is currently allowed.

8.6.2.2 Air Quality and Climate Change

Under the No-Grazing Alternative, emissions associated with construction activities, increased motor vehicle use by CDFW staff and researchers, and visitors would be identical to the Draft LMP (5.3.11.1). Impacts associated with prescribed burning would also be identical as the Draft LMP (Section 5.3.11.4).

Under the No-Grazing Alternative impacts associated with the generation of particulate matter from motor vehicle use of unpaved roads on the Reserve would be slightly reduced when compared to the Draft LMP and would remain less than significant because of BMPs included in the Draft LMP (Section 5.3.11.2).

The No-Grazing Alternative would be consistent with the adopted Clean Air Plan for San Luis Obispo County (SLO APCD 2001) and consistent with the County's climate action plan (SLO County 2011d; Section 5.3.11.5). With the cessation of grazing, plants within currently grazed areas would have a larger stature. Their increased biomass would increase the capacity of CPER to sequester greenhouse gases which, when combined with a reduction of methane and other gases produced by livestock, would result in a slightly greater beneficial impact on climate change when compared with the Draft LMP.

8.6.2.3 Biological Resources

The Draft LMP recommends using grazing management to create and maintain areas of short-statured grassland required by several special-status species; enhance native plant cover and richness in grasslands, blue oak woodlands, and coastal scrub; and control non-native herbaceous plant species in order to reduce their competitive effects on native plants and the potential for type conversion of shrublands to grassland via the grass-fire cycle (CDFW 2018). If grazing is discontinued, the vegetation in currently grazed areas would assume a larger stature, particularly in the grasslands. The composition of vegetative communities following the cessation of grazing is difficult to predict and would be affected by several factors including soil type, exotic plant species dispersal, and fire, the risk of which would increase due to greater fine fuels, among others. The elimination of grazing may lead to a decline in some native species (Germano et al. 2001). The absence of livestock grazing is not expected to eliminate exotic annual grasses (Biswell 1956; Heady 1977, George et al. 1992) or allow native forbs or perennial grasses to regain dominance (Bartolome and Gremmill 1981; Keeley 1990). Thus, it is likely that exotic grasses in the currently grazed areas would persist. It is also likely that populations of native plants within the grazed areas would be adversely affected by increased competition with exotic herbaceous plants.

The impacts to biological resources associated with the continuation of managed livestock grazing were found to be less than significant (Section 5.4.14.4, Table 45). Table 63 outlines how listed species within grazed areas (Figures 39 and 40) would be affected by a No-Grazing Alternative when compared with the Draft LMP. For the remainder of listed species that occur on the CPER (Table 45), the effects of a No-Grazing Alternative are expected to be comparable to those associated with the Draft LMP because of one or more of the following reasons:

- The species does not occur in the grazing management areas;
- Although the species occurs (or may occur) in the grazing management areas, it occurs where livestock are currently excluded and will continue to be excluded;
- The species occurs infrequently or is a migratory resident of the CPER;
- The species occurs in relative abundance both within and outside the managed grazing areas where suitable habitat exists; therefore, habitat within the managed grazing areas is not critical to the persistence of the species on the CPER; and/or
- Although the species has the potential to occur in the grazing management areas, suitable habitat exists on the CPER outside the managed grazing areas. Therefore, habitat within the managed grazing areas is not critical to the persistence of the species on the CPER.

Special-Status Plant Species

Impacts to listed species associated with the elimination of grazing are difficult to predict. Of the nine listed plant species that occur on the CPER, six have been observed (or have the potential to occur) in the grazing management areas (Figure 39, Table 45).

Table 63: Conclusions and Summary of Impacts to Special-Status Species of the No-Grazing Alternative

Species	Status[1]	Conclusion/Summary of Impact Compared to the Draft LMP
Plants		
Lost Hills crownscale (*Atriplex coronata* var. *vallicola*)	Rank 1B.2	**No impact.** Based on previous surveys of the CPER, Lost Hills crownscale does not occur in the area where managed grazing will continue under the Draft LMP. Therefore, cessation of managed grazing is not anticipated to impact occurrences of this species.
Lemmon's jewelflower (*Caulanthus lemmonii*)	Rank 1B.2	**No impact.** Based on previous surveys of the CPER, Lemmon's jewelflower does not occur in the area where managed grazing will continue under the Draft LMP. Therefore, cessation of managed grazing is not anticipated to impact occurrences of this species.
California jewelflower (*Caulanthus californicus*)	FE, CE	**No impact.** Based on previous surveys of the CPER, California jewelflower does not occur in the Reserve. Therefore, cessation of managed grazing is not anticipated to impact occurrences of this species.
Round-leaf filaree (*California macrophylla*)	No longer listed by CNPS	**Comparable to potentially beneficial impact**. Two of the 19 populations of this species found on the CPER are within areas where managed grazing will continue under the Draft LMP. This species is also relatively abundant on BLM lands outside the CPER where grazing occurs. To the extent that grazing may be is limiting the distribution and abundance of this species within the grazing management areas, the No-Grazing Alternative would have a slightly beneficial impact compared to the Draft LMP.
Umbrella larkspur (*Delphinium umbraculorum*)	Rank 1B.3	**Comparable to potentially beneficial**. Three of the documented locations of umbrella larkspur are located outside the grazing management area. However, this species is relatively abundant on federal lands outside the CPER. To the extent that grazing may be is limiting the distribution and abundance of this species within the grazing management areas, the No-Grazing Alternative would have a slightly beneficial impact compared to the Draft LMP.
Kern mallow (*Eremalche parryi cf.* ssp. *kernensis)*	FE, Rank 1B.1	**Comparable to potentially beneficial impact**. Three of the 27 mapped occurrences of Kern mallow within the CPER occur within portions of the Reserve that are currently grazed. To the extent that grazing is limiting the distribution and abundance of this species within the grazing management areas, the No-Grazing Alternative would have a slightly beneficial impact compared to the Draft LMP.
Pale-yellow layia (*Layia heterotricha*)	Rank 1B.1	**No impact.** Based on previous surveys of the CPER, pale yellow layia does not occur in the area where managed grazing will continue under the Draft LMP. Therefore, cessation of managed grazing is not anticipated to impact occurrences of this species.
Munz's layia (*Layia munzii*)	Rank 1B.2	**No impact.** Based on previous surveys of the CPER, Munz's layia does not occur in the area where managed grazing will continue under the Draft LMP. Therefore, cessation of managed grazing is not anticipated to impact occurrences of this species.
Showy madia *(Madia radiata*)	Rank 1B.1	**Comparable to potentially beneficial impact.** One of the 18 populations of showy madia is located within the grazing management area. To the extent that grazing is limiting the distribution and abundance of this species within the grazing management areas, the No-Grazing Alternative would have a slightly beneficial impact compared to the Draft LMP. However,

Table 63: Conclusions and Summary of Impacts to Special-Status Species of the No-Grazing Alternative

Species	Status[1]	Conclusion/Summary of Impact Compared to the Draft LMP
		this species is relatively abundant on the CPER outside the grazing management areas, such that the percentage increase in its distribution and abundance is anticipated to be small.
La Panza Mariposa Lily (*Calochortus simulans*)	Rank list 1B.2	**Comparable to potentially beneficial impact**. This species occurs in relatively high abundance throughout the CPER including within management units that have been historically grazed. Of the 76 occurrences on or near the CPER, 56 are within areas that have been actively grazed over the past ten years. To the extent that grazing is limiting the distribution and abundance of this species within the grazing management areas, the No-Grazing Alternative would have a slightly beneficial impact compared to the Draft LMP.
San Joaquin woolly threads (*Monolopia congdonii*)	Rank 1B.2, FE	**Comparable impact**. The species has only been found on the Elkhorn Unit which is not grazed. However, this species does not appear to be highly sensitive to, or impacted by, grazing; therefore, cessation of grazing is unlikely to affect this species (BLM 2010, Mazer and Hendrickson 1993, Cypher 1994).
Fish		
Arroyo chub (*Gila orcutti*)	CSSC	**Comparable impact**. Arroyo chub are known to occur only in the Cuyama River, where cattle have been excluded within the Reserve. Arroyo chub are not native to the Cuyama River watershed and were introduced from their native range in Southern California.
Amphibians		
California red-legged frog (*Rana draytonii*)	FT, CSSC	**Comparable to adverse impact.** California red-legged frog is known only from the Cuyama River, where it has been observed in numerous locations during the breeding season along an approximately 2.3-mile-long stretch of the Cuyama River within and adjacent to the CPER's southern border. Cattle were excluded from the river as part of the CRRE (CRCD 2005). Cattle access to ponds and streams within the grazed management units elsewhere in the CPER is regulated using fences, except for Joe Pond. While cessation of managed grazing is not currently anticipated to impact occurrences of this species, it will preclude the use of cattle grazing as a management tool to maintain areas of open water habitat required by this species.
Western spadefoot toad (*Spea hammondii*)	CSSC	**Comparable to adverse impact**. Western spadefoot toads have been observed within the American Unit, near the Painted Rock Ranch Headquarters, and within the Chimineas units in the Cuyama River, San Juan Creek, Barrett Creek, and Carrizo Creek drainages, including in association with five ponds: Quarry, Number 3, Scale, Corral and Feed Lot (CDFW 2018). Livestock access to these aquatic habitats is currently regulated using fences. Cattle grazing may be necessary to maintain suitable habitat for spadefoot toad, if increased growth of wetland vegetation in the absence of grazing reduces the hydroperiod or amount of open water habitat due to increased evapotranspiration (Marty 2005). Under the No-Grazing Alternative, the Department would not be able to use cattle as a vegetation management tool to maintain open water habitat and the appropriate hydroperiod for this species.
Reptiles		
California legless lizard (*Anniella pulchra pulchra*)	CSSC	**Comparable to Potentially Beneficial impact**. This species rarely emerges above ground (Stebbins 1985, Jennings and Hayes 1994) where it would be affected by grazing. However, livestock use may compact soils enough to restrict the food base or conformation of the substrate (Jennings and Hayes 1994). These potential impacts would be eliminated with the cessation of grazing. Healthy populations of this species have been observed in areas that were heavily grazed prior to the Department

Table 63: Conclusions and Summary of Impacts to Special-Status Species of the No-Grazing Alternative

Species	Status[1]	Conclusion/Summary of Impact Compared to the Draft LMP
		acquiring the CPER, however. Based on CDFW surveys (CDFW 2018), one of the *Aniella* observations occurred in an area which had not been grazed in recent history and three observations were made in areas unavailable to grazing after CDFW took ownership of the CPER (Figure 40).
San Joaquin Coachwhip (*Masticophis flagellum ruddocki*)	CSSC	**Comparable to Potentially Beneficial impact**. Within the CPER, the San Joaquin coachwhip has been observed in both grazed and ungrazed areas in grasslands and desert scrub communities within the Chimineas units and on the American Unit. The species has also been observed on Soda Lake Road in the Carrizo Plain, and is expected to occur within the grasslands and desert scrub of the Panorama and Elkhorn units. Abundant suitable habitat is available to this species outside the area of managed grazing. The No-Grazing Alternative may result in an increase in suitable habitat for this species.
Blainville's horned lizard (*Phrynosoma blainvillii*)	CSSC	**Adverse impact**. This species occupies both grazed and ungrazed areas on the CPER. The reduction in grass density within the grazing management areas helps create open habitat required by this species, which requires open habitats created by fire, floods, grazing, and roads for basking (Jennings and Hayes 1994). Accordingly, the elimination of grazing would degrade habitat for this species.
Coast Patch-Nosed Snake (*Salvadora hexalepis virgultea*)	CSSC	**Comparable to potentially beneficial impact**. Coast patch-nosed snake has been observed on two occasions within the chaparral communities of the North Chimineas Unit. The snake is also expected to occur within the juniper woodland, chaparral, and perhaps blue oak woodland elsewhere in the North Chimineas Unit (CDFW 2018). Although this species has the potential to occur in the grazing units, the vegetation communities favored by this species often preclude use by livestock. In addition, the reduction in fines fuels associated with grazing may help reduce the frequency of wildfire which can be detrimental to the perpetuation of the species' preferred habitat.
California glossy snake (*Arizona elegans occidentalis*)	CSSC	**Adverse Impact:** Glossy snake occupies open microhabitat conditions within grasslands, coastal scrub, chaparral, and desert scrub. Cessation of grazing would likely increase cover of herbaceous plants and result in accumulation of thatch, particularly during wet years, which may degrade habitat for this species.
Two-striped garter snake (*Thamnophis hammondii*)	CSSC	**Comparable impact**. The two-striped garter snake has not yet been observed within the CPER, though it is predicted to occur within the appropriate riparian areas and ponds of the Chimineas units at low abundance. The bedrock-lined reaches of San Juan Creek and Cuyama River may provide habitat for these snakes. Fences around riparian in the CPER preclude access by cattle as part of day-to-day grazing operations, such that livestock cannot directly kill two-striped garter snakes through trampling (Jennings and Hayes 1994). Since suitable habitat for this species is already not grazed, the No-Grazing Alternative would have a comparable impact on this species as the Draft LMP.
Western pond turtle (*Emys marmorata*)	CSSC	**Adverse impact**. A multi-year study of western pond turtles on the CPER revealed that individuals within Joe Pond, the only pond from which cattle are not excluded, exhibited significantly greater growth rates, a higher abundance of hatchling production, and turtles that were significantly larger than the other ponds, from which cattle area excluded (Germano 2011). These results suggest this population remained healthy and may even benefit from use of the pond by livestock. Along the Cuyama River reduced grazing has resulted in a complete canopy cover over the river which has eliminated suitable basking sites. The No-Grazing Alternative could result in fewer basking sites along the river for this species.

Table 63: Conclusions and Summary of Impacts to Special-Status Species of the No-Grazing Alternative

Species	Status[1]	Conclusion/Summary of Impact Compared to the Draft LMP
		Concentrations of cattle around water sources as they dry up (and therefore provide no escape routes for turtles) has the potential to negatively impact turtle populations. The No-Grazing Alternative may benefit turtle populations located in shallow ponds, creeks and rivers. Where the water body provides adequate water depth to allow for turtles to find cover, the impact would be negligible. Under the No-Grazing Alternative, all of the ponds where western pond turtles are currently found would be excluded from access by livestock. To the extent grazing contributes to turtle populations, the No-Grazing Alternative would adversely impact western pond turtles relative to the Draft LMP.
Birds		
Bald eagle (*Haliaeetus leucocephalus*)	DFW-FP	**Comparable impact**. Bald eagles have been observed at Broken Dam Pond, which until the most recent drought supported non-native fish. They are presumed to utilize the pond within the CPER infrequently as part of migration and wintering habitat. The No-Grazing Alternative will have no impact on the availability of nesting trees or access to the water bodies used by this species.
Burrowing owl (*Athene cunicularia*)	CSSC	**Adverse impact**. Burrowing owls need the short grass structure associated with grazing, especially during the nesting season (Salt and Wilk 1958; Bent 1961; Grant 1963, 1965; James and Seabloom 1968; Stewart 1975; Wedgwood 1976; Haug 1985; MacCracken et al. 1985; Haug and Oliphant 1990; Ronan 2002). In addition to low vegetative structure, burrowing owls also benefit from livestock by collecting cattle dung and bringing it to their burrows (Salt and Wilk 1958, Martin 1973, Green and Anthony 1989, Dechant et al. 1998). Nesting burrowing owls have been observed in the Unit 32, Scale, and Garcia Farming management units, where grazing management is used to create and maintain low grassland height preferred by this species, particularly for breeding. Free roaming herds of tule elk present in the region do not reduce grass height sufficiently to promote use by burrowing owls, since the tule elk leave the Reserve to find better forage conditions before reducing grass height sufficiently (CDFW 2018). The elimination of grazing will have an adverse impact on burrowing owl by significantly reducing the short grass habitat and cattle dung that they require.
California condor (*Gymnogyps californianus*)	FE, SE	**Comparable to Adverse impact**. California condors utilize the area in and around the CPER for foraging. Under the Draft LMP and current grazing lease, dead livestock remain on the CPER to provide a potential food source for condors foraging in the area. The elimination of managed grazing, and the associated occasional mortality of livestock, will eliminate a potential food source for condors, which rarely utilize the CPER at present.
Golden eagle (*Aquila chrysaetos*)	DFW-FP	**Comparable to adverse impact**. The elimination of grazing under the No-Grazing Alternative will have little to no effect on the availability of forage or nesting sites on the CPER. Golden eagles feed on California ground squirrels and carrion. To the extent that managed grazing provides exposed ground favored by the preferred prey for California ground squirrels, the No-Grazing Alternative may have a slightly adverse impact on golden eagle when compared with the Draft LMP.
Grasshopper sparrow	CSSC	**Beneficial impact**. This species shows a strong preference for the ungrazed grasslands on the CPER and has not been observed nesting within the grazed grasslands within the North Chimineas Unit. Elimination of grazing under the No-Grazing Alternative would likely increase the area of suitable habitat for this species.

Table 63: Conclusions and Summary of Impacts to Special-Status Species of the No-Grazing Alternative

Species	Status[1]	Conclusion/Summary of Impact Compared to the Draft LMP
(*Ammodramus savannarum*)		
LeConte's thrasher (*Toxostoma lecontei*)	CSSC	**Comparable to adverse impact**. The elimination of grazing will have no effect on breeding areas for LeConte's thrashers, which within the CPER, breed within the desert scrub communities of the Panorama and Elkhorn Units where managed grazing is not proposed under the Draft LMP. The desert scrub communities on the South Chimineas Unit may represent suitable but unoccupied habitat (Jongsomjit et al. 2012). However, California thrashers (*Toxostoma redivivum*), which are thought to outcompete LeConte's thrashers (Sheppard 1996), inhabit this area.
Loggerhead shrike (*Lanius ludovicianus*)	CSSC	**Comparable to adverse impact**. On the CPER, loggerhead shrikes are relatively abundant in both grazed and ungrazed management units as long as there is some vertical structure present (e.g., shrubs, fences, or trees). However, a recent study of wintering raptors found that loggerhead shrikes were observed on grazed lands at significantly higher rates than ungrazed lands (Pandolfino et al. 2011). Therefore, elimination of grazing under the No-Grazing Alternative would be expected to adversely impact this species within the CPER.
Long-eared owl (*Asio otus*)	CSSC	**Comparable impact**. Within the CPER, long-eared owls utilize the oak woodlands, juniper woodlands, and riparian woodlands primarily within the North Chimineas Unit, where they are known to breed. Long-eared owls have been observed nesting and roosting in both grazed and ungrazed woodland units of the CPER and their populations appear to be stable.
Mountain plover (*Charadrius montanus*)	CSSC	**Comparable to adverse impact**. Within the CPER, mountain plovers utilize the grasslands of the Panorama Unit, which support low-growing forbs such as the native California gold fields (*Lasthenia californica*) and the non-native red-stemmed filaree (*Erodium cicutarium*). These areas are located in areas with a high density of giant kangaroo rats, which create and maintain the low structured grasslands utilized by mountain plovers. Mountain plover have not been observed within the grazed units of the CPER. However, livestock grazing promotes the short-grass structure they prefer, and grazing could be used within the Chimineas units to enhance habitat for this species. The No-Grazing Alternative would not allow grazing to be used to enhance the habitat for this species and could therefore adversely impact this species.
Northern harrier (*Circus cyaneus*)	CSSC	**Beneficial impact**. Northern harriers have been observed in both the grazed and ungrazed management units of the CPER. Nests of this species can be directly impacted by grazing (Shuford and Gardali 2008). While nesting has not been directly detected on the CPER, one pair of harriers has been observed year round in the ungrazed grasslands including the nesting season (R. Stafford, pers comm.). Adoption of the No-Grazing Alternative would be expected to benefit nesting for this species.
Olive-sided flycatcher (*Contopus borealis*)	CSSC	**Comparable impact**. This species has only been recorded on one occasion during spring migration. Appropriate breeding habitat (coniferous forests) does not occur within the CPER (Verner 1980). Therefore, the cessation of grazing is not expected to impact this species.
Oregon vesper sparrow (*Pooecetes gramineus affinis*)	CSSC	**Comparable to potentially negative impact**. Grazing that decreases herbage cover and increases shrub density has been shown to have a detrimental impact on the breeding grounds of the related Great Basin vesper sparrow (Gaines 1992). Declines in other parts of the species breeding range have been attributed to a variety of agricultural practices including trampling of nests by livestock, earlier and/or more frequent mowing, removing of weedy field edges and hedgerows, pesticide use, and predation by mammals associated with human habitation (Altman 2003).

Table 63: Conclusions and Summary of Impacts to Special-Status Species of the No-Grazing Alternative

Species	Status[1]	Conclusion/Summary of Impact Compared to the Draft LMP
		Similar data are not available for wintering sites and it is unknown whether overgrazing poses a problem on the wintering grounds (Erikson 2008). However, Grinnell and Miller (1944) described habitat for wintering Oregon vesper sparrows as "mainly open ground with little vegetation or grown to short grass", suggesting that grazed areas provide preferred habitat during winter. Oregon vesper sparrows winter on the CPER and do not nest in central California. Therefore, elimination of grazing under the No-Grazing Alternative could degrade wintering habitat for this species.
American Peregrine falcon (*Falco peregrinus*)	DFW-FP	**Comparable impact**. Populations of the American falcon have recovered sufficiently to warrant their de-listing from the federal and California endangered species lists. Although they incidentally prey upon waterfowl utilizing the ponds of the North Chimineas Unit of the CPER, this species has only been observed once during spring migration and is not known to nest anywhere near the CPER. The No-Grazing Alternative is not expected to have any effect on the availability of suitable habitat this species and will have no or a less-than-significant impact.
Sandhill Crane (*Grus canadensis*)	CSSC	**Comparable impact**. Within the CPER, sandhill cranes are expected to rarely be present within the grasslands of the American Unit and the northern portion of the North Chimineas Unit. They may also utilize the shoreline of Soda Lake within the American Unit where grazing is currently not allowed under the Draft LMP. Thus, the No-Grazing Alternative is not expected to affect this species.
Short-eared owl (*Asio flammeus*)	CSSC	**Slightly beneficial impact**. Short-eared owls, which are associated with tall grasslands and marshes (Shuford and Gardali 2008), have been observed in the ungrazed grasslands of the CPER. Within the CPER, short-eared owls utilize the grasslands of the North Chimineas and American units, for breeding and wintering as well as migration. Under the No-Grazing Alternative, currently grazed grasslands would achieve taller grass structure making resulting in additional potential habitat for this species.
Tricolored blackbird (*Agelaius tricolor*)	CSSC, SPE	**Adverse impact**. Within the CPER, tri-colored blackbirds prefer freshwater wetland habitat along the Cuyama River and the ponds on the North Chimineas Unit where livestock are currently excluded during the nesting season. However, tri-colored blackbirds have been observed foraging in grazed grasslands on the CPER. This is consistent with tricolored blackbird use in other areas where foraging habitat is considered optimal when vegetation is less than 15 cm (Shuford and Gardali 2008). Moreover, grazing or other vegetation removal are needed to maintain the quality of breeding habitat, which is degraded when wetland vegetation becomes too dense, in part because predators can access nest sites. Therefore, elimination of managed grazing under the No-Grazing Alternative is anticipated to have an adverse impact on this species by reducing suitable habitat for foraging and breeding.
White-tailed kite (*Elanus leucurus*)	DFW-FP	**Comparable impact**. Within the CPER, white-tailed kites have been observed near Number 3 Pond—a 4.5-acre pond near the northern border of the North Chimineas Unit, which was created by damming Barrett Creek, and features wetland and riparian woodland vegetation including large red willows (*Salix laevigata*) along its perimeter (CDFW 2011b). The species is expected to occur within the CPER only infrequently as part of its migration through the region. Livestock are currently

Table 63: Conclusions and Summary of Impacts to Special-Status Species of the No-Grazing Alternative

Species	Status[1]	Conclusion/Summary of Impact Compared to the Draft LMP
		excluded from the area around Barrett Creek where white-tailed kite have been observed in the past. Nesting has not been recorded on site. Therefore, the cessation of grazing under the No-Grazing Alternative is not anticipated to impact this species.
Willow flycatcher (*Empidonax traillii*)	SE	**Comparable impact**. The species occurs as a migrant on the CPER, has not been documented breeding in San Luis Obispo county (Edell 2006) and has only been observed once on the CPER briefly during fall migration near Barrett Creek (R. Stafford, pers. comm. 2010). Within the CPER, willow-dominated riparian woodland that is appropriate for willow flycatchers occurs along the Cuyama River, and along San Juan and Barrett creeks within the North Chimineas Unit. Livestock access to these wetlands, ponds, and riparian areas is precluded except where necessary to provide suitable habitat for special-status species. Excluding cattle from riparian areas may enhance nesting habitat for willow flycatcher. Under the Draft LMP, riparian and marsh areas will continue to be excluded from livestock grazing during the nesting season. Therefore, removal of livestock under the No-Grazing Alternative would not impact this species.
Yellow warbler (*Dendroica petechia*)	CSSC	**Comparable impact**. Within the Chimineas units, yellow warblers have been observed along the Cuyama River, around the North Chimineas Unit Headquarters, and along the tributaries to San Juan Creek. Livestock are currently excluded from riparian and marsh habitat areas preferred by this species during the nesting season. This exclusion would continue under the No-Grazing Alternative, which therefore would result in comparable impacts on this species.
Yellow-headed blackbird (*Xanthocephalus xanthocephalus*)	CSSC	**Comparable impact**. This species is a rare migrant in the county, where it is not known to breed (Edell 2006). Within the CPER, yellow-headed blackbirds have been observed on rare occasions during spring migration. The preferred habitat for this species includes grasslands and ponds, where livestock are excluded during the nesting season. Comparable grassland and pond/riparian habitat on the CPER provides suitable habitat for this species. Yellow-headed blackbird habitat may benefit from the taller grass structure resulting from the elimination of grazing under the No-Grazing Alternative. However, the benefit may be limited given that the species is a rare migrant in the county.
Mammals		
American badger (*Taxidea taxus*)	CSSC	**Comparable impact**. Within the CPER, American badger have been observed on multiple occasions in the North Chimineas Unit's northern grasslands, including both grazed and ungrazed areas, and also in the desert scrub in the southeast corner of the South Chimineas Unit. Although badgers have been observed in both the grazed and ungrazed grasslands of the CPER, the majority of detections have been in grazed pastures (Figure 40).
Big free-tailed bat (*Nyctinomops macrotis*)	CSSC	**Comparable impact**. This species is known from only a few scattered locations in California (Williams 1986) and has only been reported once on the CPER on the Elkhorn Unit (Dan Williams unpublished data). Big free-tailed bats have not otherwise been detected in or around the CPER even though thousands of hours of acoustic monitoring have occurred. The species may use habitats within the CPER sporadically as part of their migration. Due to the limited occurrence of this species on the CPER, the cessation of grazing is not expected to affect this species.
Fringed myotis (*Myotis thysanodes*)	WBWG-H	**Comparable impact**. Within the CPER, fringed myotis have been detected at Quarry Pond on Barrett Creek in the North Chimineas Unit, and the Feed Lot Pond in the South Chimineas Unit, and around the Chimineas Unit Headquarters. The

Table 63: Conclusions and Summary of Impacts to Special-Status Species of the No-Grazing Alternative

Species	Status[1]	Conclusion/Summary of Impact Compared to the Draft LMP
		species is expected to occur year-round at low abundance within the oak and juniper woodlands of the Chimineas units and less frequently in association with the ponds. Fringed myotis may forage and otherwise infrequently utilize other habitats and units of the CPER. Livestock are currently excluded from wetlands, ponds, and riparian areas except where necessary to provide suitable habitat for special-status species. This exclusion would continue under the No-Grazing Alternative, which is therefore likely to have a comparable impact on this species
Giant kangaroo rat (*Dipodomys ingens*)	FE, SE	**Comparable impact**. Within the CPER, giant kangaroo rats occur at high densities within the grasslands and desert scrub of the Elkhorn and Panorama units and the northeast portion of the American Unit near Soda Lake; these locations are outside the area where managed grazing occurs. Giant kangaroo rats also occur in the South Chimineas Unit near Taylor Spring, which is also an area where grazing does not occur. Accordingly, the No-Grazing Alternative is expected to have no effect on this species.
Hoary bat (*Lasiurus cinereus*)	WBWG-M	**Comparable impact**. Hoary bats have been detected in grassland, blue oak woodland, coastal scrub, and riparian areas around Number 3 Pond within the North Chimineas Unit, and in the terrace grassland above the Cuyama River in the South Chimineas Unit. Livestock are currently excluded from wetlands, ponds, and riparian areas except where necessary to provide suitable habitat for special-status species. This exclusion would continue under the No-Grazing Alternative, which would be comparable in effects to the Draft LMP.
Long-eared Myotis (*Myotis evotis*)	WBWG-M	**Comparable impact**. During acoustical surveys of the Chimineas units of the CPER, long-eared myotis have been observed around Number 3 Pond within the North Chimineas Unit, and at Feed Lot Pond and the Cuyama River in the South Chimineas Unit (CDFW unpublished data). The species is anticipated to occur in appropriate habitats albeit at small numbers elsewhere in the Chimineas units, and to occasionally use the ponds and upland habitat within the American Unit. Livestock are currently excluded from wetlands, ponds, and riparian areas except where necessary to provide suitable habitat for special-status species. This exclusion would continue under the No-Grazing Alternative.
Pallid bat (*Antrozous pallidus*)	CSSC	**Comparable to potentially negative impact**. The species is generally expected to be a year-round resident of the CPER, and occur at high relative abundance within the grassland, oak woodland, and riparian areas of the Chimineas and American units. Pallid bats may also occur at low abundance within the juniper woodlands, shrublands, and ponds of the North Chimineas unit, and the Elkhorn and Panorama units. This species feeds on ground dwelling arthropods; therefore, it requires relatively open habitat for foraging. Increased herbaceous plant height and density resulting from a lack of grazing has the potential to reduce the amount of foraging habitat available for this species.
Ringtail (*Bassariscus astutus*)	DFW-FP	**Comparable impact**. Despite extensive surveys, this secretive species has not yet been observed within the CPER. It is expected to occur in small numbers within the oak and juniper woodlands, chaparral and coastal scrub, and riparian areas of the Chimineas units, and may occasionally be observed within the American Unit. Ringtails utilize rocky, areas, dense stands of brush, and riparian habitats (Trapp 1978), all of which occur within the area where managed grazing has occurred. However, livestock typically avoid rocky outcrops and dense brush and the riparian zones have been fenced to exclude livestock. Therefore, elimination of grazing under the No-Grazing Alternative is expected to have similar impacts to continued grazing under the Project.

Table 63: Conclusions and Summary of Impacts to Special-Status Species of the No-Grazing Alternative

Species	Status[1]	Conclusion/Summary of Impact Compared to the Draft LMP
San Diego Desert Woodrat (*Neotoma lepida intermedia*)	CSSC	**Comparable impact**. Within the CPER, San Diego desert woodrat have been observed within the central and southern portion of the Chimineas units, primarily within the coastal scrub habitat. The species is also observed in adjacent areas that have been mapped as grassland. The species is anticipated to also occur within the juniper woodland and less frequently within the other main vegetation types within the Chimineas units. San Diego desert woodrats have been trapped at several locations within the coastal scrub communities on the South Chimineas unit and was often trapped near yucca (CDFW 2018). Almost all of this community type is ungrazed. Therefore, the No-Grazing Alternative is not expected to affect this species.
San Joaquin antelope squirrel (*Ammospermophilus nelsoni*)	ST	**Comparable impact**. San Joaquin antelope squirrels occur at high relative abundance within the grasslands and desert scrub communities of the Panorama and Elkhorn units. They have also been observed within the grasslands of the Painted Rock Headquarters parcel associated with the CPER's American unit. All of these areas lie outside the area where managed grazing will continue under the Draft LMP. Though cattle grazing, particularly during high rainfall years, has been hypothesized to promote abundance of this species by reducing dense grass and thatch produced primarily by exotic plant species (Germano et al. 2001), recent results from an experiment within the CPNM revealed that cattle grazing negatively impacted San Joaquin antelope squirrel in 2010, an above average rainfall year. The effect was tied to lower reproduction rates in grazed areas compared to ungrazed areas (Prugh and Brashares 2012). Ongoing research is needed to inform when and how cattle grazing can serve as an effective vegetation management tool to promote native species such as San Joaquin antelope squirrel.
San Joaquin kit fox (*Vulpes macrotis mutica*)	FE, ST	**Adverse impact**. Kit foxes have been observed primarily in the short grasslands of the CPER. On large, flat expanses of the Carrizo Plain, this short structure can be achieved by giant kangaroo rats (*Dipodomys ingens*), which clip annual vegetation throughout the year (USFWS 1998, Germano et al. 2001, Bean et al. 2010, Prugh and Brashares 2012). However, giant kangaroo rats have not been observed in the areas where managed grazing will continue under the Draft LMP. Tule elk herds will not be expected to reduce grass height significantly since they are free roaming and will leave an area prior to reducing grass height to prescribed levels. In the absence of giant kangaroo rats or soil/geographic features, livestock grazing is the primary method for maintaining short grass structure in areas with higher annual vegetative productivity (Germano et al. 2001). Previous studies in the San Joaquin Valley showed that fenced areas where livestock were excluded had significantly fewer kit fox captures than areas that were grazed (Warrick and Cypher 1998). Accordingly, the No-Grazing Alternative is expected to have an adverse impact on this species.
Spotted Bat (*Euderma maculatum*)	CSSC	**Comparable impact**. Within the CPER, spotted bats were first detected using acoustic monitoring in 2012 at Broken Dam Pond in the North Chimineas Unit. The species is anticipated to occur occasionally within the Chimineas units, particularly in association with water or cliffs. Livestock are currently excluded from wetlands, ponds, and riparian areas except where necessary to provide suitable habitat for special-status species. This exclusion would continue under the No-Grazing Alternative.
Tulare grasshopper mouse (*Onychomys torridus tularensis*)	CSSC	**Comparable impact**. Within the CPER, the Tulare grasshopper mouse is expected to occur in small numbers within the more arid communities, including the grassland, juniper woodlands, coastal scrub, and desert scrub, within all five units. There is no available information about the effects of grazing on this species. Although Tulare grasshopper mouse have been found within the grasslands of the CPER, their presence in a range of vegetative communities suggests that the cessation of grazing will have no little or effect on this species.

Table 63: Conclusions and Summary of Impacts to Special-Status Species of the No-Grazing Alternative

Species	Status[1]	Conclusion/Summary of Impact Compared to the Draft LMP
Townsend's big-eared bat (*Plecotus townsendii*)	CSSC, SPE	**Comparable impact**. Townsend's big-eared bats range throughout the west including California, where the species inhabits a wide range of communities below 10,000 feet elevation, including coastal habitats, grasslands, deserts, riparian communities, forests, and agricultural areas (Sherwin and Paiggio 2005). Within these areas, Townsend's big-eared bats are primarily associated with caves and mines, which it uses as its primary roosts, though buildings, bridges, and tree cavities are also utilized (Pierson and Rainey 1998). Within the CPER, Townsend's big-eared bats have been primarily detected within the oak woodlands, but also the grasslands and coastal scrub, of the North Chimineas Unit. The species was also detected at the Painted Rock Headquarters within the American Unit (CDFW 2018) and may also occur at limited abundance within intact habitat of the American Unit and in other communities of the Chimineas units. The cessation of grazing under the No-Grazing Alternative is not expected to affect the woodland foraging or roosting habitats preferred by this species.
Western mastiff bat (*Eumops perotis californicus*)	CSSC	**Comparable impact**. Within the CPER, western mastiff bats have been detected at the Chimineas Unit Headquarters, as well as Gillam, Broken Dam, and Corral ponds (CDFW 2018). The species is predicted to occur in small numbers within most of the vegetation types within all five units of the CPER, and occur at greater abundance at the larger the ponds in the North Chimineas Unit. Livestock are currently excluded from wetlands, ponds, and riparian areas except where necessary to provide suitable habitat for special-status species. This exclusion would continue under the No-Grazing Alternative.
Western red bat (*Lasiurus blossevillii*)	CSSC	**Comparable impact**. Within the CPER, western red bats have been detected at the Feed Lot Pond in the South Chimineas Unit. The species is anticipated to be a year-round resident and may occur within mature riparian habitat of the Chimineas units, particularly the Cuyama River. It is also expected to utilize the ponds for foraging and water, and occasionally forage within other habits and other units. Livestock are currently excluded from wetlands, ponds, and riparian areas except where necessary to provide suitable habitat for special-status species. Western red bats are considered riparian obligates often roosting in large cottonwoods, willows, or sycamores (Bat Conservation International 2011). The removal of managed grazing will have no effect on the availability of suitable roost or foraging sites for this species. This species will continue to benefit from the exclusion of livestock from riparian habitats.

Notes:

[1] California Rare Plant Rank Designations:

Rank1A = Plants presumed extinct in California

Rank1B = Most plants in this category are endemic to California and have experienced significant declines over several decades; these plants are rare, threatened, or endangered throughout California and elsewhere.

Rank2 = Species that are common outside of California, but rare, threatened, or endangered within California

Rank3 = A review list of species for which necessary information is not available to either categorize in one of the other rankings or to reject outright.

Rank4 = "Watch List" plants with limited distribution or infrequent presence throughout California. Populations of these species may exist along the perimeter of the species' range, may have declined significantly in specific locations within its range, may exhibit unique morphology, or occur on uncommon substrates.

Federal Status Designations:

FE = Federally Endangered. Species in danger of extinction throughout all or significant portions of its range.

FT = Federally Threatened. Species likely to become endangered within the foreseeable future throughout all or a significant portion of its range.

State Status Designations:

CSSC = California Species of Special Concern. Animal species with California breeding populations that may face extinction in the near future.
CSSC-P= Potential to be listed on updated list of California Species of Special Concern.
FP = Fully protected by the State of California under Sections 3511 and 4700 of the Fish and Wildlife Code.
SAL = Special Animals List
SE = State Endangered. Species whose continued existence in California is jeopardized.
SE-PD = State Endangered, proposed for delisting
SPE=State Proposed Endangered
ST = State Threatened. Species, although not presently threatened with extinction, may become endangered in the foreseeable future.

Other Status Designations:

WBWG = Western Bat Working Group
LM = Low-Medium Priority
M = Medium Priority
MH = Medium-High Priority
H = High Priority

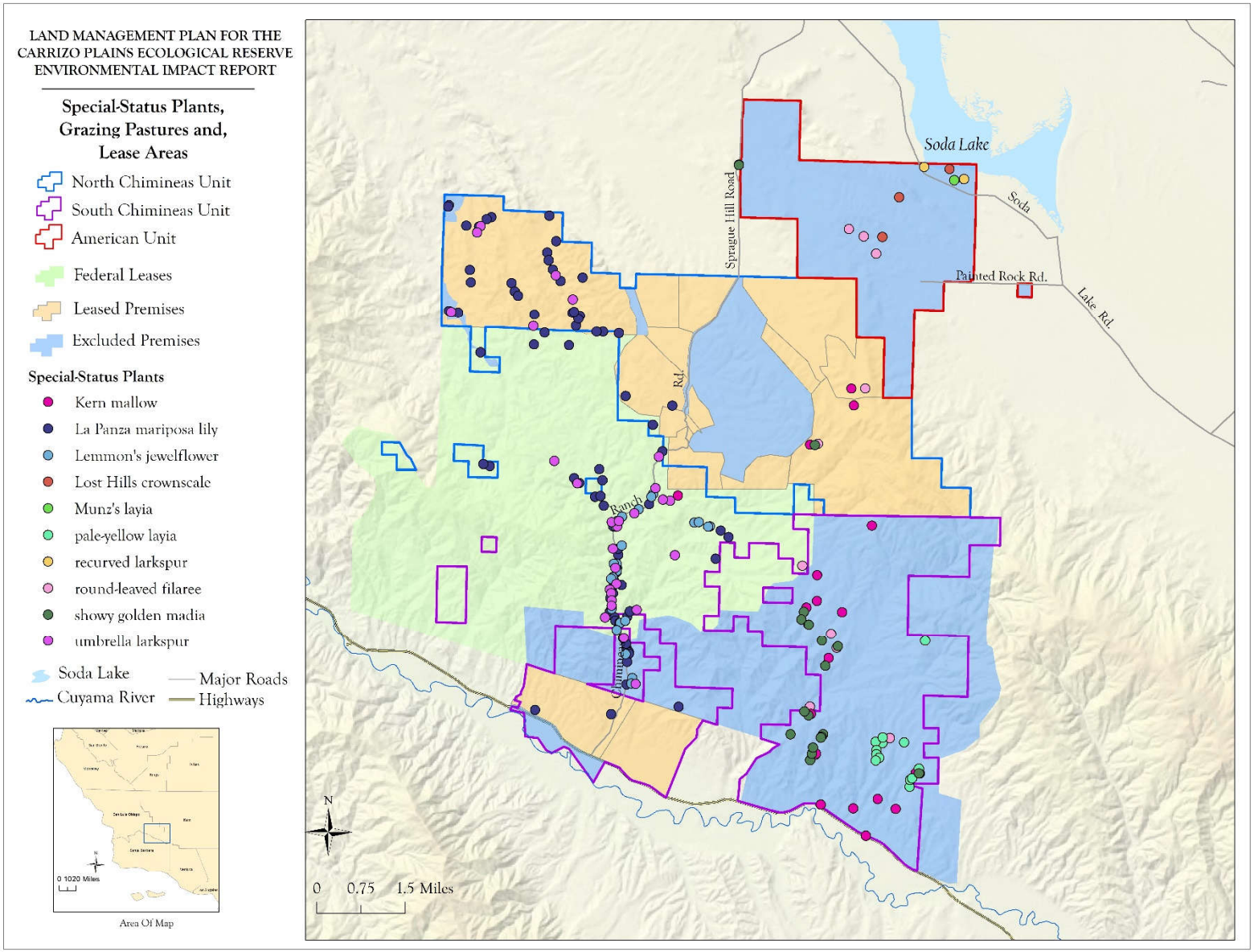

Figure 39: Special-Status Plant Observations in Relation to Grazing Pastures and Lease Areas

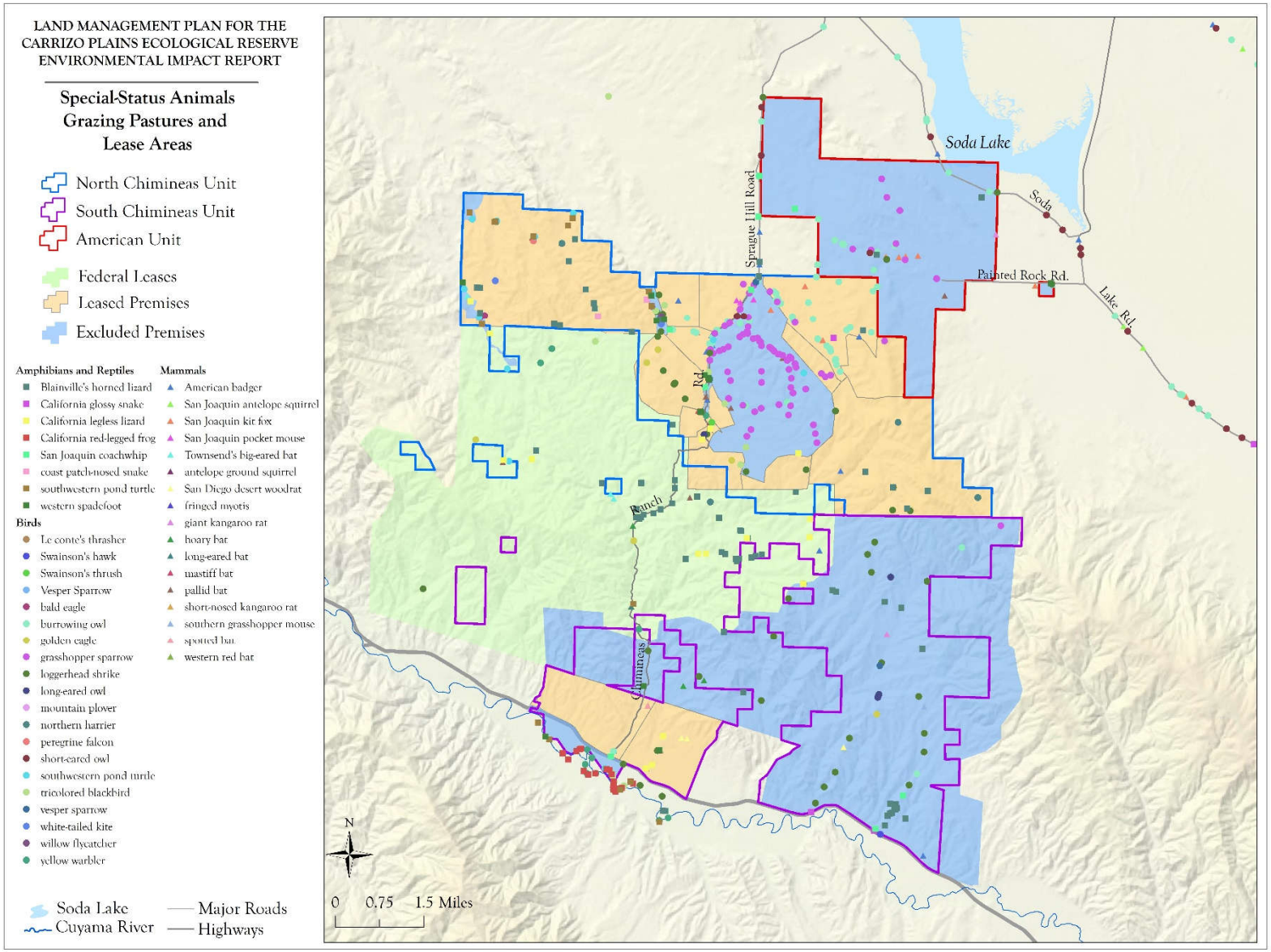

Figure 40: Special-Status Animal Observations in Relation to Grazing Pastures and Lease Areas

The cessation of grazing would remove the adverse, albeit less-than-significant, impacts to certain plant species that are caused by herbivory and trampling by livestock. However, cessation of grazing would also eliminate the beneficial effects to certain species associated with reducing competition from non-native plants (Table 64). The No-Grazing Alternative will have a beneficial impact on certain species and an adverse but less-than-significant impact on others (Table 64). Because of the abundance of viable populations both within the managed grazing areas and outside the managed grazing areas, the No-Grazing Alternative is not expected to significantly impact viability of populations of these species.

Special-Status Animal Species

Managed livestock grazing is used as a vegetation management tool to provide the short grass structure required by several listed animals including San Joaquin kit fox, burrowing owl, and pallid bat (Figure 40). Managed livestock grazing has also been shown to benefit western pond turtle on the CPER (Germano 2011). At the same time, the No-Grazing Alternative could benefit species that preferentially occur in areas of tall grass structure (e.g. grasshopper sparrow), or that may be impacted by soil compaction (e.g., California legless lizard).

The No-Grazing Alternative would result in slightly adverse impacts to species that prefer or need more open habitat areas for basking and foraging. These species include Blainville's horned lizard, golden eagle, loggerhead shrike, tricolored blackbird, and pallid bat. For species that require short-grass structure, the No-Grazing Alternative would have an adverse impact when compared with the Draft LMP. These species include San Joaquin kit fox and burrowing owl. The federally endangered California condor would be adversely affected by the elimination of a potential food source associated with cattle mortality. Other species, such as Le Conte's thrasher (*Toxostoma lecontei*), prefer saltbush/ephedra shrub communities but need open areas with short grass within this matrix for forage (Jongsomjit et al. 2014). The elimination of grazing could reduce the amount of potential short grass forage available to Le Conte's thrasher. However, this species is only found outside of the managed grazing areas on the Panorama and Elkhorn units. When compared with the Draft LMP, the No-Grazing Alternative would degrade habitat for these species.

Blue Oaks

Previous studies (Section 5.4.5) suggest that managed livestock grazing may not affect blue oak recruitment on the CPER, which is relatively high in grazed and ungrazed management units. Accordingly, the No-Grazing Alternative is expected to have no effect on blue oak recruitment.

Native Ungulates

The effects of the No-Grazing Alternative on pronghorn are difficult to predict, because it is anticipated to have both positive and negative effects relative to the Draft LMP. The Carrizo Plain herd is thought to be limited by low rates of recruitment, which may reflect both high rates of fawn predation due, in part, to poor cover at fawn bed sites, and low quantity and quality of forage (Johnson et al. 2013). The No-Grazing Alternative would be expected to have a beneficial effect on pronghorn when compared with the Draft LMP by providing more areas with taller grass that may be used by pronghorn for fawning, foraging, and to escape predators. However, pronghorn prefer grasslands and open shrublands with good horizontal visibility, gentle slopes, and few movement obstacles allow them to detect and escape predators. Cessation of grazing is anticipated to promote establishment of shrubs, which would reduce the suitability of habitat for pronghorn.

The No-Grazing Alternative would be expected to have a slightly beneficial impact on tule elk when compared with the Draft LMP, by providing additional areas of tall grasslands, which provide habitat preferred by this species. Surveys of tule elk on the American and Chimineas units (which includes the grazing management areas) suggest an increasing population.

The No-Grazing alternative could have a slightly beneficial effect on mule deer, by reducing competition for accorns—a preferred food source. Mule deer are most abundant in the oak woodlands in the northwest portion of the North Chimineas Unit, where grazing occurs.

8.6.2.4 Cultural Resources

Under the No-Grazing Alternative, impacts to cultural, historic and paleontological resources associated with construction activities, prescribed burning, and efforts to control exotic species would be identical to the Draft LMP (Sections 5.5.8.3, 5.5.8.4). Adverse, but less-than-significant impacts to cultural resources associated with trampling and the potential compression of soils where cattle congregate would cease (Section 5.5). Thus, the No-Grazing Alternative could have a beneficial impact on cultural resources in these areas.

8.6.2.5 Geology and Soils

Under the No-Grazing Alternative, all of the recommended BMPs associated with erosion and the protection of surface water quality would be applied. Impacts from erosion associated with construction activities and prescribed burning would be identical as the Draft LMP (Section 5.6.8.3, Section 5.6.8.5); however, adverse but less than significant erosion impacts associated with the continuation of managed grazing would be avoided (Section 5.6.8.4). Vegetation in areas where grazing is currently allowed would continue to grow and assume a larger stature which may help reduce erosion.

8.6.2.6 Hazards and Hazardous Materials

Under the No-Grazing Alternative the potential for accidental wildfire ignitions associated with construction activities and the potential for a prescribed fire to escape the prescribed burn area and pose a risk to life and property (Section 5.7.8.3) would be identical to the Draft LMP. However, elimination of grazing under this alternative would increase the risk of wildfire by increasing the amount of combustible fuel in currently grazed areas, including along Highway 166, which is a frequent source of wildfire ignitions.

The risk of exposure to disease vectors from anthrax would remain the identical to the Draft LMP for construction and other earth-disturbing activities since the spores may remain in the soil for decades even if cattle are no longer present. Hazards associated with the exposure to persistent pesticides and fertilizers from previous farming activities would be identical to the Draft LMP.

Safety issues associated with the construction of new or expanded parking would be identical to the Draft LMP.

8.6.2.7 Hydrology and Water Quality

Under the No-Grazing Alternative, adverse but less-than-significant impacts to water quality associated with construction activities, prescribed burning, and the control of exotic species would be identical to the Draft

LMP (Sections 5.8.7.3, 5.8.7.4). With the removal of cattle, erosion currently associated with grazing would be avoided with an improvement to surface water quality compared to the Draft LMP. Areas where cattle currently have access to riparian corridors would experience a slight reduction of streambank erosion with a slight improvement to water quality. All of the recommended BMPs associated with the protection of surface water quality would be applied.

8.6.2.8 Public Services

As with the Draft LMP, the No-Grazing Alternative is not expected to require additional fire protection facilities which would require construction and cause adverse impacts (Section 5.9). The increase in vegetation in grazed areas, especially grasses, would result in more combustible fuel in the of the Chimineas units including along Highway 166, along with a slight increase in the potential for wildfires. However, the increased vegetation associated with the cessation of grazing is not expected to require the construction of new fire protection facilities. Accordingly, the No-Grazing Alternative would have comparable impacts to public services as the Draft LMP.

8.6.3 Conclusions Regarding the No-Grazing Alternative

Under the No-Grazing Alternative, impacts associated with aesthetic and visual resources, air quality, cultural resources, geology and soils, hazards, hydrology and water quality, and public services would be comparable to slightly less than the Draft LMP but would remain less than significant through the implementation of the management actions and BMPs recommended by the Draft LMP.

The No-Grazing Alternative would benefit species that prefer taller-grass structure by increasing the amount of habitat on the CPER. However, the No-Grazing Alternative would reduce the amount of suitable habitat available for the Carrizo Plain core population of San Joaquin kit fox. Of the 11 federally endangered species covered by the Recovery Plan for the Upland Species of the San Joaquin Valley (Recovery Plan) (USFWS 1998), the San Joaquin kit fox is given a higher priority because fulfilling the fox's needs also meets those of many of the other listed species (Section 5.4.15.2). The elimination of grazing would reduce the suitable habitat on the CPER and in the region by about 12,000 acres. The effect of significantly reducing the habitat for listed species that benefit from short-grass structure including San Joaquin kit fox, Blainville's horned lizard, and burrowing owl is a considered a significant adverse impact. The cessation of grazing and the removal of livestock would also adversely impact species that benefit from period management of aquatic and wetland habitat using cattle grazing, including western pond turtle, spadefoot toad, California red-legged frog, and tricolored blackbird. These are considered significant adverse impacts when compared with the Draft LMP.

Overall the No-Grazing Alternative would result in a greater impact to the environment than the implementing actions in the Draft LMP.

8.7 Alternative 3 – Increased Public Access

8.7.1 Description and Assumptions

Under the Increased-Public-Access Alternative, a wider range of public facilities and activities would be incorporated into the Draft LMP, including the following:

- Unsupervised walk-in access for hiking, only, on the North Chimineas Unit;

- Development of a more extensive trail system for hikers; and
- Development of more wildlife viewing facilities, especially on the North Chimineas Unit (the Draft LMP already incorporates such facilities on the South Chimineas Unit, where day use is allowed).

The following assumptions were used to assess the impacts of the Increased-Public-Access Alternative:

- All of the management actions and BMPs recommended by the Draft LMP are adopted and implemented;
- Management actions with the potential to adversely impact the environment would continue to be subject to project specific CEQA compliance; and
- New construction and future use of the CPER would be as summarized in Tables 64 and 65.

Table 64: Assumptions for New Construction Under the Increased-Public-Access Alternative Compared with the Draft LMP

	Increased-Public-Access Alternative		Draft LMP	
Facility	**Quantity**	**Estimated Area (Acres)**	**Quantity**	**Estimated Area (Acres)**
Trails	6 miles	1.60	4 miles	1.10
Parking	8 new spaces	0.30	4 new spaces	0.07
Wildlife Viewing Platforms	8	0.13	4	0.07
Water Tanks	21	0.05	21	0.05
Pipelines and Water Delivery Facilities	2 miles	0.40	2 miles	0.40
Road Relocations/Modifications to Protect Cultural Resources	1	0.01	1	0.01
Total		**2.50**		**1.7**

Table 65: Assumptions for Increased Staffing and Recreational Use Under the Increased-Public-Access Alternative Compared with the Draft LMP

Staffing/Use	**2012**	**Increased-Public-Access Alternative 2032**	**Draft LMP 2032**
CDFW Staff	5	6	5
Researchers	4	11	11
Grazing	1	2	2
Volunteers	2	5	3
Average Daily Recreation Use	2	16	3
Sub-Total Staff, Research, Grazing, Volunteers and Recreation Use[1]	14	40	24
Special Events	30	30	30
Total	**44**	**70**	**54**

8.7.2 Increased-Public-Access Alternative — Analysis of Impacts Relative to the Draft LMP

8.7.2.1 Aesthetic and Visual Resources

Under the Increased-Public-Access Alternative, the number of recreational visitors to the CPER is assumed to increase to 16 persons per day and the acres within the Reserve that are open to public access would increase significantly. New visitor-serving facilities constructed in these areas would be more visible to the public.

The construction of additional trails, wildlife viewing, and visitor-serving facilities would result in greater impacts to visual resources compared with the Draft LMP (Section 5.2.8.5). However, by applying the BMPs recommended by the Draft LMP, these impacts are expected to remain less than significant. Impacts to visual resources associated with the construction of wildlife watering areas and water tanks would be identical to the Draft LMP.

8.7.2.2 Air quality and Climate Change

The Increased-Public-Access Alternative would result in an increase in the generation of emissions associated with construction activities and daily motor vehicle trips (Section 5.3.11.1). Under the Increased-Public-Access Alternative, an estimated 40 persons would arrive at the CPER on average per day, or 16 more per day than expected under the Draft LMP (Table 65) and 26 more than in 2012. Assuming all 40 persons arrive by separate motor vehicle, emissions associated with the increased motor vehicle trips would remain less than the threshold of significance for operational-related impacts used by the SLO APCD (Table 66) except for the emission of fine particulates (PM_{10} and $PM_{2.5}$). The proposed new access to the North Chimineas Unit would occur via a 5.5 mile county maintained dirt road which would not be subject to the BMP's proposed in the Draft LMP.

The construction of additional visitor serving facilities would result in a corresponding increase in exhaust emissions associated with motorized construction equipment. However, the increase in construction and earth disturbance is expected to be less than the amount of grading necessary to exceed the SLO APCD threshold for grading operations (Table 25).

Increased motor vehicle trips to the entry point for the North Chimineas Unit will cross 5.5 miles of County maintained unpaved roads and would increase the emission of particulate matter generated by motor vehicles when compared with the Draft LMP (Tables 66 and 67).

Under the Increased-Public-Access Alternative, the emission of greenhouse gases from construction and operation would increase significantly compared to the Draft LMP (Table 66) but would remain less than the threshold of significance adopted by the SLO APCD.

Overall, air quality impacts associated with the Increased-Public-Access Alternative would be greater than those associated with Draft LMP.

Table 66: Comparison of Operational Emissions on a Typical Day for the Draft LMP and the Increased-Public-Access Alternative

Pollutant[1]	SLO APCD Threshold of Significance	Estimated Operational Emissions[2]	
		Increased Public Access[3]	Draft LMP[3]
Ozone Precursors (ROG + NOx)	25 lbs./day	2.56 lbs./day	1.83
Fugitive Particulate Matter (PM_{10})	**25 lbs./day**	**330.7 lbs./day**	236.24
Carbon Monoxide (CO)	550 lbs./day	9.26 lbs./day	6.62
Greenhouse Gases (CO2, CH4)	1,150 MT CO2e/year	235.3 MT CO2e/year	168.11 MT CO2e/year

Source: CAPCOA 2011

Notes:

1. Pollutants for which a threshold of significance has been adopted by SLO APCD.
2. Appendix D provides calculations.
3. Emissions resulting from increased motor vehicle trips for each alternative.
4. San Luis Obispo Air Pollution Control District, CEQA Air Quality Handbook, April 2012.

Table 67: Comparison of Estimated Operational Emissions (Increased Public Access + Special Event) with Thresholds of Significance

Pollutant[1]	Estimated Operational Emissions (lbs./day) [2]		Total Operational Emissions			
	Increased Public access[3]	Special Events[3]	Lbs./Day[4]	Threshold[5]	Tons/ Year[4]	Threshold[5]
Ozone Precursors (ROG + NOx)	2.56	6.89	9.45	25 lbs./day	1.72	25 tons/year
Fugitive Particulate Matter (PM_{10})	330.7	885.90	1,216,6	25 lbs./day	221.92	25 tons/year
Carbon Monoxide (CO)	9.26	24.82	34.08	550 lbs./day	6.21	—
Greenhouse Gases (CO2, CH4)	1,298	3,454.33	4,752.33	No Threshold	867.24	1,150 MT CO2e/year

Source: CAPCOA 2011

Notes:

1. Pollutants for which a threshold of significance has been adopted by SLO APCD (2012).
2. Appendix D provides calculations.
3. Emissions resulting from increased motor vehicle trips associated with adoption of the Draft LMP.
4. Assumes special event and typical day vehicle trips occur on the same day.
5. SLO APCD 2012

8.7.2.3 Biological Resources

Under the Increased-Public-Access Alternative, the construction of additional facilities to serve the public, such as trails, wildlife viewing areas, and parking, could result in a 47% increase in the permanent loss of habitat for special-status species when compared with the Draft LMP (Table 68). Although the amount of habitat loss is greater, it would remain less than significant compared with the total acreage of habitat on the CPER. The Increased-Public-Access Alternative would result in the loss of 2.5 acres of potential habitat for special-status species due to construction activities.

Table 68: Comparison of Estimated Habitat Conversion, Draft LMP and the Increased-Public-Access Alternative

	Increased-Public-Access Alternative		Draft LMP	
Facility	**Quantity**	**Total Area of Disturbance (Acres)**	**Quantity**	**Total Area of Disturbance (Acres)**
Trails	6 miles	1.60	4 miles	1.0
Parking	8 new spaces	0.30	4 spaces	0.07
Wildlife Viewing	8	0.13	4	0.07
Water Tanks	57	0.05	21	0.05
Pipelines and Water Delivery Features	2 miles	0.40	2 miles	0.40
Road Relocations/Modifications	1	0.01	1	0.1
Total Acres		**2.5**		1.7

The Increased-Public-Access Alternative would result in a greater level of human presence and a wider range of human activities on the CPER with a corresponding increase in the potential for disturbance to wildlife compared with the Draft LMP. For purposes of this analysis, it is assumed that most increased use would be associated with recreational activities such as hiking and wildlife viewing and that the average number of daily recreational visitors would increase from two persons per day in 2012 to 16 persons per day by 2032.

The Increased-Public-Access Alternative would result in adverse but less-than-significant impacts to vegetation and special-status species. Management actions recommended by the Draft LMP directed at the appreciation and conservation of its natural resources would benefit vegetation, as would education to combat destructive human behavior. Potential visitor impacts to vegetation generally include trampling, picking, or other destruction of vegetation. Increased access to areas is commonly associated with illegal behavior such as poaching, vandalism, and off-road vehicular travel, which have increased on the CPER in recent years, especially during the "superbloom" of 2017. All of the aforementioned activities lead to an increased risk of wildfire ignitions and overall habitat loss and degradation. Allowing increased unsupervised public access has the potential to impact vegetation because the public generally has a poor understanding of sensitive vegetation and usually have other interests in deciding where to recreate. As a result, populations of special-status plants could be inadvertently damaged by uninformed visitors.

The effect of increased recreational activities on wildlife is influenced by many factors, including the type, duration, frequency, magnitude, location, and timing of the disturbance, as well as the particular species of interest. Although effects of these activities are typically of short duration, cumulatively they can affect wildlife populations adversely in both the short- and long-term (Burger 1981, Henson and Grant 1991, Fernandez and Azkona 1993, Holmes et al. 1993, Steidl and Anthony 1996, Steidl and Anthony 2000, Swarthout and Steidl 2001, Swarthout and Steidl 2003, Mann et al. 2002, and Johnson et al. 2005). Species with the highest potential for being adversely impacted would be those that exhibit the following characteristics:

- Year-round resident;
- Active during the day when recreational visitors are present;
- Breed in areas visited by recreational visitors;
- Use the roads of the CPER for basking or as movement corridors during the day; and/or
- Nest on the ground.

Focal species for management that could be adversely affected by increased human disturbance include pronghorn, mule deer, and tule elk. Each of these species is a year-round resident of the CPER. Pronghorn and tule elk often move in herds and are active during the day when visitors will be present. Wider public access to the CPER would reduce the areas where these species would be largely free of human disturbance.

Additional trails would result in some additional fragmentation and alteration of habitat on the CPER.

The development of wildlife viewing areas would have negligible impacts on native animals. All of the direct impacts would be localized, may be avoidable, and would not negatively affect them at the population level. The indirect effects of greater recreational activities near upgraded facilities, such as wildlife disturbance and the increased risk of wildfire ignitions, would have a wider area of human impacts on wildlife habitat.

8.7.2.4 Cultural Resources

Under the Increased-Public-Access Alternative, more visitor-serving facilities would be constructed such as trails, parking areas, and wildlife viewing platforms, which in turn would increase the potential for damage to cultural resources from construction activities compared with the Draft LMP. Project-specific CEQA compliance along with application of BMPS recommended by the Draft LMP will ensure potential impacts associated with increased construction will remain less than significant.

The Draft LMP recommends a number of management actions and BMPs to protect cultural resources from construction and recreation activities, including (CDFW 2018):

- Identify locations of cultural resources within the CPER and use this information to facilitate their protection during management;
- Pro-actively manage cultural resources on the CPER to ensure their long-term preservation;
- Increase awareness and appreciation of cultural values of the CPER to promote their long-term persistence;
- Use prescribed burning to reduce the frequency and intensity of wildland fires and the associated impact to cultural resources; and
- Avoid cultural resources when undertaking management activities.

Increased public access is also associated with illegal behavior and vandalism with respect to previously discovered cultural resources. Vandalism at the Painted Rock area within the CPNM has led BLM to restrict public access to guided tours or with a self-guided tour permit (BLM 2010). On other public lands, it is standard protocol to restrict public access to protect cultural resources. Although the Increased-Public-Access Alternative would be expected to increase the potential for adverse impacts to cultural and paleontological resources when compared with the Draft LMP, these impacts are expected to remain less than significant.

8.7.2.5 Geology and Soils

Impacts associated with erosion from construction activities would increase under the Increased-Public-Access Alternative compared with the Draft LMP due to the additional trails and wildlife viewing platforms that would be constructed.

The Draft LMP recommends BMPs to protect soil resources and minimize soil erosion including the following (CDFW 2018):

- Minimize vegetation removal from management activities;
- Locate surface disturbing activities on disturbed areas wherever possible;
- Avoid soil-disturbing activities during periods of peak runoff or when soils are wet and muddy;
- Design ground-disturbing activities to avoid sensitive areas;
- Minimize the use of impervious surfaces;
- Direct runoff to bioretention facilities; and
- Use bioswales or similar features to capture runoff.

Although the Increased-Public-Access Alternative would be expected to increase the potential for adverse impacts to soil resources on the CPER compared with the Draft LMP, these impacts would be expected to remain less than significant.

8.7.2.6 Hazards and Hazardous Materials

Under the Increased-Public-Access Alternative, all of the management actions recommended by the Draft LMP would be implemented, including the following related to fire prevention:

- continued adherence to existing federal, state, and county regulations governing fire protection;
- the use of prescribed fire to help manage the fuel load on the CPER;
- requiring construction equipment and construction activities to incorporate features and practices to minimize wildfire ignitions; and
- equipping all Department vehicles with fire suppression equipment;

Increased construction activities associated with this alternative would increase the risk of accidental fire ignitions from construction equipment and workers when compared to the Draft LMP. The expansion of allowable public facilities and associated activities is expected to increase the risk of human-caused fires. With implementation of the management actions and BMPs recommended by the Draft LMP, the number

and intensity of fires on the CPER under the Increased-Public-Access Alternative is expected to be higher than the risk associated with the Draft LMP.

Expanded construction activities would result in an increased risk of exposure to disease vectors associated with naturally occurring Valley Fever and Anthrax and to environmentally persistent pesticides and fertilizers from past farming activities. The increased number of people working and visiting the CPER would also be at risk of exposure. However, applying the BMPs would ensure that these risks remain less than significant (Section 5.7.8).

Hazards associated with unsupervised access to the North Chimineas Unit for recreation use would increase. Increased access to areas is commonly associated with illegal behavior such as vandalism, poaching, and off-road vehicular travel, which can lead to an increased risk of wildfire ignitions and damage or degradation of other resources. The Increased-Public-Access Alternative would also increase the potential for vandalism and theft at the Chimineas Unit Headquarters on the North Chimineas Unit. The Painted Rock Ranch facility, which is in an area of open public access, is burglarized and vandalized every few years.

8.7.2.7 Hydrology and Water Quality

Impacts to water quality associated with erosion from construction activities would be expected to increase under the Increased-Public-Access Alternative, compared with the Draft LMP, as additional trails and wildlife viewing platforms are constructed.

8.7.2.8 Public Services – Fire Protection

As discussed above under Hazards (Section 8.7.1.7), the risk of wildfire and the demand for fire protection services would increase under the Increased-Public-Access Alternative as more visitors use the CPER and the types of activities/access are expanded.

The additional use of the CPER would be expected to generate a corresponding increase in the demand for emergency services and the number and frequency of medical emergencies. However, the incremental additional demand for fire protection and emergency services is not expected to require the construction of new facilities to maintain an acceptable level of service under the Increased-Public-Access Alternative.

8.7.3 Conclusions Regarding the Increased-Public-Access Alternative

Under the Increased-Public-Access Alternative, impacts associated with aesthetic and visual resources, air quality, biological resources, cultural resources, geology and soils, hazards, hydrology and water quality, and public services would be greater than those expected under the Draft LMP.

8.8 Summary Conclusions

Table 69 compares the potential significant environmental impacts associated with each alternative.

The Department is required to prepare a draft land management plan for the CPER by Section 1019(a) of the California Fish and Wildlife Code. Therefore, the continuation of management of the CPER in the absence of a land management plan, as would be the case under the No-Project Alternative, is not feasible and would not meet most of the basic objectives of the project.

The No-Grazing Alternative meets all of the basic objectives of the project and would provide the same comprehensive framework for management. This alternative would benefit some listed species but would adversely impact thousands of acres of habitat for listed species including the federally endangered San Joaquin kit fox and others. Overall, the impacts of the No-Grazing Alternative are greater than those associated with the Draft LMP.

The Increased-Public-Access Alternative also meets the basic objectives of the project and provide similar framework for management. This alternative would result in a greater impact to the resources of the CPER than the Draft LMP.

The Draft LMP provides a comprehensive framework for the management of resources within the CPER consistent with the objectives set forth under Section 1019 of the Fish and Game Code. Implementation of the recommended management actions is expected to enhance all of the habitats of the Reserve to the benefit of listed species and other species managed by the Department. Best Management Practices will help ensure the protection of sensitive resources from ongoing management activities. The Draft LMP will accommodate certain activities that will have an adverse, but less-than-significant impact on the resources of the CPER. These activities are necessary to achieve the overall goal of protecting the natural habitats that contribute to and help sustain the overall ecosystem health. The Draft LMP meets all of the objectives set forth by the Department, and will benefit the natural and cultural resources of the CPER while providing opportunities for wildlife-dependent public recreation.

The Draft LMP is a feasible alternative that results in the least adverse environmental effects while complying with existing laws. Based upon the evaluation described in this section, and summarized in Table 69 the Draft LMP is the environmentally superior alternative.

Table 69: Comparison of Impacts of Alternatives with Impacts of the Draft LMP				
		Comparison of Impacts of Alternatives with Impacts of the Draft LMP		
Environmental Resource	**Draft LMP**	**No-Project Alternative**	**No-Grazing Alternative**	**Increased-Public-Access Alternative**
Aesthetic and Visual Resources				
The construction of new or expanded parking areas, trails, wildlife viewing facilities, water storage tanks, fencing; temporary alteration to landscape from prescribed burning; protection of cultural resources.	Less than significant	Less impact New facilities would be constructed at a slower pace subject to individual CEQA compliance. Prescribed burning could be conducted subject to separate CEQA compliance. Baseline conditions would continue.	Comparable impact All aspects of the Draft LMP would be implemented except managed grazing. Areas currently grazed would become visually similar to ungrazed areas. Existing fences and other grazing infrastructure could be removed.	Greater impact The construction of more recreation and visitor-serving facilities and increased human presence would degrade visual resources.
Air Quality and Climate Change				
Generation of short-term construction-related emissions associated with additional motor vehicle trips; temporary impacts from prescribed burning; emission of greenhouse gases from motor vehicles and gas powered machinery; cumulative air quality impacts.	Less than significant	Comparable impact No additional emissions associated with construction activities and management actions.	Comparable impact No additional emissions associated with construction activities and management actions.	Greater impact Increased emissions from greater number of motor vehicle trips and increased construction would degrade air quality.
Impacts to special-status plants and animals associated with climate change.	Less than significant	Comparable impact	Comparable impact	Comparable impact
Biological Resources				
Loss of habitat from the construction of new facilities, and maintenance and repair of infrastructure.	Less than significant	Comparable impact New facilities would be constructed at a slower pace subject to individual	Comparable impact	Greater impact Construction of more recreation and visitor-

Table 69: Comparison of Impacts of Alternatives with Impacts of the Draft LMP				
		Comparison of Impacts of Alternatives with Impacts of the Draft LMP		
Environmental Resource	**Draft LMP**	**No-Project Alternative**	**No-Grazing Alternative**	**Increased-Public-Access Alternative**
		CEQA compliance. Baseline conditions would continue.		serving facilities and increased human presence will negatively impact special-status species and other biological resources.
Impacts to habitat for listed species associated with vegetation management including livestock grazing, prescribed burning, and the control of exotic species.	Less than significant	Beneficial impact but less beneficial than the Draft LMP No new vegetation management projects would be conducted. Baseline conditions would continue. Benefits to listed species associated with vegetation management would not be as great as under the management actions recommended by the Draft LMP	Greater and potentially significant impacts to listed species that depend upon the short-grass structure provided by managed grazing.	Comparable impact
Impacts to listed species associated with increased recreational use of the CPER.	Less than significant	Comparable impact Baseline conditions would continue.	Comparable impact	Greater impact Construction of more recreation and visitor-serving facilities and increased human presence in more areas would increase impacts to special-status species.
Impacts to special communities including wetlands and riparian resources.	Less than significant	Beneficial impact but less beneficial than the Draft LMP Baseline conditions would continue. Livestock would continue to be excluded from wetland and riparian	Beneficial impact but less beneficial than the Draft LMP Livestock would be eliminated as a management	Comparable impact Livestock would continue to be excluded from wetland and riparian areas except were needed to

Table 69: Comparison of Impacts of Alternatives with Impacts of the Draft LMP				
		Comparison of Impacts of Alternatives with Impacts of the Draft LMP		
Environmental Resource	**Draft LMP**	**No-Project Alternative**	**No-Grazing Alternative**	**Increased-Public-Access Alternative**
		areas except were needed to promote special-status species populations. Benefits to special communities associated with vegetation management would not be realized.	tool in wetlands and riparian areas where they can help promote open water conditions and sparser vegetation cover required by some special-status species.	promote special-status species populations.
Interference with wildlife movement	Less than significant	Comparable impact New fencing currently installed on the CPER is designed to allow wildlife movement.	Comparable impact Grazing infrastructure could be removed.	Comparable impact
Cultural Resources				
Impacts to cultural, historic and paleontological resources from construction and maintenance of new facilities and vegetation management (including grazing, prescribed burning and control of exotic species); potential impacts to historic resources from construction and maintenance activities; cumulative impacts to cultural resources.	Less than significant	Comparable impact New facilities would be constructed at a slower pace subject to individual CEQA compliance. Areas where ground disturbance may impact cultural resources would continue to be surveyed prior to disturbance	Comparable impact Areas where livestock currently congregate have been surveyed and lack recorded cultural resources.	Greater impact Construction of more recreation and visitor-serving facilities and increased unsupervised access to new areas would increase impacts to cultural resources.
Geology and Soils				
Impacts to soils and erosion associated with construction activities and vegetation management (including grazing and prescribed burning).	Less than significant	Comparable impact New facilities would be constructed at a slower pace subject to individual CEQA compliance. Vegetation management would continue at baseline conditions.	Less severe impact	Greater impact Construction of more recreation and visitor-serving facilities and increased human presence would increase erosion.

Table 69: Comparison of Impacts of Alternatives with Impacts of the Draft LMP				
		Comparison of Impacts of Alternatives with Impacts of the Draft LMP		
Environmental Resource	**Draft LMP**	**No-Project Alternative**	**No-Grazing Alternative**	**Increased-Public-Access Alternative**
		Benefits of applying BMPs could be included in project-specific approvals.		
Hazards and Hazardous Materials				
Increased risk of wildland fires from construction and maintenance activities and increased human presence.	Less than significant	Less impact New facilities would be constructed at a slower pace subject to individual CEQA compliance.	Greater Impact Build-up of finer fuels over time would increase the likelihood of wildfire ignition and spread.	Greater impact Construction of more recreation and visitor-serving facilities and increased human presence would increase the risk of wildfire.
Mobilization of disease vectors that may be present in the soils of the CPER.	Less than significant	Comparable impact New facilities would be constructed at a slower pace subject to individual CEQA compliance; vegetation management activities would remain at baseline levels.	Comparable impact	Slightly more severe but less-than-significant impact Construction of more recreation and visitor-serving facilities and increased human presence would increase disease exposure.
Exposure to potentially hazardous concentrations of environmentally-persistent pesticides and herbicides.	Less than significant	Less impact Disturbance of pesticides or herbicides in the soil from historic farming during construction would be less frequent and subject to individual CEQA compliance; vegetation management activities would continue at baseline conditions.	Comparable impact	Slightly more severe but less-than-significant impact Greater exposure to pesticides and herbicides in the soil from the construction of more recreation and visitor-serving facilities and increased human presence.

Table 69: Comparison of Impacts of Alternatives with Impacts of the Draft LMP				
		Comparison of Impacts of Alternatives with Impacts of the Draft LMP		
Environmental Resource	**Draft LMP**	**No-Project Alternative**	**No-Grazing Alternative**	**Increased-Public-Access Alternative**
Safety hazard to motorists entering or leaving parking areas; hazards to on road traffic.	Less than significant	Less impact Construction of new wildlife viewing platforms, parking lots, and trails would not occur. Public use would remain at baseline conditions.	Comparable impact	Greater impact More recreation and visitor-serving facilities and increased human presence would increase public exposure to hazards.
Hydrology and Water Quality				
Impacts to surface water quality from construction and maintenance activities, vegetation management (including grazing and prescribed burning).	Less than significant	Less impact New facilities would be constructed at a slower pace subject to individual CEQA compliance; prescribed burning would not occur; vegetation management would remain at baseline conditions.	Less impact	Slightly more severe but less-than-significant impact Construction of more recreation and visitor-serving facilities and increased human activities would increase erosion.
Public Services				
Construction of additional fire protection facilities could result in an adverse physical impact on the environment.	Less than significant	Comparable impact As with the Draft LMP, no new fire suppression facilities would be needed.	Comparable impact	Comparable impact No new fire suppression facilities are needed to accommodate the Increased-Public-Access Alternative.
Summary Conclusion	**Environmentally Superior**	—	—	—

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Appendix A Geographic Information System Data

Appendix A Geographic Information System Data

Table A- 1: GIS Layers Used to prepare the Carrizo Plains Ecological Reserve Land Management Plan Environmental Impact Report

Dataset	Reference	Source Link
Land Use, Ownership, and Jurisdictions		
California Counties	US Census Bureau 2010b	http://www.census.gov/geo/www/tiger/
San Luis Obispo County Assessor Parcels	SLO County 2010b	Not available on-line
CPER Boundaries and Acquisition History	CDFW 2010c	not available on-line
Carrizo Plain National Monument Boundary	BLM 2009	http://www.blm.gov/ca/gis/
Public Land Survey System	BLM 2009	http://www.blm.gov/ca/gis/
Urban	DOC 2008	http://www.conservation.ca.gov/dlrp/fmmp/Pages/Index.aspx
Permit Stations	CDFW 2010c	not available on-line
Cultivation	BLM 2009	not available on-line
Kern County General Plan Land Use Designations	Kern County 2009	http://assessor.co.kern.ca.us/gis.html
Santa Barbara County General Plan Land Use Designations	Santa Barbara County 2013	http://sbcountyplanning.org/forms/maps/index.cfm?id=GIS
San Luis Obispo General Plan Land Use Designations	SLO County 2013	http://gis.slocounty.opendata.arcgis.com/datasets/337f2b6a1f5541b794f70255626f7234_75
Geology and Soils		
Geologic Formations	SLO County 2007	http://lib.calpoly.edu/gis/browse.jsp?by=th&th=7
Faults and Fault Zones	SLO County 2001	http://lib.calpoly.edu/gis/browse.jsp?by=th&th=7
Carrizo Plain Area Soil Survey	USDA 2004	http://websoilsurvey.nrcs.usda.gov/app/
North Santa Barbara County Soil Survey	USDA 2003	http://websoilsurvey.nrcs.usda.gov/app/
Los Padres National Forest Soil Survey	USFS 2003	http://websoilsurvey.nrcs.usda.gov/app/

Table A- 1: GIS Layers Used to prepare the Carrizo Plains Ecological Reserve Land Management Plan Environmental Impact Report

Dataset	Reference	Source Link
Air Resources		
Air Basins	CARB 2004	https://www.arb.ca.gov/ei/gislib/gislib.htm
Air Monitoring Stations	CARB 2004	https://www.arb.ca.gov/ei/gislib/gislib.htm
Hydrology		
Streams	USGS 2010	http://water.usgs.gov/maps.html
Water Bodies	USGS 2010	http://water.usgs.gov/maps.html
Seeps and Springs	USGS 2010	http://water.usgs.gov/maps.html
Ponds	CDFW 2010c	not available on-line
Watersheds	CalFire 2011	http://frap.cdf.ca.gov/data/frapgisdata-sw-calwater_download
Groundwater Basins	CDWR 2003	https://gis.water.ca.gov/app/boundaries/
Flood Zones	FEMA 2011	http://www.arcgis.com/home/item.html?id=e9aa2179f31b4b9cbe5c7f8b1b91cea3
Biodiversity		
Vegetation	CDFW 2010b	not available on-line
Rare Species	CDFW 2016a	not available on-line
Fire		
Fire History	CalFire 2015	http://frap.cdf.ca.gov/data/frapgisdata/select.asp
Fire Hazard	CalFire 2006	http://frap.fire.ca.gov/data/frapgisdata-sw-firethreat_download
Research and Monitoring		
VegCAMP Survey Areas	CDFW 2012e	not available on-line
Oak Survey Areas	CDFW 2012e	not available on-line
Visual Encounter Survey Transects	CDFW 2012e	not available on-line
Avian Point County Survey Locations	CDFW 2012e	not available on-line

Table A- 1: GIS Layers Used to prepare the Carrizo Plains Ecological Reserve Land Management Plan Environmental Impact Report

Dataset	Reference	Source Link
Camera Trap Locations	CDFW 2012e	not available on-line
Sonabat Locations	CDFW 2012e	not available on-line
Reptile and Amphibian Cover Boards	CDFW 2012e	not available on-line
Reptile and Amphibian Search Locations	CDFW 2012e	not available on-line
Vernal Pool Survey Areas	CDFW 2012e	not available on-line
Transportation		not available on-line
Chimineas Unit Roads	CDFW 2010c	not available on-line
Carrizo Plain National Monument Roads	BLM 2009	http://www.blm.gov/ca/gis/
State Highways	US Census Bureau 2010b	http://www.census.gov/geo/www/tiger/
Major Roads	US Census Bureau 2010b	http://www.census.gov/geo/www/tiger/
Carrizo Plain National Monument Trails	BLM 2009	http://www.blm.gov/ca/gis/
Infrastructure		
Carrizo Plain National Monument Infrastructure (Points)	BLM 2009	http://www.blm.gov/ca/gis/
Carrizo Plain National Monument Utility Lines	BLM 2009	http://www.blm.gov/ca/gis/
Carrizo Plains Ecological Reserve Fences	CDFW 2012d	not available on-line
Electrical Transmission Lines	SLO County 2001	http://lib.calpoly.edu/gis/browse.jsp?by=th&th=10
Physical		
CA Hillshade (30 m)	USGS 2005	http://seamless.usgs.gov/
Digital Elevation Model (30 m)	USGS 2005	http://seamless.usgs.gov/
USGS 24k and 100k quadrangles (Digital Raster Graphics of Topographic Maps)	ESRI 2012	http://www.arcgis.com/home/

Appendix B Initial Study and Notice of Preparation

California Natural Resources Agency
DEPARTMENT OF FISH AND GAME
http://www.dfg.ca.gov
Central Region
1234 East Shaw Avenue
Fresno, California 93710
(559) 243-4005

***EDMUND G. BROWN, JR.**, Governor*
***CHARLTON BONHAM,** Director*

November 20, 2012

Subject: Notice of Preparation of a Draft Environmental Impact Report for the Preparation of a Land Management Plan for the Carrizo Plain Ecological Reserve, San Luis Obispo County

Dear Interested Party:

Introduction

In accordance with Section 15063 of the Guidelines for the California Environmental Quality Act (CEQA), the California Department of Fish and Game (Department), as Lead Agency, intends to prepare an Environmental Impact Report (EIR) for the proposed Land Management Plan for the Carrizo Plain Ecological Reserve (draft LMP). In accordance with Section 15082 of the CEQA Guidelines, the Department has issued this Notice of Preparation to provide information about the project and its potential environmental effects to Responsible, Federal and Trustee Agencies and other interested parties, and to invite comments regarding the scope of analysis to be provided in the EIR.

The determination to prepare an EIR was made by the Department based on an Initial Study (CD attached) which was prepared in accordance with the CEQA Guidelines Section 15063. The Initial Study generally identifies the potential adverse environmental effects of the project.

In accordance with the State CEQA Guidelines, the comment period for this Notice of Preparation and Initial Study is 30 days, beginning on **November 21, 2012 and ending on December 21, 2012 at 5PM**. The Department welcomes agency and public input during this review period. In the event that no response or well justified request for additional time is received by any Responsible, federal or Trustee Agency by the end of the review period, the Department may presume that such agencies have no response. Comments may be submitted to:

Contact: California Department of Fish and Game
Attn: Bob Stafford, Environmental Scientist
1234 E. Shaw Ave.
Fresno, CA 93710

Email: bstafford@dfg.ca.gov

Phone: (805) 528-8670

The Department has scheduled a Public Scoping Meeting on **Monday December 3, 2012, at 7:00 p.m.** at the education center for the San Luis Obispo Sportsmen's Association. The education center is located on Highway 1 between Morro Bay and San Luis Obispo at 3272 Gilardi Road. All interested parties are invited to attend the scoping meeting to provide comments on the scope and content of the environmental analysis.

For your convenience, a cd of the IS is included in this package. Please contact us at the letterhead address above if you would like hard copies of the aforementioned documents.

Background

The Carrizo Plain Ecological Reserve (CPER) is located within and immediately west of the Carrizo Plain - a large inland valley within the Inner Coast Range Mountains in southeastern San Luis Obispo County, central California. The approximately 50-mile-long, 15-mile-wide Carrizo Plain is bounded by the Temblor Range to the east and the Caliente Range to the west, while the Transverse Range separates the Carrizo Plain region from southern California. Approximately one half of the CPER is located within the Carrizo Plain and adjacent Caliente Range. The other half of the reserve is located to the west along the eastern boundary of the La Panza Range and Cuyama Valley (Figures 1, 2, and 3, attached).

The CPER is an approximately 39,500-acre area managed by the Department to protect threatened and endangered plants and animals and the important ecological communities found within and adjacent to the Carrizo Plain. The CPER supports a rich mosaic of ecological communities including blue oak woodlands, coastal scrub, chaparral, grasslands, juniper woodland, desert scrub, riparian systems, and ponds. To date, 535 plant and 283 animal species have been documented on the CPER, including 57 species considered endangered, threatened, sensitive, or fully protected by the Department or US Fish and Wildlife Service (USFWS). Limited public recreation, largely in the form of hunting and wildlife viewing, occurs in varying extents throughout the CPER.

The CPER links federal land managed as part of the two-million-acre Los Padres National Forest, to the west, and public lands within the 250,000-acre Carrizo Plain National Monument to the east, which are managed by the Bureau of Land Management in cooperation with the Department and The Nature Conservancy. Lands within the CPER have been identified as part of an essential landscape linkage connecting the Coast Range Mountains to the San Joaquin Valley.

Land within the CPER was acquired by the Department and designated as an ecological reserve to "*protect threatened or endangered native plants, wildlife, or aquatic organisms or specialized habitat types, both terrestrial and non-marine aquatic, or large heterogeneous natural gene pools for the future use of mankind*" (§1580 of the Fish and Game Code). Generally speaking, the CPER acquisitions were designed to protect threatened and endangered species, and upland and grassland habitats.

Description of the Project

California Fish and Game Code Section 1019 requires the Department to prepare land management plans for ecological reserves. Accordingly, the Department intends to adopt an LMP for the Carrizo Plain Ecological Reserve. The purpose of the draft LMP is to set forth the goals, objectives, and actions for management of the Department's lands within the Carrizo Plain Ecological Reserve consistent with the requirements of Section 1580 of the California Fish and Game Code. The primary objective of the LMP is to protect the natural habitats that contribute to, and help sustain, the overall ecosystem health of the region. The specific purposes of the Carrizo Plain Ecological Reserve LMP are:

- To guide the adaptive management of habitats, species, and programs described herein to achieve the department's mission to protect and enhance wildlife diversity values.

- To serve as a guide for appropriate public uses of the property.

- To serve as a descriptive inventory of fish, wildlife and native plant habitats which occur on or use this property.

- To provide an overview of the property's operation and maintenance, and personnel requirements to implement management goals.

- To provide a description of potential and actual environmental impacts and subsequent mitigation which may occur during management, and to provide environmental documentation to comply with state and federal statutes and regulations.

The draft LMP will be organized as follows:

Section 1 – Introduction. Section 1 will provide a description of the current conditions and land use, which were evaluated in development of the plan, as well as the purpose of the Land Management Plan.

Section 2 – Property Description. Section 2 will discuss the abiotic (non-biological) conditions, including geology, hydrology, historic land use, cultural resources, infrastructure, and current uses of the Reserve lands.

Section 3 – Habitat and Species Description. Section 3 will discuss in detail the biological resources of the Reserve including the plant communities (i.e. vegetation), common animal species and special status species.

Section 4 – Management Goals and Environmental Impacts. This section will provide the detailed management goals for the Reserve, including the steps that will be taken to manage the biological resources, while providing for compatible public uses and maintaining the facilities.

Section 5 -- Operations and Maintenance Summary – Section 5 will describe the resources that are needed to implement the plan, including both staff time and outside costs, designed to guide work plans and budgeting for the Reserve.

References and Appendices – The references will list documents and other sources of information used to prepare the plan. The appendices will provide detailed information including plant and animal lists, a discussion of public input that informed development of the plan, and the environmental impact report (EIR).

As discussed above, the draft LMP will identify the goals and actions for management of the CPER, which are broadly designed to manage and enhance biological resources while providing for wildlife-dependent public use. Management is outlined in three hierarchical levels: elements, goals, and tasks. The elements are the management categories or considerations; the goals identify the conditions management is designed to achieve; and tasks are the steps that will be taken to attain the goals.

The management goals and actions will include the following topical elements:

- Biological Elements: These elements consist of species, habitats, or landscapes for which specific management goals have been developed within the plan.
- Scientific Research, Monitoring, and Adaptive Management Elements: These elements describe how scientific research and monitoring can be used as part of an adaptive management framework to promote long-term effectiveness of management at attaining the goals of the other elements.

- Vegetation Management Elements: These elements identify how fire management, managed grazing, and exotic plant management, can be used to maintain or enhance the condition of the vegetation to attain the biological goals of the plan.
- Public Use Elements: Public use elements are any recreational, scientific, or other public use activity appropriate to and compatible with the purposes for which the property was acquired.
- Cultural Resources Elements: Cultural resource elements pertain to preservation of cultural resources.
- Facility Maintenance Elements: This is a general-purpose element describing the maintenance and administrative program, which helps maintain orderly and beneficial management of the area.
- Management and Monitoring Coordination Elements: These elements include activities related to the coordination of management and monitoring in adjacent and regional open space lands.

A complete description of the project is provided in the attached Initial Study.

Probable Environmental Effects

The attached Initial Study provides an overview of potential environmental impacts associated with the draft LMP. The areas of potentially significant impacts include:

- Air Quality
- Biological Resources
- Cultural Resources
- Geology and Soils
- Hazards and Hazardous Materials
- Hydrology
- Water Quality

In addition, the draft LMP may have environmental impacts that are cumulatively considerable.

If you have any questions about the project or this Notice, please contact Bob Stafford, Environmental Scientist, California Department of Fish and Game, at: (805) 528-8670 or by electronic mail: BSTAFFORD@dfg.ca.gov .

Sincerely,

Jeffrey R. Single, Ph.D.,
Regional Manager
Central Region

Attached:

Figure 1 – State Location
Figure 2 – Project Vicinity
Figure 3 – Project Location In Relation to USGS 7.5' Quadrangles

Land Management Plan for the Carrizo Plain Ecological Reserve -- Initial Study of Environmental Impact

Figure 1 – State Location

Figure 2. CPER and Vicinity

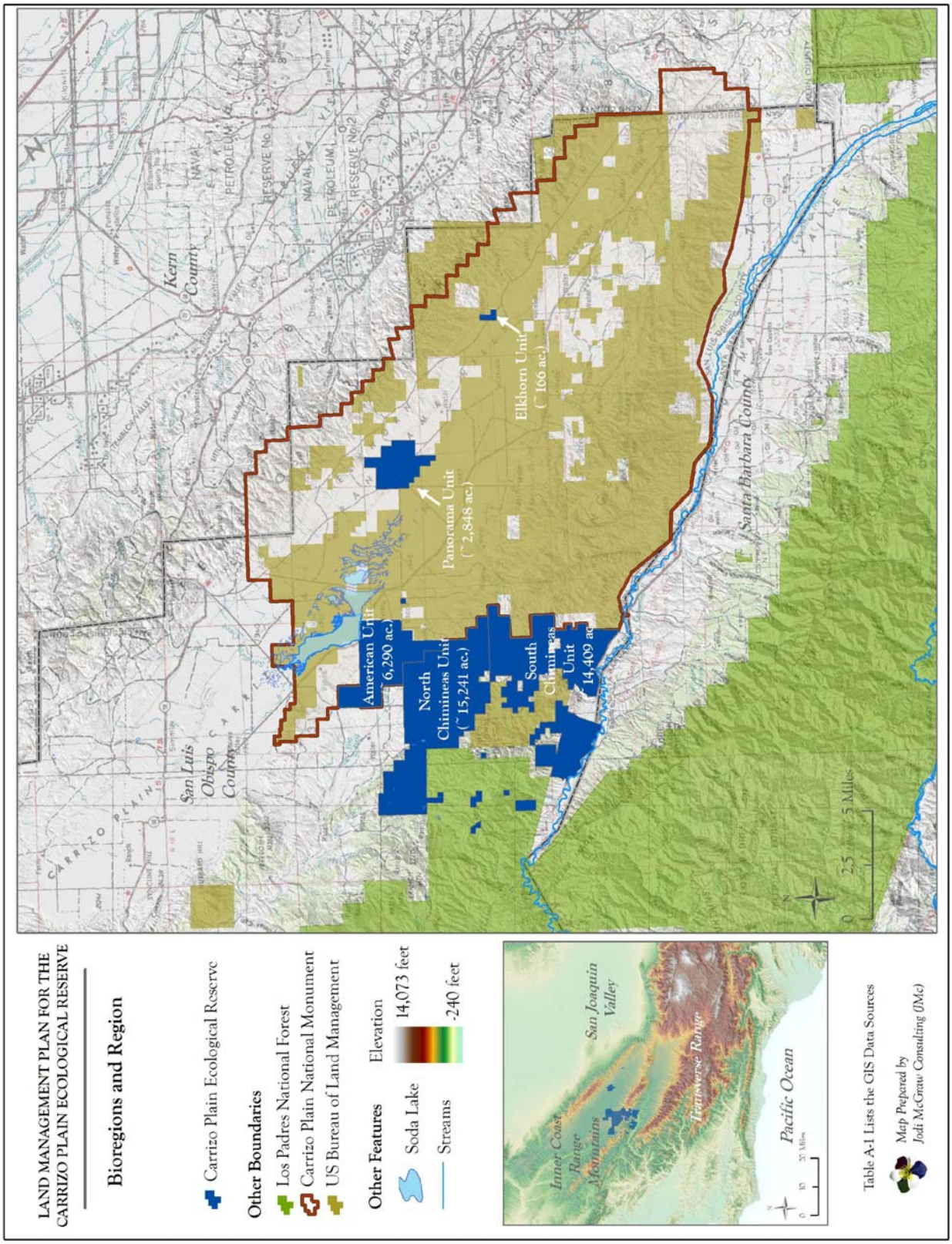

Figure 3 – Management Units of the CPER In Relation To USGS 7.5 Minute Quadrangles (Table 1)

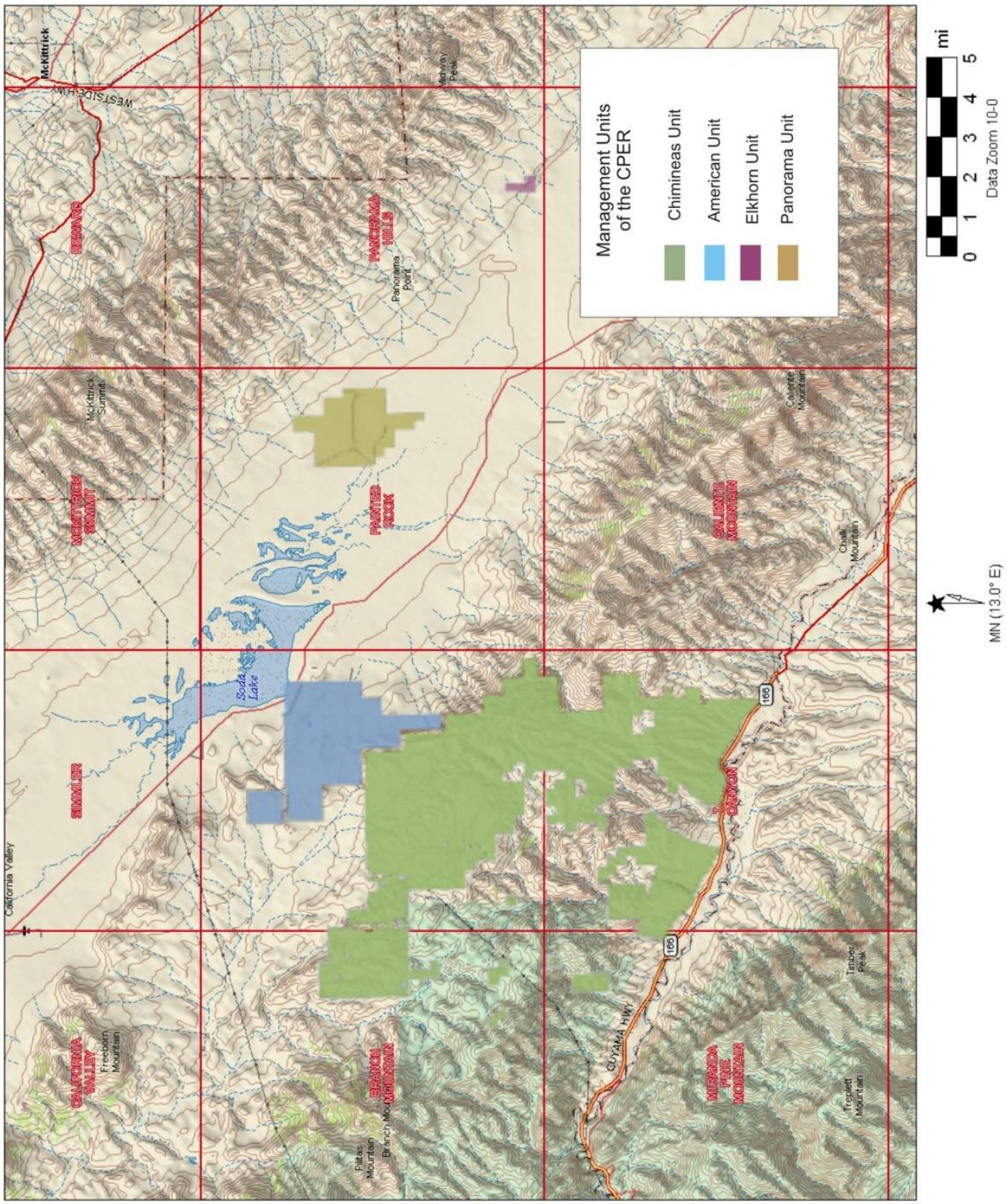

Table 1 -- Location of the CPER With Respect to USGS Quadrangles

Unit	Quadrangle	Base and Meridian	Township	Range	Section(s)
Elkhorn	Panorama Hills	Mount Diablo	32S	22E	20
Panorama	Panorama Hills	Mount Diablo	31S	21E	20, 28, 29, 32 & 33
	Panorama Hills	Mount Diablo	32S	21E	5
	Painted Rock	Mount Diablo	31S	21E	30 & 31
American	Chimineas Ranch	Mount Diablo	31S	19E	16,21-27,35 & 36
	Chimineas Ranch	Mount Diablo	32S	19E	2
	Painted Rock	Mount Diablo	31S	20E	31
Chimineas Units	Branch Mountain	Mount Diablo	31S	18E	22,26,27,34,&35
	Branch Mountain	Mount Diablo	32S	18E	3,14,15,16,22,& 23
	Chimineas Ranch	Mount Diablo	31S	18E	25 & 26
	Chimineas Ranch	Mount Diablo	31S	19E	31-34
	Chimineas Ranch	Mount Diablo	32S	18E	13
	Chimineas Ranch	Mount Diablo	32S	19E	2-11,13-18,& 20-24
	Miranda Pine Mountain	San Bernardino	12N	30W	25 & 26
	Miranda Pine Mountain	Mount Diablo	32S	18E	27
	Painted Rock	Mount Diablo	32S	20E	19
	Taylor Canyon	San Bernardino	11N	28W	5 & 6
	Taylor Canyon	San Bernardino	11N	29W	1 & 2
	Taylor Canyon	San Bernardino	12N	28W	31 & 32
	Taylor Canyon	San Bernardino	12N	29W	33-36
	Taylor Canyon	Mount Diablo	32S	18E	25 & 36
	Taylor Canyon	Mount Diablo	32S	19E	26-36

Initial Study of Environmental Impact

Land Management Plan
for the
Carrizo Plain Ecological Reserve

Prepared By:

California Department of Fish and Game

November 20, 2012

Contents

Tables

Figures

Initial Study of Environmental Impact

Title and Short Description of Project: Land Management Plan for the Carrizo Plain Ecological Reserve ("CPER" or "Reserve"). The California Department of Fish and Game ("Department") proposes to adopt a land management plan for the Carrizo Plan Ecological Reserve to guide the planning and operation of the Reserve in accordance with the requirements of Section 1580 of the California Fish and Game Code. The purpose of the land management plan (LMP) is to:

- Guide the management of habitats, species, and programs described in the LMP to achieve the Department's mission to protect and enhance wildlife values;
- Serve as a guide for appropriate public uses of the CPER;
- Serve as a descriptive inventory of fish, wildlife, and native plant habitats that occur on, or use, the CPER;
- Provide an overview of the Reserve's operation and maintenance and of the personnel requirements associated with implementing management goals and
- Present the environmental documentation necessary for compliance with state and federal statutes and regulations, provide a description of potential and actual environmental impacts that may occur during plan implementation, and identify mitigation measures to avoid or lessen these impacts.

Location of Project: The CPER is an approximately 39,500-acre area located within, and adjacent to, the Carrizo Plain (Figure 2) — a large inland valley within the Inner Coast Range Mountains in southeastern San Luis Obispo County, central California.

Project Proponent: California Department of Fish and Game
Central Region
1234 E. Shaw Avenue
Fresno, CA 93710

Project Information	
1. Project Title:	Land Management Plan for the Carrizo Plain Ecological Reserve
2. Lead Agency Name and Address:	Department of Fish and Game Central Region Attn: Regional Manager 1234 E. Shaw Ave. Fresno, CA 93710
3. Contact Person and Phone Number:	Bob Stafford, Environmental Scientist California Dept. of Fish and Game P.O. Box 6360 Los Osos, CA 93412 805.528.8670
4. Project Location:	The Carrizo Plain Ecological Reserve is located within and immediately west of the Carrizo Plain—a large inland valley within the Inner Coast Range Mountains in southeastern San Luis Obispo County, central California. The approximately 50-mile long, 15-mile wide Carrizo Plain is bounded by the Temblor Range to the east and the Caliente Range to the west, while the Transverse Range separates the Carrizo Plain region from southern California. (Figure 2) The CPER is located within Ranges 18E-22E of Townships 31S and 32S of the Mount Diablo Base and Meridian, and Ranges 28W-30W of Townships S11N and S12N of the San Bernardino Base and Meridian, which occur within six United States Geological Survey (USGS) 7.5 minute quadrangles (Table 1).
5. Project Sponsor's Name and Address:	California Department of Fish and Game 1234 E. Shaw Avenue Fresno, CA 93710
6. General Plan Designation(s):	Recreation, Rural Lands
7. Zoning:	Recreation, Rural Lands

8. Description of Project: (Describe the whole action involved, including, but not limited to later phases of the project, and any secondary, support, or off-site features necessary for its implementation. Attach additional sheets if necessary.)	Adoption of a Land Management Plan (LMP) in accordance with Section 1580 of the California Fish and Game Code. See project description below.
9. Surrounding Land Uses and Setting: (Briefly describe the project's surroundings)	The CPER occurs within a rural region characterized primarily by large tracts of public land and medium to large private land holdings utilized primarily for cattle grazing and dry land farming (Figure 3). Rural communities in the region include California Valley in the north, with approximately 300 residents, and New Cuyama in the south, where approximately 500 people reside (2000 US Census).
10. Other public agencies whose approval is required: (e.g., permits, financing approval, or participation agreement)	None.

Environmental Factors Potentially Affected

☒	Aesthetics	☒	Agricultural Resources	☒	Air Quality
☒	Biological Resources	☒	Cultural Resources	☒	Geology/Soils
☒	Hazards & Hazardous Materials	☒	Hydrology/Water Quality	☒	Land Use/Planning
☐	Mineral Resources	☒	Noise	☐	Population/Housing
☒	Public Services	☒	Recreation	☒	Transportation/Traffic
☒	Utilities/Service Systems	☒	Mandatory Findings of Significance	☐	None

Table 1 -- Location of the CPER With Respect to USGS Quadrangles

Unit	Quadrangle	Base and Meridian	Township	Range	Section(s)
Elkhorn	Panorama Hills	Mount Diablo	32S	22E	20
Panorama	Panorama Hills	Mount Diablo	31S	21E	20, 28, 29, 32 & 33
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	Taylor Canyon	San Bernardino	12N	29W	33-36
	Taylor Canyon	Mount Diablo	32S	18E	25 & 36
	Taylor Canyon	Mount Diablo	32S	19E	26-36

Determination

(To be completed by the Lead Agency)

On the basis of this initial evaluation:

I find that the proposed project **COULD NOT** have a significant effect on the environment, and a **NEGATIVE DECLARATION** will be prepared. ☐

I find that although the proposed project **COULD** have a significant effect on the environment, there **WILL NOT** be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. **A MITIGATED NEGATIVE DECLARATION** will be prepared. ☐

I find that the proposed project **MAY** have a significant effect on the environment, and an **ENVIRONMENTAL IMPACT REPORT** is required. ☐

I find that the proposed project **MAY** have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An **ENVIRONMENTAL IMPACT REPORT** is required, but it must analyze only the effects that remain to be addressed. ☒

I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier **EIR** or **NEGATIVE DECLARATION** pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier **EIR** or **NEGATIVE DECLARATION**, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required. ☐

_____ _____

Signature Date

_____ _____

Printed Name Title

_____

Agency

Discussion Of Potential Impacts

1. A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).

2. All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.

3. Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.

4. "Negative Declaration: Less Than Significant With Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less-Than-Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less-than-significant level (mitigation measures from "Earlier Analyses," as described in (5) below, may be cross-referenced).

5. Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063(c)(3)(D). In this case, a brief discussion should identify the following:

6. Earlier Analysis Used. Identify and state where they are available for review.

7. Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.

8. Mitigation Measures. For effects that are "Less than Significant with Mitigation Measures Incorporated," describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.

9. Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.

10. Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.

11. This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.

12. The explanation of each issue should identify: the significance criteria or threshold, if any, used to evaluate each question; and the mitigation measure identified, if any, to reduce the impact to less than significance.

Introduction

This initial study ("IS") was prepared in accordance with the provisions of the California Environmental Quality Act ("CEQA") and the State CEQA Guidelines to identify and evaluate the potential environmental impacts associated with adoption of a Land Management Plan ("LMP") for the Carrizo Plain Ecological Reserve ("CPER" or "Reserve"). The CPER is an approximately 39,500-acre area managed by the California Department of Fish and Game ("Department") to protect threatened and endangered plants and animals and the important ecological communities found on the property in southeastern San Luis Obispo County (Figures 1 and 2). The CPER supports a rich mosaic of ecological communities including blue oak woodlands, coastal scrub, chaparral, grasslands, juniper woodland, desert scrub, riparian systems, and ponds. Together, these communities support a high diversity of plants and animals. To date, 535 plant and 283 animal species have been documented on the CPER, including 57 species considered endangered, threatened, sensitive, or fully protected by the Department or US Fish and Wildlife Service ("USFWS"). Limited public recreation, largely in the form of hunting and wildlife viewing, occurs to varying extents throughout the CPER.

According to the Department's *CEQA Project Documentation Procedures for Department Initiated Projects* ("CEQA Procedures") (Title 14, Subdivision 3, Chapter 4, Article 2, beginning with Section 754), the purposes of an Initial Study are to:

1. Identify environmental impacts;
2. Enable modification of a project, mitigating adverse impacts before an EIR is written:
3. Focus an EIR, if one is required, on potentially significant environmental effects;
4. Facilitate environmental assessment early in the design of a project;
5. Provide documentation of the factual basis for the finding in a Negative Declaration that a project will not have a significant effect on the environment;
6. Eliminate unnecessary EIRs.

The Department's CEQA Procedures further state:

> *If a project for which Fish and Game has assumed the role of Lead Agency is subject to the requirements of CEQA, and not found to be exempt, the lead unit shall conduct an Initial Study to determine if the project may have a significant effect on the environment unless the lead unit can determine that the project will clearly have a significant effect.*
>
> *If any aspects of the project, either individually or cumulatively, may cause a significant effect on the environment, regardless of whether the overall effect of the project is adverse or beneficial, then an EIR must be prepared.*

Figure 1 – General Vicinity Map

Figure 2 – CPER and Vicinity

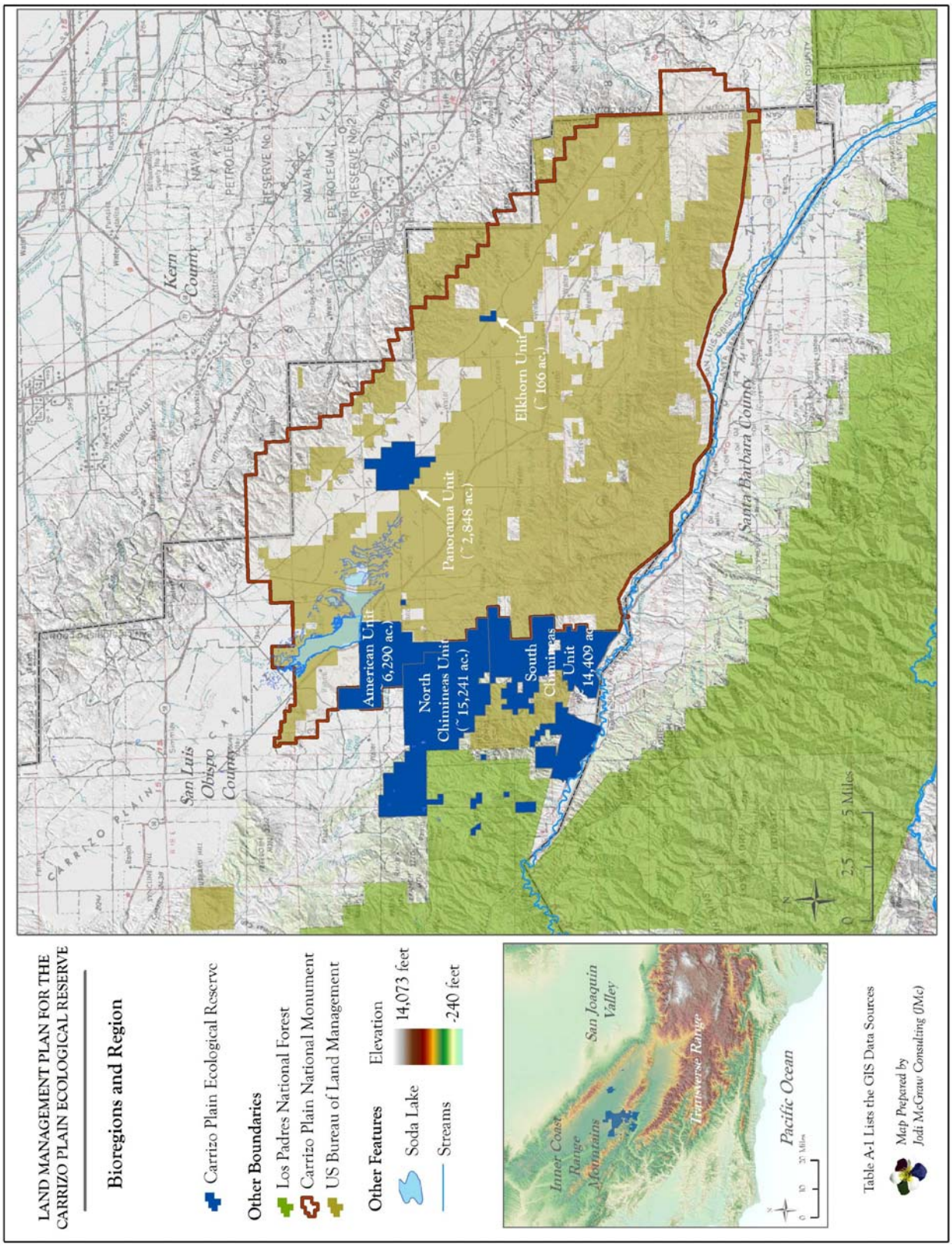
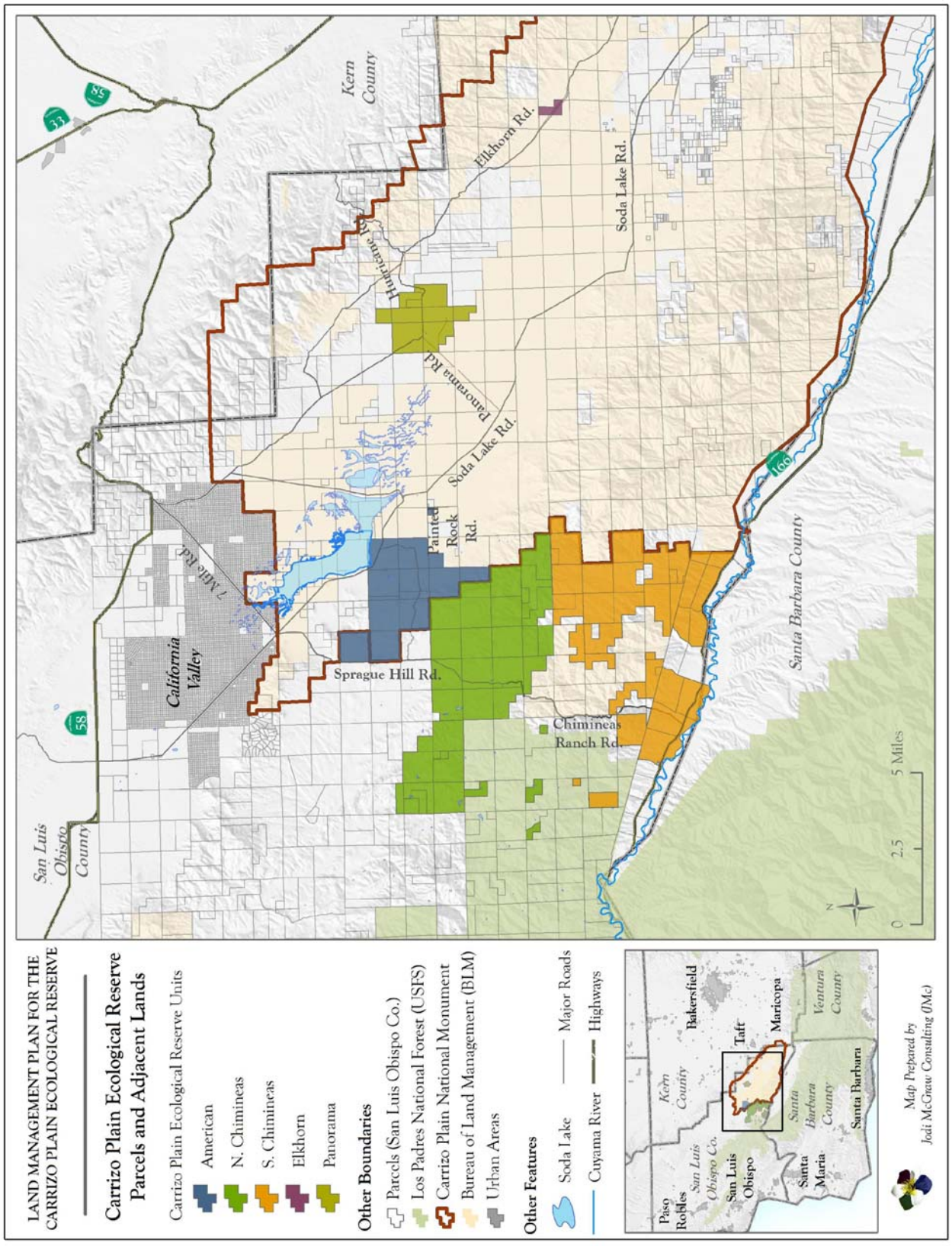


Figure 3 – Management Units of the CPER



Management actions that may result from adoption of the LMP were anticipated and potential accompanying impacts were analyzed in this Initial Study. The analysis concludes that approval and implementation of the draft LMP may have the potential to result in one or more significant adverse impacts to the environment. Accordingly, an Environmental Impact Report ("EIR") will be prepared as required by Section 15063 (b)(1) of the State CEQA Guidelines ("Guidelines"). Section 15004(b) of the Guidelines further states:

> *(b) Choosing the precise time for CEQA compliance involves a balancing of competing factors. EIRs and negative declarations should be prepared as early as feasible in the planning process to enable environmental considerations to influence project program and design and yet late enough to provide meaningful information for environmental assessment.*
>
> > *(1) With public projects, at the earliest feasible time, project sponsors shall incorporate environmental considerations into project conceptualization, design, and planning.*

In accordance with the direction provided by Guidelines Section 15004, above, the EIR will be prepared concurrently with development of the LMP so that impact minimization measures are incorporated wherever possible to ensure planned actions described in the LMP, including those to be implemented in the future, will not result in significant environmental impacts. However, some actions described in the LMP may require additional CEQA analysis and documentation once the specific project details are known. All projects not specifically analyzed in the EIR and that may be implemented in the future as a result of adoption of the LMP must be subjected to CEQA review according to CEQA Guidelines Section 15168 to determine if additional CEQA documentation is necessary. The type of additional CEQA documentation completed would be determined based on CEQA Guidelines Sections 15162–15164.

Project Description and Setting

Project Location

The CPER is located within, and immediately west of, the Carrizo Plain—a large inland valley within the Inner Coast Range Mountains in southeastern San Luis Obispo County, central California. The approximately 50-mile-long, 15-mile-wide Carrizo Plain is bounded by the Temblor Range to the east and the Caliente Range to the west, while the Transverse Range separates the Carrizo Plain region from southern California. Approximately half of the CPER is located within the Carrizo Plain and adjacent Caliente Range. The other half of the reserve is located to the west along the eastern boundary of the La Panza Range and Cuyama Valley (Figure 2) .

The CPER is situated at the nexus of two of California's biogeographic regions which have been identified based largely on patterns of floristic diversity and community structure (Hickman 1993). The Elkhorn and Panorama units are located within the Carrizo Plain—a western extension of the San Joaquin Valley bioregion which supports grasslands and saltbush scrub communities (Figure 3). As a result of the rain shadow

created by the Coast Range Mountains to the west, the arid Carrizo Plain and larger San Joaquin Valley Bioregion feature elements of the Mojave Desert Bioregion, which is located just 50 miles to the east. On the western portion of the Reserve, higher rainfall within the southern La Panza Range Mountains supports coastal scrub, chaparral, and blue oak woodlands characteristic of the South Inner Coast Range Bioregion, which reflect the Reserve's location within 35 air miles of the Pacific Ocean. Located between these coastal and desert influences, the Caliente Range on the east side of the Chimineas Unit supports a unique mosaic of assemblages including desert scrub and juniper woodlands.

The CPER links federal land managed as part of the two-million-acre Los Padres National Forest, to the west, and public lands within the 250,000-acre Carrizo Plain National Monument (CPNM) to the east, which are managed by the Bureau of Land Management (BLM) in cooperation with the Department of Fish and Game and The Nature Conservancy. Lands within the CPER have been identified as part of an essential landscape linkage connecting the Coast Range Mountains to the San Joaquin Valley.

Regional access to the CPER is provided by State Route 166 which crosses the southerly portion of the Reserve and provides public access to the South Chimineas Unit via Chimineas Ranch Road, which is 36 miles east of Santa Maria (~100,000 inhabitants based on census bureau 2010 census data) in Santa Barbara County, and 50 miles west of Taft (~9,300 inhabitants) in Kern County. SR 58 traverses the northern portion of the Carrizo Plain and provides access to the Reserve, from the north from areas from SR 101 in San Luis Obispo County and Highway 5 in Kern County (Figure 3).

County roads provide the primary local access to the CPER. The main access route bringing visitors to the Carrizo Plain, Soda Lake Road connects SR 58 near California Valley to SR 166 just west of Maricopa. Soda Lake Road traverses the western portion of the Carrizo Plain and the northeast portion of the American Unit. This road provides access to the Department's Painted Rock Ranch via Painted Rock Ranch Road. From Soda Lake Road, the North Chimineas Unit and the western portion of the American Unit can be accessed via Sprague Hill Road.

On the eastern side of Carrizo Plain, Elkhorn Road, which traverses the foothills of the Temblor Range, provides access to the Elkhorn Unit from SR 58 to the north and State SR 166 from the south. Elkhorn Road also provides access to the eastern portion of the Panorama Unit, which can also be reached from Soda Lake Road to the west via Panorama Road.

A series of smaller roads developed for use as part of the historic ranching operations on the Reserve lands provide additional access for official use, with access limited by locked gates.

Management Units of the CPER

The CPER consists of five management units (Figures 2 and 3). The two smaller units, Elkhorn (160 acres) and Panorama (2,897 acres), are situated within the Carrizo Plain. The American Unit (6,341 acres) is in the northern foothills of the Caliente Range. The North Chimineas Unit (15,241 acres) borders the American Unit and extends southwest over the Caliente Range, and then west towards the base of the La Panza Range. Most of this unit drains into the San Juan River system. The South Chimineas Unit (14,409 acres) extends north from the Cuyama River, which separates Santa Barbara and San Luis Obispo counties, to the southern edge of the North Chimineas Unit (Figure 3).

Elkhorn Unit

The Elkhorn Unit is the easternmost unit of the Reserve, situated on relatively flat ground in the Elkhorn Plain at approximately 2,300 feet elevation (Figure 2). The hills of the Elkhorn Scarp lie to the southwest and the foothills of the Temblor Range are to the northeast; the northern part of the unit slopes gradually to the southwest. It is flat with the exception of two approximately 10 foot deep channels carved by ephemeral drainages that converge just south west of Elkhorn Road. Precipitation is sparse and this unit is expected to receive an average of 9 inches of annual rainfall (Oregon Climate Service 1998).

Panorama Unit

The Panorama Unit is bordered by CPNM lands along its southwestern boundary and its northernmost edge (Figure 2), while on its northwest and southeast sides, the unit abuts private land used primarily for cattle grazing. Elevations range from approximately 1,900 to 2,300 feet above sea level. This unit is relatively flat except where it is bisected by the San Andreas Fault. This unit is also very dry with annual precipitation predicted to be between 7 and 9 inches (Oregon Climate Service 1998).

American Unit

The American Unit is approximately seven miles due west of the Panorama Unit across the Carrizo Plain. The northeastern portion of the unit lies on the plain itself and includes southern parts of Soda Lake (Figure 2). Much of the remainder of the unit features the rolling foothills of the Caliente Range. Elevations range from roughly 1,900 feet within Soda Lake to 2,700 feet near the unit's southernmost edge where it adjoins the North Chimineas Unit. The American Unit also features the disjunct 40-acre Painted Rock Ranch parcel: this is an area of flat terrain that is located one mile to the east on the Carrizo Plain at 1,960 ft elevation. Average rainfall for this unit is between 9 to 11 inches (Oregon Climate Service 1998).

The northern and eastern edges of the American Unit are bordered by federal lands managed by the BLM as part of the CPNM while the western edge abuts two private ranches both of which are used primarily for cattle grazing. These same ranches border the North Chimineas Unit.

South Chimineas Unit

The South Chimineas Unit is the Reserve's southernmost unit and borders the North Chimineas Unit. From this shared edge, it extends south along the western slopes of the Caliente Range and down to the Cuyama River, which defines the unit's southern extent (Figure 2). The terrain of the South Chimineas Unit is generally steep and rugged. Elevations range from over 3,500 feet just south of the summit of Saltos Peak to approximately 1,500 feet along the Cuyama River . Average annual rainfall for this unit was estimated to be approximately 11 inches (Oregon Climate Service 1998).

The eastern boundary of the South Chimineas Unit borders the CPNM managed by BLM. The western boundary abuts federal lands managed by either BLM or the U.S. Forest Service (USFS) as part of the Los Padres National Forest. The southern portion of the South Chimineas Unit is adjacent to private land. This includes an approximately 160-acre private inholding which is surrounded by CPER. Immediately south of the Chimineas Unit are six private ranches ranging in size from 7 to over 1,760 acres. SR 166, which has been the source of three wildfires on the Reserve over the past 10 years, splits the southern end of this unit.

North Chimineas Unit

The North Chimineas Unit extends from the northern end of the Caliente Range to the eastern edge of the La Panza Range. It is bordered by the American Unit to the east/northeast and to the south by the South Chimineas Unit, BLM lands, and the Los Padres National Forest (Figure 3). Three private ranches border this unit to the north. Elevations range from 3,623 feet on Saltos Peak in the Caliente Range to just over 2,000 feet in the San Juan Creek drainage. Precipitation is higher and topography is less extreme compared to the South Chimineas Unit. An average range of between 9 and 13 inches of precipitation is expected to fall on this each year (Oregon Climate Service 1998).

Adjacent Federal Lands

As previously stated, the CPER borders Federal lands managed by both the USFS and BLM. In addition, approximately 812 acres of the CPER are surrounded by USFS lands and within the boundary of the Los Padres National Forest. The USFS management mission is "to sustain the health, diversity, and productivity of the nation's forest and grasslands to meet the needs of present and future generations." Management goals include "protecting and enhancing watersheds, providing world-class recreation and wilderness opportunities, and promoting use of the forest as a 'living laboratory' for ecological diversity and scientific research" (USFS 2010).

Depending upon location, the adjacent lands owned by BLM are managed based on the priorities established in the associated Resource Management Plans (RMP). Lands designated within the boundaries of the CPNM are managed under the guidance of the Resource Management Plan for the Carrizo Plain National Monument (BLM 2009). The Department as well as The Nature Conservancy (TNC) are considered managing partners for the CPNM and both partners were intimately involved in the development of the CPNM RMP. While not legally bound to the management actions described in the

CPNM RMP, the Department has worked to manage the CPER units within the CPNM boundary (Elkhorn, Panorama, and most of the American) under the general guidance of the CPNM RMP. BLM lands outside of the boundaries of the CPNM are managed under the guidance of the Caliente Resource Management Plan (BLM 1997).

Cattle grazing operations include both the lands of the CPER as well as grazing allotments on adjacent federal lands. These include the approximately 12,000-acre Chimineas Allotment managed by the USFS, and two allotments managed by the BLM: the 3,914-acre North Chimineas allotment and the 4,386-acre Chimineas South allotment. Cattle grazing under these leases has been, and are currently, used to conduct vegetation management on the Chimineas units of the CPER.

Project Purpose and Objectives

Land within the CPER was acquired by the Department of Fish and Game and designated as an ecological reserve to "*protect threatened or endangered native plants, wildlife, or aquatic organisms or specialized habitat types, both terrestrial and nonmarine aquatic, or large heterogeneous natural gene pools for the future use of mankind*" (§1580 of the Fish and Game Code). Generally speaking, the CPER acquisitions were designed to protect threatened and endangered species, and upland and grassland habitats. Specific objectives of protecting and managing the lands within the CPER included:

- Protecting habitat required by the state- and federally-listed species of the San Joaquin Valley upland habitats, including San Joaquin kit fox, giant kangaroo rat, blunt-nosed leopard lizard, San Joaquin antelope squirrel, San Joaquin woolly-threads and others occurring in the region, including sandhill crane, and California condor.

- Preserving intact biological communities in the region including grassland, blue oak woodland, coastal scrub, chaparral, and desert scrub, which provide important habitat for numerous other special status species including burrowing owl, Pacific pond turtle, California red-legged frog , grasshopper sparrow, short-eared owl, mountain plover, and tri-colored blackbird.

- Protecting habitat utilized by tule elk and pronghorn, which the Department reintroduced to the region during the mid-1980s;

- Maintaining habitat connectivity between the federal land within the Los Padres National Forest and the Carrizo Plain National Monument;

- Providing limited, high-quality, wildlife-dependent recreational opportunities that are compatible with the biological resource protection objectives including hunting, wildlife observation, and hiking; and

- Providing interpretive and educational programs for the natural history of the region, which is a replica of the San Joaquin Valley prior to its widespread settlement.

The purpose of the draft LMP is to set forth the goals, objectives, and actions for management of the Department's lands within the Carrizo Plain Ecological Reserve consistent with the requirements of Section 1580 of the California Fish and Game Code. The primary objective of the LMP is to protect the natural habitats that contribute to, and help sustain, the overall ecosystem health of the region. The specific purposes of the Carrizo Plain Ecological Reserve LMP are:

- To guide the adaptive management of habitats, species, and programs described herein to achieve the department's mission to protect and enhance wildlife diversity values.

- To serve as a guide for appropriate public uses of the property.

- To serve as a descriptive inventory of fish, wildlife and native plant habitats which occur on or use this property.

- To provide an overview of the property's operation and maintenance, and personnel requirements to implement management goals.

- To provide a description of potential and actual environmental impacts and subsequent mitigation which may occur during management, and to provide environmental documentation to comply with state and federal statutes and regulations.

Organization of the Land Management Plan

The draft LMP will be organized as follows:

Section 1 – Introduction. Section 1 will provide a description of the current conditions and land use, which were evaluated in development of the plan, as well as the purpose of the Land Management Plan.

Section 2 – Property Description. Section 2 will discuss the abiotic (non-biological) conditions, including geology, hydrology, historic land use, cultural resources, infrastructure, and current uses of the Reserve lands.

Section 3 – Habitat and Species Description. Section 3 will discuss in detail the biological resources of the Reserve including the plant communities (i.e. vegetation), common animal species and special status species.

Section 4 – Management Goals and Environmental Impacts. This section will provide the detailed management goals for the Reserve, including the steps that

will be taken to manage the biological resources, while providing for compatible public uses and maintaining the facilities.

Section 5 -- Operations and Maintenance Summary – Section 5 will describe the resources that are required to implement the plan, including both staff time and outside costs, designed to guide work plans and budgeting for the Reserve.

References and Appendices – The references will list documents and other sources of information used to prepare the plan. The appendices will provide detailed information including plant and animal lists, a discussion of public input that informed development of the plan, and the environmental impact report (EIR).

As discussed above, the draft LMP will identify the goals and actions for management of the CPER, which are broadly designed to manage and enhance biological resources while providing for wildlife-dependent public use. Management is outlined in three hierarchical levels: elements, goals, and tasks. The elements are the management categories or considerations; the goals identify the conditions management is designed to achieve; and tasks are the steps that will be taken to attain the goals.

The management goals and actions will include the following topical elements:

- Biological Elements: These elements consist of species, habitats, or landscapes for which specific management goals have been developed within the plan.
- Scientific Research, Monitoring, and Adaptive Management Elements: These elements describe how scientific research and monitoring can be used as part of an adaptive management framework to promote long-term effectiveness of management at attaining the goals of the other elements.
- Vegetation Management Elements: These elements identify how fire management, managed grazing, and exotic plant management, can be used to maintain or enhance the condition of the vegetation to attain the biological goals of the plan.
- Public Use Elements: Public use elements are any recreational, scientific, or other public use activity appropriate to and compatible with the purposes for which the property was acquired.
- Cultural Resources Elements: Cultural resource elements pertain to preservation of cultural resources.
- Facility Maintenance Elements: This is a general-purpose element describing the maintenance and administrative program, which helps maintain orderly and beneficial management of the area.
- Management and Monitoring Coordination Elements: These elements include activities related to the coordination of management and monitoring in adjacent and regional open space lands.

Management Strategies of the Draft LMP

The CPER will be managed through an adaptive management framework, in which monitoring is used to evaluate the effectiveness of management, which is then adjusted as necessary to enhance the ability to achieve the goals of the Plan. Through adaptive management, monitoring is used to increase understanding of the systems, which is needed to inform effective management. By applying habitat management as an explicit experiment, in which hypotheses about the system are tested by comparing (replicating) treated areas to untreated areas, active adaptive management can be used to learn by doing management (Walters and Holling 1990). In an adaptive management framework, scientific research and other new information are also used to update management actions. In addition, management is adjusted based on changes in conditions over time. The overall goal of management within the CPER is to maintain or enhance the biodiversity of the site and protect and recover populations of rare, endangered, threatened, or other special status species. The specific biological goals and actions are organized within elements that address three levels at which management is designed to achieve the overall goal:

> *Landscape*: maintain or promote diversity at the landscape level, by addressing the diversity of communities or habitats, and their context within the landscape, including their connectivity;
>
> > *Habitats*: maintain or enhance the structure and species composition of the various communities (i.e., vegetation types or communities)
> >
> > > *Species*: address specific management needs of species including rare and managed populations for which landscape and community-level management alone may not be sufficient.

Since the Department's current management objectives are ecosystem or multi-species oriented (DFG 2007), the goals emphasize a habitat approach to management.

To achieve the biological goals outlined above, the elements of the draft LMP will set forth an integrated adaptive management approach focusing on the following management tools:

Vegetation Management Using Fire and Grazing

Fire promotes establishment of many plants and creates and maintains habitat required by many animals. Fire can also have deleterious effects, particularly in systems where frequent fire is not a part of the disturbance regime, such that vegetation management is required to protect these communities from fire.

Within the CPER, fire plays an important role in creating the diverse mosaic of communities of various successional (seral) stages, and thus greatly contributes to the Reserve's native species diversity. Fire is a major component of the natural disturbance regime of many of the Reserve's communities, including the chaparral and oak woodlands, and creates and maintains habitat for many native species, including mule

deer. As a result, fire can be an effective landscape-level vegetation management tool for attaining the biological goals of the Reserve.

At the same time, several of the Reserve's plant communities (e.g. juniper woodland) and species, can be harmed by fire. Even in fire-adapted communities, fire can promote the invasion and spread of non-native plants, which can in turn facilitate too-frequent fires that has the potential to convert shrublands and woodlands. Unnatural fire ignitions associated with human activities, particularly along SR 166 and other roads, may be negatively impacting the biological systems, cultural resources, and facilities of the Reserve, as well as threatening public safety and property.

Due to the proximity to human development, and thus posing a threat to lives and property, fire protection agencies responsible for land within the CPER will likely continue to actively suppress wildfires. Given the complex nature of the landscape-scale process and the uncertainties regarding fire effects, adaptive management will be essential to the effective use of fire to attain the goals for the Reserve. Prescribed fires on the Reserve will be guided by project specific burn plans developed based on the biological and vegetation management goals outlined in the LMP, by biologists and fire practitioners familiar with regional experience, and in coordination with fire protection agencies and with input from adjacent landowners.

Like fire, managed livestock grazing is an important landscape-scale vegetation management tool for attaining the biological goals for the Reserve. Ungulate grazing is an important natural process in grassland ecosystems (McNauthon et al. 1989), and is well-recognized as an effective tool in herbaceous-dominated communities, including grasslands and oak woodlands, to manipulate plant community structure and species composition, decrease fuels and reduce the risk of fire, control exotic plant species, and create and maintain habitat for native animals (Huntsinger et al. 2007). When managed improperly, grazing can also harm biological systems, degrade water quality, and cause soil erosion and loss (Painter and Belksy 1993, Fleischner 1994, Freilich et al 2003).

As outlined in the respective habitat elements and described in greater detail in the habitat descriptions, grazing management within the CPER will be used to create and maintain areas of short-structured grassland required by several native species, enhance native plant cover and richness in grasslands, blue oak woodlands, and coastal scrub, and control non-native herbaceous plant species to reduce their competitive effects on native plants and the potential for type conversion of shrublands to grassland via the grass-fire cycle. The Department currently uses grazing management within the Chimineas units of the CPER to maintain habitat conditions required by, or conducive to, several focal management species, including those that require short-statured grasslands. As with other components of vegetation management, managed grazing will be conducted within an adaptive management framework based on the goals outlined in the LMP.

Removal and Control of Exotic and Invasive Species

Exotic plants negatively impact the Reserve through a variety of mechanisms including by outcompeting native plants, changing the structure of the communities and degrading habitat for native animals, altering the hydrology of ponds and streams, and promoting fire in non-fire adapted systems. As elsewhere, the invasion and spread of non-native species is ongoing and new, potentially more detrimental, species will likely invade the Reserve during the period of management covered by the draft LMP.

The draft LMP will include the development of exotic plant management strategies in consideration of the ecology of the exotic species (or guilds of species, such as annual grasses) and the systems in which they occur. Given the size of the Reserve and the current extent of exotic species, their occurrence within sensitive habitat supporting special status species, their response to disturbance including fire, and their ability to spread from adjacent properties, exotic plant management will be strategic and conducted in coordination with other vegetation management components and, where feasible, adjacent landowners. As with other aspects of management, exotic plant management will be conducted within an adaptive management framework to enhance long-term effectiveness.

Research and Monitoring

Much scientific research has been conducted on the biological systems and species found within the Reserve, including some studies conducted on site or in the Carrizo Plain region. This body of research forms the cornerstone of the adaptive management strategies to be utilized in managing the resources of the CPER. However, future monitoring and research will be necessary to close the loop on the adaptive management process and to determine the effectiveness of various management actions. Studies conducted by academic and other research institutions can help bridge the gap between the list of desired studies to inform management and the Department's resources for monitoring.

Specific Actions of the LMP

The following is a summary of actions that may be proposed in the LMP. The summary is provided by topical element as a way to better understand the project. The overall objective will be to maintain the existing biodiversity of the CPER over the life of the LMP.

Biological Elements

The LMP will base management objectives on maintaining and enhancing the biological resources in eight different coarse-scale vegetation types:

- grassland
- oak woodland
- juniper woodland
- coastal scrub
- chaparral

- desert scrub
- riparian, and
- wetlands/ponds.

A list of focal species to be monitored will be developed for the above vegetation types. Species chosen for these monitoring efforts will meet the following criteria:

1. are characteristic of the vegetation type,
2. reflect overall habitat conditions in that vegetation type
3. have a sufficient population size for monitoring; and
4. can be effectively and efficiently monitored over the life of the LMP

The LMP will propose that wildlife water sources be maintained or established within every square mile around the western units (North Chimineas, South Chimineas, American). Many water sources already exist in the form of springs, creeks, ponds, and water troughs.

Scientific Research, Monitoring, and Adaptive Management Elements
These elements describe how scientific research and monitoring can be used as part of an adaptive management framework to promote long-term effectiveness of management at attaining the goals of the other elements.

Overall, perennial, woody vegetation can be monitored at 10 year intervals via satellite imagery. However, this type of monitoring alone may not reflect the health of each system. Therefore, monitoring of focal species as indicators of habitat quality will be necessary. The preliminary list of focal species being considered for monitoring in each vegetation type includes:

Grasslands – Giant kangaroo rat, San Joaquin kit fox, burrowing owl, showy madia, and San Joaquin woolly-threads for short-statured grasslands; and tule elk and grasshopper sparrow for tall-statured grasslands.

Coastal Scrub – Blainville's horned lizard, Lemmon's jewelflower, La Panza mariposa lily, Costa's hummingbird

Desert Scrub – Pale yellow layia, blunt-nosed leopard lizard, LeConte's thrasher

Chaparral – Wrentit, California thrasher, western spotted skunk

Juniper Woodland – Long-eared owl, phainopepla, Bewick's wren

Oak Woodland – Mule deer, lark sparrow, yellow-billed magpie, blue oak recruitment

Riparian – Yellow warbler, red bat

Ponds/Wetlands – Pacific pond turtle, western spadefoot toad, tricolored blackbird, Yuma myotis

Vegetation Management

These elements identify how fire management, mechanical vegetation treatments, managed grazing, and exotic plant management may be used to maintain or enhance the condition of the vegetation to attain the biological goals of the plan.

Fire, and mechanical vegetation management treatments which mimic the beneficial effects of fire, may be used to increase the diversity of successional stages of vegetation as well as to prevent catastrophic fires from destroying fire-sensitive communities such as juniper woodland and desert scrub. Potential prescribed burns will be guided towards the fire adapted chaparral communities, some of which have not burned in almost 100 years. The proposed goal will be to burn at least 625 acres of the chaparral community (~ 50 percent) over the next 25 years. This goal may be accomplished either by prescribed burn or wildfire. On the opposite end of the scale, the proposed goal for fire sensitive communities (desert scrub, juniper woodland) will be to prevent or limit the extent of wildfires.

Livestock grazing will be proposed on portions of the CPER to maintain or enhance biological resources by creating appropriate vegetative structure, limiting competition from non-native plants, and reducing fire hazards in non fire adapted communities. The proposed management strategies for the various vegetative communities are as follows:

Grasslands – Maintain between 3,000 and 5,000 acres of short-statured grasslands (less than or equal to 4") for giant kangaroo rat, San Joaquin kit fox, burrowing owl, blunt-nosed leopard lizard, mountain plover and other short grass dependant species. In areas where giant kangaroo rats are present (approximately 2,500 acres), use of livestock will not be necessary except under extreme circumstances (several back to back years of heavy rainfall, precipitous declines in giant kangaroo rat numbers). Maintain between 8,000 and 10,000 acres of tall grasslands (greater than or equal to 12") for tule elk, grasshopper sparrows, and other tall grass dependant species. The proposed management action in these areas will be to restrict livestock from these areas through existing fencing.

Oak Woodlands – Maintain current blue oak recruitment levels and the diversity of native plant species in the understory through light to moderate intensity livestock grazing. Future prescriptions may change if monitoring detects significant declines in blue oak recruitment levels.

Juniper Woodlands – Maintain a mosaic of herbaceous cover within the juniper woodlands to reduce the chances for stand replacing wildfires. Shorter herbaceous cover will be maintained by grazing 1,400 to 1,600 acres within the juniper woodlands. Taller annual vegetation will be maintained by restricting livestock grazing from 1,400 to 1,600 acres.

Desert Scrub – Maintain the extent of desert scrub by reducing the chances for stand-replacing fires, especially along SR 166 which is the primary ignition source for fires in this area. Allow periodic grazing on between 700 to 1,500 acres in this community (~33%) depending upon fuel loads. Restrict grazing from the remaining two-thirds of the desert scrub.

Coastal Scrub – Maintain a mosaic of herbaceous plant cover within this community to enhance overall biodiversity and to reduce the chances for stand replacing fire events. Livestock would be used to remove annual vegetation on between 2,000 to 3,000 acres while livestock would be restricted from between 2,000 to 3,000 acres.

Chaparral – Maintain a variety of successional stages within this community. This will primarily be accomplished through fire (see above).

Riparian – Enhance riparian vegetation by restricting livestock access to riparian systems. The primary activity associated with this action will be to install livestock fencing around the remaining unfenced riparian corridors.

Wetlands/Ponds – Enhance wetland/pond resources by maintaining and enhancing the physical conditions that promote the special status resources at each location. In most cases, this will entail restricting livestock use from an area. However, some ponds have specific resources (western spadefoot toad, several bat species, tricolored blackbird colonies) that benefit from the reduction of vegetation around the water source. If native species (tule elk) are not reducing the vegetation around these ponds, periodic livestock use may be necessary to maintain these conditions. Lastly, while livestock have been excluded from most of the ponds with Pacific pond turtles, the pond with the best pond turtle recruitment rates has been, and is currently, accessible to livestock. Monitoring of pond turtle populations will be used to inform future management strategies for this species.

The LMP will also propose to restore riparian habitats and portions of the previously tilled grasslands through native seeding/planting. The creation of up to 10 vernal pools may also be proposed in these areas.

The LMP will propose the use of herbicides to control or eliminate populations of invasive plants, particularly yellow-star thistle and tamarisk. All herbicide application will be conducted by licensed individuals in accordance with all applicable regulations.

Public Use

Public use elements are any recreational, scientific, or other public use activity appropriate to and compatible with the purposes for which the property was acquired. General public recreational access will continue to be directed towards restricted wildlife-dependant recreation (hunting, bird watching, nature study). Additional emphasis will be to encourage scientific research by universities and associated

entities. The primary proposed future activity will be to increase biological educational opportunities.

Cultural Resources
Cultural resource elements pertain to the preservation of cultural resources. The primary activities associated with this element will be conducting further assessments of cultural resources and restricting public access in the vicinity of these resources. Additional potential activities include capping of sites which are vulnerable to erosion and fencing of cultural sites from livestock.

Facility Maintenance
This is a general-purpose element describing the maintenance and administrative program, which helps maintain orderly and beneficial management of the area. Facility maintenance will include the upkeep of the various existing housing and educational facilities. It will also include maintaining the existing dirt road infrastructure, fences, water sources and distribution lines and power sources. No new roads are proposed. Regarding power, the proposed long-term goal will be for the CPER to use small scale, renewable energy for all of its electrical needs.

Management and Monitoring Coordination
These elements include activities related to the coordination of management and monitoring efforts in adjacent and regional open space lands. The proposed actions in the LMP will include continuing coordination with the managing partners of the CPNM, continuing resource monitoring on BLM and USFS lands and exchanging pertinent data with these agencies, coordinating monitoring efforts on newly acquired Department lands associated with the Topaz solar farm, and coordinating monitoring efforts with the owners of the Sunpower mitigation lands.

Environmental Baseline Conditions

The assessment of potential adverse environmental impacts provided in this initial study is based on environmental conditions existing within the CPER in November, 2012, consistent with Section 15125(a) of the State CEQA Guidelines and guidance provided by the Courts[1]. The baseline conditions are described in greater detail below.

Current and Previous Uses of the Management Units

Livestock grazing was the primary land use on land that currently comprises the CPER for over one hundred years. Cultivation of dryland crops was also practiced on the flatter portions of land within the Reserve. Aspects of livestock grazing have created and maintained habitat for many plants and animals, including several of the special-status species of the Reserve.

[1] In *Communities for a Better Environment v. South Coast Air Quality Management District* (No. S161190, March 15, 2010) the California Supreme Court ruled that the analytical baseline against which project effects are measured should generally be the physical conditions existing at the time of the analysis.

Chimineas Units

The North and South Chimineas Units of the CPER are part of a former cattle ranch (the Chimineas Ranch) which was acquired by the Department for purposes of establishing an Ecological Reserve in accordance with Title 14 California Code of Regulations and the California Fish and Game Code.

Land within much of the Chimineas units was operated as a cattle ranch for well over 100 years prior to acquisition by the Department. Federal property until 1883, land within the unit was part of a 20,000-acre purchase by J. H. Hollister and Frederick Adams that created the Chimineas Ranch, which was named for the remains of an old hearth and chimney located at the ranch headquarters (Mike Post pers com). By 1888 the Chimineas Adobe, which is part of the present-day Chimineas Unit Headquarters house, was erected. In the late 1800s, the Reis family acquired the Chimineas Ranch and held it until the 1930s, when it was purchased by Claude Arnold. The Arnold family expanded the ranch until 1972 when it was sold to the Robertson family from Texas. In 1999 the Robertson family sold the Chimineas Ranch to Dr. Neil Dow, who renovated the ranch house and operated the cattle ranch.

Livestock grazing has been one of the primary land uses on the Chimineas Ranch since at least the 1860s. Exact figures on the number of cattle using the ranch are unavailable for the early years. However, beginning in the 1940s and up until 1995, the base operation was reported to be between 1,000 and 1,200 cattle year round (Ross Nyswonger pers com). These estimates of the historic size of the base herd appear to be conservative since records for the entire 55,000 acre Chimineas Ranch and associated documents from the 1940s through 1970 indicate from 1,150 to “several thousand” head of cattle were kept on the ranch each year during this period (Mike Post pers com). Additionally, the ranch was advertised as being able to carry 1,500 cows on an average year when it sold in 1998. Most recently, the current lessee, Dr. Neil Dow, had a herd of around 600 animals prior to acquisition of the two portions of the ranch by the Department in 1999 and 2004

Since acquiring the Chimineas units beginning in 2002 (southern 14,314 acres) and 2004 (northern 15,882 acres), the Department has continued to graze those portions of the Chimineas units which were utilized by livestock at the time of DFG acquisition in order to maintain habitat conditions that support several rare and endangered species for which the property was acquired, including San Joaquin kit fox and burrowing owl. The Department has installed fences to exclude cattle from sensitive communities, including the riparian systems and ponds within the San Juan Creek drainage. The Department has also conducted a suite of other management activities to promote wildlife including installation of additional water sources (e.g. ponds and troughs) that support wildlife including tule elk and deer.

Grazing management within the CPER is designed to achieve many of the biological goals and objectives of the LMP, as described in a November 2011 lease agreement which was subject to environmental review and approved following a mitigated negative declaration by the Department. The current lease allows a base herd of 350 head of

livestock (assuming federal grazing leases remain in good standing) and a maximum of 450 head of livestock to be on the leased area at any given time. This represents less intensive grazing compared to prior leases between the Department and lessee, Dr. Dow, which permitted between 460 and 590 (average 536) cattle to graze the property between 2005 and 2011.

The maximum number of animal unit months (AUM) to be available on an annual basis from the leased area (California Department of Fish and Game 2011) was designed to achieve conservative to moderate intensity grazing based on the carrying capacity of the premises derived from the work of Mr. Keith Gunther, a certified range manager, who prepared high and low estimates for individual management units in 2006. Mr. Gunther has extensive experience evaluating rangelands in this area. In deriving high and low estimates of the carrying capacity for each management unit on the areas to be grazed, Mr. Gunther utilized a combination of factors consistent with accepted range management practices, including:

- goals for vegetation management
- distance to water
- management ability
- livestock class/type to be grazed
- condition of the range
- percentage of area within each vegetation type
- slope of unit
- estimates of historic livestock numbers on the premises

The standard for the maximum number of AUMs (3,600) available on the property was the mid-point between the low and high estimates for those management units to be grazed as part of the lease. Mr. Gunther further concluded that his estimates, which were based on the goal for vegetation management, were 20-50% below what could be supported by the forage available. He also indicated that the number of AUMs would need to be increased for those units to be managed for burrowing owl habitat. Limitations on the number of livestock and the maximum number of AUM's included in the Lease Agreement were chosen to best achieve the goals of avoiding impacts to sensitive plants and animals from grazing.

Standards for biomass and residual dry matter (RDM) set forth in the lease agreement were derived from the habitat types present in a particular management unit and the specific management objectives for those habitats as described in Table 2 of Exhibit B of the draft Lease Agreement. As required by Section 7 of the draft Lease Agreement, livestock will be used to maintain or improve habitat on a subset of management units. As discussed in Exhibit B, specific resources to be managed include short grasslands, upland game, and blue oak and juniper woodlands. In order to maintain a diversity of habitat structure within each vegetative community, only a portion of the lands within any particular community type will be grazed.

South Chimineas Unit. Historically, the lands within the South Chimineas Unit have been grazed for at least the last 100 years. Grazing has continued to be used in approximately 30 percent of the unit to promote native, late season annual vegetation (turkey mullein, doveweed) for upland game.

Given the large size, complex assemblage of vegetation, and relative abundance of non-fire adapted plant communities in this unit, the primary management objective is to maintain the existing mosaic of habitat conditions to conserve the overall biodiversity of the unit. Vegetation management was geared towards reducing the chances for catastrophic fires, especially along SR 166.

General public vehicle access through the South Chimineas Unit is only available under special conditions when Department employees are present. However, walk-on access from SR 166 is allowed with a free permit. Over the past 10 years, public use of this unit has been approximately 350 user days per year. Hunting has been the most popular recreational pursuit by far. Hunting is allowed on the South Chimineas Unit approximately 75 days each year.

North Chimineas Unit. Dry land farming for grain (wheat and barley) occurred on the flat and rolling hills in the northern part of this unit. As mapped by the BLM, an estimated 6,585 acres of this unit were in cultivation in the 1980s. Cultivation on some of these lands ceased in 1987, when over one half of the previously farmed lands were enrolled in the federal Conservation Reserve Program (CRP). Cultivation ceased on the remaining portions of the ranch in the mid-1990s. The CRP lands have not been utilized for grazing since their enrollment in the program.

The North Chimineas Unit has been continually grazed by livestock for at least the last 120 years. With several small exceptions, grazing continued on this unit in those areas being actively grazed by livestock at the time of the Department acquired the land. The primary objectives for grazing these lands are to provide habitat for short grass dependant wildlife species, maintain blue oak recruitment which has occurred under the prior grazing regimes, and to reduce the potential for catastrophic fires by reducing fine fuel loads in habitat types which are not adapted to fire (juniper woodlands). The Department excluded livestock from most of San Juan Creek and several ponds to enhance riparian vegetation after the acquisition of the property. Vegetation is managed by livestock on approximately 75 percent of the North Chimineas Unit.

Public access on the North Chimineas Unit has been limited to Department sponsored research projects and professional biological workshops. There are also tightly controlled hunting opportunities for upland game, wild pigs, deer, and elk. In total, these activities account for approximately 250 user days per year. Approximately 75 percent of this use is associated with research and workshops while the remaining 25 percent is associated with hunting. All public access outside of these events, including access by vehicles, bicycles, horses, or pedestrians, has been prohibited since the lands were first acquired. Hunting is allowed on this unit approximately 49 days each year.

Elkhorn Unit

There is no available information about the historic use of the Elkhorn Unit, which was acquired by the Department of Fish and Game in 1983. Based on the historic pattern of land use in the area, it was likely grazed by livestock including cattle and sheep as part of the wide-ranging livestock operations in the 19th and 20th centuries. There is no evidence of recent cultivation, such as infrastructure or furrows indicating tillage.

Since acquired by the Department, the Elkhorn Unit has been used primarily for scientific research and to a lesser extent, upland game hunting. The Department fenced the property to exclude cattle that graze the adjacent land managed by the BLM. As a result, the Elkhorn Unit has served as a control (ungrazed) site for regional studies examining the effects of grazing on the populations of the endangered San Joaquin Valley upland species. This unit is open to unrestricted public access.

The primary management objective for the Elkhorn Unit has been to provide habitat for the suite of San Joaquin Valley species (giant kangaroo rat, blunt-nosed leopard lizard, San Joaquin kit fox, and San Joaquin antelope squirrel). Given the low productivity of vegetation within this unit, vegetation management has not been necessary to maintain or enhance habitat for these resources.

Panorama Unit

When acquired by TNC, land within the Panorama Unit was under cultivation. BLM mapping indicates that 2,390 acres of the 2,840-acre unit was being cultivated in the 1980s. The approximately 84% of the unit in cultivation excluded the southwestern portion where saline soils of the Chicote complex occur. Irrigation line left in the shed suggests that the cultivated land was also irrigated.

Prior to cultivation, land within the Panorama Unit was likely grazed by livestock which ranged throughout much of the region. Following acquisition of the Panorama Unit in July 1989, cattle were excluded from moving onto the property from the BLM's adjacent KCL and North Temblor allotments and the private cattle operation through existing fencing. The Panorama Unit has been used for research, wildlife viewing, and some upland game hunting. This unit is open to unrestricted public access.

The primary management objective for the Panorama Unit has been to provide habitat for the suite of San Joaquin Valley species as well as mountain plover. Low precipitation combined with a very dense population of giant kangaroo rats has thus far made vegetation management unnecessary in this unit.

American Unit

Land within the American Unit was formerly part of the privately owned American Ranch. Little detailed information is available about its history. However, the site was in cultivation for dry-land barley when it began to be acquired by The Nature Conservancy in 1988. BLM mapping indicates that 4,300 acres of the 6,341-acre unit was in cultivation in the 1980s. The estimated 68% of the unit that was cultivated excludes the central area around the historic ranch headquarters, and the southernmost portion of

the unit which is in steep terrain. Livestock grazing, particularly by cattle, likely occurred on the land within the American Unit since the 1800s.

As land within the American Unit was incorporated into the CPER between 1988 and 2003, it was taken out of cultivation and remained ungrazed by livestock. In the 2000s, the Department enhanced habitat for wildlife by removing the interior fencing to facilitate movement and creating ponds to supply water. The American Unit is used for both upland game and big game hunting (i.e. tule elk, wild pig, and deer). In general, this unit is open to unrestricted public access. However, almost all of the roads in this unit are closed to vehicular traffic.

The primary management objective for this unit has been to provide habitat for tall grass species, particularly tule elk and grasshopper sparrows. Based upon the scientific knowledge of these resources, vegetation management was best accomplished by excluding livestock from this unit.

Facility Use

The CPER contains facilities at two locations, which are used to enhance effectiveness of the Department's management of the Reserve and public use opportunities: Painted Rock Ranch Headquarters (American Unit), near the Goodwin Nature Center within Carrizo Plain, and the Chimineas Unit Headquarters, which is in the North Chimineas Unit.

The Painted Rock Headquarters, which features a small mobile home and associated buildings, is primarily used by one to three individuals, typically Department staff, when working within the American, Elkhorn, and Panorama units. However, larger groups (researchers, law enforcement) of up to 8 people may occupy this facility on a daily basis for 10 days each year.

The facilities of the Chimineas Unit Headquarters, which are more expansive and can accommodate larger groups (up to 40 people), are used not only to facilitate management of the Chimineas units, but also to host Department programs. Owing to its remote location (i.e. the Reserve is more than a 45-minute drive from the nearest accommodations in Maricopa), over-night stays are often required of staff and members of the public who are visiting the Reserve. Use of the headquarters building has averaged about 556 user nights annually since 2005 and has increased significantly since 2006.

In addition, the headquarters building on the North Chimineas Unit plays host to several special events, meetings and other activities associated with the Reserve. These events average about six per year and have about 30 attendees each.

Staffing and Other Users of the CPER

Current staffing of the CPER includes Department biologists, game wardens, scientific aides and technicians. These staff are supplemented by volunteers from the Chimineas Ranch Foundation (CRF), a non-profit organization with the mission **"**to protect and

enhance the ecological values of the Chimineas Unit of the Carrizo Plain Ecological Reserve and to help provide opportunities for wildlife dependent recreation, education, and research activities that are compatible with conserving the biological integrity of the reserve." Additional volunteer assistance is provided by a number of other non-profit organizations including California Deer Association, Rocky Mountain Elk Foundation, California Native Plant Society, Audubon Society, Arroyo Grande Sportsmen's Association and Santa Maria Valley Sportsmen's Association. Lastly, ongoing research is conducted by scientists from a variety of institutions and organizations. Total staffing, research, maintenance, and recreation use averages about 14 persons per day.

Previous and Ongoing Management Activities

Previous and ongoing management activities relating to biological resources are summarized in Section 4, Biological Resources. These activities include:

- Installation of fencing along creeks and around springs and ponds;
- Ongoing research of various species;
- Efforts to control and eradicate exotic species; and
- Managed grazing.

Previous Approvals and Environmental Review

Grazing Lease 2011 - 2014

As discussed in the Environmental Baseline Conditions, in November, 2011, the Department adopted a Mitigated Negative Declaration ("MND") and approved a Lease Agreement authorizing continued managed grazing on about 12,000 acres of the North and South Chimineas units. Under the terms of the Lease, grazing activities are subject to a range of restrictions, standards, monitoring and remediation activities. The Lease Agreement sets specific standards for biomass and residual dry matter to be maintained in all areas to be grazed. These standards have been established to ensure that grazing activities are sustainable over the term of the lease and so that habitat for special status animal species is enhanced and maintained.

The Lease Agreement establishes a maximum number of animal unit months ("AUM") to be available on an annual basis on the lease premises. The AUM standard is based on the carrying capacity of the premises derived from the work of Mr. Keith Gunther, a certified range manager with extensive experience evaluating rangelands in the project area.

Under the terms of the Lease Agreement, grazing activities will be subject to ongoing monitoring to ensure that these standards are achieved and maintained. Exhibit B of the Lease Agreement describes the methodologies to be used for such monitoring and for reporting the results to the Department (California Department of Fish and Game 2011). In the event monitoring reveals that the standards for residual dry matter may not be achieved, remedial actions are required. The 2011 Grazing Lease is discussed in greater detail in the Environmental Baseline Conditions.

Lastly, in 1999, the Department conducted CEQA review and signed off on the management plan for the Carrizo Plain Natural Area (CPNA). The CPNA plan was a cooperative management strategy among the managing partners (BLM, DFG, TNC) for the Carrizo Plain and covered CPER lands on the Elkhorn, Panorama, and all but 640 acres of the American Units. In 2001, the lands owned by BLM within the planning area for the CPNA were designated as the Carrizo Plain National Monument (CPNM) and a new planning process for the federal lands was initiated. The RMP for the CPNM, which was adopted in 2010, only covered BLM lands within the monument boundary.

1. Aesthetics/Visual Resources

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
I. Aesthetics. Would the project:				
a) Have a substantial adverse effect on a scenic vista?	☒	☐	☐	☐
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	☒	☐	☐	☐
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☒	☐

Discussion

The various units of the CPER were acquired by the Department because of their unique natural resources and their potential for preserving and improving the diversity of natural communities in southeastern San Luis Obispo County and the region. Accordingly, the visual qualities of the Reserve reflect the largely natural conditions of the landscape.

However, historic human uses of the CPER have altered these natural conditions which in turn have become part of the visual landscape. Specifically, agricultural operations on the flat and rolling terrain altered the natural vegetation by design and introduced non-native plants to the area. Development of ranch infrastructure such as roads and buildings has also altered the visual character of the area, along with the past harvesting of trees for fences and fuel.

Conclusions

a), c), Potentially Significant Impact. The management actions that may be recommended by the draft LMP will be aimed at preserving the natural, rural character of the CPER through the management and enhancement of biological habitats and associated physical features, the protection of cultural and historic resources, through the maintenance of existing facilities, and by the removal of trash and dilapidated structures. Specific management actions aimed at improving the visual qualities of the CPER may include:

- Removal of grain storage tanks, sheds and trailer on the American and Panorama units;
- Removal of unnecessary fences, including cross fencing;
- Removal of abandoned and unused wells;

Accordingly, the draft LMP is expected to have a net beneficial impact on the visual quality of the CPER.
However, the draft LMP may include management actions that could adversely impact the visual qualities of the CPER either temporarily or permanently. These actions include:

- *The construction of trails, wildlife viewing platforms, and parking areas, and the installation of signage and other features to facilitate public use and enjoyment of the Reserve*;

Additional parking areas could be established along SR 166 which would result in a minor alteration to the visual character of the landscape visible to passing motorists. New parking areas would likely consist of un-paved areas with signage and an entry gate, comparable in design to those existing at present. It should be noted that SR 166 is not a designated Scenic Highway. New parking areas established on the interior of the Reserve, such as near the headquarters building on the Chimineas Unit, would not be visible from a public vantage but would nonetheless result in a minor alteration of the visual character of the Reserve.

The construction of trails would emphasize the use of existing roadways within the Reserve to minimize construction-related impacts, which in turn would minimize visual impacts. The placement of signs and interpretive displays would also result in minor alterations of the visual character of the landscape.

Lastly, wildlife viewing platforms and other facilities to facilitate public enjoyment of the Reserve may be constructed in strategic locations where wildlife congregate. These areas occur largely on the interior of the Reserve and are not visible from a public vantage, but would be visible to visitors. However, viewing platforms could be constructed in areas visible to travelers on SR 166. The placement of new structures could have an adverse impact on the visual qualities of the Reserve if not located or designed to minimize visual impacts. Viewing platforms would be few in number,

located on the interior of the Reserve, and designed to compliment the qualities of the Reserve.

- *The installation of fencing*;

The Chimineas, Panorama and Elkhorn units contain a combined 134 miles of existing barbed-wire fencing. The eastern and western boundaries of the Chimineas units are not fenced, and neither are the boundaries of inholdings (disjunct parcels) within the Los Padres National Forest. New fencing could be installed along the eastern and western boundaries of the Chimineas units and around sensitive resources within the Reserve to exclude cows. Such fencing would likely consist of barbed wire supported by metal posts, consistent with existing fencing. New fencing placed along the boundaries of the Reserve would be visible where the boundaries adjoin a public vantage, such as along SR 166; fencing on the interior of the Reserve would be visible to DFG personnel, researchers and visitors.

Additional fencing of sensitive biological resources, such as riparian areas, would result in both positive and negative visual impacts – there would be additional visual intrusions from the fencing, but also an enhancement of the characteristic vegetation in the riparian zone. Excluding livestock from riparian corridors and surface water bodies, combined with the other management actions recommended by the draft LMP aimed at enhancing the biological resources of the Reserve, is expected to have a beneficial impact on visual resources.

- *Alteration of the landscape associated vegetation management*;

Vegetation management will include activities designed to establish and expand habitat for special status species, such as San Joaquin kit fox and burrowing owls, and to control the spread of exotic plant species. Such activities will include managed grazing and prescribed burning and actions to control exotic plants. As discussed in the project description, grazing is currently practiced on the Chimineas units as a vegetation management tool to establish the short grass structure favored by special status wildlife species. Grazing can adversely impact the visual qualities of the environment by reducing the size and extent of vegetation when compared to areas without grazing. Visual impacts are most pronounced when overgrazing occurs.

- *Prescribed burning*;

Prescribed burning is another vegetation management tool that may be recommended by the draft LMP. The Reserve has a long history of wildfires which are a natural and necessary component of the natural ecosystem. Wildfire burning and the chance of a large fire would continue the present level of visual impacts associated with fires. Although fire scars are natural, they are seen as a major impact to visual resources by many viewers.

- *Cultural resources management*;

As described in the Project description, the Reserve contains significant cultural resources. Implementation of management actions that may be recommended by the draft LMP could result in the discovery of previously undiscovered resources which in turn would necessitate actions to protect these resources. These actions may include the realignment of road segments, closure, or capping of roads and the addition of interpretation at Native American sites which could result in adverse but less than significant impacts to visual resources. Road realignment, closure or capping could cause a minor impact depending on the location of the new alignment. Additional interpretation would cause a negligible impact on visual resources as displays could be designed in a way that would be small scale and low in profile.

- *Construction of water tanks;*

The draft LMP may recommend the placement of water tanks for wildlife watering throughout the Chimineas and American units. A typical water tank holds 5,000 gallons and is about 10 feet tall and about 10 feet wide. Water tanks can be constructed of metal or plastic; plastic tanks can be acquired in a variety of colors such as dark green. If water tanks are placed on the Chimineas and American units they would likely be placed on average about one tank per square mile. The placement of water tanks would alter the scenic qualities of the Reserve and could be visible from public vantages.

Impacts associated with these management activities will be further addressed in the EIR.

b) No Impact. No portion of the CPER lies within the viewshed of a State-designated scenic highway. According to the Department of Transportation (Caltrans) list of designated Scenic Highways (http://www.dot.ca.gov/hq/LandArch/scenic/schwy.htm) there are no Scenic Highways in the vicinity of the CPER. State Route 166 has not been designated as a scenic highway.

d) Less Than Significant Impact. Day time glare results from the reflection of sunlight from walls, windows and other reflective surfaces. Construction of additional parking areas, signage, maintenance facilities and amenities for visitors could include new sources of lighting on the Reserve. In addition, events held at the Chimineas headquarters will result in additional sources of light and glare on the vicinity of the ranch house and from motor vehicles attending such events where nighttime light levels would increase over current conditions.

All of the existing and potential new sources of light would be located on the interior of the Reserve where it will be screened from view off-site by topography and vegetation. New light sources would only be visible in the immediate area of the source by workers on the Reserve and by attendees of special events. Light-related impacts to surrounding properties would be minimal. For these reasons, impacts associated with new sources of light and glare are considered less than significant.

2. Agricultural Resources

	ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
II.	**Agricultural Resources.** In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997, as updated) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. Would the project:				
	a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
	b) Conflict with existing zoning for agricultural use or a Williamson Act contract?	☐	☐	☐	☒
	c) Involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland to non-agricultural use?	☐	☐	☒	☐

Discussion

Agriculture is an important component of the economy of San Luis Obispo County, which is a major producer of wine grapes, strawberries and cattle. On the Carrizo Plain, limitations to agricultural operations include a limited water supply, alkaline soils and

hot, dry summers. Accordingly, dry farming and cattle grazing have been the dominant forms of agricultural pursuits.

The South Chimineas Unit of the CPER extends to the south to the floor of the Cuyama Valley which is extensively farmed. Irrigated agriculture is the dominant land use, with 20,000-25,000[2] acres devoted to active farming in any given year. Current agriculture consists primarily of row crops rotated between root vegetables, alfalfa, and grains. The largest crop by acreage is carrots, with an estimated 6,000 acres cultivated in 2008.

Previous and ongoing agricultural uses of the Reserve are described in the project description. As summarized on Table 2 crop cultivation ceased on all units of the CPER at least since 1990. Grazing continues on a 13,500 acre portion of the Chimineas units under a lease agreement executed in November, 2011.

Table 2 -- Status of Agricultural Operations On The CPER

CPER Management Unit	Past Agricultural Use	Status of Agricultural Operations In 2012
Chimineas units	Grazing, dry land farming	Cultivation ceased in the late 1990s; grazing continues under a grazing lease executed on November 21, 2011 and covers about 13,500 acres.
American Unit	Grazing and dry farmed crops	No grazing or other agricultural use since 1990
Panorama Unit	Probably grazing and irrigated crops	No grazing or other agricultural use at least since 1990.
Elkhorn Unit	Probably grazing	No grazing or other agricultural use at least since 1983
Source: Jodi McGraw Consulting, 2012		

Conclusions

a) c) No Impact. As discussed in the Project Description, and as summarized above in Table 2, crop cultivation occurred on the American, Panorama and Chimineas units as

[2] Conservation Assessment for the Cuyama Valley, Current Conditions and Planning Scenarios, 2009

recently as the 1980s. However, as these properties were incorporated into the Reserve they were taken out of cultivation and managed for their habitat value.

The California Division of Land Resource Protection defines Prime farmland and Farmland of Statewide Importance as follows:

> (1) **Prime Farmland** has the best combination of physical and chemical features able to sustain long-term agricultural production. This land has the soil quality, growing season, and moisture supply needed to produce sustained high yields. Land must have been used for irrigated agricultural production at some time during the four years prior to the mapping date.
>
> (2) **Farmland of Statewide Importance** is similar to Prime Farmland but with minor shortcomings, such as greater slopes or less ability to store soil moisture. Land must have been used for irrigated agricultural production at some time during the four years prior to the mapping date.

None of the units of the Reserve contain farmland that satisfy the criteria for Prime Farmland or Farmland of Statewide Importance as set forth by the State of California. Specifically, 1) none have been under cultivation for the past four years, and 2) they lack a developed, reliable water supply for irrigation. Accordingly, although portions of the CPER contain productive soils that could support cultivation if irrigated, none of these areas meet the definition of Prime Farmland or Farmland of Statewide Importance. Accordingly, management actions recommended by the draft LMP would not result in the permanent conversion of prime (or non-prime) farmland to a non-agricultural use, nor preclude the use of portions of the Reserve for agricultural production, consistent with the main objectives of the draft LMP.

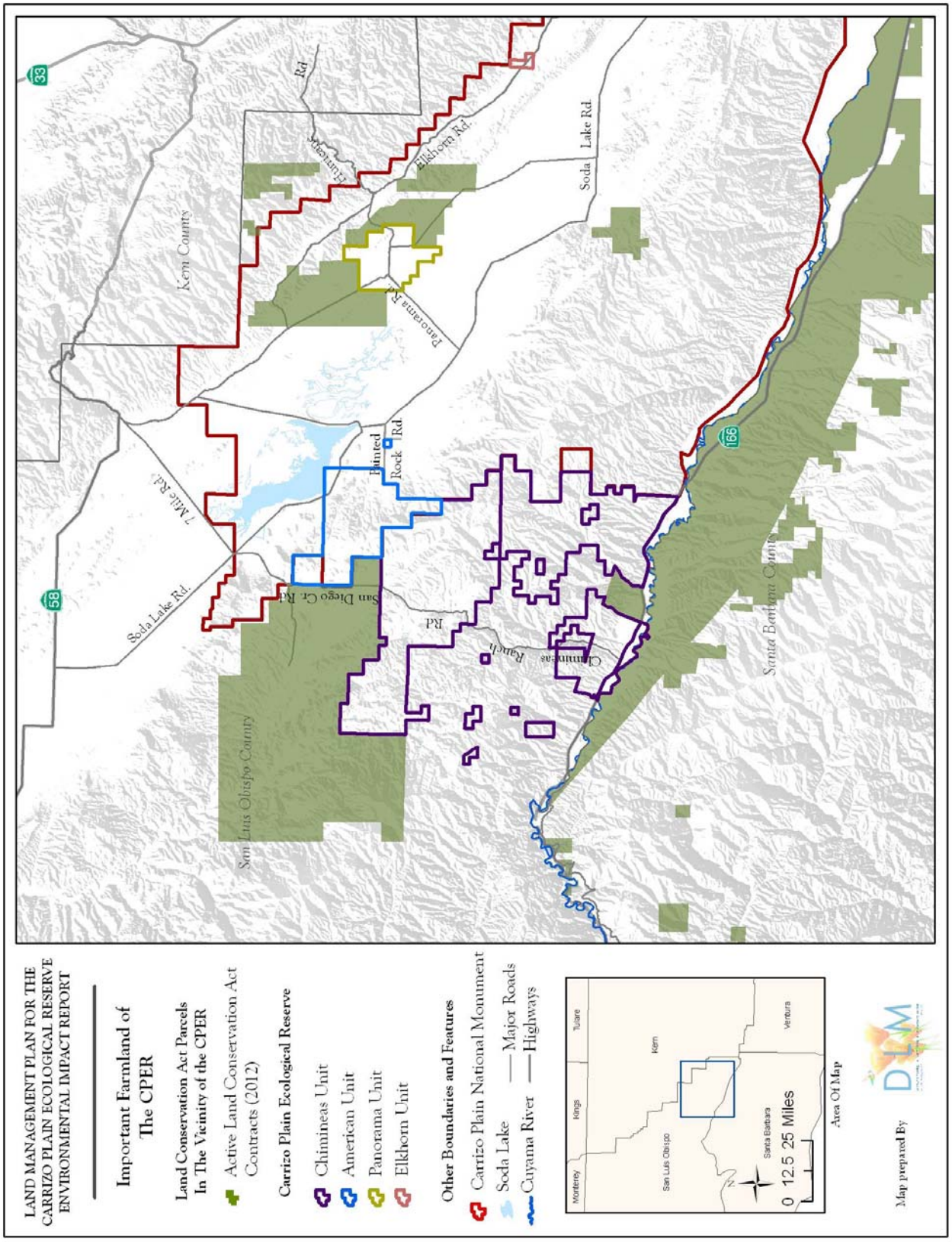
b) No Impact. The existing zoning and General Plan designations for the CPER are *Rural Lands* and *Recreation.* Grazing is the only agricultural use contemplated as part of the draft LMP and is a use allowed by right in this zoning district. However, properties owned and managed by the State of California are not subject to local land use regulations.

The California Land Conservation Act of 1965 (Williamson Act, Government Code, Section 51200 et seq.) encourages the conservation of agricultural lands by providing a property tax incentive to owners who restrict land uses to agriculture and compatible uses. It is a voluntary program administered through local governments, which are responsible for contracting with landowners. Properties subject to Williamson Act contracts must remain in agricultural use for the duration of the contract, a minimum of 10 years. The contracts are self-renewing unless the property owner or a city or county has filed a Notice of Non-renewal. Filing a Notice of Non-renewal initiates an approximately nine-year period, after which the contract expires.

Because the properties that comprise the CPER are under public ownership, they are not eligible for the property tax advantages afforded by the Williamson Act. However, as

seen on Figure 4, there are many properties in the vicinity of the CPER under active Williamson Act contracts. Managing the CPER for its habitat value will have no effect on the agricultural zoning or the status of LCA contracts on properties surrounding the CPER.

Figure 4 -- Properties With Current Land Conservation Act Contracts



3. Air Quality

	ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
III.	**Air Quality.** Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied on to make the following determinations. Would the project:				
	a) Conflict with or obstruct implementation of the applicable air quality plan?	☒	☐	☐	☐
	b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☒	☐	☐	☐
	c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☒	☐	☐	☐
	d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☐	☒
	e) Create objectionable odors affecting a substantial number of people?	☐	☐	☒	☐

Discussion

The CPER lies entirely within the South Central Coast Air Basin (SCCAB) which includes all of San Luis Obispo, Santa Barbara, and Ventura counties. The climate of the San Luis Obispo County area and all of the SCCAB is strongly influenced by its proximity to the Pacific Ocean and the location of the semi-permanent high pressure cell in the northeastern Pacific.

Federal and state standards have been established for six criteria pollutants, including ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulates less than 10 and 2.5 microns in diameter (PM10 and PM2.5), and lead (Pb). California air quality standards are identical to, or more strict than, federal standards for all criteria pollutants.

According to the San Luis Obispo Air Pollution Control District, CEQA Air Quality Handbook (page 3-4) diesel particulate matter (DPM) is seldom emitted from individual projects in quantities which lead to local or regional air quality attainment violations. DPM is, however, a toxic air contaminant and carcinogen, and exposure to DPM may lead to increased cancer risk and respiratory problems. Certain industrial and commercial projects may emit substantial quantities of DPM through the use of stationary and mobile on-site diesel-powered equipment as well as diesel trucks and other vehicles that serve the project.

Lastly, the APCD regulates prescribed burns in the County through the issuance of a burn permit in accordance with Rule 502 of the APCD Rules and Procedures. Under Rule 502, a burn permit is required for agricultural burning which includes “Wildland Vegetation Management Burning” and “Range Improvement Burning” of the type that may be proposed to be conducted within the Reserve.

A prescribed burn covering more than 250 acres is subject to the District’s Smoke Management Plan requirements which set forth the actions to be taken to minimize smoke impacts on sensitive receptors and compliance with clean air regulations. For burns done primarily for improvement of land for wildlife and game habitat, the permit applicant must file with the District a statement from the Department of Fish and Game certifying that the burn is desirable and proper. The Department of Fish and Game may specify the amount of brush treatment required, along with any other conditions it deems appropriate. Alternatively, the Air Pollution Control Officer may accept a wildlife biologist opinion contained in a land management plan approved by the appropriate State or Federal authority or certifications by the US Fish and Wildlife Service.

The California Department of Forestry (CDF) also requires a permit for certain types of burning.

Greenhouse Gas Emissions

The phenomenon known as the greenhouse effect keeps the Earth’s atmosphere near the surface warmer than it would be otherwise, allowing for successful habitation by humans and other forms of life. Greenhouse gases (“GHGs”) present in the Earth’s lower atmosphere play a critical role in maintaining the Earth’s temperature by trapping some of the longwave infrared radiation emitted from the Earth’s surface which otherwise would have escaped to space.

There are no “attainment” concentration standards established by the federal or state government for greenhouse gases. In fact, GHGs are not generally thought of as

traditional air pollutants because greenhouse gases, and their impacts, are global in nature, while air pollutants affect the health of people and other living things at ground level, in the general region of their release to the atmosphere.

The Intergovernmental Panel on Climate Change (IPCC) has been established by the World Meteorological Organization and United Nations Environment Programme to assess scientific, technical, and socioeconomic information relevant to the understanding of climate change, its potential impacts, and options for adaptation and mitigation. The IPCC estimates that the average global temperature rise between the years 2000 and 2100 could range from 1.1°C, with no increase in GHG emissions above year 2000 levels, to 6.4°C, with substantial increase in GHG emissions[3]. Large increases in global temperatures could have deleterious impacts on natural and human environments.

In July, 2009 the County of San Luis Obispo adopted a inventory of greenhouse gas emissions to establish the baseline for calculating compliance with the greenhouse gas reduction targets outlined above. The GHG Inventory concludes that the County emitted approximately 1,506,163 metric tons of CO_2e[4] (Carbon dioxide equivalent) in the baseline year, 2006. As shown in Table 3, the transportation sector was by far the largest contributor to emissions (64.8%), producing approximately 976,585 metric tons of CO_2e in 2006. Emissions from the residential, commercial, and industrial sectors accounted for a combined 23.4% of the total, while emissions from the waste sector accounted for 2.0% of emissions and other sources, including livestock and agricultural equipment, comprised 9.7% of the total.

The majority of emissions from the transportation sector were the result of gasoline consumption in private vehicles traveling on local roads, state highways, and US 101. GHG figures from the waste sector are the estimated future emissions that will result from the decomposition of waste generated by county residents and businesses in the base year 2006, with a weighted average methane capture factor of 58%.

[3] IPCC, 2007, Climate Change 2007: Synthesis Report, Contribution of Working Groups I, II and III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, Pachauri, R.K and Reisinger, A.(eds.)], IPCC, Geneva, Switzerland.

[4] The IPCC[4] defines the GWP of various GHG emissions on a normalized scale that recasts all GHG emissions in terms of carbon dioxide equivalents (CO2e), which compares the gas in question to that of the same mass of CO_2. CO_2 has a GWP of 1 by definition. Generally, GHG emissions are quantified in terms of metric tons of CO_2 emitted per year.

Table 3 -- Community-Wide Greenhouse Gas Emissions Inventory

San Luis Obispo County

Source Category	Metric Tons CO2e[1]	Percent of Total
Transportation	976,585	64.8%
Commercial/Industrial	215,976	14.3
Residential	136,367	9.1
Other	146,695	9.7
Waste	30,540	2.0
Total:	1,506,163	

Source: County of San Luis Obispo General Plan Community-Wide and County Government Operations Baseline Greenhouse Gas Emissions Inventory, April 2006

Notes

1. The IPCC[5] defines the GWP of various GHG emissions on a normalized scale that recasts all GHG emissions in terms of carbon dioxide equivalents (CO2e), which compares the gas in question to that of the same mass of CO_2. CO_2 has a GWP of 1 by definition. Generally, GHG emissions are quantified in terms of metric tons of CO_2 emitted per year.

In early 2011 San Luis Obispo County prepared the Draft EnergyWise Plan which "…*demonstrates the County's continued commitment to addressing the challenges of climate change by reducing local GHG emissions and preparing the county to adapt to a changing climate*." The Plan outlines the County's approach to reducing GHG emissions through a number of goals, measures, and actions that provide a road map to achieving the County's GHG reduction target of 15% below baseline levels by 2020. To achieve the community-wide GHG emissions reduction target of 15% below 2006 baseline levels by 2020, the County will need to implement a variety of GHG reduction measures. Reduction measure topic areas include Energy Conservation, Renewable Energy, Solid Waste, Land Use and Transportation, Water Conservation, and Agriculture.

Conclusions

a) Potentially Significant Impact. The project is adoption of a Land Management Plan for the CPER. The SLOAPCD CEQA Air Quality Handbook requires that an EIR assess the air quality impacts associated with adoption of a plan or policy in terms of

[5] IPCC, 2007, Climate Change 2007: The Physical Science Basis, Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change [Solomon, S., D. Qin, M. Manning, Z. Chen, M. Marquis, K.B. Averyt,M. Tignor and H.L. Miller (eds.)], Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.

consistency with the adopted Clean Air Plan. Accordingly, an analysis of consistency will be included in the EIR.

b) Potentially Significant Impact. Fire management may play an important role in the management of vegetation of the Reserve. Prescribed burning used as a vegetation management tool would generate smoke and particulates that could temporarily exceed adopted air quality standards and contribute to air quality impacts relating to particulate matter. Potential air quality impacts associated with prescribed burning will be analyzed in the EIR.

c), d) Potentially Significant Impact. Management tasks recommended by the draft LMP could involve the use of motor vehicles for the maintenance of facilities, ongoing monitoring and scientific activities, habitat management and restoration activities, and for transporting animals among the grazing units and from the CPER to offsite locations. In addition, the Department authorizes periodic use of the ranch house on the North Chimineas Unit for events and other gatherings. Lastly, continued recreation activities, such as hunting and hiking, generate motor vehicle trips to and from the CPER. These vehicles will generate emissions of reactive organic gases, nitrogen oxides, and carbon monoxide.

As discussed in Section 15, Transportation/Traffic, current average daily traffic associated with the CPER is estimated at about 14 trips per day from all sources except special events. Special events, which are expected to occur once per month, will accommodate an average of 30 attendees. The net increase in motor vehicle trips associated with adoption of the draft LMP over baseline is likely to be about 10 trips on a typical day and is largely associated with an increase in research activities and a slight increase in trips associated with recreation.

Operational emissions from the increase in motor vehicle trips could exceed the District's threshold of significance for fugitive particulate matter (PM10). Because of the distance traveled on unpaved roads to reach the headquarters building/special events venue, special events represent a potentially significant source of particulate matter that may exceed District thresholds of significance. Operational impacts associated with the draft LMP will be further analyzed in the EIR.

Greenhouse Gases

The San Luis Obispo Air Pollution Control District has not adopted thresholds of significance for the emission of greenhouse gases. The District's April 2012 Guide for Assessing the Air Quality Impacts of For Projects Subject to CEQA Review, states that a CEQA document should evaluate greenhouse gas emissions along with "…appropriate mitigation."

The emission of greenhouse gases associated with grazing activities, construction and resource management could result in the cumulative emission of greenhouse gases resulting in a cumulative adverse impact.

e) Less Than Significant. Continued grazing activities on a portion of the Reserve may result in the emission of odors associated with livestock congregating at watering areas and/or in holding areas. However, none of the watering or holding areas are located in proximity to permanent residents or other sensitive receptors. For these reasons, impacts associated with the emission of odors are considered less than significant.

4. Biological Resources

	ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
IV.	**Biological Resources. Would the project:**				
	a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or the U.S. Fish and Wildlife Service?	☒	☐	☐	☐
	b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Game or the U.S. Fish and Wildlife Service?	☒	☐	☐	☐
	c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act.	☒	☐	☐	☐
	d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors.	☒	☐	☐	☐
	e) Conflict with any local policies or ordinances protecting biological resources.	☐	☐	☒	☐
	f) Conflict with the provisions of an adopted Habitat Conservation Plan	☐	☐	☐	☒

Discussion

Regulatory Setting

Federal and state endangered species legislation gives special status to several plant and animal species known to occur on or in the vicinity of the CPER. In addition, state resource agencies and professional organizations, whose lists are recognized by agencies when reviewing environmental documents, have identified as sensitive numerous species occurring in the vicinity of the CPER. Such species are referred to collectively as *special-status species* and include the following: plants and animals listed, proposed for listing, or candidates for listing as threatened or endangered under the federal Endangered Species Act ("ESA") or the California ESA; animals listed as "fully protected" under the California Fish and Game Code; animals designated as "Species of Special Concern" by the Department; and plants listed as rare or endangered by the California Native Plant Society (CNPS).

Wetlands are specially protected habitats and are governed by section 404 of the Clean Water Act and other laws. Section 404 of the Clean Water Act (33 U.S.C. § et seq.) provides regulatory protection for water resources throughout the United States falls under the jurisdiction of the US Army Corps of Engineers ("ACOE"). Section 404 of the Clean Water Act ("CWA") prohibits the discharge of dredged or fill material into waters of the U.S. without a permit from the ACOE. Waters of the U.S. (often called "jurisdictional waters") include navigable waters, waters flowing into navigable waters, and adjacent wetlands. The Section 404 permitting process includes consultation with the USFWS concerning federally protected species. Federal policy mandates that projects requiring Section 404 permits result in no net loss of wetland resources. Under Section 404, actions in waters of the U.S. may require an individual permit, may be covered by a nationwide or general permit, or may be exempt from regulatory requirements.

Overview of Ongoing and Previous Management and Monitoring Activities

In 2003, the Department began a Resource Assessment Program ("RAP"), starting with an inventory and investigation of several specific management issues in southern California and the Sierra. In 2004, the program expanded, with assignment of biologists throughout the state to the program. A statewide project to inventory resources on Department lands was coordinated, with specific inventory needs identified by each Region. Statewide goals were to:

1. Start with an inventory of wildlife resources and habitats;
2. As inventory progressed, develop long-term monitoring of "indicator" species to help assess changes in habitat condition; and
3. If further resources were available, develop research projects to explore specific management questions.

The objective was to inventory Department lands in a landscape context, so work was envisioned to extend beyond Department property as access and funding were available.

In the Department's Central Region, which includes the CPER, biologists decided to emphasize the inventory of special-status species, as well as non-native invasive species related to land management. Initially, high priority was given to sensitive resources that may be impacted by planned activities on the Department's lands, and as needed for completion of management plans. Surveys were initiated to determine presence, and in some cases distribution, of special status species; to establish an index of population trend of "indicator" species; and to assess habitat. Again, the objective was to assess sensitive species in a broader ecosystem context, so inventories have been designed to include incidental detections of other fauna, inventory of vegetation, presence of potential predator and prey species, and presence and distribution of non-native invasive species.

The Department commenced with biological inventories of the Chimineas units of the CPER in 2002. Initial efforts, which included small mammal trapping, rare plant surveys, bird surveys, reptile and amphibian surveys, were opportunistic in that specific methodologies and sampling were not yet developed. However, over the past 10 years systematic sampling procedures have been developed for all of these resources. Locations of any sensitive species observed during these efforts, or observed incidentally to other activities, were recorded with a Global Positioning System ("GPS") and entered into a database.

Plant Communities of the CPER

The Carrizo Plain Ecological Reserve features a diversity of plant communities (vegetation) which reflect the Reserve's variable soils, topography and microclimate, hydrology, disturbance, and land use history. The communities differ in plant species composition, animal assemblages, disturbance ecology (e.g. fire ecology), and occurrences of invasive plants, among other factors. Management of this large, landscape-scale ecological Reserve will focus on maintaining or enhancing the condition of the diverse mosaic of communities in order to promote the viability of the plant, animal, and other species that they support.

The Department conducted a site-specific vegetation classification and mapping project for the entire CPER as part of the Vegetation Classification and Mapping Program (VegCAMP). Working with the California Native Plant Society as well as other Department staff including biologists with the Resource Assessment Program, VegCAMP biologists collected data at 379 sites located throughout the CPER between 2005 and 2008. Data were collected following the Rapid Assessment Protocol utilized for floristic-based vegetation classification.

To inform management as part of the LMP, the 57 mapped vegetation types were categorized into ten elements (Table 4). These groups include systems that support similar animal species assemblages, and will generally require similar management and respond similarly to management, owing to similarities in the ecology of the plant species and disturbance ecology. These vegetation elements were created to facilitate

the design of ecosystem and multi-species oriented management objectives used for the Department's lands including ecological reserves.

Table 4 -- Vegetation Elements of the CPER (acres)

Element	American	North Chimineas	South Chimineas	Elkhorn	Panorama	Total	Percent
Grassland	5,962	7,413	5,334	119	2,478	21,306	54.70%
Desert Scrub	123	785	3,456	45	363	4,772	12.25%
Coastal Scrub	103	1,522	2,992	1	7	4,625	11.87%
Oak Woodland		2,772	775			3,547	9.11%
Juniper Woodland	2	1,550	1,484			3,037	7.80%
Chaparral		1,133	117			1,250	3.21%
Riparian and Riverine	1	28	230			259	0.66%
Wetland	85	15	6			106	0.27%
Cliffs and Rocks	7	2	1			10	0.03%
Ponds		7				7	0.02%
Other	7	14	12			32	<1%
Grand Total	**6,290**	**15,241**	**14,409**	**166**	**2,848**	**38,953**	**100.0%**

Source: Jodi McGraw Consulting, 2012

Animal Species

The CPER supports a diverse assemblage of native animal species, which reflects the Reserve's biogeography as well as the diversity and relative intact nature of the habitat conditions it features. As of September, 2012, the Reserve is known to support at least 287 species of vertebrates, including 7 fish, 6 amphibians, 25 reptiles, 194 birds, and 55 mammals (R. Stafford, unpublished data). Though less information is available about invertebrate species, their richness likely reflects the diversity of biogeographic influences, plant species, and communities within the Reserve.

To facilitate the design and implementation of effective management of this large landscape-level reserve, the Department's wildlife biologists ranked the abundance of vertebrate species within each of the ten vegetation elements of the Reserve. For each element, a list of characteristic animal species was identified by multiplying the species relative abundance within that element (the score within the element divided by the total score for all elements) by the score within the element. This approach identified species

that are both common within a community and for which the community represents an important habitat type for them. These species can serve as indicators for monitoring conditions of the habitat types and evaluation of management effects.

Special-Status Plant and Animal Species

The CPER supports occurrences of numerous rare plant and animal species. These include species that have been listed as threatened, endangered, or of other special status under one or more of the following:

- **Federal Endangered Species Act**: listed or proposed for listing as threatened or endangered
- **California Endangered Species Act**: listed or candidates for listing
- **Fully Protected Species**: listed under California Fish and Game Code
- **Species of Special Concern**: species of special concern on the special animals list (DFG 2012)
- **Species of Conservation Concern**: species identified by the UFWS as being of conservation concern.
- **CNPS**: plants that are rare, threatened or endangered in California (Lists 1B and 2);
- **Western Bat Working Group**: species ranked as 'high' on the Regional Priority Matrix.
- **CEQA**: other species that meet the definition of rare or endangered under CEQA, including those are not listed but known to be very rare or declining.

A complete listing will be included as part of the environmental setting for biological resources provided in the EIR.

Livestock Grazing

As discussed in the Environmental Baseline Conditions section of this initial study, land within much of the Chimineas units was operated as a cattle ranch for well over 100 years prior to acquisition by the Department. Land within the unit was Federal property until 1883 when it was part of a 20,000-acre purchase by J. H. Hollister and Frederick Adams that created the Chimineas Ranch. The ranch was named for the remains of an old hearth and chimney located at the ranch headquarters (Mike Post pers com). By 1888 the Chimineas Adobe, which is part of the present-day Chimineas Unit Headquarters house, was erected. In the late 1800s, the Reis family acquired the Chimineas Ranch and held it until the 1930s, when it was purchased by Claude Arnold. The Arnold family expanded the ranch until 1972 when it was sold to the Robertson family from Texas. In 1999 the Robertson family sold the Chimineas Ranch to Dr. Neil Dow, who renovated the ranch house and operated the cattle ranch.

Livestock grazing has been one of the primary land uses on the Chimineas Ranch since at least the 1860s. Exact figures on the number of cattle using the ranch are unavailable for the early years. However, beginning in the 1940s and up until 1995, the base operation was reported to be between 1,000 and 1,200 cattle year round (Ross Nyswonger pers com). These estimates of the historic size of the base herd appear to be conservative since records for the entire 55,000 acre Chimineas Ranch and associated documents from the 1940s through 1970 indicate from 1,150 to "several thousand" head of cattle were kept on the ranch each year during this period (Mike Post pers com). Additionally, the ranch was advertised as being able to carry 1,500 cows on an average year when it sold in 1998. Most recently, the current lessee, Dr. Neil Dow, had a herd of around 600 animals prior to acquisition of the two portions of the ranch by the Department in 1999 and 2004

Since acquiring the Chimineas units beginning in 2002 (southern 14,314 acres) and 2004 (northern 15,882 acres), the Department has continued to graze those portions of the Chimineas units which were utilized by livestock at the time of DFG acquisition in order to maintain habitat conditions that support several rare and endangered species for which the property was acquired, including San Joaquin kit fox and burrowing owl. The Department has installed fences to exclude cattle from sensitive communities, including the riparian systems and ponds within the San Juan Creek drainage. The Department has also conducted a suite of other management activities to promote wildlife including installation of additional water sources (e.g. ponds and troughs) that support wildlife including tule elk and deer.

Grazing management within the CPER is designed to achieve many of the biological goals and objectives of the LMP, as described in a November 2011 lease agreement which was subject to environmental review and approved following a mitigated negative declaration by the Department. The current lease allows a base herd of 350 head of livestock (assuming federal grazing leases remain in good standing) and a maximum of 450 head of livestock to be on the leased area at any given time. This represents less intensive grazing compared to prior leases between the Department and lessee, Dr. Dow, which permitted between 460 and 590 (average 536) cattle to graze the property between 2005 and 2011.

The maximum number of animal unit months ("AUM") to be available on an annual basis from the leased area (California Department of Fish and Game 2011) was designed to achieve conservative to moderate intensity grazing based on the carrying capacity of the premises derived from the work of Mr. Keith Gunther, a certified range manager, who prepared high and low estimates for individual management units in 2006. Mr. Gunther has extensive experience evaluating rangelands in this area. In deriving high and low estimates of the carrying capacity for each management unit on the areas to be grazed, Mr. Gunther utilized a combination of factors consistent with accepted range management practices, including:

- goal for vegetation management
- distance to water
- management ability
- livestock class/type to be grazed
- condition of the range
- percentage of area within each vegetation type
- slope of unit
- estimates of historic livestock numbers on the premises

The standard for the maximum number of AUMs (3,600) available on the property was the mid-point between the low and high estimates for those management units to be grazed as part of the lease. Mr. Gunther further concluded that his estimates, which were based on the goal for vegetation management, were 20-50% below what could be supported by the forage available. He also indicated that the number of AUMs would need to be increased for those units to be managed for burrowing owl habitat. Limitations on the number of livestock and the maximum number of Animal Unit Months included in the Lease Agreement were chosen to best achieve the goals of avoiding impacts to sensitive plants and animals from grazing.

Standards for biomass and residual dry matter ("RDM") set forth in the lease agreement were derived from the habitat types present in a particular management unit and the specific management objectives for those habitats as described in Table 2 of Exhibit B of the draft Lease Agreement. As required by Section 7 of the draft Lease Agreement, livestock will be used to maintain or improve habitat on a subset of management units. As discussed in Exhibit B, specific resources to be managed include short grasslands, upland game, and blue oak and juniper woodlands. In order to maintain a diversity of habitat structure within each vegetative community, only a portion of the lands within any particular community type will be grazed.

Conclusions

a), b) Potentially Significant Impact. The recommended management actions of the draft LMP are expected to have a beneficial impact on plants, animals, and natural communities. As described in the Project description, the draft LMP management strategies are being developed based upon the principles of conservation biology and previous and ongoing research, and will be implemented through an adaptive management framework, which together are designed to promote their effectiveness at protecting the biological resources.

Management actions in the draft LMP could recommend that the Department evaluate the reintroduction of native species where doing so will promote their populations. The reintroduction or augmentation of native plants and animals is expected to have a beneficial impact by helping to achieve and maintain a more robust assemblage of native species.

The recommended management actions of the draft LMP are expected to result in beneficial impacts to the species listed in the *Recovery Plan for the San Joaquin Valley Upland Species*, which include San Joaquin kit fox, blunt-nosed leopard lizard, giant kangaroo rat and others found on the CPER. In addition, implementation of these actions would provide beneficial impacts to many other wildlife and plant species that inhabit open upland habitats typical of the San Joaquin Valley. Lastly, the management actions recommended by the LMP are expected to benefit pond and wetland habitats on the CPER which support many special-status species. Management objectives aimed at maintaining viable populations, improving habitat, protecting and maintaining habitat structural diversity, protecting riparian habitat, and the conduct of research are expected to have major beneficial impacts to many wildlife species within the CPER.

Vegetation Management

Livestock Grazing

Grazing is expected to benefit native plant communities by helping to remove competition associated with non-native species. The preparation of a grazing management plan, as may be recommended by the draft LMP, will result in the more precise use of grazing as a vegetation management tool, thus minimizing the impacts of grazing on native vegetation.

Potential impacts to wildlife from grazing activities are both direct and indirect. In general, cattle impact wildlife indirectly by modifying the habitat on which wildlife depends for food, shelter, and cover. In areas where livestock congregate, cattle may modify habitat by disrupting soils and soil crusts, or by damaging vegetation at water sources. Soils may be impacted through hoof shearing and by soil compaction. Vegetation may be removed by trampling, overgrazing, and by literally being pulled out of the ground. There is also soil compaction along cattle trails.

In addition, grazing activities may adversely impact sensitive plant species by livestock directly feeding on the plants or by mechanically damaging them with their hooves as they move through an area. Sensitive plants are most sensitive to these impacts when they are in flower or fruit (i.e. producing seeds). The impact of cattle grazing on biological resources within the reserve will be assessed in the EIR.

Fire Management

The CPER contains plant communities that are fire tolerant as well as those that are fire intolerant. Since the effects of fire on wildlife depends on the food and cover requirements of a particular species, the effects of wildfire on biological resources can be both beneficial and adverse.

The application of prescribed fire is anticipated to have long-term benefits for communities since it will be designed and implemented to attain specific objectives to promote the populations and communities of the CPER. Fire management may be used to control nonnative grass cover or to create a more diverse assemblage of seral (successional) stages.

Nonetheless, prescribed burns have the potential to adversely impact sensitive species and their habitat and will be evaluated further in the EIR.

Control of Exotic Species

The control of non-native species by hand or mechanical methods would have negligible affects on native plant and animal species. Projects would be designed and timed to avoid direct impacts during nesting/reproduction when possible. Important habitat features would be avoided to the maximum extent practicable. Some individual native and/or special status plants may be killed by restoration pre-treatment actions involving the continued use of herbicides, but overall there is expected to be an increase in native plant populations.

Recreation Activities

The installation of signage, trails and wildlife viewing platforms would have negligible impacts on wildlife and native plants. Direct impacts would be localized and positioned to avoid impacts to sensitive resources and are therefore unlikely to adversely impact plant or animal populations. Greater recreational activities near upgraded facilities would have wider-reaching indirect effects, such as additional noise*;* however, these are not anticipated to affect wildlife populations.

With regard to hunting, after July 2008, the use of lead ammunition for hunting large animals, coyotes and ground squirrels has been prohibited by the Ridley-Tree Condor Preservation Act. Therefore, the risk of lead exposure from hunting activities is expected to be minor.

Management actions that may be recommended by the draft LMP aimed at fostering an appreciation of the natural resources of the Reserve are anticipated to benefit vegetation, as would education to combat destructive human behavior. Potential visitor impacts to vegetation generally include trampling, picking, or other destruction of vegetation. Establishing trails should help protect vegetation by directing visitor impacts away from sensitive resources. Access to areas sometimes invites illegal activities such as off-road vehicular travel.

c) Potentially Significant Impact. The CPER contains wetlands as defined by Section 404 of the Clean Water Act as well as riparian resources. The majority of these areas have been fenced to exclude livestock grazing, while allowing access by native species. However, certain surface water sources in areas subject to grazing have been left un-fenced to allow access by wildlife including tule elk, and to maintain open conditions desired by native species including western spadefoot toad and many bats. These areas may be adversely impacted by grazing and will be evaluated further in the EIR.

d) Less Than Significant Impact. The control of exotic species and other management activities that may be recommended by the draft LMP are expected to have a beneficial impact on resident or migratory species. Impacts on surface water quality are discussed

in Section 8., Hydrology and Water Quality. All fences throughout the Reserve are designed to be permeable to wildlife; therefore, movement through the CPER is not impeded.

e) Less Than Significant Impact. Consistency with adopted plans and policies relating to the management of sensitive species is discussed in Section 9., Land Use and Planning.

f) No Impact. There are no adopted habitat conservation plans governing the CPER. However, consistency with the Recovery Plan for the San Joaquin Valley Upland Species is discussed in Section 9, Land Use and Planning.

5. Cultural Resources

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Potentially Significant unless Mitigation Incorporated	Less-Than-Significant Impact	No Impact
Would the proposal:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?	☒	☐	☐	☐
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?	☒	☐	☐	☐
c) Directly or indirectly destroy a unique paleontological resource or site or unique geological feature?	☒	☐	☐	☐
d) Disturb any human remains, including those interred outside of formal cemeteries?	☒	☐	☐	☐

Discussion

The CPER has not been systematically surveyed for archaeological sites and other historical resources. A limited amount of systematic surveying has occurred within the American Unit as a result of studies on the Carrizo Plain National Monument. In 2008, the California State University, Bakersfield, Center for Archaeological Research (CAR) conducted a reconnaissance of the Chimineas units, primarily focused on recording known historical locales (Orfila and Draucker 2008). ASM Affiliates, Inc., conducted a second reconnaissance of the Chimineas units in 2009, emphasizing additional known but unrecorded prehistoric sites (Whitley 2010). These data were used to develop a predictive model for site locations, which identified areas of relative archaeological sensitivity. The intent was for this analysis to be used for advanced planning purposes.

No archaeological sites are known on the Panorama and Elkhorn units. No archaeological surveys have been conducted on the Panorama or Elkhorn units, and no sites have been previously recorded in either unit. Systematic surveys of surrounding areas within the CPNM have failed to result in the discovery of sites (Whitley 2003, 2004, 2007) however, suggesting that archaeological sensitivity in these areas is low.

Twenty-two archaeological sites are known within the Chimineas units. These include 12 prehistoric villages, camps, pictographs, and lithic workshops, five bedrock mortar (BRM) stations, and one isolated artifact, as well as five historical sites/site components. Some of the sites include both prehistoric and historical components. All but two sites appear to be in good condition. The draft Lease Agreement specifically excludes areas to be grazed where significant archaeological sites have been found or are discovered in the future.

No built environment or structures inventory has been completed for any of the units within the CPER, and it is not known whether any buildings that would qualify as historical resources are present. The main house at the Chimineas Unit Headquarters has apparently been built around a nineteenth century adobe, but the architectural fabric of that historical structure is now entirely masked by the extensive remodeling and upgrades that occurred in the 1990s, prior to the Department's acquisition.

Conclusions

a) b), Potentially Significant Impact. The draft LMP may recommend a range of adaptive management strategies that include vegetation management, managed grazing, fire management, actions to remove exotic and invasive species and restoration activities which have the potential to adversely impact cultural resources. In addition, the construction of additional facilities, such as the extension of water lines, the placement of water tanks, the construction of trails, and wildlife corridors, each have the potential to adversely impact cultural resources. Lastly, routine and ongoing maintenance activities, such as road maintenance and fire fighting, have the potential to adversely impact cultural resources.

According to a survey of cultural and historic resources prepared for the Chimineas units, the existing ranch house has been so significantly altered over the years as to preclude its inclusion on the Register of Historic Places.

c) Potentially Significant Impact. Although no previously identified unique paleontological resources or sites or unique geological features have been identified on the Reserve, paleo deposits do exist at several locations. Management activities associated with the draft LMP could adversely impact these resources.

d) Potentially Significant Impact. Previous archaeological investigations of the CPER (Whitley 2010) suggest the potential for human remains to be discovered in at least one previously-documented site on the CPER. Management actions recommended by the draft LMP could adversely impact previously undiscovered human remains.

6. Geology And Soils

	ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
VI.	**Geology and Soils. Would the project:**				
	a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
	i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? (Refer to California Geological Survey Special Publication 42.)	☐	☐	☐	☒
	ii. Strong seismic ground shaking?	☐	☐	☐	☒
	iii. Seismic-related ground failure, including liquefaction?	☐	☐	☐	☒
	iv. Landslides?	☐	☐	☐	☒
	b) Result in substantial soil erosion or the loss of topsoil?	☒	☐	☐	☐
	c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐	☐	☐	☒
	d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994, as updated), creating substantial risks to life or property?	☐	☐	☐	☒

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☒

Conclusions

Soils of the Carrizo Plain and surrounding regions are highly variable due in part the distinctly different parent materials brought together at the confluence of the Pacific and North American plates (BLM 2010). Soils within the CPER were classified and mapped as part of three separate soil surveys:

1. Eastern San Luis Obispo County (Oster and Vinso 2003): covers 33,818 acres (85.4%) of the CPER including all of the American, Panorama, and Elkhorn units and all but the southern and western portions of the Chimineas units.

2. Northern Santa Barbara Area (Shipman 1972): covers 12% of the CPER in the South Chimineas Unit.

3. Los Padres National Forest (O'Hare and Hallock 1980): covers 2.6% of the CPER, on the western side of the Chimineas units.

Following the organizational scheme used in a soil survey conducted in and around the Carrizo Plain (Oster and Vinso 2003), soils of the CPER can be classified into three general soil map units: soils on the valley floor, soils on alluvial flats, alluvial fans, flood plains, and terraces, and soils on hills and mountains. Soils on the valley floor account for about 529 acres or just over 1% of the total area of the CPER. They account for 13% of the Panorama Unit, 2% of the American Unit, and are essentially unrepresented in the Elkhorn and Chimineas units. Soils on alluvial flats, alluvial fans, flood plains, and terraces account for roughly 7,188 acres, or 18% of the CPER, and cover 93% of the Elkhorn Unit, 78% of the Panorama Unit, 23% of the American Unit, and 11% of the Chimineas units. Soils on hills and mountains account for 30,372 acres or just under 77% of the total area of the CPER. These soils make up the vast majority of the area within the Chimineas (84%) and American (75%) units but represent. only about 10% of both the Elkhorn and Panorama units (Table 5).

According to the US Department of Agriculture, Natural Resource Conservation Service, soils on the CPER have a low to moderate susceptibility to erosion as summarized on Table 7.

Table 5 -- Dominant Soil Types of the Carrizo Plain Ecological Reserve

Soil Type	America		Chimineas Units		Elkhorn		Panorama		CPER (Total)	
	Acres	**%**	**Acres**	**%**	**Acres**	**%**	**Acres**	**%**	**Acres**	**%**
Alluvial Soils	1,468.5	23.2	3,319.2	11.0	149.3	93.0	2,251.6	77.7	7,188.6	18.2
Bolson Floor	136.0	2.1	8.3	0.0			384.4	13.3	528.6	1.3
Hills and Mountains	4,736.5	74.7	25,363.3	84.0	11.3	7.0	261.7	9.0	30,372.8	76.7
Subtotal Unclassified			1,506.7	5.0					1,506.7	3.8
Total	**6,341.0**		**30,197.5**		**160.6**		**2,897.7**		**39,596.8**	**100.0**

Source: Jodi McGraw Consulting, 2012

Table 6 -- Dominant Soils Of The CPER And Their Susceptibility to Erosion

Soils	Acres	Percent Of CPER	Characteristics	Susceptibility to Erosion	
				K Factor[4]	Susceptibility
Beam-Panoza-Hillbrick complex	7,295.3	18.4%	Fine, sandy loam soils derived from the weathering of soft, calcareous shale, conglomerate, or sandstone	0.28	Low/Moderate
Seaback-Panoza-Jenks complex	3,653.9	9.2%	Loam soils	0.28	Low/Moderate
Tajea-Saltos	2,854	7.2%	Very shallow to moderately deep, well drained, loam, clay loam and sandy clay loam soils found on moderate to very steep slopes	0.21	Low/Moderate
San Timoteo-San Andreas-Bellyspring	2,561	6.5%	Moderately deep, well drained sandy loam soils formed from weathered sedimentary rocks	0.26	Low/Moderate
Panoza-Beam complex	2,307	5.8%	Well drained residuum weathered from sandstone, shale, or conglomerate	0.24	Low/Moderate
Shedd silty clay loam	1,749.3	4.4%		0.28	Low/Moderate
Gaviota-Saltos-Rock outcrop	1,461	3.7%	Well drained residuum weathered from sandstone, shale, or conglomerate	0.28	Low/Moderate
Aido clay	1,454.3	3.7	Well drained residuum weathered from calcareous shale or fine-grained sandstone	0.17	Low
Padres sand loam	1,314.1	3.3%	Very deep, well drained alluvial material from sedimentary rocks	0.28	Low/Moderate
Polonio clay loam	1,197.7	3.0%	Very deep, well drained alluvial material from calcareous sedimentary rocks	0.24	Low/Moderate
Chicote complex	466.2	1.2%	Moderately well drained alluvium derived from sedimentary rocks and lacustrine sediments	0.43	Moderate/High
Sub-Total:	26,314	62.7%			
Various[5]	13,186	37.3%	Various		
Total:	39,500	100%			

Source:

1. Eastern San Luis Obispo County (Oster and Vinso 2003): covers 33,818 acres (85.4%) of the CPER including all of the American, Panorama, and Elkhorn units and all but the southern and western portions of the Chimineas units.
2. Northern Santa Barbara Area (Shipman 1972): covers 12% of the CPER in the South Chimineas Unit.
3. Los Padres National Forest (O'Hare and Hallock 1980): covers 2.6% of the CPER, on the western side of the Chimineas Unit.
4. Natural Resources Conservation Service, Soil Survey of San Luis Obispo County Carrizo Plain Area, Table 16. Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and permeability. Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.
5. Various soils comprising less than 1% of the CPER.

a) c), d), e) No Impact. It is unlikely that the draft LMP will authorize the construction of structures which in turn would result in the exposure of people or property to an increased risk from seismic activity, landslides or unstable or expansive soils**.** No additional septic tanks or wastewater disposal facilities are required to implement the draft LMP. Future development will be subject to prior approval of the Department and consistent with applicable building and fire codes which will reduce potential impacts associated with seismic risk to a less than significant level.

b) Potentially Significant Impact. Certain management actions may have short-term, localized effects involving some erosion and/or soil loss or loss of soil productivity. For example, management actions that reduce vegetative cover may expose soil to localized short-term erosion in the treated area, and, if heavy equipment is used, soil would undergo some localized compaction which could slow vegetation re-growth and lead to longer-term erosion.

Certain secondary effects of management actions could result in adverse impacts on soils. For example, encouraging giant kangaroo rat populations to thrive could also promote the soil disturbance from vegetation clipping in which they naturally engage.

Fire, especially wildfire, has the potential to create major, widespread, long-term negative impacts to soils. It can impact physical, chemical, hydrological, and microbial properties of soil, expose soil to accelerated erosion by destroying soil-holding vegetation in the short term, and change or destroy fire intolerant plant communities in the long term. Fire suppression activities such as construction of fire lines (removing a swath of vegetation to limit the spread of a wildfire) can also impact soils via exposure to erosion, disturbance, and compaction if heavy equipment is used.

Potential impacts of livestock grazing on soil health include effects of reducing vegetative cover that helps protect soil from erosion; and effects of trampling that can result if domestic livestock are heavier, more numerous, and/or differently distributed than animals native to the ecosystem, including soil compaction, breakdown of sensitive landforms such as stream banks, and destruction of biological soil crusts.

Recreation use levels are currently relatively low and are not expected to increase substantially over current levels through the timeframe of the draft LMP. Recreational uses allowed in the CPER, such as hiking and travel on designated roads, have the potential to create negligible to moderate localized disturbance and compaction impacts to soils and biological soil crusts.

Impacts associated with soil erosion will be further analyzed in the EIR.

7. Hazards And Hazardous Materials

	ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
VII.	**Hazards and Hazardous Materials. Would the project:**				
a)	Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
b)	Create a significant hazard to the public or the environment through reasonably foreseeable upset and/or accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐
c)	Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒
d)	Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
e)	For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
f)	For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
h) Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☒	☐	☐	☐

Discussion

No landfills or other hazardous waste sites are known to occur on public lands in the CPER. Currently, the volume of hazardous waste generated in the CPER does not exceed the threshold allowed for a conditionally exempt small quantity generator[6]. The small volume of hazardous waste that is generated at the CPER will be recycled or disposed through San Luis Obispo County's or Kern County's Small Quantity Generator Program. The hazardous waste stream consists of used motor oil and occasional expired or obsolete hazardous materials such as paint, solvents, pesticides and herbicides.

Emergency response responsibilities for the CPER are shared among the Department, San Luis Obispo County Sheriff and County Fire, the State of California (Highway Patrol and Division of Forestry), and the federal government (Bureau of Land Management and US Forest Service).

Conclusions

a), b) Less Than Significant Impact. Some of the management activities that may be recommended by the draft LMP, such as vegetation management and routine maintenance of CPER facilities, could involve the use, transport and storage of small amounts of hazardous materials such as gasoline, paint, solvents, batteries, and lubricants, as well as pesticides and herbicides.

The use of hazardous materials is regulated by the Department of Toxic Substances Control (DTSC) (22 Cal. Code of Regulations Section 66001, et seq.). The use, storage, and transport of hazardous materials on the CPER is required to be in compliance with local, state, and federal regulations. The use of hazardous materials on the CPER may

[6] Small Quantity Generators (SQG) generate more than 100 kilograms, but less than 1,000 kilograms, of hazardous waste per month.

require the issuance of one ore more permits and compliance with appropriate regulatory agency standards designed to avoid hazardous waste releases. The small quantity of hazardous materials used and stored on the CPER, along with compliance with the relevant permitting requirements of federal, state and local agencies, will ensure that impacts associated with an accidental release of hazardous materials are less than significant.

c) No Impact. There are no schools within the CPER and none are proposed.

d) No Impact. The State of California Hazardous Waste and Substances Site List (also known as the "Cortese List") is a planning document used by state and local agencies and developers to comply with the siting requirements prescribed by federal, State, and local regulations relating to hazardous materials sites. California Government Code Section 65962.5 requires the California Environmental Protection Agency (Cal-EPA) to annually update the Cortese List. The Department of Toxic Substances Control (DTSC) is responsible for preparing a portion of the information that comprises the Cortese List. Other state and local government agencies are required to provide additional hazardous material release information that is part of the complete list. DTSC's Site Mitigation and Brownfields Reuse Program EnviroStor database provides DTSC's component of Cortese List data by identifying State Response and/or Federal Superfund and backlog sites listed under Health and Safety Code Section 25356. In addition, DTSC's Cortese List includes Certified with Operation and Maintenance sites. A search of the Cortese database conducted in August, 2012 revealed no active sites within the CPER.

e), f) No Impact. There are no public or private airports within two miles of the CPER. The nearest airport to the CPER is the New Cuyama Airport located about one mile south of SR 166 in the unincorporated community of New Cuyama. New Cuyama Airport is privately owned and operated but open to the public. Based on the project description, the adoption of the draft LMP would have no impact on the safety of the airport or the safety of persons residing or working on the CPER.

g) Less Than Significant Impact. The 2008 San Luis Obispo County Emergency Operations Plan (EOP) outlines the responsibilities of federal, State and local governments in the event of an emergency in the County. The EOP identifies the Department as a supporting agency with respect to emergency response. There are no other emergency response plans governing lands within the CPER or surrounding land. The draft LMP is being prepared to be consistent with, and to complement, the EOP.

h) Potentially Significant Impact. The CPER is located in a region where wildfires have occurred periodically. Due to the proximity to human development and thus threat to lives and property, fire protection agencies responsible for land within the CPER will continue to actively suppress wildfires.

Within the CPER, fire plays an important role in creating the diverse mosaic of communities of various successional (seral) stages, and thus greatly contributes to the Reserve's native species diversity. Accordingly, the draft LMP may recommend the use

of prescribed burning to promote the growth of native vegetation, to control the spread of non-native vegetation and to help manage the fire fuel load on the Reserve. Although prescribed burning can be an effective landscape-level vegetation management tool, the inherent uncertainties associated with predicting the weather and the behavior of fire behavior result in a prescribed burn spreading beyond the boundaries of the Reserve posing a risk to people and property.

In addition, certain management activities (e.g. installation of fencing and signage, vegetation management) that involve the use of mechanical equipment would have the potential for increasing wildfire hazard.

Potential safety impacts associated with wildfires and prescribed burning will be further analyzed in the EIR.

8. Hydrology And Water Quality

	ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
VIII.	**Hydrology and Water Quality. Would the project:**				
a)	Violate any water quality standards or waste discharge requirements?	☐	☐	☐	☒
b)	Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☒	☐
c)	Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial on- or off-site erosion or siltation?	☒	☐	☐	☐
d)	Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in on- or off-site flooding?	☒	☐	☐	☐
e)	Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☒	☐
f)	Otherwise substantially degrade water quality?	☒	☐	☐	☐

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☐	☒
h) Place within a 100-year flood hazard area structures that would impede or redirect flood flows?	☐	☐	☐	☒
i) Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☐	☒
j) Result in inundation by seiche, tsunami, or mudflow?	☐	☐	☐	☒

Discussion/Conclusions

a) No Impact. The draft LMP is unlikely to authorize the construction of new or expanded wastewater disposal systems and would therefore have no impact relating to wastewater discharge requirements.

b) Less Than Significant. As discussed in the Project Description, the draft LMP is unlikely to authorize irrigated agricultural or other water-intensive activities or additional structures or facilities that would substantially increase water demand. No new or expanded wells are proposed. Section 16, Utilities and Services Systems, discusses potential impacts related to groundwater and water supplies and concludes that project impacts will be less than significant.

c) Potentially Significant Impact. The CPER contains more than 100 miles of drainages including two perennial streams, the Cuyama River and San Juan Creek, which currently support 259 acres of riparian communities. Riparian and riverine communities within the CPER have been impacted by previous hydrologic modifications, including the installation of dams; historic land uses including farming and grazing; the invasion and spread of non-native plants such as tamarisk; and the impacts of non-native animals, including predatory fish and wild pigs. As discussed in Section 6, Geology and Soils, certain actions that may be recommended by the draft LMP could result in significant impacts relating to erosion, which in turn could adversely impact water quality. Potential impacts to surface water quality will be further analyzed in the EIR.

d) No Impact. The draft LMP is unlikely to recommend management actions that would substantially alter the existing drainage pattern of any of the drainages of the CPER or substantially increase the rate or amount of surface runoff in a manner which would result in on- or off-site flooding.

e) Less Than Significant Impact. Adoption of the draft LMP is not likely to authorize the development of facilities or other improvements that would significantly increase the volume or velocity of surface runoff affecting local drainages. All weather surfaces for roads would be permeable. Future construction would be subject to applicable building codes as well as project-specific environmental review.

f) Potentially Significant Impact. As discussed in Section 6, Geology and Soils, soils associated with the CPER have low to moderate susceptibility to erosion. Nonetheless, managed livestock grazing has the potential to result in soil erosion, which in turn could adversely impact surface water quality in areas where cattle congregate.

As described in the Project Description, most surface water bodies within the CPER have been fenced to exclude livestock. Where and when livestock have access to surface water, potential impacts on water resources include fecal contamination; reducing vegetative cover that helps protect soil from erosion into the water source; soil compaction that can impact hydrologic function, including absorption of water and timely recharge of springs and streams; and direct breakdown of spring or stream banks by trampling. Similar but less direct impacts can affect water via runoff from nearby uplands.

Soil erosion and associated surface water quality degradation could be exacerbated if overgrazing occurs in one or more of the grazing management units.

Fire has the potential to create generally short-term negative impacts to water quality when ash, eroded soil from newly-exposed lands, and other materials enter surface water.

Potential impacts to surface water quality will be further analyzed in the EIR.

g), h), i), j), No impact. Based on the Project description and the setting discussed above, the draft LMP is not likely to authorize any activities that would:

- Place housing within a 100-year floodplain;
- Place structures within a 100-year flood area that would impede or redirect flood flows;
- Expose people or property to risks associated with flooding or dam failure; or
- Result in inundation by seche, tsunami or mudflow.

9. Land Use And Planning

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
IX. Land Use and Planning. Would the project:				
a) Physically divide an established community?	☐	☐	☐	☒
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to, a general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☒	☐
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☒

Discussion/Conclusions

a), No impact. As discussed in the Project description, the draft LMP does not have the potential to physically divide a community.

b), Less Than Significant Impact. The San Luis Obispo County General Plan designates the CPER as *Recreation* and *Rural Lands*. Management actions such as those that may be recommended by the draft LMP are allowed in these land use categories. However, properties owned and managed by the State of California are not subject to local land use regulations.

The draft LMP is being developed through careful consideration of local, state, and federal provisions and management plans, including relevant provisions of the California Fish and Game Code, the California Wildlife Action Plan, the Management Plan for the Carrizo National Monument, the Land Management Plan for the Los Padres National Forest, the Caliente Resource Area Resource Management Plan and the Recovery Plan for Upland Species of the San Joaquin Valley, California. Accordingly, the draft LMP will be consistent with the provisions in these plans and policies.

c), No impact. There are no adopted habitat conservation plans or natural community conservation plans governing lands within the CPER.

10. Mineral Resources

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
X. Mineral Resources. Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	☐	☐	☐	☒

Discussion/Conclusion

a), b) No Impact. Based on the Project description, the draft LMP will not result in the loss of known mineral resources or the loss of locally important mineral resources. Accordingly, adoption of the draft LMP will have no impact on existing mineral resources.

11. Noise

	ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
XI.	**Noise. Would the project:**				
a)	Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or in other applicable local, state, or federal standards?	☐	☐	☒	☐
b)	Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
c)	A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐
d)	A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐
e)	For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒
f)	For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

Discussion/Conclusions

a), b), c) d), Less Than Significant Impact. Management actions that may be recommended by the draft LMP could result in the temporary generation of increased noise levels and vibration in areas where construction tools and/or machinery are being

used and where hunting is allowed. These impacts would be temporary, localized and (in the case of hunting) seasonal in nature. Considering the absence of sensitive receptors such as housing, schools, and hospitals within the CPER, temporary impacts associated with implementation of management actions is considered less than significant.

As discussed in the project description, research and recreation activities are expected to increase slightly over present levels following adoption of the draft LMP which in turn will permanently increase ambient noise levels on the Reserve. However, the slight increase in activities on the Reserve is not expected to adversely impact the currently very low ambient noise levels.

According to the Noise Pollution Clearinghouse, sources of noise that have the potential to effect wildlife include aircraft overflights, recreational activities such as hunting, automobile traffic, and heavy machinery and equipment. These or other temporary localized noise associated with management activities could result in a temporary adverse impact to wildlife. However, given the localized and temporary nature of these impacts, their effect on wildlife is expected to be less than significant. In addition, future construction activities will in turn be subject to project-specific environmental review in which site-specific analysis will determine the effects of noise on wildlife.

e), f) No Impact. There are no airstrips on the CPER; the nearest airstrip is the New Cuyama Airport located about one mile south of SR 166 in the community of New Cuyama, which is more than two miles outside the CPER boundary. The Santa Barbara County Airport Land Use Plan does not cover the New Cuyama Airport.

12. Population And Housing

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
XII. Population, and Housing. Would the project:				
a) Induce substantial population growth in an area?	☐	☐	☐	☒
b) Displace substantial numbers of existing homes?	☐	☐	☐	☒
c) Displace substantial numbers of people?	☐	☐	☐	☒

Discussion/Conclusions

a), b), c) No impact. Based on the project description, adoption and implementation of the draft LMP would not involve the construction of additional housing, nor would it induce growth by the provision of new infrastructure or by the removal of any barriers to growth. Implementation of some of the management actions may require a minimal addition of staff hours, but this would not require the construction of new housing or the relocation of personnel. Accordingly, adoption and implementation of the draft LMP would have no impact on population or housing.

13. Public Services

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
XIII. Public Services Would the project:				
a) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:				
Fire protection?	☒	☐	☐	☐
Police protection?	☐	☐	☒	☐
Schools?	☐	☐	☐	☒
Parks?	☐	☐	☐	☒
Other public facilities?	☐	☐	☐	☐

a) Less Than Significant Impact -- Police Protection. As discussed in the Project Description, public use of the Reserve is expected to increase slightly in part as a response to implementation of the actions that may be recommended by the draft LMP. Increased public use, along with increased management activities will result in a slight increase in the demand for medical emergencies and law enforcement. Given the small incremental increase in the use of the Reserve, the increased demand for police protection and emergency services is expected to be correspondingly slight and less than significant. The hazards posed by wildfire are discussed in Section 7. Hazards and Hazardous Materials.

All new construction associated with implementation of the draft LMP will be subject to the access, construction and fire suppression requirements of the California Fire Code.

The increase in traffic (see Section 15, Transportation/Traffic) and visitation to the Reserve is not expected to require law enforcement staffing or equipment beyond current levels.

a) Potentially Significant Impact – Fire Protection. The draft LMP may recommend the use of prescribed burning as a vegetation management tool. Prescribed burning by definition involves setting controlled fires that are designed and managed by fire fighting/fire management professionals. The use of prescribed burning on the Reserve could result in an increase in the demand for fire protection services. The potential increased demand for fire protection services will be analyzed in the EIR. The risk/hazard associated with wildfires is discussed under Section 7 Hazards and Hazardous Materials.

a.) No Impact – Schools and Parks. Based on the project description, the draft LMP will not authorize the construction of additional residences that would generate increased demand for public schools or neighborhood or regional parks. (See also Section 14., Recreation.)

14. Recreation

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
XIV. Recreation. Would the project:				
a) Increase the use of existing neighborhood and regional parks or other recreational facilities?	☐	☐	☒	☐
b) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☒	☐

Discussion/Conclusions

a) b) Less Than Significant Impact. One of the main objectives of the CPER is to provide for wildlife-dependent public access that is compatible with the other management goals for the Reserve. The draft LMP may recommend management actions to facilitate recreational use of the Reserve for hunting, hiking, and other allowable day-use activities consistent with the objectives for the protection and enhancement of biological resources. Accordingly, adoption of the draft LMP is expected to have a positive impact on recreational opportunities locally and regionally. Public use will be managed to complement the management objectives for the Reserve.

As discussed in the project description, adoption of the draft LMP is expected to result in a slight increase in recreation visitation which in turn could result in a correspondingly slight increase in vandalism, nuisance abatement such as trash removal, and the harassment of wildlife. Given the low number of visitors at present and the slight increase expected following adoption of the draft LMP, these impacts are expected to be less than significant.

15. Transportation/Traffic

	ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
XV.	**Transportation/Traffic. Would the project:**				
a)	Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?	☐	☐	☒	☐
b)	Exceed, individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?	☐	☐	☒	☐
c)	Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	☒
d)	Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒
e)	Result in inadequate emergency access?		☐	☒	☐
f)	Result in inadequate parking capacity?	☐	☐	☒	☐
g)	Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?	☐	☐	☐	☒

Discussion/Conclusions

a), b) Less Than Significant Impact. Table 7 provides a summary of existing traffic volumes and level of service (a measure of traffic volume to capacity, with LOS A being free flow conditions and LOS F being gridlock) for roadways serving the CPER. As shown in Table 8, all of the roadway segments serving the CPER are operating at Level of Service A, free-flow conditions.

The County of San Luis Obispo level of service (LOS) standard is LOS D or better in urban areas and LOS C or better in rural areas. All County maintained roads are subject to County LOS standards. Significant impacts to San Luis Obispo County roadways are defined to occur when: a) The addition of project traffic causes roadway operations to degrade from an acceptable level to an unacceptable level, or b) if project-related traffic is added to a roadway operating at an unacceptable level (i.e., LOS D or worse in rural areas, LOS E or worse in urban areas).

With regard to State highways, as stated in the Caltrans Guide for the Preparation of Traffic Impact Studies, "*Caltrans endeavors to maintain a target LOS at the transition between LOS C and LOS D*" on State Highways, such as SR 166 and 58. The Transportation Concept Report (TCR) for SR 58 indicates that LOS D or better is considered acceptable for the segment from Pozo Road to the San Luis Obispo/Kern County Line and that LOS C or better is considered acceptable within Kern County. Based on these criteria, except for SR 58 between Pozo Road and the San Luis Obispo/Kern County Line, if a rural roadway or intersection operates at LOS D, E, or F, it is considered unacceptable.

Table 7 -- Existing Roadway Traffic Volumes and Levels of Service (LOS)

Roadway Segment	Configuration	Annual Average Daily Traffic	Peak Hour Volume	Level of Service
Highway 58: West of Shell Creek Road[1]	Two-lane Rural Highway	440	60	A
Soda Lake Road South of SR 58[2]	Two-Lane Rural County Road	202	25	A
SR 166 at Bell Road[3]	Two-Lane Rural Highway	3,600	620	A

Sources:

1. Wood Rogers, 2010, Table C.14-1, Final Environmental Impact Report for the Topaz Solar Project
2. San Luis Obispo County Traffic Counts, August 2008, http://www.slocounty.ca.gov/PW/Traffic/Traffic_Counts.htm
3. Caltrans, 2008

Current (2010) Levels of Service have been calculated for the roadway segments serving the CPER using methods documented in the Transportation Research Board (TRB) Publication Highway Capacity Manual, Fourth Edition, 2000 (HCM 2000). The average daily traffic (ADT) roadway segment LOS thresholds based on HCM 2000 methodologies are shown in Table 8.

Table 8 -- Level of Service Criteria for Roadway Segments

Roadway Segment	LOS A	LOS B	LOS C	LOS D	LOS E
2-Lane Rural Highway	2,400	4,800	7,900	13,500	22,900
2-Lane Expressway	12,000	14,000	16,000	18,000	20,000
4-Lane Expressway	24,000	28,000	32,000	36,000	40,000
2-Lane Arterial (no left turn lanes)	9,000	10,500	12,000	13,500	15,000
2-Lane Collector/Local Street	6,000	7,500	9,000	10,500	12,000

Source: Highway Capacity Manual, Fourth Edition, 2000

Table 9 provides a summary of the trip generation associated with the CPER at present (2012) and in the year 2032. Trips are seasonal (recreation, hunting, special events and grazing) and vary during the day. In addition, the headquarters building on the North Chimineas Unit hosts special events throughout the year for activities that include scientific seminars and meetings.

Table 9 assumes each of these activities is occurring simultaneously on a given day, and that no adjustments are made for overnight stays in which the trips are spread over two days. In practice, it would be rare for all of these trips to occur on a single day. As a result, the actual average daily trips are expected to be much lower for the Reserve on a typical day.

Table 9 -- Average Daily Trip Generation for the CPER

Staffing/Use	Estimated Average Daily Trips[1]	
	2012	2032
DFG staff	5	5
Researchers	4	11
Grazing	1	2
Volunteers	2	3
Average Daily Recreation Use	2	3
Sub-Total Staffing, Maintenance and Recreation Use[1]	14	24
Special Events	30	30
Total Maximum ADT:	44	54

Source: DFG, 2012

Following adoption of the draft LMP, average daily trip generation associated with the CPER is expected to increase as recreation and research activities increase over the timeframe of the draft LMP. The additional vehicle trips associated with adoption of the draft LMP are estimated to be about 10 trips per day. The distribution of trips is assumed to be 80 percent to the north through Soda Lake Road and SR 58, and 20 percent to the south to SR 166. Table 10 provides a summary of the resulting ADT for each of these roadway segments following adoption of the draft LMP.

Table 10 -- Future Average Daily Traffic and Levels of Service (LOS)

Roadway Segment	2010 Annual ADT[1,2,3]	2010 LOS [1,3]	Added ADT [4]	Resulting Annual ADT	Resulting LOS
SR 58: West of Shell Creek Road[1]	440	A	8	448	A
Soda Lake Road South of SR 58[2]	202	A	8	210	A
SR 166 at Bell Road[3]	3,600	A	2	3,602	A

Sources:

1. Wood Rogers, 2010, Table C.14-1, Final Environmental Impact Report for the Topaz Solar Project
2. San Luis Obispo County Traffic Counts, August 2008, http://www.slocounty.ca.gov/PW/Traffic/Traffic_Counts.htm
3. Caltrans, 2008
4. A total of 10 trips divided 80% to the north and 20% to the south.

As Table 10 shows, the additional trips associated with the draft LMP would increase ADT on surrounding roadways by a fraction and the resulting LOS for each roadway will remain at LOS A. The very small number of additional trips are expected to have a less than significant impact on roadways and a less than cumulatively considerable impact on surrounding roadways.

Table 11 summarizes the resulting ADT for area roadways on days when a special event is being held. It should be noted that special events of 30 persons or more are currently being held at the Reserve about six times per year. However, following adoption of the LMP these events are expected to be held about once per month on a weekend. For purposes of providing a worse-case analysis, Table 12 assumes that all of the other activities associated with the Reserve that generate on-road motor vehicle trips (Table 10) are occurring. In addition, for purposes of this analysis, all of the special events trips are assumed to travel to the north of the headquarters building to Soda Lake Road and SR 58.

Table 11 -- Future Average Daily Traffic and Levels of Service (LOS) On Days With A Special Event

Roadway Segment	2010 Annual ADT[1,2,3]	2010 LOS [1,3]	Added ADT [4]	Resulting Annual ADT	Resulting LOS
SR 58: West of Shell Creek Road[1]	440	A	38	478	A
Soda Lake Road South of SR 58[2]	202	A	38	240	A
SR 166 at Bell Road[3]	3,600	A	32	3,632	A

Sources:

1. Wood Rogers, 2010, Table C.14-1, Final Environmental Impact Report for the Topaz Solar Project
2. San Luis Obispo County Traffic Counts, August 2008, http://www.slocounty.ca.gov/PW/Traffic/Traffic_Counts.htm
3. Caltrans, 2008
4. A total of 8 trips divided 80% to the north and 20% to the south, and 30 special event trips with 100% traveling to the north.

Tables 11 and 12 suggest that impacts to roadways are expected to continue to operate at LOS A following adoption of the draft LMP.

d) No Impact. The draft LMP is not likely to authorize the design or construction of new roadways that could result in safety hazards to the public.

e) Less Than Significant Impact. Emergency access to portions of the Reserve is restricted by the nature of the roadways. Emergency access to the Reserve is provided by State and County roadways; within the Reserve the roadways are unpaved and the terrain is difficult to access by fire-fighting and other emergency response vehicles. However, the draft LMP is not likely to recommend management actions that would adversely impact vehicular access for firefighting or other emergencies.

f) Less Than Significant Impact. Management activities associated with the draft LMP could generate an additional demand for parking by as many as 18 spaces per day. This additional demand can easily be accommodated by any unit of the Reserve. Parking associated with public access, interpretive displays or trails will be the subject of additional environmental review as needed.

16. Utilities And Service Systems

	ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
XVI.	**Utilities and Service Systems Would the project:**				
a)	Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☐	☒
b)	Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☒	☐
c)	Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒
d)	Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☒	☐
e)	Result in a determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the project's projected demand, in addition to the provider's existing commitments?	☐	☐	☐	☒
f)	Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☒	☐
g)	Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☒	☐

Discussion

Wastewater and Solid Waste

The existing residences within the CPER are served by on-site septic systems. No additional wastewater facilities are proposed or necessary to implement the draft LMP.

Solid waste is collected by the Marburg Disposal Company and taken by truck to one of the three landfills in the County.

Water Supply

Potable water supply for the CPER is provided by groundwater. There are three groundwater basins underlying portions of the CPER as described below.

Carrizo Plain Groundwater Basin. The Carrizo Plain Groundwater Basin (Figure 5) is identified in California's Groundwater Bulletin 118 as Groundwater Basin Number 3-19 (DWR, 2003). The basin is 173,000 acres (270 square miles) in size and is situated between the Temblor Range to the east and the Caliente Range and San Juan Hills to the west. The basin has internal drainage to Soda Lake. The basin is also transected by the San Andreas fault. Annual precipitation in the basin ranges from 7 to 9 inches. Published hydrogeologic information for this basin is compiled from older reports and may not be representative of current conditions.

The groundwater storage capacity is estimated to be 400,000 AF, however the actual amount in groundwater storage is unknown. There is one small public water system serving the local school (part of the Atascadero Unified School District). All other pumping in the basin is for agricultural and residential purposes by overlying users.

Taking into consideration the methodologies used in previous studies, historical groundwater levels, and water quality, the safe yield of the basin to base planning decisions on is 8,000 – 11,000 AFY (SunPower - California Valley Solar Ranch Environmental Impact Report (EIR), Topaz Solar Farm (First Solar/Optisolar) Draft Environmental Impact Report, 2010).

Groundwater samples from 79 wells collected from 1957 to 1985 show total dissolved solids concentration ranging from 161 to 94,750 mg/l (DWR, 2003). Groundwater in the lower alluvium and upper Paso Robles Formation that both underlie Soda Lake are highly mineralized. Groundwater deeper in the confined Paso Robles Formation is of higher quality. Groundwater in the Morales Formation is likely to be brackish.

Constraints on water availability in the basin include physical limitations and water quality issues. The small basin yield of the Carrizo Plain Groundwater Basin relative to its large size and the naturally high levels of total dissolved solids in areas (e.g., Soda Lake) suggest that water availability in the region is limited. Other than water quality issues associated with the internal drainage structure of the basin, other constraints are not well defined.

Big Springs Groundwater Basin. Published hydrogeologic information for this basin is very limited. According to Bulletin 118, the main water-bearing unit in the basin is Quaternary age alluvium (DWR, 2003). No additional information is available describing the basin hydrogeology. There are no municipal or public water purveyors in the basin. All pumping in the basin is for agricultural purposes and by overlying users. No information is available describing basin yield. No information is available describing water quality in the basin.

Constraints on water availability in the Big Spring basin are primarily based on physical limitations. Shallow alluvial deposits are typically limited by available storage capacity and are therefore susceptible to drought impacts. In the Big Spring area, the alluvial aquifer also overlies and recharges the underlying consolidated rock formations. Water availability in the consolidated rock reservoirs is highly variable, depending on the local structure, available storage capacity, and access to source of recharge.

Cuyama Valley Basin. According to the California Groundwater Bulletin 118, the Cuyama Valley Groundwater Basin underlies an east-trending valley bounded on the north by the Caliente Range and on the southwest by the Sierra Madre Mountains. The valley is drained by the Cuyama River. Average annual precipitation ranges from 7 inches to 15 inches per year.

In the mid-1940s, water levels in the central portion of the basin were very shallow whereas water levels in the southern and eastern part of the basin were several hundred feet deep (SBCWA 1996). Water levels dropped from 2 to 8 feet per year between 1947 and 1996 (Singer 1970). Hydrographs show that groundwater levels have dropped about 150 feet in the west-central during the last 40 to 50 years (DWR 1998). Groundwater movement is to the northwest, parallel to the Cuyama River.

The total storage capacity is estimated at 259,000 af for the portion of the basin within the boundaries of Ventura County (Ventura County 2001). The total storage capacity is estimated at 2,100,000 af (DWR 1975). The total useable storage capacity is estimated at 400,000 af (DWR 1975).

No groundwater management plan has been initiated.

Figure 5 – Groundwater Basins In the Vicinity of the CPER

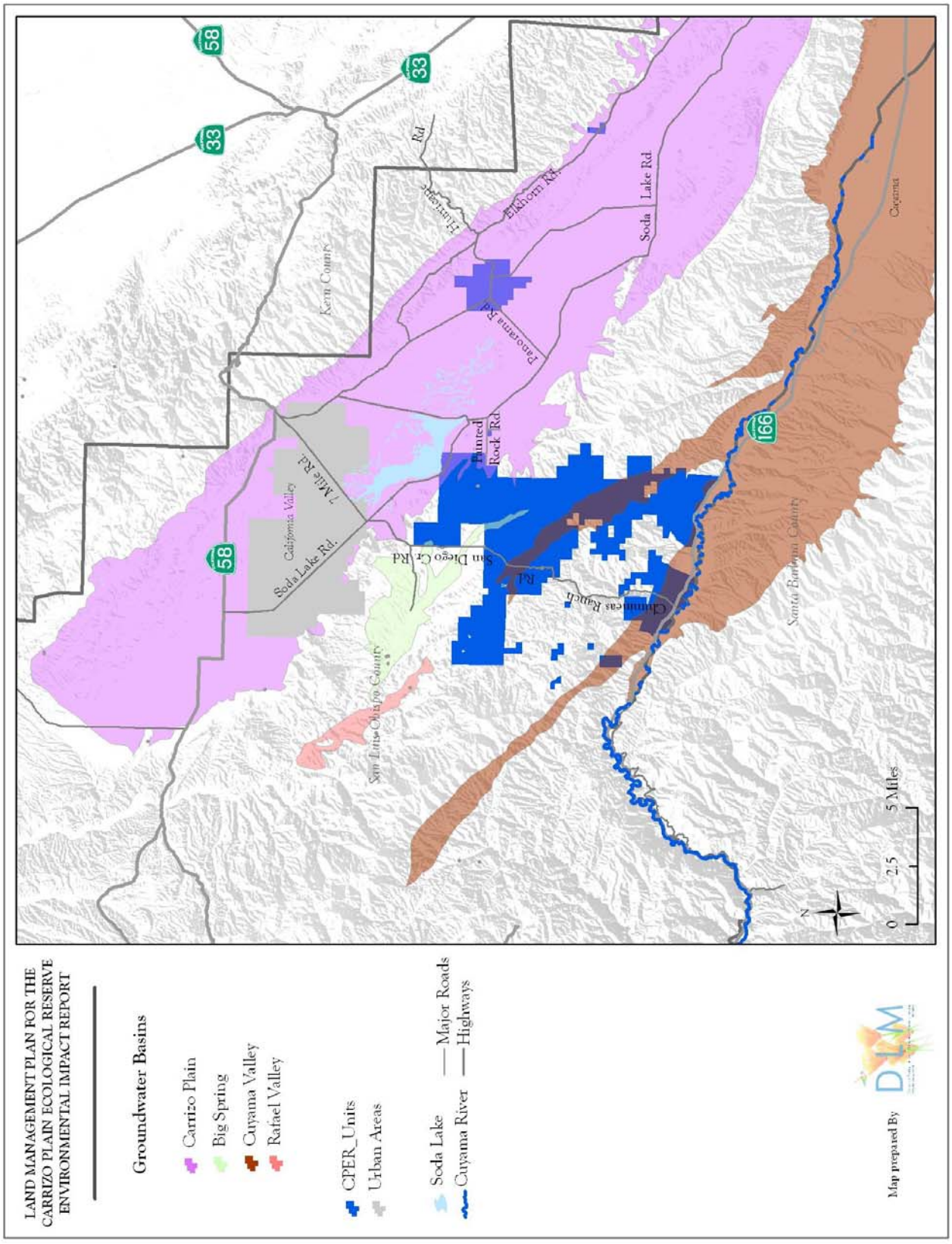
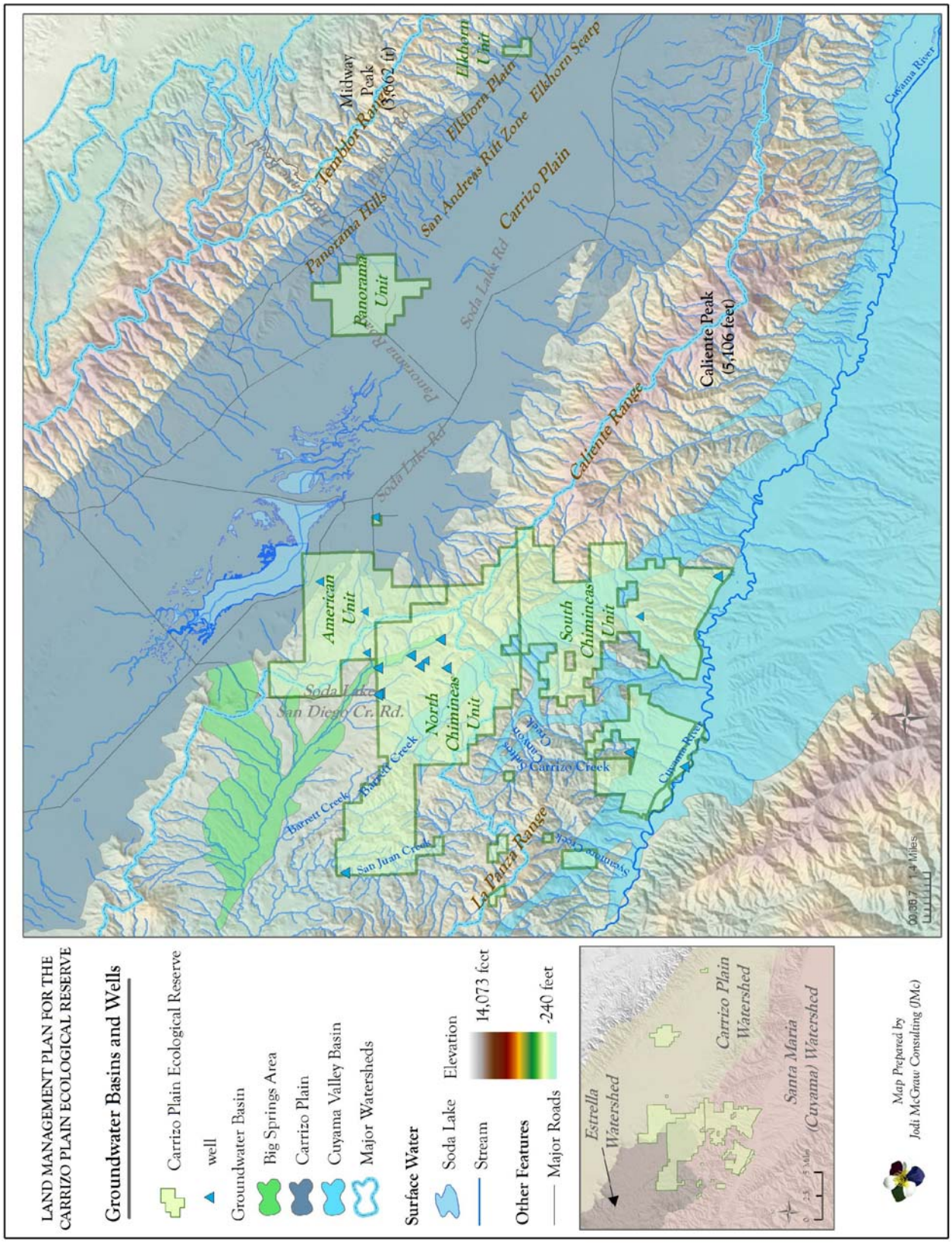


Figure 6 – Well Locations Within the CPER



Conclusions

a), c), e), No impact. Based on the Project description, implementation of the draft LMP will not require new or expanded wastewater treatment or stormwater facilities.

b) Less Than Significant Impact. Present (2012) and estimated future (2032) water demand for the CPER is summarized on Table 12. Assuming 80 gallons per person per day of potable water use and average daily use of the Reserve of about 14 persons per day (including staffing, research, grazing management, volunteers and recreation), six overnight events per year with 30 people attending for two days, 40 gallons per day for wildlife watering, 50 gallons per day per head of livestock during the summer months, and 25 gallons per day per head in the winter months, average water demand on the CPER is about 5.8 milliion gallons per year, or about 17.8 acre-feet per year. Peak demand occurs during special events which occur about six times per year with about 30 total attendees. Future demand is expected to increase slightly as a result of additional recreation users, scientific researchers, wildlife watering and special events. Water demand associated with livestock grazing is expected to be equal or less than current demand. The expected increase in water demand associated with the draft LMP is: 18.53 AFY – 17.8 AFY = 0.73 AFY.

The well serving the headquarters building provides water for staff and special events. This well draws water from the Big Springs Area groundwater basins described above. Although no data are available regarding the safe yield of the basin, pumping data from the wells located within the Reserve indicate that groundwater levels have remained stable over time, which suggests that historic use has not adversely affected the yield of the groundwater basin.

Historically, livestock operations have relied on groundwater supplies conveyed to water troughs located around the grazing area and fed by pipes from wells. The Lease Agreement executed in November, 2011 authorizes grazing activities on a portion of the Chimineas units. As described in the Project Description, the number of animal units authorized by the lease is less than the number allowed by the previous lease and is not likely to be increased by the draft LMP. Thus, the water demand associated with livestock grazing is expected to be equal to or less than historic demand. However, additional watering facilities are expected to be established to serve wildlife. As illustrated by Table 12, the additional water demand is expected to be slight.

Table 12 -- Present (2012) and Future (2032) Estimated Water Demand

Source	Persons/Livestock Per Day[1]	Water Demand (gallons per person per day)	Days Per Year	Total Water Demand Per Year (gallons per year)	Total Water Demand Per Year (acre-feet per year)
2012					
Staff/Research/Recreation/Volunteers	14	80[2]	260	291,200	0.89
Special Events	30	80	12	28,800	0.08
Wildlife Watering	1	40	260	10,400	0.03
Livestock Watering -- Summer	350	50	260	4,550,000	13.96
Livestock Watering -- Winter	350	25	105	918,750	2.81
Total:				6,717,900	17.79
2032					
Staff/Research/Recreation/Volunteers	24	80	260	499,200	1.53
Special Events	30	80	24	51,600	0.17
Livestock/Wildlife watering	1	50	260	13,000	0.04
Livestock Watering -- Summer	350	50	260	4,550,000	13.96
Livestock Watering -- Winter	350	25	105	918,750	2.81
Total:				6,038,550	18.53
Increased Water Demand Associated With the draft LMP					**0.73**

Sources:

1. DFG, 2012
2. State of California Department of Water Resources, 2005

The stability of the groundwater levels, as well as the isolation of the wells serving the Reserve with respect to wells on surrounding properties as shown on Figure 6, suggests that the increase in groundwater pumping associated with the draft LMP is not expected to adversely impact either the groundwater basin or surrounding wells.

Nonetheless, monitoring of the groundwater level in the supply well for the headquarters building will likely be recommended in the LMP to ensure demand does not exceed the available supply.

The slight increase in water demand associated with adoption of the draft LMP is expected to have a less than significant impact on water supplies within the CPER and surrounding areas.

d) Less Than Significant Impact. As discussed under item c) above**,** the increased water demand associated with enhancing water availability for animals, special events, research and other management is not expected to adversely impact the groundwater basin serving the Reserve.

f), g) Less Than Significant Impact. Current solid waste generation from the Reserve is associated with the ranch manager's residence on the North Chimineas Unit, ongoing monitoring and research activities, recreation use, and periodic special events. The total amount generated by all of these activities in a given day is estimated to average about 12.23 pounds per person per day. Table 13 provides a summary of existing (2012) solid waste generation and an estimate of future waste generation in the year 2032.

Table 13 -- Solid Waste Generation For the CPER

Source	Persons Per Day	Pounds Per Day Per Person	Total Days Per Year	Total Solid Waste Generated (Tons Per Year)
2012				
Staff/Research/Recreation/Volunteers	14	12.23	260	22.2
Special Events	30	12.23	12	2.2
			Sub-Total:	24.4
Staff/Research/Recreation/Volunteers	24	12.23	260	38.1
Special Events	44	12.23	24	6.4
			Sub-Total:	44.5
			Total Increase In Tons Per Year:	20.1
			Total Additional Waste Generated For 20 Years:	403.1

Source: CalRecycle, July, 2012, http://www.calrecycle.ca.gov/wastechar/wastegenrates/Residential.htm

Table 13 suggests that solid waste generation would increase by as much as 16.9 tons per year for a total waste generation of: 20.1 x 20 years = 403.1 tons over the next 20 years. It should be noted that this total does not account for recycling efforts mandated by State and federal law which are expected to reduce to reduce the total solid waste disposed of in landfills by diverting a portion of the waste stream to recycling.

Table 14 provides a summary of remaining landfill capacity for landfills serving San Luis Obispo County.

Table 14 -- Remaining Landfill Capacity

Landfill	Total Capacity (cubic yards)	Remaining Capacity (cubic yards)	Remaining Capacity (tons)	Estimated Closure Date
Cold Canyon	10,900,000	2,800,000	1,120,000	2012[1]
Chicago Grade	8,950,220	8,329,699	3,331,880	2042
Paso Robles	6,495,000	5,327,500	2,131,000	2051

Source: CalRecycle, July, 2012, http://www.calrecycle.ca.gov/SWFacilities/Directory/SearchList/List?COUNTY=San+Luis+Obispo

Notes:

1. A conditional use permit authorizing expansion of the Cold Canyon Landfill was approved by the San Luis Obispo County Planning Commission on August 9, 2012.

Table 16 compares the total solid waste generated by the CPER over the timeframe of the plan with the remaining landfill capacity serving the County. As Table 16 shows, the increase in solid waste generation associated with the draft LMP with the remaining capacity of each landfill serving the CPER.

Table 15 -- Comparison of Future Solid Waste Generation With Remaining Landfill Capacity

Landfill	Total Capacity (cubic yards)	Remaining Capacity (cubic yards)	Remaining Capacity (tons)[1]	Total Solid Waste Generated Over The Life of the Draft LMP (tons)[2]	Percentage of Remaining Landfill Capacity
Cold Canyon	10,900,000	2,800,000	1,120,000	403.1	0.03
Chicago Grade	8,950,220	8,329,699	3,331,880	403.1	0.01
Paso Robles	6,495,000	5,327,500	2,131,000	403.1	0.01

Source: CalRecycle, July, 2012 http://www.calrecycle.ca.gov/SWFacilities/Directory/SearchList/List?COUNTY=San+Luis+Obispo

Notes:

1. Based on 800 lbs per cubic yard.
2. From Table 13, above.

Table 15 suggests that the total solid waste that may be generated over the life of the draft LMP will consume a small fraction of the remaining landfill capacity available in the County. For this reason, impacts associated with solid waste are considered less than significant.

In addition, prior to the implementation of any projects that are consistent with the draft Lease Agreement, the Department would subject them to CEQA review according to CEQA Guidelines Section 15168, in light of the information in this document, to determine if additional CEQA documentation is necessary. The type of additional CEQA documentation completed would be determined based on CEQA Guidelines Sections 15162–15164.

17. Mandatory Findings Of Significance

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
XVII. Mandatory Findings of Significance:				
a) Does the project have the potential to substantially degrade the quality of the environment?	☒	☐	☐	☐
b) Does the project have impacts that are individually limited but cumulatively considerable?	☒	☐	☐	☐
c) Does the project have environmental effects that will cause substantial adverse effects on human beings?	☐	☐	☒	☐

Authority: Public Resources Code Sections 21083 and 21087.

Reference: Public Resources Code Sections 21080(c), 21080.1, 21080.3, 21082.1, 21083, 21083.3, 21093, 21094, 21151; Sundstrom v. County of Mendocino, 202 Cal.App.3d 296 (1988); Leonoff v. Monterey Board of Supervisors, 222 Cal.App.3d 1337 (1990).

Discussion/Conclusion

a) Does the project have the potential to substantially degrade the quality of the environment?

As discussed in the resource-specific impact discussions, the project may result in potentially significant effects on the environment. An EIR will be prepared for the project, focusing analysis on the following factors that may be affected by significant adverse impacts:

- Air Quality
- Biological Resources
- Cultural Resources
- Geology and Soils
- Hazards and Hazardous Materials
- Hydrology

- Water Quality

b) Does the project have impacts that are individually limited but cumulatively considerable?

The project may have impacts that are individually limited but cumulatively considerable. These issues will be analyzed in the EIR. A tentative list of projects and resource management plans that could affect the analysis of cumulative impacts is provided in Table 16 and shown on Figure 7.

Table 16 – Tentative List of Cumulative Projects

Project	Description	Jurisdiction	Acres	Status
Resource Management Plan for the Carrizo Plain National Monument	Resource management plan	US Department of Interior, Bureau of Land Management	246,817[1]	Adopted April, 2010[1]
Caliente Resource Area Resource Management Plan -- Coast Management Unit	Resource management plan	US Department of Agriculture, US Forest Service	20,400[2]	Approved May, 1997[2]
Topaz Solar Farm	550 megawatt photovoltaic solar power plant.	San Luis Obispo County	4,100[3]	Under construction. [3]
California Valley Solar Farm (Sunpower)	250 megawatt solar generating plant, electric sub-station, maintenance facilities and 2.8 mile transmission line.	San Luis Obispo County	2,000[4]	Under construction[4]
Land Management Plan for the Los Padres National Forest	Land management plan	US Department of Agriculture, US Forest Service	1.78 million	Adopted April, 2006[5]
Maricopa Sun Solar Complex	700 megawatt photovoltaic solar power plant.	Kern County	6,046	Approved March, 2011[6]
Lost Hills Solar	33 megawatt photovoltaic solar power plant.	Kern County	307	Approved October 2010[6]
Elk Hills Solar	7 megawatt photovoltaic solar power plant.	Kern County	47	Approved December 2011[6]
Pumpjack & Rio Bravo	125 megawatt photovoltaic solar power plant.	Kern County	125	Approved for Processing March 2011[6]
SunGen Solar	398 megawatt photovoltaic solar power plant.	Kern County	31	Approved for processing April 2011[6]
Kern Solar Ranch	1,000 megawatt photovoltaic solar power plant	Kern County	6,100	Approved for Processing September 2012[6]
Shandon Community Plan	Community plan for the unincorporated community of Shandon	San Luis Obispo County	2,081	Approved by San Luis Obispo County in April, 2012[7]

Sources:

1. US Department of Interior, Bureau of Land Management, Carrizo Plain National Monument Approved Resource Management Plan and Record of Decision, April 2010. http://www.blm.gov/pgdata/etc/medialib/blm/ca/pdf/bakersfield/carrizo.Par.8414.File.dat/CarrizoPlainNationalMonumentApprovedROD.pdf
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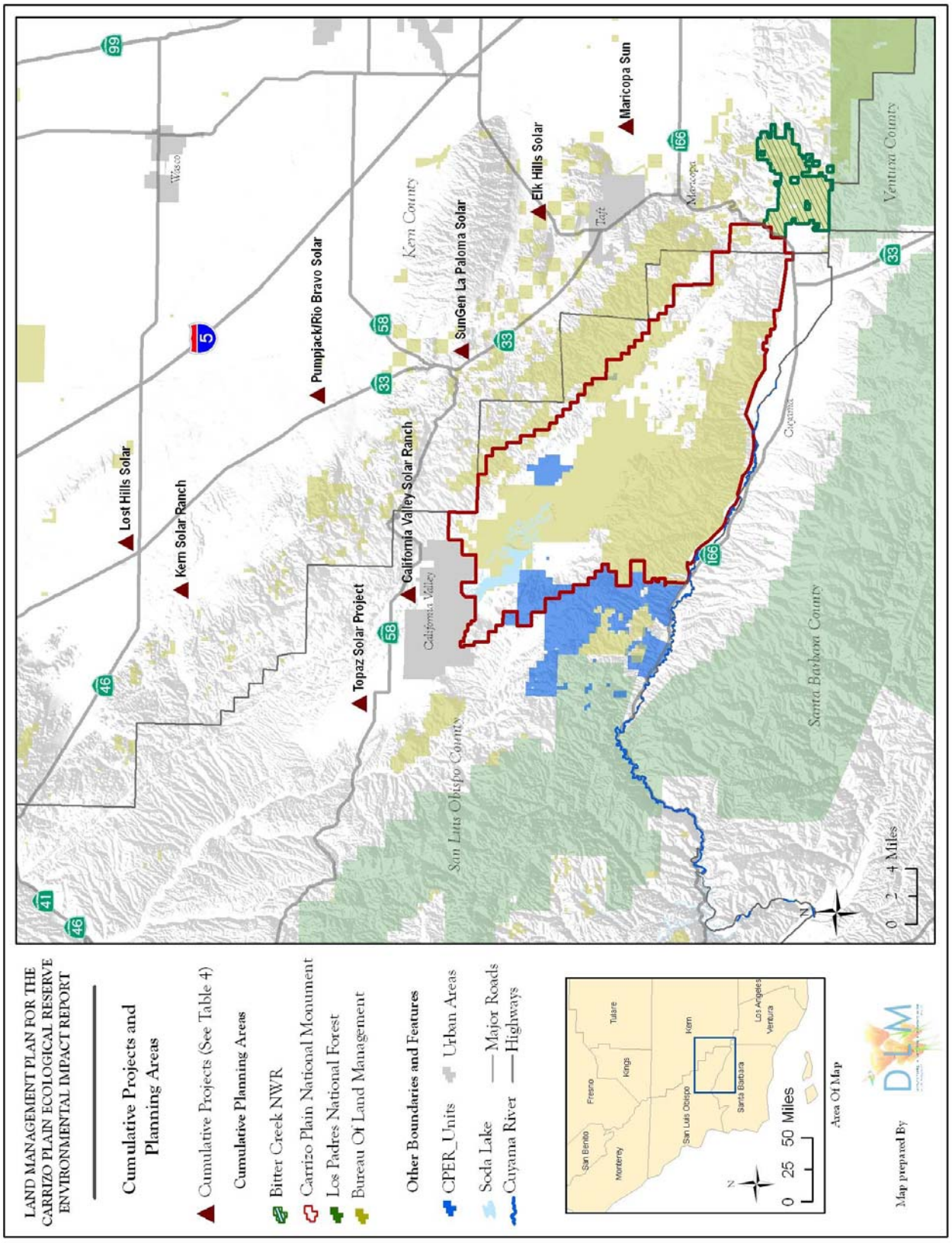
5. US Department of Agriculture, Forest Service Record of Decision, Los Padres National Forest Land Management Plan, April 2006, http://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fsm9_033985.pdf
6. Kern County Planning Department, 2012, http://www.co.kern.ca.us/planning/pdfs/renewable/solar_projects.pdf
7. San Luis Obispo County Department of Planning and Building, 2012 http://www.slocounty.ca.gov/Assets/PL/Draft+Plans/Shandon+Community+Plan+Draft+-+March+2012/Executive+Summary.pdf

Figure 7 – Location of Potential Cumulative Projects and Plan Areas



According to the environmental compliance documents prepared for development projects in the region, such as those associated with energy development (Table 16), these projects will result in cumulatively considerable impacts to biological resources, the permanent conversion of agricultural land to a non-agricultural use and impacts to cultural resources. Although implementation of the management actions that may be recommended by the draft LMP, together with the management plans of other agencies in the region (listed on Table 16) are expected to have a beneficial impact on the biological resources of the region, the net effect from the cumulative loss of habitat is considered a potentially cumulatively considerable impact. In addition, the project has the potential to result in cumulatively considerable adverse impacts relating to air quality from the generation of respirable particulate matter (PM_{10}) and the generation of greenhouse gases.

c) Does the project have environmental effects which will cause substantial adverse effects on human beings?

The preceding analysis concludes that adoption of the draft LMP would not result in environmental effects that would cause substantial adverse effects on human beings.

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United States Department of the Interior

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1795(P)
CAC06000

December 19, 2012

To: California Department of Fish and Game (CDF&G), Central Region, Carrizo Plain Ecological Reserve NOP/ Draft EIR Comments

From: Field Manager,
BLM, Bakersfield Field Office

Subject: Bureau of Land Management (BLM) comments on the Notice of Preparation of a Draft Environmental Impact Report for the Preparation of a Land Management Plan (NOP/Draft EIR LMP) for the Carrizo Plain Ecological Reserve (CPER) of November 2012

The Bureau of Land Management (BLM) appreciates the opportunity to review and provide comment regarding the proposed Land Management Plan for the CPER. The BLM, as a managing partner of the Carrizo Plain National Monument (CPNM) with CDF&G and The Nature Conservancy, is committed to coordinating the management of the Carrizo Plain in a complementary fashion. In this spirit of coordination the BLM Bakersfield Field Office has reviewed the NOP and attached Initial Study (IS) and offers the following comments.

The maps presented in the IS show a discrepancy in the land ownership pattern between BLM, CDF&G and USFS in the Chimineas Ranch area. These maps show thousands of acres of previously identified federal land (BLM and USFS) as private land (see graphic on enclosed CD). In addition, there are discrepancies in land ownership between the maps included in the IS, specifically landownership within the CPNM shown on Figures 2 and 7. This will be quite confusing and misleading to the public and could become controversial. The BLM has published many maps and documents that show public land ownership in this area. We suggest you use the GIS ownership layer provided with this comment letter to update your maps before publishing.

The BLM administers substantial land which is intermingled with and surrounding most Units of the CPER; much of this land is within the CPNM, where continued coordination of complementary management is paramount. The goals, objectives, and management strategies of the Draft LMP described in the IS seem to complement the BLM's management goals and objectives in the CPNM RMP. BLM looks forward to continued coordination and collaboration with their managing partners on adjacent projects and landscape level programs.

Outside the CPNM, there are approximately 6,600 acres of BLM-administered lands within or adjacent to the Chimineas Ranch Units. Management of this area is currently directed by the 1997 Caliente Resource Management Plan (RMP), which is referred to in Section 9 of the IS.

The Caliente RMP is undergoing a revision (Bakersfield RMP) that is anticipated to be finalized within the next three to four months. Both of these RMPs identify this area as ecologically important – Caliente National Cooperative Land and Wildlife Management Area (NCLWMA), to be managed for the improvement and maintenance of diverse assemblages of vegetative communities that benefit wildlife species (including deer, quail, and chukar), hunting, hiking, and nature study. These objectives appear to coincide with those presented in the IS. The Draft EIR should include the Bakersfield Proposed RMP/Final Environmental Impact Statement (EIS) (2012) in both its Land Use and Planning and the References section.

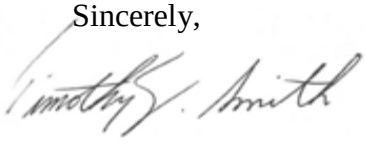
Management of the portion of the Caliente NCLWMA in the Chimineas Ranch Units under the Bakersfield RMP would continue the withdrawal from application under the non-mineral public land laws and from disposition under the homestead, desert land entry, and script selection laws. It would remain available for livestock grazing and open for fluid mineral leasing subject to moderate constraints. The BLM developed two fluid mineral leasing stipulations that would be applied to future leases in this area: Controlled Surface Use (CSU)-Chimineas Ranch and CSU-Existing Surface Use/Management. Specific details regarding these stipulations and their application can be found in the Bakersfield Proposed RMP/Final EIS, Appendix G.

BLM records indicate that there is federal mineral estate underlying the Chimineas Ranch Units of the CPER. This area is adjacent to the only active oil fields in the CPNM – Russell Ranch and Morales Canyon, and the abandoned Taylor Canyon oil field. The Bakersfield RMP identifies this region as having moderate to high potential for oil and gas occurrence; although there are no current leases in the Chimineas Ranch Units, there could be future interest in this area for oil and gas development. It is unclear from the IS whether the conclusion that the "draft LMP will not result in the loss of known mineral resources or loss of locally important mineral resources" is based on the lack of knowledge regarding the mineral resources or that the management proposed in the draft LMP would not restrict mineral resource development.

Finally, Table 16 – Tentative List of Cumulative Projects erroneously lists the USDA, US Forest Service rather than the DOI, BLM as having jurisdiction over the Caliente Resource Area Resource Management Plan – Coast Management Unit, although the footnote and web address are accurate.

Again, the BLM looks forward to continuing our relationship with CDF&G in coordinating management of the greater Carrizo Plain region. If you have any questions, please contact Johna Hurl, Carrizo Plain National Monument Manager or Steve Larson, Assistant Field Manager for Resources at the above address or by phone at 661-391-6000.

Sincerely,



Timothy Z. Smith
Bakersfield Field Manager
Bureau of Land Management

Enclosures

Jodi M. McGraw

From: Craig Deutsche <craig.deutsche@gmail.com>
Sent: Wednesday, December 05, 2012 10:19 AM
To: Bob Stafford
Subject: Scoping Comments on the CPER Management Plan

December 5, 2012
2231 Kelton Ave
Los Angeles, CA 9006

California Department of Fish and Game
Attn: Bob Stafford, Environmental Scientist
1234 East Shaw Avenue
Fresno, California 93710
bstafford@dfg.ca.gov

Bob:

First I thank you for the opportunity to attend and speak at the December 3rd Scoping Meeting in San Luis/Morro Bay. The meeting was well run, and I believe (and hope) that the comments which were made will be helpful. It is important to hold public meetings of this sort in addition to accepting written comments because listening to the thoughts of others help bring questions into focus and reveal new ones. I would like now to submit more detailed comments on the CPER management plan here.

(1) Please consider way in which the public may be included in management of the Ecological Reserve. This land is, after all, public land purchased with bonds approved by the state initiative process. Specific mechanisms that ought to be considered are:

a) There might be a Reserve Advisory Council modeled after the Monument Advisory Committee associated with the Carrizo Plain National Monument.
b) There might be a scientific advisory committee consisting of willing representatives from organizations outside of the California Dept of Fish and Wildlife. The purpose would be twofold - to provide *independent advice* and to provide something like *peer review* of anticipated adaptive management proposals.
c) Regular meetings with the Native American Advisory Council (or a similar representative group) should be held. The purpose would be to incorporate suggestions before actions are proposed or implemented rather than to take comments afterwards. Presumably the scope of these meetings would be roughly limited to traditional concerns of the Native Americans.

(2) A more careful analysis of effects of grazing ought to be considered than seemed to be proposed in the Initial Study. Obviously the impacts, both positive and negative, of grazing need to be evaluated. Similarly, but not explicit in the Initial Study, there should be an analysis of the impacts (positive and negative) of *not grazing*. While grazing may enhance habitat for some species, not grazing enhances habitat for other species. A range of alternatives in this regard needs to appear.

When and where grazing occurs it is particularly important that it be managed and monitored carefully. The mechanism by which this is done should be spelled out in the LMP. The question is not one of range management, so planning and monitoring should go beyond grass height, RDM, and "best range practices." Monitoring of effectiveness should be done by biologists, some who are not directly employed by the Cal Fish and Wildlife. Monitoring of compliance with times and places should include provisions for the general public to have access to the Reserve and to submit comments and reports.

It may be that the public input suggested in these two comments is largely superfluous to the actual management. (It is also possible that it would be valuable.) Whichever of these possibilities proves true, it is important that the management process should be transparent to the public. This is necessary to create public support for the Reserve and its management.

(3) Related to the question of grazing is the distribution of water sources within the Reserve. It is essential that both the positive and negative impacts of providing water sources be analyzed. Additional sources would certainly be a benefit for some species, but they also alter the overall character of the habitat. Effects upon predators (coyotes, ravens, etc) may be difficult to anticipate but might be significant. If additional water sources are planned, please consider adding these incrementally with assessment of the results required and perhaps adaptive management along the way.

(4) There must be a very wide range of alternatives considered with regard to public access on the Reserve.

a) The Reserve is not a game farm for the exclusive benefit of hunters or researchers If there are specified weekends during which managed hunts are conducted, then it is important to specify weekends in which other public groups may enter: Audubon groups, photographers, artists, or even individuals who wish to visit a previously unavailable wild land in California.
b) When public lands all across the western United States are normally open to visitors, it is difficult to justify closing the north part of the Chimineas Reserve to all public. Nearly all the Carrizo Plain Monument, including the American Ranch, is open to foot and equestrian

visitors, and this appears to have little negative impact on habitat and species. If the north part of the Chimineas is to remain closed, there needs to be a very specific and cogent argument for such a policy.

c) The Chimineas Reserve is sufficiently large that even if pedestrian entry from the boundary is permitted, large parts of the reserve will be effectively beyond the reach of all but a very few persons. Please consider mechanisms by which motorized access by the public might be accommodated. (i) This might be limited to certain weekends, on specified roads, with required permits, and with some instruction at the gates. (ii) This might involve self-issued permits in limited numbers. (The arrangement by which access to Painted Rock is managed might be model for this.) Permits would be available only on certain dates, might be obtained on-line, and would require agreement with the rules which would be part of the process. There is some evidence that when people sign agreements of this sort they are notably more responsible than are the more casual visitors. (iii) Such an arrangement might require signing of roads or trails within the Reserve to manage routes for visitors. Certainly volunteer groups could be enlisted for this kind of work. (iv) The LMP need not make a commitment to a final plan for public access. It would be perfectly reasonable to begin with very modest change to the present situation, observe the effects, and if all worked well further access could be permitted. Adaptive management could very reasonably apply to visitor access as well as to habitat management.

5) The CPNM is in the process of completing a Travel Management Plan which will provide designations of various kinds for routes within the Monument. I urge you to expedite the designation of routes for the portions of the CPER that are within Monument boundaries. There are rather few of these, and in nearly all cases the present uses are appropriate. I urge that it be done as quickly as possible in order to be consistent with other parts of the Monument. Differing policies and differing times for designation would be confusing to the public. This planning should be arduous.

6) Finally, I urge you to explore ways in which volunteers, both in groups and as individuals, might be effectively used in the Reserve. Obviously resources available to Cal Fish and Wildlife are limited so that assistance might be valuable. The various sportsman organizations with whom you have worked in the past are obvious assets. The California Native Plant Society has expertise that you also know well. I realize that Los Padres ForestWatch has been critical of your management in the past, but they have also carried out an impressive number of service projects in the National Forest, and they might be able to do the same for the Reserve. I have personally brought a number of groups to the Monument to remove fences and would be delighted to do the same in the Reserve. I have also some experience in building fences, barbed wire and others, that might be useful. Regardless of the details, volunteers might be an integral part of the management plan.

I think you for the opportunity to comment on the planning process. I anticipate a positive and useful result. I look forward to continued involvement in your work.

Thank you,

Craig

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http://www.dot.ca.gov/dist05/

Flex your power!
Be energy efficient!

December 17, 2012

Robert Stafford
California Department of Fish and Game
1234 E. Shaw Avenue
Fresno, CA 3710

05-SLO-166-var

COMMENTS TO LAND MANAGEMENT PLAN (LMP) FOR THE CARRIZO PLAIN ECOLOGICAL RESERVE NOTICE OF PREPARATION

Dear Mr. Stafford:

THE California Department of Transportation (Caltrans), District 5, Development Review, has reviewed the above referenced project and offers the following comments for your consideration in preparing the Environmental Impact Report (EIR).

1. **Scenic Highway – Page 33 and 35**
The Initial Study states that State Route (SR) 166 is not a designated scenic highway. While the facility is not officially designated, the corridor is on the statutory list of highways *eligible* for scenic highway designation. If the LMP encourages activity (e.g. parking areas, viewing platforms, signage, and other facilities) that is out of character with the scenic corridor, it could potentially harm the route's eligibility for official scenic highway designation should it be pursued in the future. We recommend consulting the Department's document entitled *Scenic Highway Guidelines* (October 2008).

2. **Parking – Page 33**
The Initial Study states that "additional parking areas could be established along SR 166." The parking of vehicles along a highway (whether paved or unpaved), or access to parking areas, has potential impacts to the safety and operations of the highway facility. The EIR should analyze these potential impacts.

We look forward to receiving the Draft EIR, and providing comments from a more thorough analysis. If you have questions, please do not hesitate to call me at (805) 549-3131.

Sincerely,

Adam Fukushima, PTP
Caltrans District 5
Development Review Coordinator

Chimineas Ranch Foundation

A California Non-Profit IRS 501(c)3 Corporation
Supporting the Chimineas Ranch Units of the Carrizo Plains Ecological Reserve,
Department of Fish & Game, State of California
State Highway 166, Mile Marker 45

December 18th, 2012

Electronic Letter

Bob Stafford
Environmental Scientist
California Department of Fish and Game

Reference: Land Management Plan for the Carrizo Plain Ecological Reserve/Public Comments

The Chimineas Ranch Foundation (CRF) has existed as a non-profit IRS 501(c)3 corporation in support of the Carrizo Plain Ecological Reserve (CPER) since 2008. Everyone associated with the CRF is a non-compensated volunteer. CRF raises about $30,000.00 per year to assist the State in maintaining the CPER. CRF volunteers also provide significant "boots on the ground" effort for the completion of wildlife water systems, road maintenance and other projects. CRF has thousands of volunteer hours on the CPER and has perhaps one of the best third party perspectives concerning what land management principles would best serve the reserve.

Public Access:
The CPER is a unique and valuable public resource. Perhaps what is most important about this property is that it is an "ecological reserve" and was purchased by the State as such. That means that the ecological systems of the CPER, including all the flora and fauna within, are what is most important when determining land use policy and when conflicts between public use of any kind and those ecological systems arise, then the ecology of the CPER must be paramount, particularly on the Chimineas Ranch Units. CRF believes that this is in keeping with the intent of the Wildlife Conservation Board when the acquisition took place.

One historical fact that must be acknowledged is that the value of the CPER as a home to critical habitats and threatened or endangered species was created by the restriction to significant public access that its former status as private property created. All of the ecological reserves in the state have public use restrictions and we believe that the current public use restrictions in force for the CPER are appropriate, and are indeed imperative from a biological perspective.

One the of the greatest assets of the reserve is its value as a research facility. Hundreds of researchers and university students have conducted various studies on the CPER. That value is enhanced by the limitations which currently exist regarding public access.

Grazing:
Grazing has been part of the historic ecosystem of the reserve. The CRF believes that the ranch must be safeguarded first and foremost as an ecological reserve. That said, we believe that properly sized and scientifically managed cattle grazing should be one of the management tools available on the Chimineas for use when biological necessity dictates the need to replace the historic natural grazing that helped form the ecosystems seen on the CPER. Many species present on the reserve obviously benefit from targeted grazing operations such as the Burrowing Owl. In addition, the CPER has experience 3 significant fires in the last decade. Grazing for fire suppression in high risk locations is also beneficial to the reserve.

Larry Smith

Chairman of the Board
Chimineas Ranch Foundation

LOS PADRES FORESTWATCH • CENTER FOR BIOLOGICAL DIVERSITY • WESTERN WATERSHEDS PROJECT
SANTA LUCIA CHAPTER OF THE SIERRA CLUB • SIERRA CLUB CA/NV DESERT COMMITTEE • NORTH COUNTY WATCH

December 20, 2012

VIA EMAIL & CERTIFIED MAIL
RETURN RECEIPT REQUESTED
7011 2970 0002 7271 6011

California Department of Fish and Game
Attn: Bob Stafford, Environmental Scientist
1234 East Shaw Avenue
Fresno, California 93710
bstafford@dfg.ca.gov

RE: Comments on NOP for a Land Management Plan for the Carrizo Plain Ecological Reserve, San Luis Obispo County

Dear Mr. Stafford:

Thank you for this opportunity to provide comments on the Land Management Plan ("LMP") that the California Department of Fish & Game ("Department") is currently preparing for the Carrizo Plain Ecological Reserve (the "Reserve"). The Reserve encompasses nearly 40,000 acres of land in southeastern San Luis Obispo County, and was acquired by the Department beginning in 1971 to "protect threatened or endangered native plants, wildlife, or aquatic organisms or specialized habitat types, both terrestrial and nonmarine aquatic, or large heterogeneous natural gene pools for the future use of mankind." Cal. Fish & Game Code §1580. Specifically, the area was established to protect habitat for threatened and endangered wildlife like the San Joaquin kit fox, giant kangaroo rat, blunt-nosed leopard lizard, San Joaquin antelope squirrel, California jewelflower, San Joaquin woolly-threads, and other wildlife of interest such as pronghorn antelope and Tule elk. The Reserve includes lands within the Carrizo Plain National Monument, as well as lands outside the monument that serve as a linkage between the monument and the Los Padres National Forest.

The undersigned organizations are pleased that the Department is undertaking this long-awaited review of Reserve resources and is preparing a comprehensive LMP to guide the management of the Reserve and its resources. Our organizations have a long-standing interest in the protection of the Reserve and look forward to working with the Department to protect and restore this ecologically important area. We have reviewed the Department's Initial Study ("IS") and are submitting the following comments to identify issues early in the process that warrant further evaluation and discussion in the Draft Environmental Impact Report ("DEIR") for the LMP.

1. LIVESTOCK GRAZING

Commercial livestock grazing currently occurs on the Reserve. As the Department undertakes the planning process for the Reserve, and if this grazing is allowed to continue, then it is important to ensure that adequate safeguards are in place to protect resources from damage caused by overstocking, trampling, streambank erosion, the spread of invasive weeds, and the construction and maintenance of roads and other range infrastructure. Careful management of livestock grazing is particularly important in areas such as the Reserve that provide habitat for rare plants and wildlife, as well as important wetlands like riparian areas and vernal pools.

Because the Reserve is an ecological reserve, we believe that grazing should be used as one of many vegetation management tools and only if it can be demonstrated, based on high-quality and peer-reviewed science, to be consistent with the purposes of the Reserve to protect native species and ecosystems. If grazing is to continue on the Reserve, it should only occur in the context of a specific management prescription to achieve a measurable management objective. Grazing levels should be carefully monitored, and reduced or eliminated once those objectives are achieved.

The IS improperly commits the Department to continuing this livestock grazing operation on the Reserve before undertaking a comprehensive environmental analysis of how the grazing program fits into overall Reserve management. For example, the IS states that grazing "will be used" and "will be conducted." *See* IS at 19. Before committing to livestock grazing, the Department must analyze the impacts of livestock grazing on the Reserve and ensure that such use is compatible with the protective purposes for which the Reserve was established. We recommend that the Department analyze the impacts of livestock grazing on plant and animal species (including invertebrates) and ecosystems, water quality and quantity, soils, invasive weeds, and heritage resources.

If grazing is allowed in these limited circumstances, the following measures and analyses should be incorporated in the LMP:

- Protection of all springs, seeps, vernal pools, and riparian areas;
- Analysis of the impacts of fencing, roads, and other infrastructure needs on wildlife, recreation, hydrology, soils, and other resource values;
- Evaluation of spring developments (existing and proposed) on water quality and quantity for downstream water users and wildlife;
- Assessment of the impact of livestock grazing on the presence and spread of invasive weeds and on native plants;
- Evaluation of impacts to soils and soil crusts;

- Discussion of fire risk associated with the construction and maintenance of range improvements, including fencing, road maintenance, and pipeline repair. The LMP should contain specific provisions restricting these activities to times of low fire risk;
- Evaluation of the capability and suitability of Reserve lands for livestock grazing. We believe that the following areas are not suitable for livestock grazing: vernal pools and other wetlands, riparian areas, native grasslands, heritage sites, and habitat for TES wildlife and rare plant populations, unless grazing must be used as a management tool.
- Discussion of the current extent of woody plants that are browsed by livestock on the Reserve, as well as the impacts of continued livestock browsing on native vegetation, particularly in drought years.
- An assessment of oak regeneration on the Reserve. In the adjacent Los Padres National Forest, the lack of oak regeneration may be "attributed to wildlife and livestock grazing of seedlings, competition from nonnative annual grasses, and unnatural abundance of some acorn-eating animals such as gophers and ground squirrels." U.S. Forest Service (2005), *Final Environmental Impact Statement, Volume 1, Land Management Plans for the Four Southern California National Forests*, p.127 (citing Borchert *et al.* 1989 and Pavlik *et al.* 1991).
- Evaluation of indirect effects on mountain lions and other mesocarnivores through the issuance of depredation permits, which authorize the livestock permittee to trap and/or kill animals that are posing a threat to livestock. These impacts should be evaluated in the DEIR. The LMP should prohibit animal damage control in the Reserve. Non-lethal control methods should be encouraged.
- Development of a transparent and inclusive decision-making process by which the public can be informed of, and participate in, grazing decisions.

If grazing is used to achieve a specific management objective, the LMP should set forth specific, enforceable standards and guidelines. The standards and guidelines should be developed based on the best available science and incorporate studies from the local area. The LMP should ensure consistent, effective monitoring by Department staff. Under the current grazing lease, visual monitoring of Residual Dry Matter (RDM) is the only monitoring that occurs, and RDM has been criticized as an inaccurate indicator of ecosystem and rangeland health. The LMP should set forth a comprehensive grazing monitoring program that ensures regular monitoring and adaptive management to protect the wide variety of Reserve resources.

Where standards and guidelines are not being met, the LMP should establish prompt compliance measures and enforcement mechanisms to ensure protection of natural resources. The LMP should establish a procedure to issue written instructions to grazing permittees specifying the appropriate stocking levels to achieve the management objective, on and off dates, required maintenance, and any other conditions or restrictions necessary for resource protection.

The DEIR should evaluate a range of grazing alternatives, including a "no grazing" option as well as alternatives with reduced stocking levels. Other alternatives to be considered include a reduced season of use, seasonal rotational grazing, deferred grazing, or rest-rotation grazing. The current three-year grazing lease is not an appropriate management mechanism for the Reserve, given the wide annual variation in plant growth and precipitation that characterizes this low-rainfall area.

A. Cumulative Impacts of the Entire Grazing Operation

Livestock grazing on the Reserve is currently allowed in conjunction with grazing on adjacent private lands and federal grazing allotments managed by the U.S. Forest Service and U.S. Bureau of Land Management ("BLM"). The LMP and DEIR should carefully analyze the cumulative impacts of livestock grazing on the Reserve in conjunction with grazing on adjacent private and federal lands. The adjoining and intermingled federal grazing allotments are not included in the cumulative impacts table in the IS, but should be evaluated in the cumulative impacts section of the DEIR. IS at 98 (Table 16 – Tentative List of Cumulative Projects).

This grazing operation covers lands managed by three different agencies, each with their own land management plans, permits, environmental documents, and management standards. Management of the entire grazing operation would clearly benefit from a single, comprehensive environmental document that is jointly prepared by all three agencies. Not only would this better facilitate compliance with CEQA, but more importantly, it would also ensure that management of the grazing operation is consistent across jurisdictions, that all agencies are sharing in the responsibilities of managing the grazing operation, and that all agencies have the ability to identify and select an appropriate and responsible lessee.

If the Department confines its analysis of the entire grazing operation to Department-managed lands, then the analysis runs afoul of CEQA. The evaluation of impacts in an environmental document is not necessarily limited to the project area. When a project's environmental impacts will extend outside the boundaries of the project area, those impacts must be evaluated in the environmental document. *County Sanitation District No. 2 v. County of Kern*, 127 Cal.App.4th 1544 (27 Cal. Rptr. 3d 28), at 1581 ("CEQA defines the relevant geographical environment as the area where physical conditions will be affected by the proposed project. ([Pub. Res. Code] §21060.5.) Consequently, the project area does not define the relevant environment for the purposes of CEQA when a project's environmental effects will be felt outside of the project area…. [T]he purpose of CEQA would be undermined if the appropriate governmental agencies went forward without an awareness of the effects a project will have on areas outside the boundaries of the project area.")

B. Protection of Rare Plants from Livestock Grazing

The LMP should contain enforceable standards and guidelines to protect rare plants from the impacts of livestock grazing. Several very rare plant species are known from, or are likely to occur on, the Reserve, including La Panza mariposa lily (*Calochortus simulans*), round-leaf filaree (*California macrophylla*), showy madia (*Madia radiata*), umbrella larkspur (*Delphinium umbraculorum*), and Lemmon's jewelflower (*Caulanthus coulteri* var. *lemmonii*). The current grazing lease on the Reserve prohibits grazing during the flowering/fruiting period of these rare plants from March through June. The DEIR should contain a thorough evaluation of whether this prohibition adequately protects these rare plant species, or whether it should be extended to protect plants during emergence and seed dispersal life stages. Impacts of grazing and trampling by livestock occur at least from the time plants emerge from the soil, not just when plants are flowering and fruiting. Grazing can reduce or prevent flowering and seed production, and potentially significant impacts may occur if grazing is not restricted during all stages of the plants' growing and reproductive season.

KERN MALLOW. The federally-threatened Kern mallow (*Eremalche parryi* subsp. *kernensis*) occurs on the Reserve. The Department should conduct protocol surveys on the Reserve for this and other rare plants, and seasonal restrictions should be included in the LMP to guard against adverse impacts. Prevailing scientific literature shows quite clearly that the impacts to Kern mallow from livestock grazing are many, and the benefits are few. The most comprehensive study of Kern mallow was prepared for the Department in 1993, and states:

> Our results have shown that grazing by sheep is very detrimental to the reproductive success of *Eremalche kernensis*. Grazing reduces plant size and possibly the number of fruits produced. Because *Eremalche* plants are present for most of the growing season of desirable forage (from January through May) any grazing may place this endangered species at risk. Additionally, we found no effects of competition from other plants on *Eremalche* reproductive success, therefore, grazing is not a benefit to *Eremalche* through reduction of competitors.

Mazer, S.J., G. LeBuhn, and D.E. Meade. 1993. Demography and reproductive biology of Kern mallow (*Eremalche kernensis*: Malvaceae). California Dept. Fish and Game, Sacramento, Unpubl. Rep., 300 pp. + Appendices.

SAN JOAQUIN WOOLLYTHREADS. The LMP should identify measureable management goals for the federally-endangered San Joaquin woollythreads (*Monolopia congdonii*). The USFWS five-year review for the woollythreads indicates that grazing can be problematic for woollythread survival especially if it occurs during the flowering season. Therefore, populations and habitat on the Reserve should be protected from grazing and other impacting activities especially during this critical part of the species' life cycle.

CALIFORNIA JEWELFLOWER. It is unclear if the California jewelflower (*Caulanthus californicus*) occurs on the Reserve. Monitoring for this state and federally endangered species and its suitable habitat should be a high priority. The LMP should identify measureable monitoring and management goals for this species.

C. Protection of Rare Animals from Livestock Grazing Impacts

SAN JOAQUIN KIT FOX. The San Joaquin kit fox has been under California Endangered Species Act protection for over 39 years and under Federal Endangered Species Act protection for over 43 years. Despite years of conservation efforts, kit fox populations and amount of habitat continue to decline. Modeling suggests that the San Joaquin kit fox is threatened with extinction in the San Joaquin Valley by 2022[1], making the peripheries of its range – areas like the Reserve – even more important for the survival of this imperiled and declining species. Indeed, studies have shown that the most cost-efficient protection for the San Joaquin kit fox is protecting habitat in the Carrizo Plain (including the Reserve) rather than in other remaining areas of the species range[2]. The U.S. Fish and Wildlife Service (FWS) reconfirmed that only three remaining core areas for the San Joaquin kit fox occur in the species range[3]. The Reserve includes lands in one of three core areas that remain for the declining San Joaquin kit fox on the planet. In the Recovery Plan for the Upland Species of the San Joaquin Valley, the Carrizo Plain including much of the Reserve is one of only three key recovery areas also[4]. The Carrizo Plain including the Reserve is a refugia and stronghold for the kit fox. Based on the dire situation of this species, the Center for Biological Diversity and Los Padres ForestWatch submitted a petition in 2010 to the U.S. Fish and Wildlife Service identifying critical habitat for the San Joaquin kit fox and includes the Carrizo Plain including much of the Reserve within that proposal. This valuable species is clearly in significant decline, and the LMP for the Reserve should promote serious recovery measures and management objectives for this species, adopting measures outlined in the Recovery Plan for the Upland Species of the San Joaquin Valley and incorporating subsequent data and recovery actions for this species, its habitat and linkages and movement corridors. It should adequately assess how to improve habitat for the Carrizo Plain population and the connectivity between other populations and the persistence of smaller, satellite populations as well as the entire population as a whole.

GIANT KANGAROO RAT. The amount of the federally- and state-listed endangered giant kangaroo rat (GKR) habitat currently extant is only 3% of its historic habitat[5]. In FWS' five year review for the GKR, recommendations for the Carrizo Plain including the Reserve is to conserve 100% of

[1] McDonald-Madden et al. 2008; http://ebookbrowse.com/2008-mcdonald-madden-etal-subpopulationtriage-pdf-d66413194
[2] Haight et al. 2004; http://ebookbrowse.com/2004-haight-etal-biol-cons-pdf-d351825795
[3] USFWS 2010a; http://ecos.fws.gov/docs/five_year_review/doc3222.pdf
[4] USFWS 1998 http://ecos.fws.gov/docs/recovery_plan/980930a.pdf
[5] Loew et al. 2005. http://www.springerlink.com/index/R84788044TV72111.pdf

occupied habitat, include all existing habitat[6]. In addition, the FWS' Recovery Plan for Upland Species of the San Joaquin Valley[7] states that for GKR, "Where populations of giant kangaroo rats and associated, listed species appear to be robust, land use should not be changed when ownership or conservation status of parcels changes unless there are compelling reasons to do so." The LMP must identify the locations of occupied and unoccupied habitat and populations of GKR and manage for increasing the population of this imperiled species. Identification of movement corridors and linkages are required for the GKR and must be identified and avoided. Management for conservation of potentially occupied habitat should be the highest goal that supercedes grazing, maintenance of connectivity and enhancement of effective dispersal between populations are the keys to recovering this imperiled species.[8]

BLUNT-NOSED LEOPARD LIZARD. The recent 5-year review by the FWS for the blunt-nosed leopard lizard recognizes that the establishment of the Carrizo Plain National monument aids in the recovery of the blunt-nosed leopard lizard[9]. The Reserve lands may also be a key conservation area for this endangered species that has been under state and federal endangered species act protections for more than 40 years. It is unclear if any blunt-nosed leopard lizards occur on the Reserve, but the Reserve still harbors habitat for the species and therefore is essential to this species' recovery from the brink of extinction. Adequate surveys should be conducted prior to a management strategy being developed. Management objectives to preserve and recover this fully protected species under California law are requisite in the LMP.

NELSON'S ANTELOPE GROUND SQUIRREL. Because the state-listed threatened Nelson's antelope ground squirrel (*Ammospermophilus nelsoni*), also known as the San Joaquin antelope squirrel is typically sympatric with GKR[10], the management goals and objectives for the antelope squirrel should be developed in concert with the management goals and objectives for the GKR.

KERN PRIMROSE SPHINX MOTH. The federally threatened Kern primrose sphinx moth is a federally threatened species known to occur near, if not in, the Reserve. The LMP should focus management effort on identification of habitat including host plants for this species on the Reserve lands and protection of these resources from impacts from other management activities.

FAIRY SHRIMP. While the IS references "creation of up to 10 vernal pools," existing Reserve vernal pools and species such as fairy shrimp should be managed as high priority conservation areas with measureable management goals and objectives developed. Inclusion and adoption

[6] USFWS 2010b; http://ecos.fws.gov/docs/five_year_review/doc3215.pdf
[7] USFWS 1998. http://ecos.fws.gov/docs/recovery_plan/980930a.pdf
[8] Loew et al. 2005 http://www.springerlink.com/index/R84788044TV72111.pdf
[9] USFWS 2010c; http://ecos.fws.gov/docs/five_year_review/doc3209.pdf
[10] Hawbecker 1944; http://ebookbrowse.com/hawbecker-1944-the-giant-kangaroo-rat-and-sheep-forage-pdf-d233335974

of the applicable management goals in the Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon[11] will help to assure conservation for these rare resources.

PACIFIC POND TURTLE. Several ponds and creeks on the Reserve support populations of rare Pacific pond turtles. The DEIR should evaluate measures to ensure that riparian and associated upland habitat is adequately protected. Dr. David Pelliod, a Supervisory Resource Ecologist with the U.S. Geological Survey, recommends that "a protective buffer of at least 250 m around ponds may be necessary to protect the habitats of these turtles." *See* Pilliod, D., "Movement Patterns of Western Pond Turtles on the Carrizo Plain Ecological Reserve, California" *in* Abstracts from the 2010 Annual Meeting of the Society for Northwestern Vertebrate Biology, Held at the Red Lion Inn, Medford, Oregon, February 23–26, 2010, *in* Northwestern Naturalist, 91(2):230-249. 2010. Published By: Society for Northwestern Vertebrate Biology (emphasis added). The DEIR should evaluate whether the existing exclosure fences around the ponds will protect pond turtles that take shelter in surrounding habitats during the winter.

TWO-STRIPED GARTER SNAKE. The Department has long recognized the potential impacts of livestock grazing to rare two-striped garter snakes. Specifically, the Department has identified "habitat modification resulting from livestock grazing" as one of the primary factors causing the "rapid decline" of this species. *See* Jennings, M.R. and Hayes, M.P. 1994. *Amphibian and Reptile Species of Special Concern in California*. Prepared for the CDFG, p.173. That report goes on to recommend that "[d]etailed field surveys to determine the presence of extant populations of *T. hammondii* in southern California are urgently needed to assess the quality of habitat and the numbers of garter snakes remaining in this region. *Id.* at 174. The LMP should include standards to protect this species from adverse impacts caused by livestock grazing, and the DEIR should fully evaluate these impacts and propose mitigation measures as appropriate.

GROUND-NESTING MIGRATORY BIRDS. The LMP should provide for the protection of migratory bird species and their nests in accordance with the Migratory Bird Treaty Act and Cal. Fish & Game Code § 3513, both of which prohibit the destruction of bird nests.

Grasshopper sparrows tend to be particularly impacted by livestock grazing. The U.S. Forest Service prepared a technical conservation assessment for grasshopper sparrow in 2004. That assessment reviews the impacts of grazing on grasshopper sparrow, stating that most grazing causes vegetation to become too short and too open for grasshopper sparrow use, causing sparrows to decline or disappear in grazed habitats. The assessment also notes that uniformly-grazed rangelands have "likely played a strong role in the decline of grasshopper sparrow populations." The assessment concludes that

[11] http://ecos.fws.gov/docs/recovery_plan/060614.pdf

> grasshopper sparrows have benefited from low to moderate grazing in tallgrass habitats prior to or after the breeding season, although heavy grazing is apparently detrimental. Like fire though, grazing during the breeding season (May through July) [mid-March through August in California] negatively affects grasshopper sparrows, as cattle trample nests and reduce vegetation height, thus preventing birds from renesting.

The DEIR should evaluate the impacts of livestock grazing on grasshopper sparrows and other species of ground-nesting birds found on the Reserve, and should consider timing limitations to mitigate against destruction of state- and federally-protected bird nests.

BURROWING OWL. Burrowing owls are present on the Reserve. The stronghold for burrowing owls in California – the Imperial Valley – has had a recently documented decline of 27% in the past 2 years[12], resulting in an even more dire state of decline for burrowing owls in California. Because burrowing owls are in decline throughout California, and now their "stronghold" is documented to be declining severely, the burrowing owls on the Reserve become even more important to species conservation efforts. Management goals need to be clearly identified for this species. Consideration of ground squirrel and other burrowing animal density should be included, because burrowing owls rely on burrows dug by these animals for successful reproduction.

PRONGHORN. The BLM has concluded that livestock grazing adversely affects pronghorn on the adjacent Carrizo Plain National Monument, particularly by reducing cover in fawning areas and making pronghorn fawns more susceptible to predation. CPNM RMP EIS at 4-124, 4-128 to 129 ("[t]he elimination of grazing would have moderate to major benefit and could improve habitat structure for hiding fawns in wet years when the herbaceous vegetation responds to increased rainfall.") The LMP/DEIR should identify pronghorn fawning areas and evaluate the impacts of livestock grazing to these areas.

It has long been documented that certain types of fencing is not only problematic for pronghorn, but a significant cause of mortality. Therefore, the fencing associated with domestic livestock management and other types of land uses should be evaluated as to whether they are restricting pronghorn movement in the Reserve and need to be removed or modified with pronghorn-friendly fencing.

TULE ELK. The Department has previously acknowledged that elk avoid grazed areas. The LMP/DEIR should identify management goals for Tule elk on the Reserve, and should evaluate the impacts of livestock grazing on Tule elk populations in and around the Reserve.

[12] Manning 2009.

D. Protection of Soils & Biological Soil Crusts

Biological soil crusts consist of algae, lichens, bryophytes, cyanobacteria, and fungi that live on or just below the soil surface, and they are some of the most important components of arid ecosystems, such as those found in the Reserve. Biological soil crusts stabilize soils and reduce wind and water erosion, aid in water infiltration, improve seedling establishment, increase soil organic matter and nutrients, and increase plant survival and recruitment. Livestock grazing damages these soil crusts by trampling and compaction, which in turn can reduce soil stability, soil fertility, and soil moisture retention and, ultimately, plant composition.[13] After disturbance occurs, it can take decades or even centuries for soil crusts to recover.

In evaluating grazing on the Chimineas Ranch North allotment (which is part of the overall Reserve grazing operation), the BLM acknowledged that "[t]rampling by livestock has fragmented crust along trails and in high use areas." BLM EA at 31. In addition, BLM noted:

> Direct impacts on vegetation resulting from livestock grazing include disturbing soils and biological soil crusts…. Livestock hooves break and trample soil crusts and create germination sites for weedy species. Hillside soils and habitat are especially vulnerable; soils are disrupted and moved downslope with each passage of an animal through the area…. Soil crusts are more susceptible to long-term damage during the dry season, when dormancy prevents their growth and repair and results in more potential for soil erosion by wind."

BLM EA at 33-34. The DEIR should contain an evaluation of these impacts, and should propose mitigation measures as appropriate.

E. Oak Regeneration

Three California oak species (blue oak, valley oak and Engelmann oak) have been repeatedly identified as species that have inadequate regeneration to maintain current stand densities. Inadequate regeneration could adversely affect woodlands, resulting in conversions to shrub fields or bare pastures. A principal factor believed to significantly contribute to poor oak regeneration in California is livestock grazing.

According to the University of California Oak Woodland Conservation Workgroup and the Integrated Hardwood Range Management Program, cattle damage to oak trees varies by season, with less damage during the winter when deciduous oaks don't have leaves. Damage is also influenced by stocking density (the number of cattle per unit area) and cattle distribution patterns. Unprotected oak saplings appear relatively resistant to cattle damage in low- to moderately-grazed pastures if they are at least 6.5-ft tall and smaller seedlings can be protected

[13] Fleischner 2002. http://courses.washington.edu/esrm479/grazing2.pdf

with fencing or individual protectors. These and other steps (such as resting pastures during the spring and summer, and using tree shelters on native seedlings) can greatly enhance the chances for regeneration success, and should be considered in the LMP and DEIR as appropriate mitigation measures.

Blue oaks and other oak species are important indicators of rangeland health because livestock have been implicated in limited success in or the failure of many oak species to successfully regenerate (Bosinger 1988, Duncan and Clawson 1980, Muick and Bartolome 1987, Pavlik et al. 1992, Rossi 1980, Swiecke and Barnhardt 1991). Livestock also directly impact oaks by eating acorns, leaves, and young shoots. Livestock browsing is thought to suppress or kill many or most seedlings and saplings, as well as sometimes stressing older trees. In warm temperatures (such as the ones characteristic of the Reserve), livestock tend to congregate under trees and in other shaded areas.

Moreover, according to Swiecke and Barnhardt:

> Long-term livestock grazing has more potential to adversely affect blue oak regeneration than any other factor. Cattle eat acorns, reduce or eliminate the litter layer beneath trees, and compact the soil, thereby reducing the potential for initial seedling establishment. Surviving seedlings are repeatedly browsed and trampled, which shortens the life of individual seedlings and can deplete or eliminate the persistent seedling bank over time. Under even moderate stocking rates, livestock browsing severely inhibits sapling growth. Repeated cattle browsing reduces blue oak saplings to small shrubs sometimes survive as long as 80 to 100 years without growing above browse line. Thus livestock impact the establishment, survival, and release of blue oak advance regeneration….
> Grazing impacts will be most pronounced in stands with less than about 25% canopy cover, in xeric sites, especially those at the edges of the current blue oak range, and in locations with gentle topography which are grazed very uniformly. Consistent grazing on an annual basis may inhibit regeneration more than rest rotations that periodically take parcels out of grazing for one or more years.

The LMP/DEIR must provide a thorough evaluation of potential impacts to blue oak regeneration caused by livestock grazing, and mitigate those impacts as outlined above. In addition, monitoring protocol by age class is needed (together with detailed baseline data). If monitoring detects livestock damage to oaks, then a mechanism for protecting them from livestock is needed.

2. PROTECTION AND RESTORATION OF NATIVE PLANTS AND WILDLIFE

Because the Reserve is an ecological reserve, the LMP should elevate the protection and restoration of plants, wildlife, and habitats to the highest priority. Furthermore, the LMP should be consistent with the State of California's Wildlife Action Plan. To that end, the plan should emphasize and ensure the recovery of threatened and endangered species, special status species, and designated critical habitat within the Reserve. In addition, the plan should require the completion of inventories to fill any gaps in the Department's knowledge of special status species and periodically re-inventory populations to determine status and trends.

The LMP should, where appropriate, encourage the restoration and recovery of native species that have been extirpated from the Reserve.

A. *Surveys & Consultation*

The LMP and DEIR should be based on adequate surveys for rare species, in accordance with the Department's own *Guidelines for Assessing the Effects of Proposed Projects on Rare, Threatened, and Endangered Plants and Natural Communities* ("Guidelines"). The Guidelines were prepared to assist with the preparation and review of environmental documents under CEQA, and discusses the timing and frequency of surveys, the qualifications of the surveyors, survey methods, and documentation of actual survey results. Importantly, the Guidelines also state that "[r]eports of botanical field surveys should be included in or with environmental assessments." Guidelines at 2. These survey reports should contain a description of survey methodology, dates and hours spent on field surveys, results (including maps and location data for each plant population found), an assessment of potential impacts, recommended measures to avoid impacts, and copies of all survey forms, among other information. *Id.*

The Department should consult with the FWS to ensure that the LMP avoids jeopardizing any endangered or threatened species or their habitats that occur on the Reserve. The California Endangered Species Act requires state agencies to consult with the Department to ensure that a proposed action will not result in the "take" of a state-listed species. When the action agency is the Department itself, the Department has a policy in place requiring internal consultation, and also to consult with federal wildlife agencies if any federally-listed species are involved. The Department's internal consultation policy is found on its website, and states in part:

> Routine coordination should occur internally with the Department's own experts (starting with regional experts and using headquarters experts where applicable) whenever the Department proposes a project which may impact a state-listed species of plant or animal or when the project lies within an area of known occurrence of listed species, or within known or possible habitat of a listed species. Coordination should ensure that no threatened or

> endangered species would be adversely affected…. The coordination should occur as early as possible, and prior to any filings with the State Clearing House. Department staff should also consult with the U.S. Fish and Wildlife Service and National Marine Fisheries Service, as appropriate, when federally-listed species are involved.
>
> It is the intent of the Department and Fish and Game Commission policy not to pursue or proceed with projects that would adversely impact a rare, threatened, or endangered species. It is also State policy that State agencies should not approve projects as proposed which would jeopardize any endangered or threatened species or their essential habitats (Fish and Game Code, Section 2053).

B. *Wild Ungulates & Large Mammals*

While pronghorn are only rarely seen on the Reserve, they do inhabit surrounding lands in the Carrizo Plain National Monument and suitable habitat exists in the Reserve to reestablish pronghorn populations there. Tule elk are more widespread on the Reserve. These two species were recently reintroduced to the area, and the LMP should contain standards, guidelines, and management prescriptions to ensure the restoration and maintenance of populations on the Reserve.

Pronghorn are unable to jump over fences. The DEIR should include a discussion of whether existing fencing on the Reserve blocks their movement (and, in particular, their access to water), whether any new fencing is proposed, and any proposed mitigation measures necessary to avoid significant impacts to pronghorn and other wildlife. The LMP should require that any new or existing fencing should be passable by wildlife, including pronghorn.

Pronghorn are not regularly detected on the Reserve, even though it contains suitable historic habitat. Moreover, pronghorn numbers are decreasing in the region overall. The DEIR should evaluate the potential causes of this decline, and the LMP should propose measures to protect and enhance pronghorn habitat on the Reserve.

The LMP should contain survey and monitoring protocol for large mammals on the Reserve, including black bears, mountain lions, deer, pronghorn, and Tule elk.

C. *California Condor*

As California condors are reestablished in their former range, the Reserve has the potential to play an increasingly important role in ensuring the recovery of this endangered bird. In conjunction with the FWS Condor Recovery Program, the LMP should consider suitable locations on the Reserve that could serve as formal release sites and/or feeding sites for

endangered California condors. According to the BLM, in 2009 several locations on the Reserve were chosen as potential sites for condor feeding stations. The LMP should also contain standards and guidelines to protect condor foraging, roosting, and nesting habitat on the Reserve.

D. *Focal Species for Monitoring*

The IS states that the LMP will identify focal species for monitoring vegetation types on the Reserve, and identifies thirty such focal species. The LMP should explain why each species was selected for monitoring, should set forth a monitoring protocol, and should discuss how the monitoring data will be used (i.e. if population levels decline by a certain percentage, then certain specified measures will be implemented).

The IS identifies five focal species for "short-statured grasslands" and two species for "tall-statured grasslands." These species should be used for grasslands as a whole. For example, giant kangaroo rats should be monitored across the Reserve as a whole, not just in "short-statured grasslands" as proposed in the IS. The LMP/DEIR should evaluate additional focal species as well, including Kern mallow, Lemmon's jewelflower, Kern primrose sphinx moth, mule deer, mountain lion, and other species that may serve as indicators of ecosystem health.

E. *Pesticides & Herbicides*

The DEIR should evaluate the use of herbicides and pesticides on the Reserve. Of particular concern are the significant impacts of rodenticides on San Joaquin kit fox and other predators, as well as sensitive rodent species that occur on the Reserve, including Bryant's woodrat and San Joaquin pocket mouse. The LMP should prohibit the use of rodenticides across the entire Reserve. Pesticide and herbicide use must be evaluated in the DEIS, and the LMP should contain strict protocols if they are used to achieve the ecological goals of the Reserve.

F. *Off-Road Travel*

The LMP should prohibit off-road travel on the Reserve. Several rare species are known to be adversely impacted by vehicles traveling off-road. For example, the California Department of Fish & Game ("CDFG") considers "off-road vehicle activities" as primary threats to the California legless lizard. *See* Jennings, M.R. and Hayes, M.P. 1994. *Amphibian and Reptile Species of Special Concern in California.* Prepared for the CDFG, Sacramento, California, p.111. Similarly, this report identifies threats to San Diego horned lizards from grazing and off-road vehicle travel. If vehicles and ATVs are needed to manage the Reserve, then they should be restricted to existing roads.

G. *Vegetation Management*

The Reserve includes a variety of different plant communities and habitat types. Historically, prior to the acquisition of the different parts of the Reserve for preservation purposes, the primary use of the lands were for grazing of domestic stock. This activity has persisted to date, as the primary if not exclusive vegetation management tool. The LMP/DEIR must explore additional vegetation management tools to promote recovery of the habitats that rare, threatened and endangered species rely upon for survival. While domestic stock grazing may achieve some of the goals for management of the suite of rare species that inhabit the Reserve, it also has impacts. Alternative methods of vegetation management should be included and analyzed in the LMP/DEIR as part of a holistic and comprehensive vegetation management program.

3. PROTECTION OF WATER QUANTITY AND QUALITY

We recommend that the Department, through the planning process, evaluate or reevaluate all wetlands and riparian areas on the Reserve to assess whether they are in properly functioning condition (PFC) and should take action to restore and protect PFC on all streams. The Department should incorporate biotic and ecological indicators into its riparian PFC assessments. The Department should consider implementing Riparian Conservation Zones to serve as a buffer to protect these areas from degradation caused by land use activities.

Additionally we recommend that the LMP should:

- only allow water development where it is the only method to protect resources;
- not allow water developments/diversions to dewater springs or streams;
- assess existing water developments and diversions for their impact on resources,
- consider removing them where they are causing harm;
- not allow water developments for the purpose of increasing livestock numbers, unless it is determined to be consistent with the purposes of the Reserve and the broader ecosystem and;
- not allow water export from the Reserve.

We strongly encourage the Department to implement aggressive nonpoint source management practices to protect water resources within the Reserve. The Department should establish a comprehensive water quality monitoring program in the Reserve through use of multiple data points to accurately gauge water quality throughout the entire Reserve. Such a program should not only ensure compliance with the Clean Water Act, but also ensure that water quality is sufficient to support Reserve resources. Finally, the Department should ensure that land management practices (grazing, recreation, etc.) protect water quality and quantity.

4. CONTROL THE SPREAD OF INVASIVE WEEDS AND RESTORE NATIVE PLANTS

Historic and current land uses on the Reserve have brought many invasive weed species to the area, including yellow star thistle, *Bromus*, etc. Recovery will require active weed management and active restoration of damaged areas like wetlands and riparian areas. We recommend that the Department include in its LMP a weed management strategy to treat existing infestations, preventing their spread, and reducing the likelihood of new infestations.

Management activities should not be allowed to significantly shift the makeup of native plant associations, disrupt their normal population dynamics, or disrupt the normal progression of those associations. The Department should develop and implement management prescriptions to fully protect and restore native species vegetation types within the Reserve. The Department should outline the status and distribution of the vegetative communities within the Reserve, and develop a plan to monitor vegetation to assess whether desired conditions are achieved. Native plants of local genotypes/provenance should be used in all restoration and revegetation projects.

The Department should analyze how to: (1) prevent conditions that have favored the introduction, establishment, and spread of invasive species and other vegetation problems; (2) restore conditions favoring native vegetation; and (3) reduce the need for continued direct control treatments of vegetation. The Department should place a priority on the control of noxious weed species and prevent the introduction of new invasive species. However, aerial chemical applications of herbicides for vegetation management should be prohibited and spraying by hand should only occur when other alternatives are not feasible. The use of machinery (e.g., roller chopping, plowing, discing) for vegetation manipulation should be carefully limited and prohibited in all circumstances where such action could harm resources and objects of interest. If machinery is used, monitoring plots should be used to gauge the effectiveness of the treatment.

Vegetation manipulation should not be allowed for the purpose of increasing forage for cattle, unless it is determined to be consistent with the protection of the Reserve, including the broader ecosystem. Grazing should be prohibited in burned areas until the native vegetation has recovered.

Using livestock to control invasive species is a complex process that requires intense monitoring and management. Pre- and post-monitoring must include multiple metrics, not a single parameter such as residual dry matter ("RDM") which is simply a measure of remaining vegetation. It provides no measure of efficacy of invasive species control whatsoever.

Two hundred and fifty years of livestock grazing on California grasslands have contributed "to the loss of native perennial grasses and changes in soil structure" that has produced today's grasslands dominated as they are by alien grasses (Stromberg et al, 2007). California's native ungulates are facultative browser/grazers or browsers, rather than grazing specialists like cattle (Painter, 1995) and prior to the arrival of livestock, large grazers were sparse in the California grasslands. The introduction of European livestock and farming brought exotic annual grasses from the Mediterranean region to the west. Many areas were seeded with specifically bred strains of grazing tolerant perennial grasses such as Intermediate Wheatgrass.

Livestock contribute to alien weed invasions in a number of ways: (1) transporting weed seeds into uninfested sites on their coats and feet and in their guts; (2) preferentially grazing native plant species over weed species; (3) creating patches of bare, disturbed soils that act as weed seedbeds; (4) destroying microbiotic crusts that stabilize soils and inhibit weed seed germination; (5) creating patches of nitrogen-rich soils, which favor nitrogen-loving weed species; (6) reducing concentrations of soil mycorrhizae required by most western native species; and, (7) accelerating soil erosion that buries weed seeds and facilitates their germination (Belsky and Gelbard, 2000).

Continued livestock grazing will typically prolong not diminish alien species dominance and persistence. Alien grasses tend to be tolerant of intensive, year-round grazing practices (Menke, 1992). As Kimball and Schiffman explain, "the native California grassland community assembled in the absence of grazing herds, whereas invasive European species have been exposed to grazing for centuries. It may be that these invaders have adaptations that better enable them to recover from grazing." (Kimball and Schiffman, 2003).

Stromberg et al. observed that grazing by livestock on formerly cultivated land (as is the case for part of the Refuge) is associated with decreased plant diversity and increased bare ground (Stromberg et al, 1996). Van Dyne and Heady established that cattle are selective foragers and while grasses were grazed to about the same extent as they were found in their study area, cattle selected perennial grasses more often than annual grasses or forbs (Van Dyne and Heady, 1965). In addition, cattle preference for forage constituents changed significantly as herbage became seasonally limited. In their studies on the Carrizo Plain grasslands, researchers found that while "cattle grazing may temporarily reduce mulch and the cover of European species such as *B. madritensis* . . . it also reduces native cover and increases the amount of bare ground" (Kimball and Schiffman, 2003). They caution that some native plants may germinate even before the early-germinating non-natives; thus, spring grazing could heavily impact some native plants in addition to the non-native plants. They conclude: "In the grassland we studied, the strategy of livestock grazing for restoration is counterproductive. It harms native species and promotes alien plant growth." Thus, the use of livestock grazing may exacerbate the spread and persistence of non-native grasses, diminish plant diversity, and negate restoration efforts.

5. ACCOMMODATE RESPONSIBLE PUBLIC ACCESS

Currently, public access is prohibited on the northern half of the Chimineas Unit of the Reserve, and is limited on the southern half. The LMP should evaluate whether to allow responsible public access into currently-closed areas. If certain areas are to remain closed, then the LMP and DEIR should provide sufficient rationale for maintaining such closures.

We recommend that the Department identify ways to accommodate current and future visitor use in a way which will prevent or lessen the potential impacts of visitor use. The LMP should identify acceptable and allowable recreational uses. The LMP should prohibit camping in sensitive areas (or limit camping to designated sites). In addition, the Department should manage overnight camping to prevent impacts to resources and limit development of new primitive camping areas to outside the Reserve.

Hunting is one of many ways that visitors use and enjoy the Reserve. However, non-game hunting can impact the Reserve's ecosystems and threatened and endangered species found on the Reserve. Lead poisoning from the use of lead bullets can kill the California condor, an endangered species, golden eagles, and other raptors. Target shooting can result in the accumulation of litter, soil contamination by lead and wildfires. It can also impact the safety and experience of visitors.

We recommend that the Department allow hunting of game species in season by licensed hunters (i.e. no varmint hunting, as an antelope ground squirrel can easily be mistaken for a California ground squirrel, or a kit fox mistaken for a coyote). In addition, the Department should prohibit the use of lead bullets and shot across the entire Reserve for hunting, target shooting, or any other shooting activities. While hunting may be a valid use of the Reserve for specific ecological purposes, no special access should be granted beyond the access granted to the general public (i.e. no special vehicle access). Finally, the Department should maintain its current policy of directing target shooters to facilities outside the Reserve. Recreational target shooting is incompatible with the purpose of ecological reserves and should be expressly prohibited anywhere within the Reserve.

The LMP must provide for public access to the Reserve. Vehicle restrictions may be necessary to protect Reserve resources, but pedestrian and bicycle access should be allowed except in ecologically or culturally sensitive areas. Equestrian access should be carefully managed to avoid resource damage and importation of exotic seeds. If any campsites are developed, they should be primitive with hiking access only. We do not believe that developed campgrounds are appropriate for an ecological reserve.

6. ROADS, FENCING & INFRASTRUCTURE SHOULD BE LIMITED, RETROFITTED FOR WILDIFE, AND REMOVED WHERE NO LONGER NEEDED

Approximately 40 miles of roads exist on the Reserve. The DEIR should include a map showing the locations of these roads, and should evaluate the minimum road system necessary to effectively manage the Reserve. The ecological impacts of roads are well-documented in scientific literature, and the DEIR should evaluate the impacts of the road system on Reserve resources. The Forest Service recently summarized the impacts of roads in southern California as follows:

> The ecological effects of roads have been summarized in various literature reviews (Brooks and Lair 2005, Forman and Alexander 1998, Spellerberg 1998, Stephenson and Calcarone 1999, USDA Forest Service 2001, Watson 2005). These reviews all conclude that construction of roads, the presence of roads in the landscape, and the vehicles that travel upon roads have a wide range of ecological effects. These effects range from changes in the physical and chemical properties of ecosystems to alterations in the population and community structure of living organisms. Roads and their associated use can have substantial effects on species-at-risk and biological diversity, depending on the overlap of the facilities with sensitive habitats or species... [R]oads themselves can have both positive and negative effects on biodiversity…. Generally, however, roads have negative effects. Plants adjacent to roads often get covered with dust, which can affect their vigor and reproductive capabilities. Water runoff and infiltration rates are modified from naturally occurring conditions and can affect adjacent vegetation. Vehicle travel on roads is a major mechanism for the transport and spread of invasive species, which can lead to declines in native species abundance. Roads are an ongoing source of harassment (noise, visual disturbance) for many animals. Roads can often be barriers to movement for terrestrial an aquatic species. Road crossings of riparian areas and streams are especially critical areas because of the higher levels of animal use.
>
> Road maintenance is a recurring disturbance and has greater potential to promote weed establishment than the initial construction or decommissioning of a road. Propoagules or seeds of some of the most invasive nonnative riparian weeds (such as arundo, tamarisk, cape ivy, and thistles) have the potential to be spread throughout riparian systems if they are present along roads that are maintained regularly."

USFS Forest Plan EIS at 350-51, 419.

The LMP should include an inventory of existing roads and trails on the Reserve. The LMP and DEIR should incorporate this information to measure habitat fragmentation, conduct a thorough fragmentation analysis, and inform decisions regarding road closure and decommissioning and other limitations on use in the Reserve. The Department must consider the impacts of existing roads in ecologically sensitive areas and consider their removal, seasonal closure, or reconstruction with appropriate mitigation measures to protect sensitive resources.

The LMP should prohibit new road construction, temporary or permanent, unless absolutely necessary for a specific public purpose that is beneficial to the Reserve. There should be no paving of existing roads and roads that are not absolutely necessary should be decommissioned and restored.

The Reserve has historically been fenced into various pastures, and currently contains 134 miles of barbed wire fencing. IS at 34. The LMP/DEIR should contain an accurate inventory of existing fencing (including grazing infrastructure like corrals, holding pens, loading chutes, etc.), along with an evaluation of what is necessary to manage Reserve resources. All unnecessary fencing and infrastructure should be removed or retrofitted as soon as possible as it negatively affects the movement of pronghorn and other wildlife and are a blight on the landscape.

The IS states, "New fencing could be installed along the eastern and western boundaries of the Chimineas units and around sensitive resources within the Reserve to exclude cows." IS at 34. New fencing should only be constructed if it is necessary to properly manage Reserve resources, and should be sited and designed so as to not impede the movement of wildlife.

The LMP should contain Best Management Practices ("BMPs") to mitigate the impacts of roads and road maintenance on the Reserve. These BMPs should address the installation of culverts, measures to prevent the spread of invasive weeds along roads (i.e. washing equipment, conducting roadside surveys prior to maintenance work, and avoiding areas of known infestations), and avoiding road maintenance work when soils are wet. It is also important to ensure that sidecast and spoils from road maintenance and grading are not deposited into riparian areas, drainages, or habitat for rare plants or wildlife. A monitoring program should be considered to ensure the effectiveness of the proposed BMPs.

The LMP should also contain an accurate inventory of all improvements on the Reserve, including water developments, utility lines, grazing infrastructure, fences, gates, troughs, tanks, and other structures. The LMP should consider decommissioning and/or removing any unneeded infrastructure and restoring those areas to natural conditions.

The IS states, "The LMP will propose that wildlife water sources be maintained or established within every square mile around the western units (North Chimineas, South Chimineas, American)," and suggests that these water developments would be 10' tall

water tanks. IS at 21, 35. These areas total 35,991 acres, or approximately 56 square miles. IS at 13. If there is one water tank per square mile as proposed in the IS, the placement of 56 water tanks on the Reserve would likely constitute a significant visual impact. The LMP/DEIR should evaluate these impacts, disclose the funding source(s) for these water developments, and explain why so many water developments are necessary to achieve Reserve management goals.

7. COMPREHENSIVE WILDFIRE MANAGEMENT STRATEGY

We recommend that the Department develop fire management policies and prescriptions for the Reserve which provide for the use of naturally occurring fire to restore and maintain the Reserve's species and ecosystems. This would include the development of a comprehensive fire management program for the Reserve that restores characteristic fire to the ecosystem including:

- Allocation of the maximum possible area to wildland fire use and develop prescriptions for use of prescribed fire elsewhere;
- Identification of the threats imposed by hazardous fuel situations, as well as the resource impacts of implementing fuel reduction programs;
- Defining the Appropriate Management Response to fires within the Reserve, taking into account protection and management of resources; and
- Developing appropriate Emergency Fire Rehabilitation protocols that are consistent with the protection of Reserve resources and objectives.

Should the LMP call for a prescribed burning program, it must set forth specific management objectives and monitoring. As data from burns is collected, burning protocols need to be adjusted.

The IS notes that "prescribed burns will be guided towards the fire adapted chaparral communities, some of which have not burned in almost 100 years. The proposed goal will be to burn at least 625 acres of the chaparral community (~50 percent) over the next 25 years." IS at 22. The LMP/DEIR should include maps showing fire history of the area, and which areas would be considered for the proposed prescribed burning. The LMP/DEIR should also disclose the historic fire frequency of chaparral and other vegetation types in the Reserve.

8. ENERGY EXPLORATION AND DEVELOPMENT

Energy exploration, drilling, and development are inappropriate uses of the Reserve and are incompatible with protection of Reserve resources. The LMP should prohibit any energy exploration, drilling, or development on the Reserve.

The BLM owns significant mineral rights in the Reserve, and has identified the Reserve as an area of "high" oil and gas potential. *See* BLM, 2011. Draft Resource Management Plan and Environmental Impact Statement for the Bakersfield Field Office, Map 3.21 ("Areas Currently Closed to Oil and Gas Leasing Showing Oil and Gas Potential"). The LMP should discuss ownership of all mineral rights underlying the Reserve, and should present an appropriate strategy for the Department to acquire such rights.

A designated utility corridor passes through the northwestern portion of the Reserve. The LMP should contain management strategies to ensure that this utility corridor does not adversely affect Reserve resources.

9. LAND OWNERSHIP & ACQUISITION

The LMP/DEIR should discuss the private inholding located inside the Reserve boundaries, should discuss existing access rights to this inholding, and should strictly manage access to the inholding to ensure that such access does not adversely affect Reserve resources. The LMP should present an appropriate strategy to acquire this inholding and any other priority lands surrounding the Reserve.

10. PROTECTIONS FOR CULTURAL HERITAGE SITES

We recommend that Department determine the sites or areas that are most vulnerable to current and future impact and adopt management actions necessary to protect and restore cultural resources. The Native American community should be consulted in determining whether there are sites or specific areas in the Reserve of particular concern. The Department should commit to a comprehensive inventory of cultural and historical resources, develop a timeline for completing the inventory, and use this inventory to develop a specific plan for potential uses of cultural resources in the Reserve (i.e., relative sensitivity, relative opportunities for interpretive development, relative scientific importance, relative potential for research and education).

Specific management actions to protect and preserve archeological and historical sites and landscapes include stabilization, fencing, signing, closures, or interpretative development, to protect and preserve cultural resources. Law enforcement is another key component of

protection and the Department should adopt measures to protect cultural resources from artifact collectors, looters, thieves, and vandals.

The Reserve contains at least 22 known archaeological sites, including prehistoric villages, camps, pictographs, lithic workshops, bedrock mortar stations, and historical sites. The LMP should include a monitoring plan for these areas, and should propose measures to reduce any ongoing or potential impacts to the integrity of these sites. CEQA requires the Department to consult with the State Historic Preservation Officer if a project may impact an archaeological site. *See* Pub.Res.Code § 5024.5; CEQA Guidelines §15064.5. The Department should consult with the SHPO as it develops the LMP.

11. LANDS WITH WILDERNESS CHARACTERISTICS

The LMP should evaluate whether certain lands on the Reserve should be managed to protect and enhance their wilderness characteristics, in accordance with the California Wilderness Act, Cal. Pub. Res. Code §5093.30 *et seq.*

12. MONITORING PROTOCOL, LAW ENFORCEMENT & PUBLIC OVERSIGHT

The LMP should recommend the establishment of an Advisory Council consisting of various stakeholders and members of the public. The council would provide input to the Department on ways to improve the management of the Reserve.

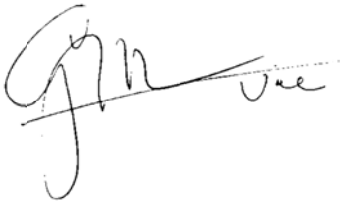
The DEIR should evaluate the law enforcement needs and challenges on the Reserve, particularly in light of increased public access and shrinking agency resources. The LMP should include a law enforcement program to ensure that laws and regulations governing the Reserve are enforced.

The LMP should include a monitoring protocol to ensure the periodic evaluation of Reserve resources, setting forth key monitoring indicators and monitoring frequency. This monitoring protocol should include annual reporting that is made publicly available, describing how monitoring was performed during the previous year, the results of such monitoring, and any adaptive management actions taken to address issues identified during monitoring.

Thank you for your consideration of our comments. We look forward to participating in the land management planning process for the Reserve. Please send us any future public notices, draft plans, and CEQA documents as they become available. In the meantime, we welcome the opportunity to discuss any of these issues in more detail, and look forward to working with your Department to develop a comprehensive management plan for the Reserve.

Sincerely,

Jeff Kuyper, Executive Director
Los Padres ForestWatch
PO Box 831
Santa Barbara, CA 93102
(805) 617-4610 ext.1
jeff@LPFW.org



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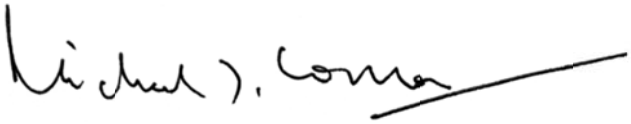

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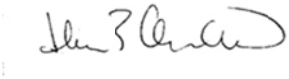

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California Department of Fish and Game
Carrizo Plain Ecological Reserve
Land Management Plan
Environmental Impact Report
Scoping Comments

This comment sheet is provided for your convenience to comment on the scope of the analysis for the Environmental Impact Report for the Carrizo Plain Ecological Reserve Land Management Plan. The Initial Study for the Carrizo Plain Ecological Reserve Land Management Plan is available for download at the Department's website: www.dfg.ca.gov/news/pubnotice/

Comments on the scope of analysis for the EIR may be submitted until **December 21st, 2012** to:

Mr. Bob Stafford
Environmental Scientist
Department of Fish and Game, Region 4
1234 E. Shaw Ave.
Fresno, CA 93710
(805) 528-8670
bstafford@dfg.ca.gov

If submitting comments by e-mail, please include "Carrizo Plain Ecological Reserve" in the subject line, attach comments in an MSWord document, and include your U.S. Postal Service mailing address.

Comments: Northern Chumash Tribal Council

(1) We need to see baseline archaeological reports on all the known Sacred Sites or Places.

(2) NCTC would like to get permission to hike the property, and have ceremony.

(3) NCTC would like to be a part of this project, please have meaningful consultation with us.

Fred Collins
Tribal Admin.
805-801-0341

Rocky Mountain Elk Foundation
San Fernando Valley Chapter

7870 Fairchild Avenue
Winnetka, California 91306
www.rmefsanfernandovalley.org

December 18, 2012

Electronic Letter

Bob Stafford
Environmental Scientist
California Department of Fish and Game (DFG)

Reference: Land Management Plan for the Carrizo Plain Ecological Reserve (CPER)/Public Comments

The San Fernando Valley Chapter (SFV) of the Rocky Mountain Elk Foundation (RMEF) has been supporting the CPER since 2005. RMEF funds have helped provide wildlife water systems and SFV volunteers have helped build them. SFV furnished and maintains a room in the CPER headquarters for students and researchers to stay on the facility. SFV also hosts the La Panza Apprentice Elk Hunt on the CPER with volunteers and funding.

SFV's primary focus has been on the management of the tule elk herds and their habitat on the CPER. Restoration of the tule elk on the CPER has been a great success story for DFG and a great part of that success has been a result of restricted public access, particularly on the Chimineas North Unit. The current access restrictions, which allow reasonable access for hunting, are obviously creating an environment where the elk are allowed to flourish without harassment. We support the continuation of current access restrictions on the CPER.

SFV has also observed that where a species like the elk require the elimination of grazing, DFG has appropriately closed an area of preferred elk habitat to grazing. Observed grazing management practices on the CPER appear to be managed for maximum ecological benefit and SFV believes that DFG should have the option of determining when and where grazing is a proper habitat management tool on the CPER.

Mike Post
Chapter Chair

Jodi M. McGraw

From: Kohlmann, Stephan G. [RA] <STEPHAN.G.KOHLMANN@saic.com>
Sent: Monday, December 10, 2012 6:16 PM
To: bstafford@dfg.ca.gov
Subject: Land Management Plan for the Carrizo Plain

Subject: Notice of Preparation of a Draft Environmental Impact Report for the Preparation of a Land Management Plan for the Carrizo Plain Ecological Reserve, San Luis Obispo County

Dear Bob,

I was glad to see the that the Department intends to prepare an Environmental Impact Report for the proposed Land Management Plan for the Carrizo Plain Ecological Reserve. As you know, I have been involved in conservation issues in the Carrizo Plain over the years and I know the area well. My primary interest in this amazing part of California is – among other species- the pronghorn. The Carrizo Plains population represents a crucial element in the metapopulation of pronghorn in the greater area, ranging from the Antelope Valley to the Cholame Area and beyond. In recent years pronghorn populations in this area have suffered a considerable decline and are now teetering at the brink of extinction. In addition, other projects within this range (e.g., Tejon Ranch, solar facilities) and the ever-increasing pressure on open space threaten the landscape connectivity of the region. One of the unique opportunities of conservation lands within and surrounding the Carrizo Plains consists of securing secure habitat patches of high quality to offset losses due to habitat fragmentation, development and an increasing degradation of native vegetation communities. Also, impacts of climate change could very well be significantly changing habitat quality for grassland species, such as pronghorn.

However, I find only one brief mentioning of pronghorn in the entire study document. Curiously, the current and historic practices of ranching including the number of historically grazed cattle by pasture and individual ranch operation receives extensive treatment. I understand that ranching is an important land management tool, but this imbalance struck me as rather odd. I would encourage the Department to consider the impacts of any land management activity, especially grazing and burning, on pronghorn. Also, I believe the management plan should entail specific activities to increase pronghorn fawning habitat by maintaining tall grasslands of sufficient height to conceal fawns in areas that are gently sloped and have been known to be used as fawning areas. Nutritional quality of these grasslands should also be considered when implementing grazing (especially the duration of grazing and the timing of prescribed burning) to provide maximum benefit to this species.

Lastly, I urge the Department to consider inviting additional analyses and land conservation planning experts to take a broader view of the ecological system of which the DFG lands are only a small portion and integrate the management into a set of landscape-level planning and management priorities – one of which I believe must be the maintenance of viable populations and functioning linkages among habitats and populations. Pronghorn have been shown to be an effective flagship species for these concerns in other parts of the country and their current precarious status in the Planning Area documents their sensitivity well. Their omission in the planning process would be a very unfortunate missed opportunity for sound conservation planning.

Please do not hesitate to contact me if you have further questions.

Sincerely,

Steve G. Kohlmann, Ph.D, CWB | SAIC
Senior Conservation Ecologist
2600 Capitol Avenue, Suite 140
Sacramento, CA 95816
phone: 916.446.2941 | mobile: 916.501.1447
kohlmanns@saiccom; www.saic.com

"*Examine each question in terms of what is ethically and aesthetically right, as well as what is economically expedient*. " Aldo Leopold

SLO COUNTY apcd | Air Pollution Control District
San Luis Obispo County

December 19, 2012

Bob Stafford
Environmental Specialist
California Department of Fish and Game
1234 East Shaw Avenue
Fresno, CA 93710

SUBJECT: APCD Comments Regarding the Notice of Preparation (NOP) for a Draft Environmental Impact Report (EIR) addressing the preparation of a Carrizo Plain Ecological Reserve Land Management Plan

Dear Mr. Stafford,

Thank you for including the San Luis Obispo (SLO) County Air Pollution Control District (APCD) in the environmental review process. We have completed our review of the Notice of Preparation (NOP) for a Draft Environmental Impact Report (EIR) addressing the preparation of a Carrizo Plain Ecological Reserve Land Management Plan.

The following are APCD comments that are pertinent to this project.

1. APCD Contact Person:

   Gary Arcemont
   Air Pollution Control District
   3433 Roberto Court
   San Luis Obispo, CA 93401
   (805) 781-5912

2. Permit(s) or Approval(s) Authority:

   Permits for Equipment

   Based on the information provided, we are unsure of the types of equipment that may be used as part of land management activities. Portable equipment used during land

management activities may require statewide registration or an APCD permit. Additionally, future developments may require APCD permits and/or applicants may need to apply for an Authority to Construct. Please contact our Engineering Division at (805) 781-5912 for more information on APCD permits. The following list is provided as a guide to equipment and operations that may have permitting requirements, but should not be viewed as exclusive. For a more detailed listing, refer to the APCD's 2012 CEQA Handbook.

- Portable generators and equipment with engines that are 50 hp or greater; and
- Internal combustion engines.

To minimize potential delays, prior to the start of the project, please contact the APCD Engineering Division at (805) 781-5912 for specific information regarding permitting requirements.

3. Environmental Information:

The potential air quality impacts should be assessed in the Environmental Impact Report (EIR). This analysis should address both short-term and long-term emissions impacts (including traditional air pollutants and greenhouse gas emissions) and include the following information:

a) A description of existing air quality and emissions in the impact area, including the attainment status of SLO County relative to State and Federal air quality standards and any existing regulatory restrictions to development. The most recent Clean Air Plan should be consulted for applicable information.

b) A complete emission analysis should be performed on all relevant emission sources, using emission factors from the EPA document AP-42 "Compilation of Air Pollutant Emission Factors", the latest approved version of CalEEMod, EMFAC, OFF-ROAD or other approved emission calculator tools. Documentation of emission factors and all assumptions (i.e. vehicle trip length, vehicle and equipment emission factors, etc.) should be provided in an appendix to the EIR. The quantitative analysis should address criteria pollutants, greenhouse gases, toxics, diesel particulate matter and fugitive dust.

c) The EIR should include a range of feasible alternatives to the proposed project that could effectively minimize air quality impacts. A thorough emissions analysis should be conducted for each of the proposed alternatives identified. The EIR author should contact the SLO County APCD if additional information and guidance is required. All calculations and assumptions used should be fully documented in an appendix to the EIR.

d) Assembly Bill 32, the California Global Warming Solution Act of 2006 and California Governor Schwarzenegger Executive Order S-3-05 (June 1, 2005), both require reductions of greenhouse gases (GHG) in the State of California. The Governor has recognized mitigation efforts will be necessary to reduce greenhouse gas emissions. In order to address these issues, greenhouse gas emissions should be evaluated in the EIR, and appropriate mitigation efforts identified.

e) A cumulative impact analysis should be performed to evaluate the combined air quality impacts of this project and impacts from existing and proposed future projects in the area.

f) The data analyses should address local and regional impacts with respect to maintaining applicable air quality standards.

g) Any temporary impacts, such as fugitive dust and combustion emissions from the use of heavy equipment, mastication equipment and grading activities, should be quantified and mitigation measures proposed.

h) Mitigation measures to reduce or avoid significant air quality impacts should be recommended. The EIR should address any proposed mitigation measures and describe feasible mitigation measures to reduce air quality impacts.

i) Naturally occurring asbestos (NOA) has been identified by the state Air Resources Board as a toxic air contaminant. Serpentine and ultramafic rocks are very common throughout California and may contain naturally occurring asbestos. The SLO County APCD has identified areas throughout the County where NOA may be present (see the APCD's 2012 CEQA Handbook, Technical Appendix 4.4). If there will be ground disturbance and the project site is located in a candidate area for Naturally Occurring Asbestos (NOA), the following requirements apply. Under the ARB Air Toxics Control Measure (ATCM) for Construction, Grading, Quarrying, and Surface Mining Operations, **prior to any ground disturbance activities, the project proponent shall ensure that a geologic evaluation is conducted to determine if NOA is present within the area that will be disturbed. If NOA is not present, an exemption request must be filed with the APCD.** If NOA is found at the site the applicant must comply with all requirements outlined in the Asbestos ATCM. This may include development of an Asbestos Dust Mitigation Plan and an Asbestos Health and Safety Program for approval by the APCD. If NOA is not present, an exemption request must be filed with the Air District. More information on NOA can be found at http://www.slocleanair.org/business/asbestos.php.

4. Permit Stipulations/Conditions:

It is recommended that you refer to the "2012 CEQA Air Quality Handbook" (the Handbook). If you do not have a copy, it can be accessed on the APCD web page (www.slocleanair.org) in the Business Assistance section, listed under Regulations, or a hardcopy can be requested by contacting the APCD. The Handbook provides information on mitigating emissions, which should be discussed in the Draft EIR.

5. Alternatives:

Any alternatives described in the Draft EIR should involve the same level of air quality analysis as described in section 3 above.

6. Reasonably Foreseeable Projects, Programs, or Plans:

   The 2012 version of the APCD's CEQA Air Quality Handbook provides guidance for preparing the EIR.

7. Relevant Information:

   The 2012 version of the APCD's CEQA Air Quality Handbook should be referenced in the EIR for determining the significance of impacts and level of mitigation recommended.

8. Further Comments:

   As stated in the project referral, the use of fire in the management of vegetation has the potential for significant impacts to air quality. In summer, ozone concentrations in the Carrizo Plains area exceed State and Federal Air Quality Standards. Any planned prescribed burns should be discussed with SLO County APCD staff to ensure that impacts to air quality are kept to a minimum and no health standards will be violated as a result of the use of prescribed burns. Burns should be conducted when the meteorological conditions allow proper dispersion of smoke to minimize impacts to sensitive receptors. Adjacent air districts (Santa Barbara, San Joaquin, and Monterey Bay) should also be kept informed of all prescribed burning activities. Public outreach should also be conducted prior to the prescribed burns to keep the public informed of any potential impacts to air quality and their respiratory health. Well in advance of the scheduled prescribed burn, the land management agency responsible for the prescribed burn should ensure that a representative participates on the Prescribed Burn One O'Clock Coordination Call conducted by the California Air Resources Board and Local Air Districts.

Thank you for the opportunity to comment on this proposal. If you have any questions or comments, feel free to contact me at 781-5912.

Sincerely,

Gary Arcemont
Air Quality Specialist

GJA/arr

cc: Tim Fuhs, Enforcement Division, APCD
Karen Brooks, Enforcement Division, APCD
Gary Willey, Engineering Division, APCD

Attachments:

1. Naturally Occurring Asbestos – Construction & Grading Project Exemption Request Form, Construction & Grading Project Form

Bob Stafford
California Department of Fish and Game
1234 E. Shaw Avenue
Fresno, CA 93710

Re: CPER EIR/LMP Scoping

"That government is best which governs least"

-Henry David Thoreau

"Wildlife Management" is both an oxymoron and a slippery slope. To paraphrase Thoreau: "That management is best which manages least." It is my observation, after a lifetime of paying attention, that nature is remarkably resilient and will often recover from grievous harm if only left alone. On a level playing field, nature has the advantage. When humans play gods and start second guessing nature, unforeseen problems inevitably ensue – sometimes with dramatic consequences. That's not to say that there is not a need for wildlife management or a role for wildlife/land managers. Sadly, I believe that there is. Humans have pretty much screwed things up and ecosystem collapse in not an anomaly, but rather the norm. Sometimes active management is necessary; but when it is, it should be undertaken with humility and a "tread lightly" approach. First, do no harm…

Setting aside philosophy, there are practical reasons to tread lightly. Active management, if done correctly, takes a lot of time, requires a lot of staff, and is expensive.

As I stated at the scoping meeting, my main concerns are grazing and public access and I will confine my comments here to those two topics. That is not to say that I do not have an interest in other parts of the plan or that I will not have further comments at a later date. I'm sure that when I see the draft EIR/LMP, I will have additional comments.

Vegetation Management (Grazing)

I would characterize the current grazing program on the Carrizo Plain Ecological Reserve (CPER) as a disaster. It has ended up costing tax payers way more money, and has involved way more staff time, than anticipated. It certainly has resulted in more negative impacts than were expected. One has to wonder if the alleged positive benefits outweigh the negatives. To my mind, they have not. The land has been badly damaged; the lessee involved has been able to leverage his CPER lease to obtain (or keep) Bureau of Land Management (BLM) and Los Padres National Forest (LPNF) leases in the area – leading to further damage of public lands; CDFG has suffered a loss of face and credibility and its ability to manage conservation lands has been called

into question. All this for what? A few bucks from the lease? A ranch hand to fix fences?[1] Somebody to patrol and keep the public off of their land?

I'm not blaming anyone or pointing fingers at anybody. I understand the funding/resource constraints that CDFG operates under. I also understand that there are political constraints. What I am pointing at is the obvious: Maybe this has not gone so well; maybe there is a learning opportunity here. You can change course or you can keep your blinders and ear plugs on and plunge ever deeper into the "Big Muddy". I hope you will change course. If you stay on the current path, grazing will continue to be controversial and will continue to eat up staff time and resources for dubious benefit.

It was interesting to note, at the scoping meeting on December 3, 2012, that in your consultant's presentation, "challenges" to preparation/implementation of the Land Management Plan (LMP) were identified as:

1. Non-native plants and animals;
2. Prior use;
3. Management conflicts;
4. Public use conflicts.

As I pointed out at the meeting, one of the most common (perhaps *the* most common) and visible non-native animals in the region is the cow. Additionally, virtually all of the non-native annual grasses and invasive plants in California came from the introduction of cattle and sheep. Finally, the presence of livestock perpetuates the conditions in which the non-native grasses and invasives continue to thrive.

Grazing practices in California have extirpated vast areas of native chaparral, native shrubs and forbs, native grasses, native oaks, etc.; vast amounts of water (in a state that is largely arid) have been diverted to water cows (and away from wildlife); California's landscape is a maze of fencing (which inhibit wildlife movement) and other grazing infrastructure; vast numbers of riparian areas, springs, and vernal pools have been (are being) trampled and fouled by cattle, with resultant wildlife impacts. Cattle and sheep have changed California's landscape forever and the impacts to wildlife and native plants from the livestock industry are so great as to be almost unquantifiable.

What were the prior uses of the Chimineas Ranch? Grazing, of course. Are there public use conflicts associated with grazing? Of course. Many. I note that there is no public access on the North Chimineas where grazing now occurs.

So, in spite of all of the above, CDFG thinks grazing is necessary – allegedly to manage vegetation – and that grazing will not (does not) conflict with the stated purpose of ecological

[1] Fixing fences is not done very well, if at all, since livestock from the CPER are routinely found trespassing on adjacent lands – including into springs and onto sensitive archeological resources.

reserves which is to "...protect rare, threatened or endangered native plants, wildlife, aquatic organisms and specialized habitats, while providing compatible public uses opportunities." This is kind of like stating a belief that roaring open fires will not conflict with the storage of gasoline, but there you go... There's so much more I could say about this, but I suppose that I have beaten this cow to death for now.

Vegetation Management Recommendation 1:

The EIR/LMP should evaluate and consider a range of vegetation management options, including "no grazing" options. This evaluation should include review of: studies (both published and in prep) conducted on the CPNM; the CPNM RMP; studies, COAs, monitoring reports, and the ITP pertaining to Carrizo solar development; and studies conducted in the region – especially those studies involving management of the species found on the CPER.

Vegetation Management Recommendation 2:

Grazing on the CPER should be used only as a vegetation management "tool" and only as long as it takes to achieve a desired outcome or condition. The current multiple-year grazing lease that provides for annual grazing on the CPER should be terminated. Conditions on the CPER, as on the CPNM, do not warrant annual grazing[2]. Annual turn-out benefits the lessee, not the land and/or wildlife. Any grazing on the CPER should mimic the "free use" grazing permits on the CPNM with cattle only being turned out only when excessive vegetation results in undesirable conditions for the particular species being managed for. This approach should be evaluated in the EIR/LMP.

Vegetation Management Recommendation 3:

The EIR/LMP should evaluate the need and plan for adequate staff to manage the CPER for conservation, not for profit. The activities of private lessees and their staff should be strictly controlled.

Vegetation Management Recommendation 4:

All grazing on the CPER should be carefully monitored to be certain that conditions warrant turn-out and to be sure that take-off occurs when desired conditions are achieved. All monitoring reports should be available to the public – preferably posted on a public website dedicated to management of the CPER. The EIR/LMP should evaluate the feasibility of this recommendation or should identify and evaluate other options to assure public oversight of management activities.

<u>Public Access</u>

[2] There are a few annual leases on the CPNM. These are relics of the past, highly controversial, and great effort was made to eliminate them in the RMP planning process. However, terminating them under federal law (and under the administration at the time the RMP was created) proved to be nearly impossible and they remain. Efforts will be made to buy them back and retire them as they become available.

In 2004 I wrote a letter in support of the acquisition of the north Chimineas (with public funds) and I attended the Wildlife Conservation Board hearing in Sacramento where I was the only public member who spoke in favor of allocation of funds for the acquisition. At that time I was living, and I still live, on property very near to the North Chimineas. For eight years I have waited expectantly for access to the Chimineas (and the LPNF in the distance) but I have been denied. For eight years I have watched as a private ranching operation on the Chimineas overgrazed the land, but was told that I could not access the property because the resources are so sensitive. I hike, bike, and hunt on the CPNM, but legal access to the Chimineas is severely constrained and, unless I were to get an elk permit, I am basically denied access.

Oh, I am told that I can access the Chimineas (on foot) off of Highway 166. As the raven flies (across the Chimineas), I live about 10 miles from 166. But as the truck travels, it is about 60 or 70 miles (20 of which are dirt) from my house to the south entrance to the Chimineas; too far for a day hike. It takes me less than 10 minutes to drive to the North Chimineas gate, but it takes me an hour and half to drive to the South Chimineas gate where limited walk-on access is allowed (but only on the southern half of the property). For folks who live on the north side, driving to (and back from) 166 is pretty much out of the question. And why should we have to drive all the way to 166 when there could be easy access on the north side?

The Chimineas is 30,000 steep, rugged acres. Access on foot does not get you far in a day (especially if you have to drive 70 miles before you start walking). Somehow, the BLM manages the CPNM for the same sensitive resources, yet allows access by vehicle, bike, foot, and horse; dispersed camping and two campgrounds; and hunting in season. It seems that CDFG does not value public use and access the same way that the BLM does. Why is that? CDFG is a public agency. The Chimineas is public land. It was paid for and is managed with public funds. And yet the public has been essentially told to "go take a hike" (but not a very long one, only on certain days, only with a permit, and only from the most inconvenient location possible).

Public Access Recommendation 1

The EIR/LMP should identify and evaluate a range of public access alternatives including access by (street legal) vehicle, bicycle, horse, and foot across the entire CPER. Funding requirements to manage a public access program on the CPER should be evaluated

Public Access Recommendation 2

The EIR/LMP should evaluate camping on the CPER.

Public Access Recommendation 3

The LMP should allow walk/bicycle-on hunting from any location on the CPER. Quail hunting (and other small game hunting) should be allowed in season, on all days of the week and from any location – subject, of course, to closure for biological or wildlife management reasons.

Public Access Recommendation 4

The LMP should provide for public access to the LPNF across the CPER. This could be by vehicle, foot, bicycle or horse.

Public Access Recommendation 5

The EIR/LMP should evaluate and plan for a visitor-serving facility at the palatial and extravagant ranch headquarters. The cost/benefit of maintaining this facility should be evaluated; both as a visitor-serving facility or not. Why should the public pay to maintain a fancy ranch house, swimming pool, etc. if they cannot access or use it? I'd like to see an evaluation of use of the facility to date (who *has* been using it?) and the costs associated with maintaining the facility.

Public Access Recommendation 6

Consideration should be given in the EIR/LMP to the possibility of extending public access and use of the road that passes through the Chimineas from the end of SLO County maintained Claude Arnold/Sprague Hill Road to Highway 166. It's public land; bought and paid for with public funds. Thus, the existing ranch road is a public road. Public use of this road would enhance public access from the north to the public lands that surround the Chimineas. As you know, access to public lands in the region has been severely constrained by private property owners. It is a shame that the State of California continues the tradition of blocking public access to public lands. The road(s) through the Chimineas could be opened during limited hours (daylight?) and/or on certain days (weekends?), at least initially.

Public Access Recommendation 7

The EIR/LMP should consider and provide for adequate law enforcement, possibly in collaboration with BLM and LPNF law enforcement, to ensure that game laws are enforced, rules are followed, and resources are protected as required by various state and federal laws. The EIR/LMP should also evaluate the possibility of a volunteer patrol of the Chimineas such as is conducted by the Santa Monica Mountains Conservancy/Mountains Recreation and Conservation Trust in the Santa Monica Mountains.

Public Access Recommendation 8

The EIR/LMP should identify lands within the CPER that may have Wilderness characteristics – possibly in combination with BLM or LPNF lands – and plan for management and preservation of these lands in a manner that is consistent with the Wilderness Act and or compatible with current management of such federal lands that may be adjacent to state lands.

Thank you for this opportunity to comment. While I may be blunt in my comments, I want to make it clear that I appreciate CDFG's foresight and vision in acquiring the lands that comprise the CPER and I am deeply grateful for all of the work that has gone into managing these lands

and in preparing this plan. As California's population grows, and as opportunities for landscape-scale land acquisitions diminish, the value of these lands to future generations will be tremendous. This is truly CDFG's legacy and gift to Californians.

Sincerely,

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Appendix C Best Management Practices

Appendix C Best Management Practices

This appendix lists steps that the Department will take to limit environmental impacts during implementation of the LMP. It was developed as part of the Environmental Impact Report (DLM 2016). Additional information can be found in the sections of the EIR that are referenced below.

C.1 General Requirements

BMP G-1. The Department shall comply with relevant provisions of the California Environmental Quality Act (CEQA) prior to a decision to approve an activity with the potential to adversely impact the environment.

BMP G-2. The Department shall consult with other agencies with permit approval authority over aspects of management activities undertaken within the Reserve, to identify the relevant permit practices and to ensure compliance with applicable state and federal regulations.

BMP G-3. Management activities undertaken in accordance with the LMP shall meet the applicable permitting and regulatory practices of federal and state agencies, including, but not limited to, the following:

- California Department of Fish and Wildlife;
- U.S. Fish and Wildlife Service;
- State Water Resources Control Board;
- U.S. Army (Section 404 of the Clean Water Act);
- San Luis Obispo Air Pollution Control District; and
- California Department of Forestry and Fire Protection (CalFire).

C.2 Aesthetic and Visual Resources [EIR Section 5.2]

C.2.1 New Construction — Aesthetic and Visual Resources

BMP AV-1. The design and location of wildlife viewing platforms, parking, water tanks, and other infrastructure on the Reserve shall:

- Maintain a profile below the ridgeline and conform to the natural slope wherever possible;
- Take advantage of natural topography, vegetation and other physical features to provide screening from public view;
- Minimize the need for grading;
- Use materials, colors, and textures that:
    - complement the rural character of the Reserve;
    - blend with the natural landscape;
    - avoid high color contrasts;

- Minimize or avoid exterior lighting; and
- Be located in areas with existing infrastructure and facilities wherever possible.

BMP AV-2. Where landscaping is conducted, plants shall be chosen that are compatible with native vegetation and which provide a visual transition from developed to open areas.

BMP AV-3. To reduce the adverse impact of light and glare, the Department shall require new light sources to be shielded and hooded to focus lighting on the area in need of illumination.

BMP AV-4. New fencing shall be placed in the least visible location practical, while still accomplishing the resource protection or safety objectives of the LMP. Where fencing will be visible from a public vantage or visible to visitors, consideration should be given to the use of historic/rustic materials so long as the resource protection objectives of the LMP can be satisfied.

C.3 Air Quality [EIR Section 5.3]

C.3.1 General Air Quality

The Department will follow all Air Pollution Control District (APCD) regulations, which change over time. The following are specific measures the Department will take to address current regulations.

BMP AQ-1. To mitigate the emission of fugitive dust associated with use of Reserve roads and parking areas, the Department shall implement at least one of the following:

- Install and maintain an all-weather surface road with material that minimizes the emission of fugitive dust such that fugitive dust emissions do not impact off-site areas; or,
- Maintain the roadway or parking area with a dust suppressant such that fugitive dust emissions do not impact off-site areas; or,
- Limit traffic speeds on unpaved roads to 15 mph.

BMP AQ-2. To reduce vehicle miles associated with special events, meetings, and management activities on the Reserve, the Department shall encourage the following:

- The use of carpools/vanpools; and
- Establishing a shuttle service or Park-and-Ride lots from areas outside the Reserve.

BMP AQ-3. The Department shall implement the relevant provisions of DFG Going Green: Next Steps Toward Sustainability (CDFW 2011a), which sets forth specific recommendations for reducing the Department's greenhouse gas emissions.

C.3.2 Construction and Demolition Activities — Air Quality

BMP AQ-4. To minimize potential air quality impacts associated with the emission of fine particulate matter associated with construction activities, the Department will apply the following, as applicable:

- During construction activities, unpaved roads will be effectively stabilized of dust emissions;
- When large, earth-moving equipment is used for construction/demolition activities, fugitive dust emissions will be controlled by presoaking or otherwise applying water to the construction/demolition area;
- Following the addition of earthen materials to, or the removal of earthen materials from, the surface of outdoor storage piles, said piles shall be effectively stabilized of fugitive dust emissions utilizing sufficient water or chemical stabilizer/suppressant;
- Limit traffic speeds on unpaved roads to 15 mph;
- Suspend excavation and grading activity when winds exceed 20 mph;
- Limit area subject to excavation, grading, and other construction activity at any one time and reduce the amount of the disturbed area, where possible;
- All roadways, driveways, sidewalks, etc. to be paved should be completed as soon as possible after grading unless seeding or soil binders are used; and
- All of these fugitive dust mitigation measures shall be shown on applicable grading and building plans.

BMP AQ-5. To minimize air quality impacts associated with construction and applicable restoration activities, the Department will implement the following as applicable:

- Maintain all construction equipment in proper tune according to manufacturer's specifications;
- Fuel all off-road and portable diesel-powered equipment with Air Resources Board (ARB)-certified motor vehicle diesel fuel (non-taxed version suitable for use off road);
- Use diesel construction equipment meeting ARB's Tier 2 certified engines or cleaner off-road, heavy-duty diesel engines, and comply with the State Off-Road Regulation;
- Use on-road heavy-duty trucks that meet the ARB's 2007 or cleaner certification standard for on-road heavy-duty diesel engines, and comply with the State On-Road Regulation;
- Construction or trucking companies that that do not have engines in their fleet that meet the engine standards identified in the above two measures (e.g., captive or NOx exempt area fleets) may be eligible by proving alternative compliance;
- All on and off-road diesel equipment shall not idle for more than 5 minutes. Signs shall be posted in the designated queuing areas and or job sites to remind drivers and operators of the 5-minute idling limit;
- Use equipment powered by electricity rather than diesel or gasoline when feasible;
- Substitute gasoline-powered in place of diesel-powered equipment, where feasible;
- Use alternatively-fueled construction equipment on-site where feasible, such as compressed natural gas (CNG), liquefied natural gas (LNG), propane or biodiesel; and

- To ensure SLO APCD thresholds for construction-related emissions are not exceeded, limit the quantity of construction/earth moving activities as follows:
    - 1,400 cubic yards of earth moving/grading per day when conducted with diesel-powered equipment; and
    - 4,620 cubic yards per day when conducted with gasoline-powered equipment.[9]

BMP AQ-6. If the Department is removing or renovating any building(s) or relocating any utility pipelines, the Department shall comply with the relevant provisions of the National Emission Standard for Hazardous Air Pollutants (40CFR61, Subpart M - asbestos NESHAP).

C.3.3 Prescribed Burning — Air Quality

BMP AQ-7. Prescribed burning shall be conducted in full compliance with the provisions of Rule 502 of the San Luis Obispo County Air Pollution Control District (SLO APCD) Rules and Procedures, including (but not limited to) the following:

- Approval of a burn permit by the SLO APCD at least 72 hours prior to the burn date;
- Preparation and approval of a Smoke Management Plan by the SLO APCD;
- Air quality monitoring, as may be required by the Air Pollution Control Officer;
- Consultation with the SLO APCD and surrounding air quality districts in advance of the burn date; and
- Participation in the Prescribed Fire Information Reporting System (PFIRS)[10].

C.4 Biological Resources [EIR Section 5.4]

C.4.1 Protection of Sensitive Resources and Special-Status Species

C.4.1.1 General

BMP BIO-1. Any person handling special-status species must have all appropriate permits issued by the Department and/or the USFWS.

BMP BIO-2. These BMPs will be revised or updated if the USFWS or the Department issue new or revised species survey or protection guidelines.

BMP BIO-3. The timing of activities with the potential to disturb sensitive resources shall be planned to minimize impacts to such resources to the extent practical and as a take avoidance strategy.

[9] Based on Table 2-1 of the SLO APCD CEQA Air Quality Handbook, 2012. Assumes 2.2 grams of diesel particulate matter per cubic yard of material moved.

[10] PFIRS ("P-furs") serves as an interface between air quality managers, land management agencies, and individuals that conduct prescribed burning in California. It is intended to facilitate communications by providing access to a database containing information on burn planning, burn approvals, and emissions information. PFIRS is a joint project of the California Air Resources Board, federal land management agencies, local air districts, and various fire agencies.

BMP BIO-4. Activities with the potential to disturb raptor nest sites shall have seasonal restrictions imposed within a ½-mile visible radius around such sites.

BMP BIO-5. Infrastructure such as wildlife-viewing platforms, water tanks, and power lines shall not be developed within 100 yards of ridge lines to minimize potential impacts to California condor.

C.4.1.2 Surveys

BMP BIO-6. The following procedures shall be followed where construction, demolition, or maintenance activities have the potential to adversely impact special-status plant populations:

- Department staff will review existing data regarding the presence of special-status plant species (CRPR List 1, CESA, and ESA lists) in the area of potential disturbance.
- Department staff will perform a field reconnaissance of the area of potential disturbance to assess the presence of special-status plant populations.
- The conclusions of the first two steps listed above steps 1 and 2 (above) will be used to inform the design and location of the construction or maintenance activity and to identify the least sensitive area(s) for ground disturbance.
- If steps 1 and 2 reveal the presence, or potential presence of, special-status plant species or their habitat, and avoidance is not feasible, the Department shall conduct a rare plant survey in accordance with applicable guidelines of the Department, USFWS, and CNPS. The survey shall identify and map any existing rare, threatened, or endangered plant species.
- The Department shall consult with the USFWS regarding appropriate avoidance, minimization, and mitigation measures for potential impacts to federally-listed plant species found to occur within the area of potential disturbance.
- Mitigation measures shall be developed within the project-level CEQA document and implemented with performance monitoring to avoid significant impacts. Mitigation measures may include (but would not be not limited to) avoidance of the habitat and/or seasonally-timed activities in addition to the implementation of project-specific mitigation measures designed to reduce potential impacts. These measures shall be based on the biological requirements of each species found to occur at a particular site, as well as a complete description of the proposed project and its potential impacts to the subject species. At the discretion of the Department, and with concurrence from USFWS for federal-listed species, existing information, in lieu of a site specific survey, may be used to determine the presence of special-status species and appropriate measures to be undertaken to protect such resources.

- Personnel familiar with the sensitive resource may be required to be present during construction activities. Sensitive plants in the vicinity of planned activities will be temporarily fenced or prominently flagged to prevent inadvertent encroachment by vehicles and equipment during the activity. Ground-surface disturbance shall be scheduled after seed set and prior to germination. Collection of seed, with reseeding undertaken at the site following the activity, during seasonal time-frames, and when weather conditions are favorable for germination and growth, may also be required. If deemed appropriate, topsoil shall be stockpiled and replaced or translocated as soon as practicable after project completion.

BMP BIO-7. The following procedures shall be followed where construction, demolition, or maintenance activities have the potential to adversely impact special-status animal species:

- Department staff will review existing data regarding the presence of special-status animal species in the area of potential disturbance.
- Department staff will perform a field reconnaissance of the area of potential disturbance to assess the presence of special-status animal habitat or populations.
- The conclusions of steps 1 and 2 (above) will be used to inform the design and location of the construction or maintenance activity and to identify the least special-status area(s) for ground disturbance.
- In the event that steps 1 and 2 reveal the presence, or potential presence of, special-status animal species or their habitat, and avoidance is not feasible, the Department shall conduct a biological field survey to assess habitat suitability and animal utilization of the area of potential disturbance. All biological field surveys shall follow appropriate protocols established by the Department as well as relevant federal resources agencies, and the Department shall confer with applicable agencies regarding the results of these surveys and appropriate avoidance, minimization, and mitigation measures. Additionally, species-specific surveys shall be conducted in accordance with current guidelines for each rare, threatened, and endangered animal species potentially occurring at the site.
- If any federally-listed animal species are found to occur on or utilize the proposed area of disturbance, the Department shall confer with USFWS regarding appropriate avoidance, minimization, and mitigation measures prior to undertaking such activity.
- Mitigation measures shall be developed within the project-level CEQA document and implemented with performance monitoring to avoid significant impacts. Mitigation measures may include (but would not be not limited to) avoidance of the habitat in addition to the implementation of project-specific measures designed to reduce the potential impacts for individual animals. These measures shall be based on the biological requirements of each species found to occur at a particular site, as well as a complete description of the proposed projects and its potential impacts to the subject species.
- At the discretion of the Department and with concurrence from USFWS for federal-listed species, existing information, in lieu of a site-specific survey, may be used to determine the presence of special-status species and appropriate measures to be undertaken to protect such resources.

- Personnel familiar with the sensitive resource may be required to be present during construction activities.

BMP BIO-8. In the event project-specific pre-construction surveys conducted in accordance with BMP-BIO7 reveal the presence of dens or burrows for San Joaquin kit fox, giant kangaroo rat, burrowing owl, or blunt-nosed leopard lizard, the following measures will be applied:

- Disturbance to San Joaquin kit fox dens, giant kangaroo rat burrows, burrowing owl burrows, and burrows used by blunt-nosed leopard lizards shall be minimized through implementation of the avoidance buffers outlined in the table below unless consultation with the appropriate resource agency identifies other avoidance measures. New construction and new activities that would result in an increase in the potential for direct mortality/injury of these special-status species will not be conducted within these buffers, as determined by a qualified biologist.
- Personnel familiar with the aforementioned sensitive resource in this BMP shall be present during construction activities.
- The following standard avoidance measures will be applied:

Species	Avoidance Buffer/Distance
San Joaquin kit fox – potential den	50 feet
San Joaquin kit fox – known den	100 feet
San Joaquin kit fox – pupping den	As determined by the Department and USFWS
Giant kangaroo rat burrow	50 feet
Burrowing owl – outside of breeding season	50 feet until burrow is documented to be unoccupied
Burrowing owl – during breeding season	250 feet until the conclusion of breeding season or burrow is documented to be unoccupied
Blunt-nosed leopard lizard	500 feet from an observation.

- If resources cannot be avoided by the recommended distance, consultation shall be initiated with the appropriate agency.

BMP BIO-9. If the avoidance buffers cannot be adhered to, disturbance to occupied San Joaquin kit fox dens, giant kangaroo rat burrows, San Joaquin antelope squirrel burrows, and burrows used by blunt-nosed leopard lizards shall be avoided unless appropriate take authorization has been obtained. If burrowing owls are present, activities shall be consistent with the Department's Burrowing Owl Mitigation (CDFW 2012a).

BMP BIO-10. Areas supporting special-status aquatic species shall be avoided to the greatest extent possible.

BMP BIO-11. Surveys of sensitive biological resources shall be conducted at the appropriate time of year to detect special-status species.

BMP BIO-12. If it has been longer than 30 days between the last biological survey and the proposed start of construction, Department biologists may require a pre-activity survey no more than 30 days prior to the commencement of activities. Surveys shall be conducted by qualified personnel familiar with the target species or sensitive communities to confirm previous survey results, make additional recommendations if conditions have changed, and assist with BMP and mitigation measure implementation.

C.4.1.3 Ground Surface Disturbance

BMP BIO-13. Vegetation removal and ground surface disturbance shall be minimized. The Department shall apply surface rehabilitation measures as necessary to protect the soil surface. The Department will emphasize hand clearing over heavy equipment.

BMP BIO-14. When applicable, soil crusts shall be removed prior to construction and re-deposited at the completion of the project.

BMP BIO-15. When considering the authorization of new ground surface-disturbing activities, the Department shall encourage the use of existing disturbed areas, thereby minimizing impacts to special-status species, sensitive communities, and significant cultural and paleontological resources.

C.4.1.4 Practices for the Control of Invasive and Non-Native Species

BMP BIO-16. The Department shall continue to implement the Integrated Pest Management Program in the control of invasive species, including mechanical, chemical, and other accepted control methods.

BMP BIO-17. The Department shall develop a weed control strategy designed to minimize herbicide use and associated impacts on non-target species consistent with the Department's Integrated Pest Management Program.

BMP BIO-18. The Department shall encourage livestock operators, researchers, fire crews, equestrians, and other authorized users and Reserve visitors to employ best management practices that minimize the spread of weeds, such as cleaning equipment prior to entering the Reserve and requiring the use of certified weed-free hay and feed on the Reserve.

BMP BIO-19. If individuals of non-native animal species are discovered, the Department shall make every effort to eradicate them before the species becomes established.

C.4.1.5 Livestock/Grazing Management

BMP BIO-20. Any authorization, or reauthorization, of new or expanded grazing activities will be preceded by the adoption of a grazing management plan following compliance with the California Environmental Quality Act. Such a Grazing Management Plan shall set forth at least the following:

- Specific goals, objectives and performance standards (targets) that define the desired habitat conditions to be achieved through grazing as a management tool, which are based upon the resource protection and enhancement goals of the LMP.

- Performance standards that are measurable, objective, and relevant to grazing management while incorporating the flexibility necessary for effective adaptive management.
- Grazing prescriptions, which identify how grazing will be conducted to attain the various goals, objectives, and performance standards. Grazing prescriptions will include:
    - animal class: the kind of animals, in terms of species, breed, and age;
    - spatial distribution: which portions of the reserve will be grazed;
    - temporal distribution: when animals will be grazing; and
    - density of animals: the number of grazing animals within each area to be grazed.

  Grazing prescriptions and methods will be developed based upon a review of the best available scientific literature examining the effects of various types grazing, based on the seasonality, intensity, and frequency, on biological systems, and the site-specific conditions of the reserve.
- Grazing facilities, such as water and fencing, that are currently present or that would be needed.
- Methods to avoid or minimize impacts of grazing on special-status species, special communities, cultural resources, and public uses.
- Performance standards such as minimum standards for residual dry matter (RDM) and/or grass height to ensure the protection of water and soil quality.
- Monitoring protocols and performance standards that will be used to assess effective implementation of the grazing prescriptions.
- Lease management requirements to ensure compliance and cooperation between the grazing permittee and Department staff.

BMP BIO-21. The Department will implement appropriate measures to protect special-status plants that would be negatively affected from the potential impacts of grazing activities based on species-specific information. Such measures may include, but are not limited to, the following:

- Excluding livestock from areas where special-status plants that may be negatively impacted by grazing occur, or have the potential to occur but have not been surveyed, including through the construction of exclosures.
- Excluding livestock from areas where special-status plants are known to occur (or have the potential to occur) during the flowering/fruiting period (generally March through June).

BMP BIO-22. The Department will adjust grazing prescriptions or eliminate grazing following restoration treatments, if necessary to protect populations of vulnerable species and/or facilitate establishment of newly planted sites.

BMP BIO-23. Where possible, water for livestock shall be piped away from the riparian zone. If possible, livestock water sources shall be kept on year-round for use by native animals.

C.4.2 Construction Activities — Biological Resources

BMP BIO-24. Construction activities shall be minimized during evening hours when some special-status species are active and vulnerable to vehicle or equipment induced injury or mortality. In addition, the Department shall ensure that all activities requiring vehicle use during nighttime hours, including security, visitor access, or research, shall be conducted with extra caution to minimize impacts to special-status species.

BMP BIO-25. Construction activities within 1/4 mile of springs, or riparian areas should be avoided whenever practical. This restriction is intended to minimize native animal disturbance at key water locations and to limit impacts to sensitive watersheds.

BMP BIO-26. The ends of pipes, culverts, and similar structures with a diameter of at least three inches that are staged for construction shall be capped prior to being left on the CPER overnight. If a pipe, culvert or similar structure is left overnight, it shall be thoroughly inspected for entrapped animals before being moved, capped, or buried. Any animals found inside shall be allowed to escape before the pipe or culvert is moved, capped, or buried. During construction, all partially installed pipe ends, culverts, and similar structures shall remain covered unless closely attended by a monitor designated by the Department. In addition, pipe, culverts or similar material stored on-site shall have their ends covered prior to being stored or left on site. The ends of pipes stored onsite will have ends capped before or immediately after off-loading. In all cases, pipes shall be inspected for presence of animals before moving or use. If a special-status species has taken occupancy in a section of pipe, a qualified biologist shall remove it prior to the pipe being used.

BMP BIO-27. Workers shall inspect for animals under vehicles and equipment before the vehicles and equipment are moved. If an animal is present, the worker shall allow it to move unimpeded to a safe location.

BMP BIO-28. No pets shall be allowed on the CPER during construction activities.

BMP BIO-29. To protect animals, the Department shall initiate a trash abatement program for the Reserve that establishes at least the following conditions: a) trash and food items are contained in animal-proof containers and removed regularly to avoid attracting opportunistic predators such as ravens, coyotes, and feral dogs; b) absolutely no deliberate feeding of native animals shall be allowed.

BMP BIO-30. The Department shall confine parking, storage areas, laydown sites, equipment storage, and any other surface-disturbing activities to designated areas on existing disturbed areas or areas that do not represent sensitive habitat as determined by a qualified biologist.

BMP BIO-31. Prior to conducting work on-site for new projects, personnel not under direct CDFW supervision shall attend an awareness education program specific to the potentially-affected species. The program will consist of a brief presentation by persons who are knowledgeable

about locally found species biology and legislative protection. This information should be posted in an easily accessible area for all workers and work-site visitors to review as needed.

BMP BIO-32. Upon completion of construction or restoration projects, unused roads and work sites shall be restored where appropriate and signs or barriers shall be installed to prevent continued travel on construction roads.

BMP BIO-33. Before starting any new project within the Reserve, the Department shall clearly delineate the boundaries of the work area and any off-road access routes with fencing, stakes, flags or other visible boundaries. The Department shall restrict activities that may disturb special-status species and habitats to the fenced, staked, or flagged areas. The Department shall maintain all fencing, stakes, and flags until the completion of the project.

BMP BIO-34. If potential adverse biological issues have been identified for a project, a biological monitor may be designated by the Department to minimize project impacts as part of CEQA compliance. The biological monitor shall be responsible for field crews to be in compliance with protection measures, performing surveys in front of crews as needed to locate and avoid special-status species and habitat features, and monitoring project mitigation compliance. Biological monitors shall be required to be present on site during initial ground-surface-disturbing actions and any other activities that have a potential for "take" of federal or state listed species.

BMP BIO-35. The Department will work with utility companies to configure or modify power lines to eliminate raptor electrocutions to the greatest extent practicable.

BMP BIO-36. The Department shall prohibit the use of erosion control materials potentially harmful to native animals, such as monofilament netting (erosion control matting) or similar material.

C.4.3 Motor Vehicle Use

BMP BIO-37. Vehicle speed will not exceed 15 miles per hour on Department-administered roads in endangered species habitats.

BMP BIO-38. Vehicle travel for operation and maintenance purposes shall be limited to existing roadways except in the case of an emergency or as determined through project design. Appropriate biological surveys should be conducted prior to off-road vehicle travel, including travel that does not result in habitat disturbance. Construction of new roads shall be avoided if existing roads can be used.

BMP BIO-39. No aircraft will be operated in a manner that could disturb wildlife within the Reserve, unless in the performance of official duties or authorized by the Department.

BMP BIO-40. The Department will discourage the recreational use of drones (unmanned aerial vehicles) to the greatest extent possible over the Reserve to protect sensitive resources.

C.5 Cultural Resources [EIR Section 5.5]

C.5.1 General

BMP CR-1. To ensure that ongoing and routine Reserve activities, including road maintenance, public use, and vegetation management, do not adversely impact cultural resources, the Department will:

- Re-route roads through known sites to non-sensitive areas, or cap existing roads within site areas; and
- Fence-off archaeological sites at springs or water troughs and other areas of intensive livestock use including corrals, and/or move livestock facilities to non-sensitive areas.

BMP CR-2. If any prehistoric, archaeological, or fossil artifact or resource is uncovered during ground-surface-disturbing activities, all such activities shall stop and a qualified professional as determined by the Department shall be retained to evaluate the finds and recommend appropriate action.

BMP CR-3. All ground-surface-disturbing activities must stop if any human remains are uncovered, and the San Luis Obispo County Coroner must be notified according to Section 7050.5 of California's Health and Safety Code. If the remains are determined to be Native American, the procedures outlined in CEQA Section 15064.5 (d) and (e) shall be followed.

BMP CR-4. In all areas that have not been previously surveyed by archaeologists, the Department shall conduct Phase I cultural resource surveys before authorizing ground-surface-disturbing activities (e.g., grading or excavation). Should significant cultural resources be discovered, the Department shall apply strategies to protect such resources which may include, but are not limited to, the following:

- Passive site preservation (avoidance) in-place;
- Requiring the presence of a qualified professional during ground-disturbing activities;
- Covering with a layer of fill;
- Excavation, removal and curation in an appropriate facility under the direction of a qualified professional;
- Installing carefully-placed fencing or barriers around site boundaries;
- Capping site areas with non-cultural soils;
- Revegetating disturbed or altered site areas;
- Monitoring the conditions of sites periodically; and
- Closing areas from public entry using signage indicating that an area is sensitive.

BMP CR-5. In cases where a project may result in adverse impacts to known archaeological resources, and site avoidance may not be feasible, the Department shall conduct a Phase II archaeological survey to:

- Determine the extent and significance of site resources;

- Establish whether the site(s) is/are eligible for listing on the California Register of Historical Resources; and
- Identify mitigation strategies to protect significant resources as described in BMP CR-4.

BMP CR-6. The construction of any new cattle support facilities (troughs, corrals, etc.) shall be preceded by additional Phase I surveys.

- If a cultural site is located and cannot be avoided, implement a Phase 2 testing plan to determine if the site is eligible for listing in the California Register.
- If the site is determined to be eligible for listing in the California Register, either 1) design and implement an appropriate data recovery plan (Phase 3), or 2) relocate the support facility to an area free of significant cultural resources.

C.5.2 Protection of Historic Structures

BMP CR-7. Where a project may result in a substantial change to a built structure 50-years of age or older, the Department shall conduct an architectural assessment of the integrity and significance of the structure to establish whether the structure is eligible for listing on the California Register of Historical Resources. This process will not be necessary for those structures which have already been evaluated by a qualified professional and that were determined not to be significant.

BMP CR-8. Where a project may result in a substantial adverse change to a structure determined to be eligible for listing on the California Register of Historical Resources, the Department shall prepare a treatment/data recovery plan in consultation with the State Historic Preservation Officer, and implement the approved plan. The treatment plan should be consistent with the Department of Interior Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings (Weeks and Grimmer 1995).

C.5.3 Protection of Paleontological Resources

BMP CR-9. If surface-disturbing activities reveal the presence of significant paleontological resources, a Paleontological Mitigation Plan (PMP) shall be prepared by a qualified paleontologist which includes at least the following:

- General fieldwork and laboratory methods proposed;
- Curation practices; and
- Mitigation measures adequate for the recovery of a sample of significant fossils that may be applied to rock units determined to contain significant paleontological resources, if those rock units cannot be avoided by project planning. Such measures may include, but are not limited to, the following:
    - Recovering a sample of fossiliferous material prior to construction;
    - Monitoring construction and halting work to recover important fossils; and

- Cleaning, identification, and cataloging of fossil specimens collected for curation and research purposes.

C.5.4 Prescribed Burning — Cultural Resources

BMP CR-10. To protect existing and previously undiscovered cultural resources, the Department shall implement the following, as applicable, prior to the implementation of a prescribed burn:

- Conduct a reconnaissance-level cultural resources survey of the affected area to identify and avoid vulnerable cultural resources;
- Manually reduce fuels on and/or around vulnerable sites;
- pile debris offsite;
- Create fire breaks near or around sites;
- Use retardant or foam to protect structures;
- Wrap structures in fire-proof materials to protect from fire;
- Remove logs or other heavy fuels from vulnerable sites or features (e.g., clear snags off bedrock mortars), or cover with foam or retardant prior to burn;
- Flush cut and cover stumps with dirt, foam, or retardant, where burnout could affect subsurface cultural resources;
- Modify burn plans to minimize effects to cultural resources, such as burning when duff has high moisture;
- Identify and reduce hazard trees next to structures;
- Use low-intensity backing fire in areas near historic features;
- Saturate ground and vegetation adjacent to vulnerable structures with water, foam, or gel before burning;
- Preburn site at lower intensity than planned for surrounding areas;
- Limit fire intensity and duration over vulnerable sites;
- Use a fast-moving, higher-intensity fire over lithic scatters, where rock materials are vulnerable to longer-duration heating;
- Wrap carved trees, dengroglyphs, and other such features in fire-retardant fabric;
- Limb carved trees to reduce ladder fuels, where possible;
- Cover rock art in fire retardant fabric;
- Minimize fuels and smoke near rock art; and
- Cover fuels near rock art with foam, water, or retardant, avoiding the rock art.

C.5.5 Geology and Soils [EIR Section 5.5]

BMP GEO-1. Soil-disturbing activities shall be avoided during periods of runoff, or when soils are wet and muddy, in order to minimize damage.

BMP GEO-2. Ground-surface-disturbing activities shall be designed to minimize wind and water erosion.

C.6 Hazards and Hazardous Materials [EIR Section 5.7]

C.6.1 Hazardous Materials Management

BMP HZ-1. To ensure that all material is properly used, stored, and transported, Material Safety Data Sheets (MSDS), material labels, and any additional handing and emergency instruction of the materials shall be kept on file at the Reserve office. Any state employee or contractor handling these materials shall be made aware of the potential hazards, given proper training and instruction, and also made aware of the location of the MSDS, and any other documentation for the material. All contractors used in the application or use of these hazardous materials shall have the appropriate licenses and be able to read and understand the MSDS, labels, appropriate recommendations, and application instructions.

BMP HZ-2. The Department shall provide appropriate safety equipment for herbicide applications and ensure that applicators have had proper safety training. Herbicide and pesticide chemicals shall be used only in accordance with existing law and according to manufacturers' instructions. The Department shall ensure herbicide mixing sites are only located in areas devoid of vegetation, and where there is no potential of a spill reaching a vegetated area or a stream. The Department shall ensure that any herbicide used where there is the possibility that the herbicide could come into direct contact with water is approved for use in an aquatic environment. The Department shall ensure that great care is taken to avoid herbicide contact with any native vegetation, and it shall only be applied on calm days to prevent airborne transfer.

BMP HZ-3. The specific recommendation for the type of herbicide or pesticide, application rate, timing, and application method will be determined by the site-specific conditions and made by a Licensed Pest Control Advisor (PCA). Accidental spills shall be minimized, avoided or controlled, by adherence to the PCA's recommendation and instructions on the product label.

BMP HZ-4. The storage of potentially hazardous materials on the Reserve shall be in accordance with the Material Safety Data Sheets and any buildings used for storage will display appropriate placards.

BMP HZ-5. Any pesticide or herbicide work conducted by contractors shall be closely monitored by Department staff.

BMP HZ-6. When control of weeds or pests become necessary, the Department will work with a licensed PCA to determine the most appropriate integrated pest management approach to be used, with possible treatments ranging from manual to biological and chemical methods. For each project, it will be determined if additional CEQA analysis is necessary. When pesticides or herbicides are determined to be used on individual projects, conducted under the guidance of the LMP, Department staff will review the recommended pesticides, herbicides, surfactants, and adjuvants intended use and the possible environmental effects

of each and work with the PCA to determine whether the proposed use would be consistent with the label and the registration limitations.

BMP HZ-7. When pesticides or herbicides are used on the Reserve, all containers shall be secured when transported and all empty containers disposed of properly off-site.

BMP HZ-8. All spills of hazardous materials shall be cleaned up immediately.

C.6.2 Protection of Public Health

BMP HZ-9. To reduce the risk of livestock transmitting anthrax to Department staff and others visiting or working on the Reserve, the Department shall ensure that all personnel are trained to be aware of the risk of naturally-occurring anthrax being transmitted to humans from a diseased animal carcass. In addition, the following Best Management Practices shall be followed:

- Livestock carcasses shall be handled only by properly trained livestock handlers, veterinarians, or health officials;
- Animal carcass disposal shall follow accepted practice if the death is potentially related to anthrax; and
- All suspected cases of anthrax shall be immediately reported to the animal's veterinarian, the San Luis Obispo County Agricultural Commissioner, and the California Department of Food and Agriculture's Animal Health and Food Safety Services Division.

BMP HZ-10. To reduce the risk of Valley Fever to Department staff and others visiting or working on the Reserve, the Department shall implement all of the following:

- Ensure that all personnel are trained to be aware of the risk of Valley Fever and to recognize the symptoms; and
- Establish procedures to follow in the event of the onset of symptoms, including the provision of prompt medical attention, and notice to CDFW staff and the San Luis Obispo County Department of Public Health.

BMP HZ-11. When conducting management activities in areas of the Reserve with the potential to mobilize spores associated with Valley Fever, the Department shall implement the following, as applicable:

- Implement all of the Best Management Practices relating to the control of dust during construction activities;
- Provide National Institute for Occupational Safety and Health (NIOSH)-approved respirators for workers. Workers should be medically evaluated, fit-tested, and properly trained on the use of the respirators, and a full respiratory protection program in accordance with the applicable Cal/OSHA Respiratory Protection Standard (8 CCR 5144) should be in place;
- Avoid eating and smoking where dust is being actively generated and provide separate, clean eating areas with hand-washing facilities;

- Avoid outdoor operations during unusually windy conditions;
- Limit ground-disturbing activities during the fall to essential jobs only, as the risk of cocci infection is higher during this season.
- When working in dusty conditions, clothing should be changed after work every day, preferably at the work site;
- Train workers to recognize that cocci may be transported offsite on contaminated equipment, clothing, and shoes, and consider installing boot-washing stations; and
- Post warnings onsite and consider limiting access to visitors, especially those without adequate training and respiratory protection.

BMP HZ-12. In areas where public serving facilities are to be constructed and where Phase 1 environmental surveys have not been completed, the Department will develop and implement a Soil Sampling and Analysis Plan to determine the presence and extent of any residual herbicides, pesticides, and fumigants on historically-farmed land. The plan should document the areas proposed for sampling, the procedures for sample collection, the laboratory analytical methods to be used, and the pertinent regulatory threshold levels for determining proper excavation, handling, and, if necessary, treatment or disposal of any contaminated soils. Results of the laboratory testing and recommended resolutions for excavation, handling, dust control, and treatment/disposal of material found to exceed regulatory practices shall be submitted to the Department prior to construction.

C.6.3 Wildfire Risk

BMP HZ-13. To minimize the potential for wildfire ignitions associated with management activities, the Department shall require the following as applicable:

- All internal-combustion engines, stationary and mobile, shall be equipped with spark arresters that are in good working order;
- Light trucks and cars with factory-installed mufflers in good conditions, only, shall be used on roads, which shall be cleared of potential ignition sources;
- Equipment parking areas and small stationary engine sites shall be cleared of all extraneous flammable materials;
- Construction and maintenance personnel shall be trained and equipped to extinguish small fires to prevent them from growing into more serious threats;
- Construction techniques that utilize non-motorized equipment shall be used wherever feasible; and
- Smoking shall be:
    - Prohibited in wildland areas;
    - Prohibited during a Red Flag Warning (period of extreme fire danger) issued for the project area;
    - limited to paved or cleared areas lacking vegetation that are located at least 30 feet of any combustible material storage area (including fuels, gases, and solvents).

BMP HZ-14. The use of motorized equipment for construction and maintenance activities shall cease during conditions of extreme weather conducive to wildfire ignitions. To minimize the likelihood of starting a wildfire, when a Red Flag Warning is issued by the National Weather Service for the Reserve area (which is defined by the National Weather Service as "San Luis Obispo County Interior Valleys"), all construction and maintenance activities shall cease. The Department shall ensure implementation of a system that allows for receipt of Red Flag Warning each day prior to the start of construction activities.

BMP HZ-15. The Department shall minimize the potential for human-caused wildfires by carrying water or fire extinguishers and shovels in all Department vehicles and equipment used on the Reserve. The use of shields, protective mats, or use of other fire preventative methods shall be used during grinding and welding to minimize the potential for fire. Personnel shall be trained regarding the fire hazard as part of the pre-construction awareness education program (BIO-31). Prescribed burning activities shall be conducted according to an approved burn plan.

C.6.4 Wildfire Risk and Prescribed Burning

BMP HZ-16. Prescribed burning shall be conducted in full compliance with the California Department of Forestry and Fire Protection (CalFire), including (but not limited to) the following:

- Inspection per Battalion Chief Practices;
- Issuance of a CalFire LE-5 Permit;
- Issuance of an APCD Agricultural Bun Permit from the SLO APCD;
- Burn on permissive burn days only;
- Permittee must call 1-800-834-2876 before burning;
- Burning must be conducted during daylight hours only; and
- Prepare a Smoke Management Plan for any burn over 100 tons of piled material or 10 acres of standing vegetation as required by Public Resources Code §4423(b).

C.7 Hydrology and Water Resources [EIR Section 5.8]

C.7.1 Protection of Water Quality

BMP WQ-1. To protect water quality, the Department shall apply the following best management practices (BMPs) as applicable.

- Identify the most sensitive natural areas and, where possible, leave them undeveloped. To the extent possible, set back areas of ground disturbance from creeks, wetlands, and riparian habitats and preserve trees. Conform the site along natural land forms, avoid excessive grading and disturbance of vegetation and soils, and mimic the site's natural drainage patterns. Where possible, concentrate ground disturbance on portions of the site with less permeable soils, and preserve areas that can promote infiltration.

- To the extent possible, limit overall coverage of impervious surfaces. Where possible, detain and retain runoff throughout the site. Use drainage design elements such as depressed landscape areas, vegetated buffers, and bioretention facilities consisting of a shallow surface reservoir, a layer of imported planting medium, and a gravel underlayer with perforated pipe underdrains.
- Use permeable pavements, such as crushed aggregate, turf block, unit pavers, pervious concrete, or pervious asphalt could be substituted for impervious concrete or asphalt paving.
- Direct runoff to bioretention facilities, flow-through planters, dry wells, or cisterns. Consider directing runoff to facilities designed to detain and treat runoff before letting it seep away slowly. Dry wells or infiltration basins may be used if soils are sufficiently permeable and geotechnical considerations allow.

BMP WQ-2. For new construction activities with the potential to disturb more than one acre of land, a Notice of Intent (NOI) shall be filed with the Regional Water Quality Control Board to be covered under the State National Pollutant Discharge Elimination System (NPDES) General Construction Permit for discharges of storm water associated with construction activity. A Storm Water Pollution Prevention Plan (SWPPP) must be developed and implemented for each site.

BMP WQ-3. The Department shall apply runoff-control measures to minimize discharge of surface pollutants into drainage systems associated with new construction. Examples of such measures include, but are not limited to, the following:

- The use of "bioswales" and similar features (such as infiltration trenches, filter trips, and vegetated buffers) to trap contaminants;
- Installation of grease/oil separators to keep these contaminants out of storm runoff; and
- Minimizing pesticide use.

BMP WQ-4. Water diversions shall divert the minimum necessary amount. Float valves or other devices shall be installed to control diversion amounts.

BMP WQ-5. Natural drainage patterns shall be preserved to the greatest extent possible.

C.7.2 Well Monitoring

BMP WQ-6. As staffing and funding allow, the Department will regularly monitor water quality and quantity in wells on the Reserve for evidence of subsidence, changes in groundwater levels, toxic substances, mineral intrusion, and other contaminants and shall take remedial actions as necessary to protect groundwater quantity and quality. Such remedial actions may include, but are not limited to, the following:

- Treatment and/or blending of groundwater where necessary to meet safe drinking water standards;

- The abandonment of wells that either adversely impact surrounding wells or that do not meet safe drinking water standards; and
- Where feasible and consistent with the objectives of this LMP, the increased use of surface supplies to reduce dependence on groundwater supplies.

C.8 Noise Management

BMP N-1. The Department will apply the following as necessary to mitigate the adverse noise effects of construction-related activities:

- During construction, provide mufflers for all heavy-construction equipment and all stationary noise sources in accordance with the manufacturers' recommendations.
- Locate stationary noise sources and staging areas as far as is feasible from existing residences, or require contractors to provide additional noise-reducing engine enclosures to achieve approximately 10 dBA of reduction compared to uncontrolled engines.
- Equip air compressors and pneumatic equipment with mufflers, and equip impact tools with shrouds or shields.
- Design construction vehicle access routes to minimize the impact on existing residences.

C.9 Design Criteria for Fencing, New Trails and Parking Areas

BMP DC-1. New trails within the Reserve shall:

- Be consistent with all relevant Best Management Practices and consistent with the overall goals and objectives of the Reserve;
- Be designed to avoid sensitive resources;
- Be located on existing unpaved roads wherever possible;
- Follow the natural topography wherever possible;
- Minimize ground-surface disturbance, removal of vegetation, and grading;
- Minimize or avoid the use of culverts, bridges, and retaining walls; and
- Incorporate connections to existing parking areas.

BMP DC-2. New or expanded parking areas shall:

- Be located and designed to provide adequate pullout and turnaround area, sight distance and spacing between parking areas and other driveways to ensure public safety;
- Be consistent with all relevant Best Management Practices and consistent with the overall objectives of the Reserve;
- Incorporate signage and visitor information as necessary to inform visitors;

- Avoid sensitive resources;
- Be located at existing established parking areas or other disturbed areas wherever possible;
- Minimizes ground-surface disturbance, removal of vegetation, and grading;
- Incorporate a permeable surface to minimize erosion and to protect surface water quality; and
- Take advantage of natural topography, vegetation, and other physical features to provide screening from public view.

BMP DC-3. New fencing shall be designed to be permeable to native animals. New fencing in pronghorn habitat shall be designed with a smooth bottom wire that is at least 18 inches above the ground.

BMP DC-4. New watering facilities shall incorporate design features to protect wildlife, including:

- Effective escape structures;
- Unobstructed access to the water surface; and
- A minimum length or diameter of six feet, with a longer length or diameter preferred.

C.10 Sustainability

BMP S-1. The Department shall encourage the use of sustainable, energy-efficient construction techniques.

BMP S-2. The Department shall utilize, where feasible, passive solar design (passive heating and cooling) to avoid or minimize cooling needs through building orientation.

BMP S-3. The Department shall actively pursue methods of solid waste recycling and reuse, including source separation, with the goal of reducing the solid waste generation of the Reserve.

BMP S-4. The Department shall separate and recycle recyclable or reusable materials.

BMP S-5. The design of new construction shall be in keeping with the rural character and natural environment of the Reserve.

BMP S-6. The Department shall promote the efficient use of water, including use best available technologies for water conservation including, but not limited to, water-conserving toilets, showerheads, faucets, and irrigation systems.

BMP S-7. The Department shall implement the relevant provisions of DFG Going Green: Next Steps Toward Sustainability (CDFW 2011a).

Appendix D California Emissions Estimation Model (CalEEMod) Output (CAPCOA 2011)

Carrizo Plain LMP

San Luis Obispo County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
User Defined Recreational	1	User Defined Unit

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	3.2	**Utility Company**	Pacific Gas & Electric Company
Climate Zone	4	**Precipitation Freq (Days)**	44		

1.3 User Entered Comments

Project Characteristics -

Land Use - Reflects 8 additional people arriving at the Reserve per day following LMP adoption. This includes staff, researchers, and volunteers.

Vehicle Trips - Assumes 8 trips per day (one per person), with an average trip length of 60 miles one way and 100% are primary trips.

Road Dust - Assumes 8.5 miles (one way) on un-paved portion of Chimineas Ranch Road and San Diego Creek Road.

Solid Waste - Based on 10 additional people and 30 people at special events.

Land Use Change -

Sequestration -

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Mobile	0.56	1.27	6.62	0.01	236.24	0.04	236.28	23.52	0.04	23.56		920.24		0.04		921.16
Total	**0.56**	**1.27**	**6.62**	**0.01**	**236.24**	**0.04**	**236.28**	**23.52**	**0.04**	**23.56**		**920.24**		**0.04**	**0.00**	**921.16**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Mobile	0.56	1.27	6.62	0.01	236.24	0.04	236.28	23.52	0.04	23.56		920.24		0.04		921.16
Total	**0.56**	**1.27**	**6.62**	**0.01**	**236.24**	**0.04**	**236.28**	**23.52**	**0.04**	**23.56**		**920.24**		**0.04**	**0.00**	**921.16**

3.0 Construction Detail

3.1 Mitigation Measures Construction

4.0 Mobile Detail

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.56	1.27	6.62	0.01	236.24	0.04	236.28	23.52	0.04	23.56		920.24		0.04		921.16
Unmitigated	0.56	1.27	6.62	0.01	236.24	0.04	236.28	23.52	0.04	23.56		920.24		0.04		921.16
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Recreational	8.00	8.00	8.00	349,440	349,440
Total	8.00	8.00	8.00	349,440	349,440

4.3 Trip Type Information

	Miles			Trip %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
User Defined Recreational	120.00	120.00	120.00	40.00	10.00	50.00

5.0 Energy Detail

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
NaturalGas Unmitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
User Defined Recreational	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Total		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
User Defined Recreational	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Total		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Unmitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.00					0.00	0.00		0.00	0.00						0.00
Consumer Products	0.00					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.00					0.00	0.00		0.00	0.00						0.00
Consumer Products	0.00					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Vegetation

Carrizo Plain LMP

San Luis Obispo County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
User Defined Recreational	1	User Defined Unit

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	3.2	**Utility Company**	Pacific Gas & Electric Company
Climate Zone	4	**Precipitation Freq (Days)**	44		

1.3 User Entered Comments

Project Characteristics -

Land Use - Assumes one trip per day associated with grazing management.

Vehicle Trips - Assumes one trip per day associated with grazing management and 100% are primary trips.

Road Dust - Assumes all trips associated with grazing management are on un-paved roads.

Solid Waste - Based on 10 additional people and 30 people at special events.

Land Use Change -

Sequestration -

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Mobile	0.01	0.01	0.06	0.00	12.25	0.00	12.25	1.22	0.00	1.22		6.90		0.00		6.91
Total	**0.01**	**0.01**	**0.06**	**0.00**	**12.25**	**0.00**	**12.25**	**1.22**	**0.00**	**1.22**		**6.90**		**0.00**	**0.00**	**6.91**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Mobile	0.01	0.01	0.06	0.00	12.25	0.00	12.25	1.22	0.00	1.22		6.90		0.00		6.91
Total	**0.01**	**0.01**	**0.06**	**0.00**	**12.25**	**0.00**	**12.25**	**1.22**	**0.00**	**1.22**		**6.90**		**0.00**	**0.00**	**6.91**

3.0 Construction Detail

3.1 Mitigation Measures Construction

4.0 Mobile Detail

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.01	0.01	0.06	0.00	12.25	0.00	12.25	1.22	0.00	1.22		6.90		0.00		6.91
Unmitigated	0.01	0.01	0.06	0.00	12.25	0.00	12.25	1.22	0.00	1.22		6.90		0.00		6.91
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Recreational	1.00	0.00	0.00	1,820	1,820
Total	1.00	0.00	0.00	1,820	1,820

4.3 Trip Type Information

	Miles			Trip %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
User Defined Recreational	7.00	0.00	0.00	100.00	0.00	0.00

5.0 Energy Detail

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
NaturalGas Unmitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
User Defined Recreational	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Total		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
User Defined Recreational	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Total		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Unmitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.00					0.00	0.00		0.00	0.00						0.00
Consumer Products	0.00					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.00					0.00	0.00		0.00	0.00						0.00
Consumer Products	0.00					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Vegetation

Carrizo Plain LMP

San Luis Obispo County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
User Defined Recreational	1	User Defined Unit

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	3.2	**Utility Company**	Pacific Gas & Electric Company
Climate Zone	4	**Precipitation Freq (Days)**	44		

1.3 User Entered Comments

Project Characteristics -

Land Use - Reflects 18 additional people arriving at the Reserve per day following LMP adoption. This includes staff, researchers, volunteers, and visitors.

Vehicle Trips - Assumes 18 trips per day (one per person), with an average trip length of 60 miles one way and 100% are primary trips.

Road Dust - Assumes 8.5 miles (one way) on un-paved portion of Chimineas Ranch Road and San Diego Creek Road.

Solid Waste - Based on 10 additional people and 30 people at special events.

Land Use Change -

Sequestration -

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Mobile	1.27	2.85	14.89	0.02	531.54	0.10	531.64	52.92	0.10	53.02		2,070.54		0.10		2,072.60
Total	**1.27**	**2.85**	**14.89**	**0.02**	**531.54**	**0.10**	**531.64**	**52.92**	**0.10**	**53.02**		**2,070.54**		**0.10**	**0.00**	**2,072.60**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Mobile	1.27	2.85	14.89	0.02	531.54	0.10	531.64	52.92	0.10	53.02		2,070.54		0.10		2,072.60
Total	**1.27**	**2.85**	**14.89**	**0.02**	**531.54**	**0.10**	**531.64**	**52.92**	**0.10**	**53.02**		**2,070.54**		**0.10**	**0.00**	**2,072.60**

3.0 Construction Detail

3.1 Mitigation Measures Construction

4.0 Mobile Detail

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.27	2.85	14.89	0.02	531.54	0.10	531.64	52.92	0.10	53.02		2,070.54		0.10		2,072.60
Unmitigated	1.27	2.85	14.89	0.02	531.54	0.10	531.64	52.92	0.10	53.02		2,070.54		0.10		2,072.60
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Recreational	18.00	6.00	6.00	636,480	636,480
Total	18.00	6.00	6.00	636,480	636,480

4.3 Trip Type Information

	Miles			Trip %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
User Defined Recreational	120.00	120.00	120.00	40.00	10.00	50.00

5.0 Energy Detail

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
NaturalGas Unmitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
User Defined Recreational	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Total		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
User Defined Recreational	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Total		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Unmitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.00					0.00	0.00		0.00	0.00						0.00
Consumer Products	0.00					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.00					0.00	0.00		0.00	0.00						0.00
Consumer Products	0.00					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Vegetation

Carrizo Plain LMP

San Luis Obispo County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
User Defined Recreational	1	User Defined Unit

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	3.2	**Utility Company**	Pacific Gas & Electric Company
Climate Zone	4	**Precipitation Freq (Days)**	44		

1.3 User Entered Comments

Project Characteristics -

Land Use - Reflects 1 additional people arriving at the Reserve per day following LMP adoption. This includes recreation use only.

Vehicle Trips - Assumes 1 trip per day with an average trip length of 60 miles one way and 100% are primary trips.

Road Dust - Assumes all trips are on paved roads.

Solid Waste - Based on 10 additional people and 30 people at special events.

Land Use Change -

Sequestration -

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Mobile	0.07	0.16	0.83	0.00	0.14	0.01	0.15	0.00	0.01	0.01		115.03		0.01		115.14
Total	**0.07**	**0.16**	**0.83**	**0.00**	**0.14**	**0.01**	**0.15**	**0.00**	**0.01**	**0.01**		**115.03**		**0.01**	**0.00**	**115.14**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Mobile	0.07	0.16	0.83	0.00	0.14	0.01	0.15	0.00	0.01	0.01		115.03		0.01		115.14
Total	**0.07**	**0.16**	**0.83**	**0.00**	**0.14**	**0.01**	**0.15**	**0.00**	**0.01**	**0.01**		**115.03**		**0.01**	**0.00**	**115.14**

3.0 Construction Detail

3.1 Mitigation Measures Construction

4.0 Mobile Detail

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.07	0.16	0.83	0.00	0.14	0.01	0.15	0.00	0.01	0.01		115.03		0.01		115.14
Unmitigated	0.07	0.16	0.83	0.00	0.14	0.01	0.15	0.00	0.01	0.01		115.03		0.01		115.14
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Recreational	0.00	1.00	0.00	6,240	6,240
Total	0.00	1.00	0.00	6,240	6,240

4.3 Trip Type Information

	Miles			Trip %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
User Defined Recreational	0.00	0.00	120.00	0.00	0.00	100.00

5.0 Energy Detail

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
NaturalGas Unmitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
User Defined Recreational	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Total		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
User Defined Recreational	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Total		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Unmitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.00					0.00	0.00		0.00	0.00						0.00
Consumer Products	0.00					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.00					0.00	0.00		0.00	0.00						0.00
Consumer Products	0.00					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Vegetation

Carrizo Plain LMP

San Luis Obispo County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
User Defined Recreational	1	User Defined Unit

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	3.2	**Utility Company**	Pacific Gas & Electric Company
Climate Zone	4	**Precipitation Freq (Days)**	44		

1.3 User Entered Comments

Project Characteristics -

Land Use - Assumes 30 attendees for a special event and all trips arrive at the North Chimineas Unit via San Diego Creek Road and Chimineas Ranch Road.

Vehicle Trips - Assumes 30 trips with an average trip length of 60 miles one way and 100% are primary trips.

Road Dust - Assumes 8.5 miles (one way) on unpaved San Diego Creek Road and Chimineas Ranch Road.

Solid Waste - Based on 10 additional people and 30 people at special events.

Land Use Change -

Sequestration -

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Mobile	2.11	4.76	24.82	0.04	885.90	0.16	886.06	88.20	0.16	88.36		3,450.90		0.16		3,454.33
Total	**2.11**	**4.76**	**24.82**	**0.04**	**885.90**	**0.16**	**886.06**	**88.20**	**0.16**	**88.36**		**3,450.90**		**0.16**	**0.00**	**3,454.33**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Mobile	2.11	4.76	24.82	0.04	885.90	0.16	886.06	88.20	0.16	88.36		3,450.90		0.16		3,454.33
Total	**2.11**	**4.76**	**24.82**	**0.04**	**885.90**	**0.16**	**886.06**	**88.20**	**0.16**	**88.36**		**3,450.90**		**0.16**	**0.00**	**3,454.33**

3.0 Construction Detail

3.1 Mitigation Measures Construction

4.0 Mobile Detail

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	2.11	4.76	24.82	0.04	885.90	0.16	886.06	88.20	0.16	88.36		3,450.90		0.16		3,454.33
Unmitigated	2.11	4.76	24.82	0.04	885.90	0.16	886.06	88.20	0.16	88.36		3,450.90		0.16		3,454.33
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Recreational	0.00	30.00	0.00	187,200	187,200
Total	0.00	30.00	0.00	187,200	187,200

4.3 Trip Type Information

	Miles			Trip %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
User Defined Recreational	0.00	0.00	120.00	0.00	0.00	100.00

5.0 Energy Detail

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
NaturalGas Unmitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
User Defined Recreational	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Total		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
User Defined Recreational	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00	0.00	0.00
Total		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**	**0.00**	**0.00**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Unmitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.00					0.00	0.00		0.00	0.00						0.00
Consumer Products	0.00					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.00					0.00	0.00		0.00	0.00						0.00
Consumer Products	0.00					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Vegetation

Appendix E Review of Grazing and Rangeland Management Actions

LAWRENCE D. FORD, PHD
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May 31, 2013

David Moran
Di Leo & Moran
PO Box 6062
Los Osos, CA 93402

Re: Review of planned grazing and rangeland management actions at the Carrizo Plain Ecological Reserve

Dear Mr. Moran,

Pete Van Hoorn and I have completed a review of the grazing and rangeland management elements of the Carrizo Plain Ecological Reserve Draft Land Management Plan, prepared by Jodi McGraw Consulting and dated July 2012. The Reserve presents a number of very significant challenges related to grazing and rangeland resource management. The Reserve's diversity of habitat types and special-status species that might be affected by rangeland management activities is substantial, and for many of these species there is a relative dearth of published scientific information on which to base management decisions.

We found the overall approach with which the LMP and current grazing plan tackled these challenges to be generally sound, and to reflect a great deal of expertise and review of the published scientific literature. There is room for improvement. Our chief recommendations are to bolster the adaptive management aspect of the grazing elements, and to direct the future grazing plan to define specific objectives and performance standards addressing a broader array of the Reserve's goals; the latter item will require further analysis of grazing's impacts on listed species and other elements, in the development of the future grazing plan. Below we present the approach we took in our review, and our conclusions. The latter focus on issues where we see the need for increased clarity or the consideration of a different approach.

Thank you,

Lawrence D. Ford, Ph.D., CRM (and for Pete A. Van Hoorn, M.S., ARM)

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[1] Independent Consultant; and Research Associate, Environmental Studies Dept., Univ. of California, Santa Cruz.
[2] Certified Rangeland Manager (License #70, California Board of Forestry and Fire Protection, Certified by the Calif.-Pacific Section, Society for Range Management); Certified Senior Ecologist, Ecological Society of America; Certified Professional in Rangeland Management (#CP99-07) and Certified Range Management Consultant (#C05-02), Society for Range Management; Technical Service Provider, U.S.D.A. Natural Resources Conservation Service (TSP-03-1600 for grazing/forages services).

Review of Planned Grazing and Rangeland Management Actions at The Carrizo Plain Ecological Reserve

May 31, 2013

Prepared for:
Di Leo & Moran
PO Box 6062
Los Osos, CA 93402

Prepared by:
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Methods

We reviewed the Carrizo Plain Ecological Reserve Draft Land Management Plan (LMP) (and related documents) with the overall aim of looking for ways to strengthen its grazing element, suggest any new or refined grazing strategies for a future grazing management plan, and assess whether the LMP's planned grazing management actions are appropriate for the ecology of the Reserve and its species. We did not attempt to provide specific grazing prescriptions for the Reserve or assess the impacts (negative effects or manageability) of grazing on the Reserve's special-status species, both of which were outside the scope of our review.

As part of this review and analysis, we reviewed the following documents:

- The LMP and attachments, with a focus on Chapters 2 through 4 describing the physical characteristics, habitats and species of the Reserve and related management goals and tasks
- The current Grazing Lease Agreement, including "Exhibit A: Management Unit Objectives; Monitoring Requirements and Remedial Actions" (collectively referred to hereafter as the current grazing plan) and the associated Initial Study of Environmental Impact
- Scientific literature on select special-status species that occur or may occur on the Reserve
- Recent project reports for the Carrizo Plain Ecosystem Project (led by Drs. Prugh and Brasheres)
- Grazing-related elements of the Carrizo Plain National Monument Proposed Resource Management Plan and Final Environmental Impact Statement (2009)

Pete Van Hoorn toured the Reserve with Dave Moran and Robert Stafford (with the Department of Fish and Wildlife) on May 1, 2013, and discussed the grazing program (current approach and rationale, desired changes) and related topics. Mr. Van Hoorn also

discussed aspects of the habitats and species present with Drs. James Bartolome (rangeland ecologist) and Richard Arnold (entomologist).

Conclusions

Our conclusions address the following topics:

1. *Adaptive Management Framework*
2. *Defining the Scope of the Future Grazing Plan*
3. *Management of Grasslands*
4. *Management of Other Habitat Types*
5. *Habitat and Management Needs for Target Species*
6. *Monitoring and Research*
7. *Exotic Pest Plant Management*
8. *Public Use and Grazing*
9. *Integration of the Grazing Plan with Other Planning Efforts*

1. Adaptive Management Framework

The LMP's adaptive management framework is highly appropriate for the Reserve, as it is both necessary and feasible. The current science basis to guide management of the suite of species present (or with the potential to occur) is quite limited, and contains some conflicting information. Examples of species with limited and potentially conflicting scientific information include the giant kangaroo rat, Kern primrose sphinx moth, and Kern mallow. Management decisions (including no action) must be made in the face of this uncertainty. With an adaptive management framework, a grazing plan can set out a well-reasoned starting point, describe a useful monitoring scheme and plan for adaptation based on monitoring results and other new information. The Reserve has demonstrated the interest and ability to conduct the level of ongoing monitoring and analysis required by an adaptive management approach.

Because an adaptive management framework is so appropriate, our main recommendation for the LMP's discussion of the future grazing plan is to emphasize and strengthen its adaptive management framework. Below are several specific recommendations in this regard; our conclusions regarding other topics include related recommendations.

A. We recommend that the LMP explicitly state that the future grazing plan follow an adaptive management framework. As part of this framework, the future grazing plan should determine objectives and performance standards—targets—that define the desired habitat conditions in terms that can be monitored (are measurable and relatively objective) and are relevant to grazing management (variables that are potentially affected by grazing management). The future grazing plan should at least briefly provide the rationale and scientific basis of each objective. Performance standards should include variables directly affected (positively or negatively) by cattle (herbaceous biomass, bare ground, etc.) as well

as other variables that relate more closely to the Reserve's goals (abundance of listed species, extent of invasive species, riparian vegetation structure). Failure to meet performance standards (especially the latter type of variables) can result from weather and numerous other factors, so adaptations should include an assessment of potential causes other than grazing. When the monitoring results of related performance standards conflict (for instance, the grassland habitat objectives of burrowing owls are being met, but their population is declining), it may mean that other factors are involved or that the objectives and performance standards) have not been properly defined. This type of analysis is key to adaptive management, and can be greatly aided by conducting adaptive management experiments as described by the LMP (page 4-3). Because each objective requires management and monitoring effort, the future grazing plan will need to be feasible, efficient, and reflect prioritization (this is addressed well in the LMP's general provisions regarding tasks (Section 4.1.3, page 4-3) and monitoring (Section 4.3.2, page 4-25).

B. The LMP would be improved by clarifying current language that appears to limit the adaptive management nature of the future grazing plan.

i) The LMP (task V2.1.d, page 4-35) states that the future grazing plan should provide prescriptions regarding:

- *animal class: the kind of animals, in terms of species, breed, and age*
- *spatial distribution: which portions of the reserve will be grazed*
- *temporal distribution: when animals will be grazing*
- *density of animals: the number of grazing animals within each area to be grazed*

These details will generally be more appropriate in annual operating plans than in a long-term grazing plan. We recommend that the future grazing plan not rigidly specify the types of prescriptions quoted above, except for any that are required by a regulatory or policy mandate. Doing so would eliminate the flexibility required by an adaptive management approach, and by grazing operations generally.

Instead we recommend you provide guidance that the future grazing plan take the same general approach of the LMP, which is to provide clear targets (objectives and performance standards), recommended and required practices, and a strong monitoring and adaptation component. Recommended and required practices can include details regarding livestock animal class, distribution and density, but the emphasis should be on the results rather than the means.

This will provide management with a large measure of flexibility in how performance standards are met (within appropriate constraints). Annual variations in weather, productivity, and other factors such as invasive species will require different stocking rates and timing from one year to another. There are also often several viable approaches (combinations of timing and stocking rate, use of permanent or temporary cross-fencing around a targeted natural resource to allow for more precise grazing, or use of attractants such as water troughs or mineral supplements to pull livestock away from a targeted area) that will be appropriate in a given year, and we recommend allowing the Reserve and its

grazing tenant some latitude in how they reach their management targets. This approach would put the focus on performance (results) and adaptive management.

The LMP would benefit from clarifying that specific stocking numbers and on/off dates should be set annually and adjusted during the year, depending on weather and other variable site conditions, rather than stated in the long-term grazing plan. The long-term grazing plan does not need to specify the type of cattle (cow/calf, stocker, etc.).

ii) The LMP states that the future grazing plan should "build off" the existing plan in the lease. This language should be clarified. In general we do not recommend this constraint to the future planning process, unless this phrase simply refers to keeping elements that the future planning process finds desirable. The existing lease plan has many general concepts and objectives that likely should be preserved in the future grazing plan (and in this sense, the current plan can be built off of). Other aspects of the current plan, though sound, could conceptually be updated, edited or replaced with other valid approaches. For instance, the livestock carrying capacity of the Reserve may need to be re-estimated based on the results of continued monitoring at CPER (e.g. Residual Dry Matter monitoring) or on any new scientific guidance that emerges before the development of the grazing plan.

iii) The LMP includes some management tasks that rigidly prescribe aspects of the Reserve's grazing regime. Although the adaptive management provisions of the LMP allow for future adjustments to these tasks, the current phrasing may lead to misunderstandings by managers or other stakeholders. We recommend that the LMP describe the desired conditions and leave grazing regime prescriptions to the future grazing plan and annual operating plans (except tasks that are mandated by regulation or policy).

For instance, management task B20.1.a for pond habitat (page 4-18) states that grazing should be managed to:

> *designate ponds or portions of ponds where cattle will be excluded to promote establishment and growth of native vegetation within and along the margins of ponds, which can enhance habitat for native* [sic] *many native birds such as Tricolored Blackbird (*Agelaius tricolor*), Common Yellowthroat (*Geothylpis trichas*), and Yellow warbler (*Dendroica petechial*)*

The language, particularly the use of the word "excluded", appears to preclude adaptive management, and to constrain further analysis of the issue during the development of the future grazing plan. Some ponds have a depth profile that yields the desired habitat results regardless of the grazing regime, and some grazing regimes (e.g. grazing only when annual upland forage is green and abundant) can also yield the desired results (Ford et al. in prep.). The task can be rephrased to provide targets for habitat quality and/or species presence or abundance. Exclusion could be described as potentially necessary, or listed along with other potentially appropriate measures. (This task is discussed further in "Management of Other Habitat Types" below – the discussion here focuses on the implications for adaptive management.)

Another example is task B26.2.b (p. 4-24), which states that large areas of Chimineas grasslands should be excluded from cattle to benefit tule elk. This task appears sound overall, based on the results of CPER tule elk monitoring (Stafford, pers. comm. 2013), but would be better stated as a general practice with the potential for exceptions or revision for biological reasons. Some flexibility would be advantageous if, for instance, monitoring results change, further science emerges, or grazing is desired as part of a research study. Also, ranchers often have important management ideas to share that are worthy of trial (even if the technical folks don't understand at first), especially if they are encouraged as cooperators in conservation.

C. The current grazing plan includes a table (Table 1) with objectives, performance standards, and remedial actions for several habitat types. We found these items to provide grazing management with clear targets and thresholds, and clear statements of appropriate remedial actions if performance standards are not met. Accordingly, they provide useful examples of the type of guidance needed in a grazing plan with an adaptive management framework. The future grazing plan should address a broader array of issues and habitats than is covered by Table 1 (see "*Defining the Scope of the Future Grazing Plan*" below). We also address the current plan's targets for grasslands and woodlands below.

2. Defining the Scope of the Future Grazing Plan

The general parameters of the future grazing plan are defined by the LMP in Section 4.4.2, Task V2.1 (page 4-35). Most of the elements listed (tasks V.2.1.c, e-g) reflect best practices and correspond well to the needs of the CPER. There are several ways in which the scope can be strengthened. Chief among them is to strengthen the adaptive management elements as discussed in "Adaptive Management Framework" above. The LMP could also discuss the scope with greater depth.

A. The future planning process should further examine how grazing may positively and negatively impact all of the various habitats and listed species being managed for, in order to develop (and explain the rationale for) specific objectives and associated performance standards and monitoring protocols. This issue is discussed further in our conclusions regarding habitats and target species.

B. Two important topics that the grazing plan should address are water quality (broadly, not limited to drinking water safety) and soil quality (erosion and compaction). Inclusion of these elements would also strengthen the LMP. Minimizing erosion (and, indirectly, protecting water quality) is a core concern for setting minimum RDM levels in California grasslands (Bartolome et al. 2006).

C. The scope would be strengthened by including further recognition of lease management issues. These include the needs for compliance, cooperation between the tenant and Reserve staff, economic sustainability to the grazing operation, and the importance of grazing revenue to the Reserve. These goals should be integrated into the grazing plan, and balanced in a reasonable manner with other goals. For instance, demands for very high

levels of management effort on a regular or widespread basis may yield diminishing returns for habitat quality and make the lease economically unsustainable to the tenant. The Reserve can facilitate tenant cooperation and effort by discounting rent when the tenant installs or repairs infrastructure as mutually agreed ("rent credit"), or by reducing the base rent if a high level of management effort will be required. These issues are discussed further in, for instance, Huntsinger et al. 2007.

D. Task V.2.1.c states that the goals and objectives of the future grazing plan "are based upon the biological goals of the LMP". This wording could be clarified, since there are other relevant goals related to cultural resources and public use (per task V.2.1.f), and other topics raised above (revenue, sustainability, etc.). Any established information regarding priority levels would be useful; for instance, biological and cultural resources appear to be higher priority than public use. The future grazing plan can further develop and refine priorities.

E. Although grazing methods should be left to the future grazing plan and annual operating plans, the LMP could (optionally) provide a list of potentially useful approaches. The LMP correctly states that such approaches include controlling the timing and intensity of grazing, and excluding livestock from a sensitive habitat or portion thereof. Additional important measures would include the use of attractants (water troughs, mineral and food supplements, etc.) to affect distribution, and the creation of riparian pastures and other "special management fields" so that managers have increased ability to tailor the grazing of special resources (such as a pond, wetland or patch of a particular rare plant). The latter measure is discussed by the LMP as a currently planned tool for grazing some ponds; it could be discussed more generally if the LMP were to list potential methods in the discussion of the future grazing plan's scope. Bush (2006) has useful guidance regarding riparian pasture management.

F. It may be useful for the future grazing plan to discuss issues related to lessee selection, including issues specific to the Reserve as well as generally relevant issues. Because the Reserve is spatially intermixed with Federally owned and managed lands, it has been desirable for the Reserve and Federal lands to have the same tenant (especially on neighboring grazing units that lack boundary fencing and are functionally operated as one unit). This situation presents opportunities and constraints to the Reserve, in terms of lessee relations and selection. A more generally applicable concern is to promote the sustainability of the region's livestock industry, in order to preserve the knowledge base of local grazed lands and to maintain a pool of economically viable ranchers that may be potential future tenants. Many public landowners take these objectives into account when ranking applicants (personal observations by the authors).

G. The future grazing plan should be prepared by a Certified Range Manager per State law. This is especially relevant given the diversity and complexity of the Reserve's resources and uses.

3. Management of Grasslands

One of the Preserve's management challenges is the diversity of species (both common and special-status) and habitats, and in particular the fact that some habitat types are home to multiple listed species, some with differing needs or preferences. The LMP and current grazing regime address this challenge well for grasslands, emphasizing habitat diversity so as to benefit species with divergent needs. We found the recommended tasks to be generally sound and reflect the available science and best practices. There is room for improvement in some details.

A. The Reserve's grasslands provide important habitat for (among other species) burrowing owls, San Joaquin kit fox, giant kangaroo rats, and tule elk. The first two of these species prefer short grasslands, and grazing is often a recommended or mandated management practice. The latter two species consume grass and may not need livestock grazing. And although tule elk can be compatible with cattle (personal observations by author Van Hoorn), they have avoided fields with cattle at the Reserve (per the LMP and Stafford, pers. comm. 2013). To address this diversity, the Reserve currently grazes some fields in a manner benefitting burrowing owls and San Joaquin kit fox, and leaves some others ungrazed by livestock and managed for giant kangaroo rats or tule elk. This general approach is reasonable based on the information available, and allows for each of these species (and many others) to have suitable grassland habitat in the Preserve. However, the LMP and future grazing plan should not explicitly exclude livestock grazing from areas to be managed for giant kangaroo rats, or tule elk. For giant kangaroo rats, livestock grazing may be beneficial, and may be important in high rainfall years (Endicott 2011, Germano et al. 2012). Future monitoring may indicate the need to graze colony areas. The Reserve also offers excellent opportunities for experimentally applying different management in different colony areas. There are similar potential needs for flexibility in managing for tule elk, as discussed in 1B(iii) above.

B. The LMP calls for restoration efforts in previously cultivated areas with low density of native grasses and forbs. Such efforts do not have a strong record of success or cost-effectiveness in California annual grasslands (Jackson and Bartolome 2007). It may be beneficial to focus management efforts on areas more suitable to native grass establishment and persistence. Factors include lack of cultivation history, presence of at least some native grasses, and soil phosphorous (Huntsinger et al. 2007, Bartolome 2011).

C. The current grazing plan provides RDM targets for grasslands, but does not explain what these targets are based on (i.e. which resources will benefit from these targets). We recommend that minimum RDM targets conform to the recommendations of Bartolome et al. (2006), to reduce erosion, unless higher minima are appropriate for particular species or habitats. Either way, the rationale for RDM targets should be stated in the future grazing plan. Maximum grass heights (for instance in burrowing owl habitat) do not need to be converted to approximate RDM equivalents, since grass height can itself be monitored and is not always tightly correlated with RDM. Grass height objectives can potentially be improved by using "grass obstruction height": the averaged height, observed from several meters away, of the tops of the general foliage mass, excluding outliers such as taller grass

inflorescences and small patches of pest plants. This would be useful for two reasons. Grass height is often relevant because of its effects on a listed species' visibility of (or to) predators or prey. "Grass height" is often measured very differently by different observers; "grass obstruction height", as defined, facilitates more consistent monitoring.

4. Management of Other Habitat Types

The LMP and the current grazing plan have different gaps regarding the grazing management of habitat types. The current grazing plan focuses on grasslands, and on woodlands to a lesser degree. The LMP has more breadth, discussing the variety of habitat types found in the Chimineas Unit. For most of these habitat types, the LMP's numerous goals and tasks relevant to grazing are sound. There is also room for improvement.

A. Scrub and Chaparral Habitats

The grazing-related tasks (including management and research-oriented tasks) for coastal scrub and chaparral reflect current science (e.g. Barbour et al. 2007). Managing non-native annual vegetation is important for reducing competition from these species and avoiding an altered fire regime, as the LMP notes. We support the LMP's language that grazing and fire management should be done in coordination (especially since these habitat types are sometimes grazed lightly or not at all, depending on slope and woody canopy cover). The LMP would be strengthened by including habitat objectives related to grazing in desert scrub habitat. The LMP correctly notes that further studies are particularly needed for desert scrub habitat; habitat objectives can be phrased broadly until additional research findings are available.

B. Oak and Juniper Woodland Habitats

The LMP's grazing-related management tasks for these woodland types reflect current science regarding the benefits of reducing fine fuel load, thatch, and competition from non-native annual plants, and avoiding excessive herbivory on the seedlings and saplings of desired woody species. Since cryptogamic crusts occur in some juniper woodlands (per the LMP), the LMP would be strengthened by including objectives regarding the extent and condition of these crusts. The future grazing plan should assess this issue further, and set the foundation for future research and/or adaptive management. As mentioned in our discussion of grasslands above, we recommend that minimum RDM targets conform to Bartolome et al. (2006) unless higher minima are appropriate for particular species or habitats; the rationale should be stated in the future grazing plan.

C. Riparian Habitat

The LMP's discussion of riparian habitat would benefit from objectives regarding pest plants (more broadly than tamarisk), structural diversity, and ongoing recruitment, especially as these factors relate to the target species that use this habitat type. The latter topics (diversity and ongoing recruitment) are raised by Goals B16b and c, but are incompletely addressed by the associated tasks. This habitat element would benefit from the inclusion of the grazing-related tasks from the woodland habitat types, as these tasks also apply in riparian habitat. Objectives regarding erosion (e.g. bank stability) and water quality would also be appropriate.

Task B16.1.b notes that native riparian plant species can be established through "fencing to reduce livestock and tule elk herbivory and trampling, and other techniques". This is correct, but the task could be strengthened and clarified by broadening the language to say "managing" instead of "fencing". For cattle, impacts to native riparian plant species can often be limited by grazing when annual forage is green and abundant in the spring (Elmore and Kauffman 1994). This approach does not necessarily require fencing. However, it can be facilitated through the use of fencing to create riparian pastures (containing riparian areas and some adjacent uplands) that can be grazed for shorter durations, and monitored more closely, than the surrounding rangelands (Elmore and Kauffman 1994, Bush 2006, Briske 2011). Fencing can also be used to create small exclosures in which woody species can be planted (or may volunteer naturally). When fencing is used to completely exclude large stretches of riparian areas from cattle, this can result in excessive weedy annual growth and support large populations of voles that can negatively impact oak recruitment (Tecklin and McCreary 1993). For these latter reasons, the grazing-related objectives from the Woodland Habitat Elements would be appropriate in this Element as well. Livestock exclusion can also result in dense willow growth, which may be desirable in some but not all riparian areas (as the latter would not provide the desired habitat diversity).

These management approaches are listed to provide an example of the variety of potentially appropriate methods through which grazing management could achieve riparian habitat objectives, not to say that they are necessarily needed at CPER (which is beyond the scope of this analysis). However, the concept of riparian pastures (and other "special habitat fields") may prove to be a useful addition to the Reserve's management toolbox.

D. Wetland Habitat

The LMP's discussion of wetland habitat (for the Chimineas Unit, this refers to wetlands associated with drainages, springs and ponds) would benefit from objectives related to grazing, particularly avoidance of excessive erosion, soil compaction, and grazing of native perennial vegetation (Bush 2006, Ford et al. in prep). This habitat type shares a number of habitat objectives with riparian and pond habitats, with which it generally co-occurs. Because riparian and pond habitat types both have the objective of habitat diversity, that objective may apply as well to wetlands that occur in a riparian or pond setting. The variety of potentially suitable grazing methods described for riparian habitat above (spring seasonal grazing, creating small exclosures or special habitat fields) would also be relevant for wetlands.

E. Pond Habitat

The LMP correctly emphasizes the need to manage for habitat diversity and provide suitable habitat for diverse species with different preferences. Ponds in this region support numerous special-status amphibian, reptile and bird species that prefer different amounts of, for instance, emergent vegetation (e.g. Ford et al. [in prep]); this is well reflected in the LMP. As noted above, the LMP should focus on habitat objectives rather than require specific grazing regimes or livestock exclusion. The description of current conditions

(section 3.1.9, pages 3-25-6) would be strengthened by clarifying whether the current diversity of pond conditions is desirable, to better support the need to increase edge and emergent vegetation at some ponds or portions thereof (as stated in task B20.1.a). The link between grazing and turtle basking sites (task B20.1.d, page 4-18) should be clarified.

5. Habitat and Management Needs for Target Species

One of the core recurring goals of the LMP is to direct the Reserve's management to benefit the many listed species that occur, or are likely to, as well as three non-listed game animals. This goal is reflected in a number of generally stated goals and tasks (applying broadly to all target species or their habitats), and in some cases in species-specific guidance. The current grazing plan mainly addresses several key grassland species, in an overall sound and reasonable manner. The LMP, and its description of the future grazing plan, have room for improvement. Overall we found that the future grazing plan will require additional breadth and depth in the discussion and definition of species' habitat requirements. The LMP has statements regarding the grazing-related habitat needs of listed species that should perhaps be phrased more broadly, or stated as preliminary, so that further analysis can be performed in the grazing planning phase. This does not mean that the current grazing is necessarily inappropriate for the species that require further treatment, especially since the current regime is managing for habitat diversity.

A. The habitat and management needs of listed species and other target species are discussed in the LMP, the current grazing plan, and the Initial Study of Environmental Impacts for the current grazing plan. The LMP or the future grazing plan would benefit from a more systematic treatment of these issues. Descriptions of desired habitat conditions would be particularly helpful if defined in terms that provide useful targets for grazing management (e.g. maximum and/or minimum targets for herbaceous mass, obstruction height, any key time periods by which targets should be met).[3] The LMP discusses the types of habitat that numerous species are found in, both generally and in the CPER (in Chapter 3 and Appendix D), but does not always discuss the habitat conditions preferred or required by these species. Table 3-4 includes a summary of management needs for listed species; this document (or the future grazing plan) would be much improved with further background information on habitat needs, description of the mechanisms by which grazing animals or other management activities can affect each species, any other context for the management needs, and a summary judgment on whether any potential impacts would be a significant conservation concern (or if other factors such as weather will likely be the main determinants of results). Information on the relative certainty or uncertainty of the statements would also be relevant (e.g. whether the statement is strongly supported by research or, as is frequently the case, based on limited

[3] We hasten to note that such information is often difficult to find, unavailable, or requires creative discussion between a biologist and rangeland ecologist to decipher. There are sometimes useful sources of such information for a related species (e.g. US Forest Service Fire Effects Information System), which can be interpolated to the target species.

research, speculation, or conflicting studies). If the habitat or management needs are based on limited or conflicting science, then an adaptive management approach is particularly important and management actions should not be rigidly determined upfront.

For instance, Table 3-4 (page 3-34) lists two management needs of the Kern mallow (*Eremalche parryi* ssp. *Kernensis)*:

- *Reduce non-native annual plant competition*
- *Limit herbivory by cattle*

These two recommendations appear to be somewhat in conflict, but lack the level of information needed to help management personnel determine which need is more important or how they can best be balanced. The recommendations partly conform to the information and recommendations available in the scientific literature. There is consensus on the first management need listed above (USFWS 1998, Germano et al. 2001). Germano et al. (2001) notes that grazing may be particularly important for the Kern mallow (and three other rare plants of the region) in high-productivity years, and may not be needed in drought years. The logic of the second need is reasonable, but it is not directly supported by scientific literature. The grazing studies and observations cited by USFWS (1998) involve sheep grazing, and the net effects varied by year (and perhaps by grazing intensity or timing). The negative impacts of sheep grazing mentioned are herbivory from intensive sheep grazing, and localized heavy trampling in sheep bedding areas. One of two studies found a net benefit from sheep grazing, attributed to reduced competition from annual plants in a high-productivity year. USFWS (1998) concludes that "The overall effects of sheep grazing on Kern mallow populations are unknown and require further investigation to determine appropriate management for the area." It is important to note that (a) the chance of herbivory is likely greater with sheep than with cattle as the former have a higher preference for forbs; (b) there is a limited base of research on the effects of grazing on this plant species, and neither USFWS (2006) or our initial review of the scientific literature uncovered research on grazing by cattle. The scientific literature supports the conclusions that: (a) livestock grazing may be beneficial or important, especially in years and areas with high production of annual plants; (b) cattle are the kind of livestock least likely to heavily graze the Kern mallow itself; and (c) monitoring and adaptive management will be required to determine the actual effects of different grazing regimes (including no grazing). A planner could misinterpret the intent of the LMP language to require light or no grazing during the Kern mallow's growing period (or key subsets such as the flowering period). But it may well be that direct negative impacts (herbivory and trampling) are generally less important than competition, or that such negative impacts are limited simply by not practicing intensive sheep grazing. This illustrates the need for performance-based adaptive management.

The Kern mallow example has many elements common to rare forbs. The science base is limited (in particular experimental or observatory studies as opposed to expert opinion). Journal articles and grey literature often refer only to "grazing" rather than indicating its timing and intensity (or the type of animal). Many forbs receive a net benefit from well-managed grazing during the spring growing season, because they are more affected by competition than herbivory (Hayes and Holl 2003, Guenther 2008). The interaction

between grazing and weather (high or low productivity years) is often important (Germano et al. 2011, Jackson and Bartolome 2007), which means that grazing-related management provisions will often need to account for drought and/or high-production years. Interactions with shading, RDM, soil type, aspect, and slope can be similarly relevant in determining the level of competition with non-native grasses.

B. The LMP and current grazing plan address a small number of key target species more thoroughly than the rest of the listed species. This is appropriate overall, for several reasons. Numerous species have been initially identified by the LMP as focal species (Table 4-1) for several logical reasons stated on page 4-27. We agree with the LMP's conclusion (page 4-27) that many of the other listed species will benefit if habitats are managed to benefit a subset of focal species (especially if habitat types are managed for spatial or temporal heterogeneity). Many of the Reserve's listed species are rare on the Chimineas Unit, relative to other parts of the CPER or surrounding federally managed land (and thus may be higher priority elsewhere). And as noted above, for many of these species there is a relative dearth of scientific literature on which to base management recommendations. Although it is appropriate to focus on a subset of species, the future grazing plan (and the LMP) would be strengthened with further treatment of the other listed species when discussing habitat needs, and in particular when discussing components of adaptive management such as objectives, performance standards, and monitoring. We agree with the LMP's statements that further research and monitoring are needed to understand the effects of grazing on the Reserve's listed species. These statements could be emphasized, and mentioned in the context of Table 3-4 (in other words, the management needs stated in that table should be viewed as preliminary) and in the discussion of the future grazing plan.

6. Monitoring and Research

The LMP's treatment of monitoring and research was very strong. We agree with the LMP's emphasis on the need for continued research on the impacts of livestock grazing to listed species and sensitive habitats. We also support the LMP's statement that the monitoring program must be efficient and feasible. There is some potential to clarify or refine the LMP's guidance on these topics.

A. The future grazing plan's monitoring component should be based on the performance standards developed in that plan.

B. The ongoing evaluation of grazing results should include analysis of the monitoring results for listed species, and how grazing, annual weather, and other factors may have contributed to the results. Species abundance and trends are ultimately the most important basis for determining the success of grazing management in meeting species goals, and may indicate the need to consider different management methods or objectives.

C. The LMP includes a list of focal listed species (Table 4-1, pages 4-28 to 4-29) that have been initially identified as high priority for monitoring, based on several criteria. The LMP states that this list should be further evaluated and refined. This could be clarified to state

that this list should be re-evaluated and refined as needed and periodically ('every x years'). Refinements to the list may arise through the planning process of the future grazing plan.

D. The LMP indicates that the CPER does not currently monitor listed invertebrates, and Table 4-1 does not include any listed invertebrates. We could not determine from the information provided whether any of the focal plants were selected because they serve as host plants for listed invertebrates. *Camissonia campestris* would be a very useful indicator plant for the Federally threatened Kern primrose sphinx moth (*Euproserpinus euterpe*), which uses this *Camissonia* species as a larval host plant. Maintaining or increasing the patch sizes of *C. campestris* would be the most important performance standard for habitat to support populations of this moth (Arnold, pers. comm., 2013). *C. campestris* is rare in the Chimineas Unit, and more frequent in the Elkhorn unit, so the sphinx moth may not be a priority management species in the Chimineas Unit, but this unit may provide suitable opportunities for research on the effects of grazing on the moth and/or its host plant.

E. Research on the effects of grazing will be most useful if it examines different grazing regimes rather than simply grazing vs. complete exclusion.

7. Exotic Pest Plant Management

The LMP's treatment of the role of grazing in efforts to control and eradicate exotic pest plants is reasonable and reflects current science and best practices (e.g. DiTomaso et al. 2013). The potential methods listed for yellow star thistle could be refined by: (a) adding a complimentary method of managing grasslands to minimize bare ground in winter and promote dense growth of annual grasses; (b) clarifying that the timing of bolting and spine development are variable rather than always April-June as stated.

8. Public Use and Grazing

The interaction of grazing and public use can lead to conflicts, real and perceived. Many members of the public are not aware of the current science regarding the potential environmental benefits of grazing. People do not always feel safe, or act safely, around cattle. Grazing and its infrastructure can also appear unsightly, depending on an individual's aesthetics and feelings about grazing. For these and other reasons, the LMP's Public Use Elements (Section 4.6) should include methods to educate the public about grazing and reduce conflicts between grazing and public use. The goals for environmental education, public access, and community outreach are addressed in a sound and generally thorough manner, and could be strengthened by the integration of grazing and livestock interaction issues. The proposed tasks regarding education and outreach, signage, and controls on public access would be particularly helpful if applied to grazing.

9. Integration of the Grazing Plan with Other Planning Efforts

In addition to a future grazing plan, the LMP calls for plans to be developed for Fire Management and for Facilities Maintenance. Both of these topics are interrelated with grazing, and this interrelation is handled very well by the LMP. The Fire Management Element management goals and tasks (Section 4.4.1, page 4-31) and the Facilities Maintenance Element (Section 4.8, page 4-47) discuss grazing issues in an overall sound and reasonable manner. The LMP could be strengthened by clarifying that these future plans should (preferably) be done in a coordinated manner.

A. The fire management plan and grazing plan would best be done in coordination, since grazing is the main fire prevention activity at CPER. The fire management plan may indicate the need for various areas to be grazed heavily or at certain times of year (such as before the fire season). Conversely, restrictions on grazing (due to environmental or other concerns) may make it ineligible as a fire prevention tool in some areas.

B. The facilities maintenance plan and grazing plan should be done in a coordinated fashion, or the grazing plan should be done first, in order to best determine the needs for new or repaired grazing-related infrastructure (task V2.1.e, page 4-35), and which, if any, existing infrastructure is no longer needed (task B2.3.a, page 5). The latter task should be balanced against the potential need to reintroduce grazing to currently ungrazed fields within the Chimineas Unit, for research purposes or to better meet habitat objectives, especially if the removal would be done for aesthetic rather than biological reasons.

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Appendix F Biological Resource Surveys

This appendix contains maps illustrating the areas where various surveys of biological resources have been conducted on the CPER. Descriptions of the surveys are provided in Section 5.4.5 of the EIR.

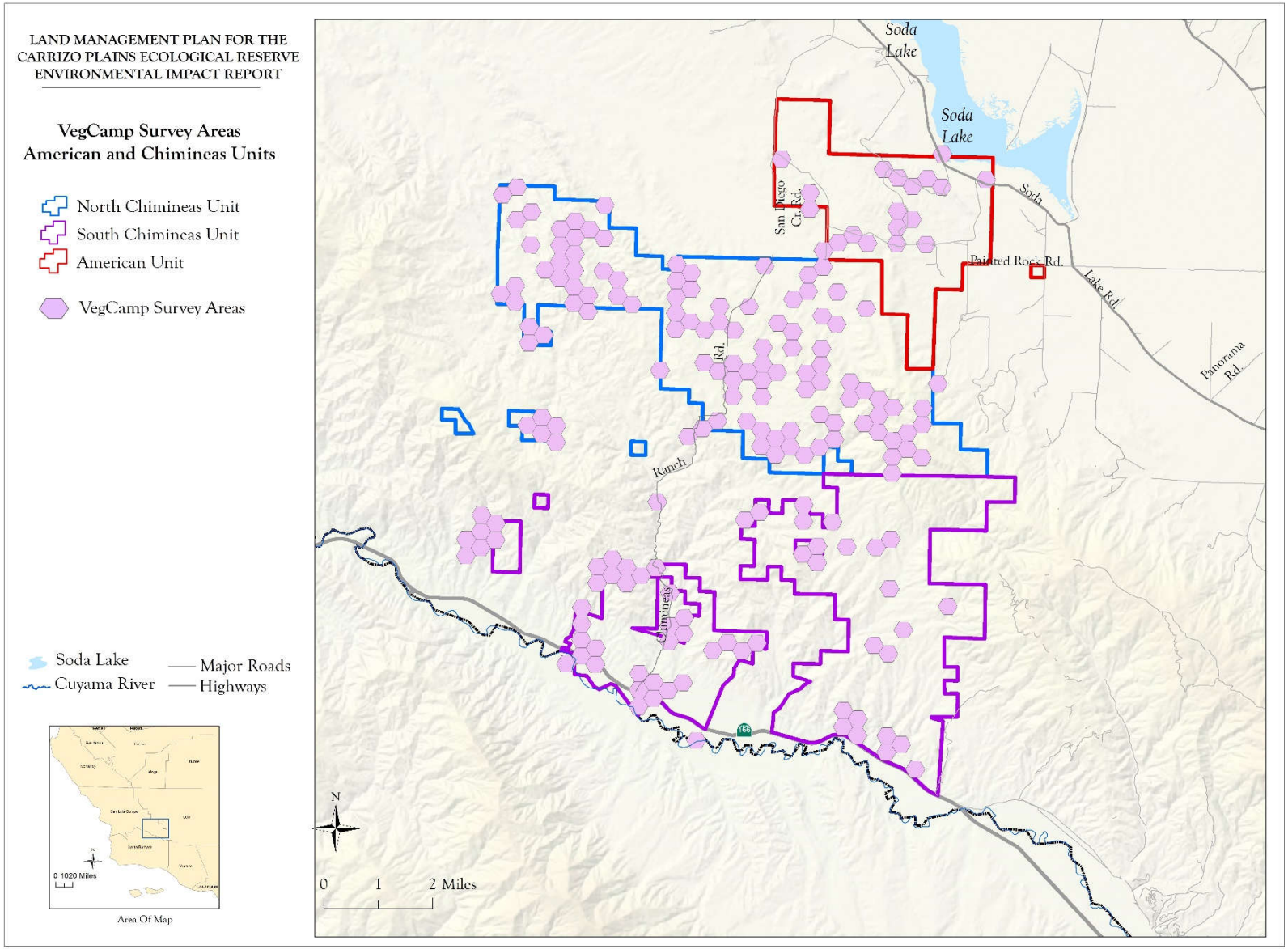

Figure F-1: Locations of VegCAMP Surveys within the American and Chimineas Units

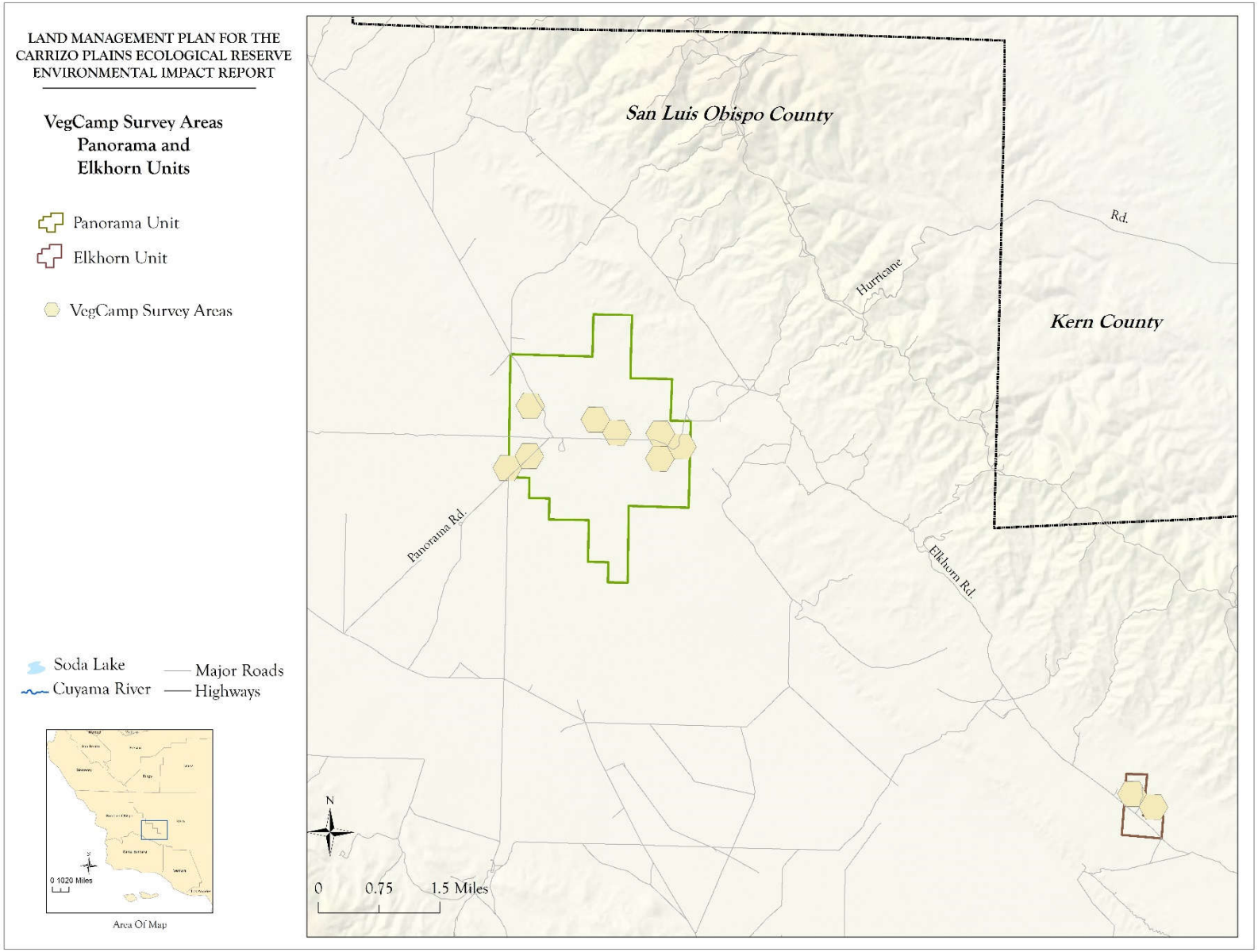

Figure F-2: Locations of VegCAMP Surveys within the Elkhorn and Panorama Units

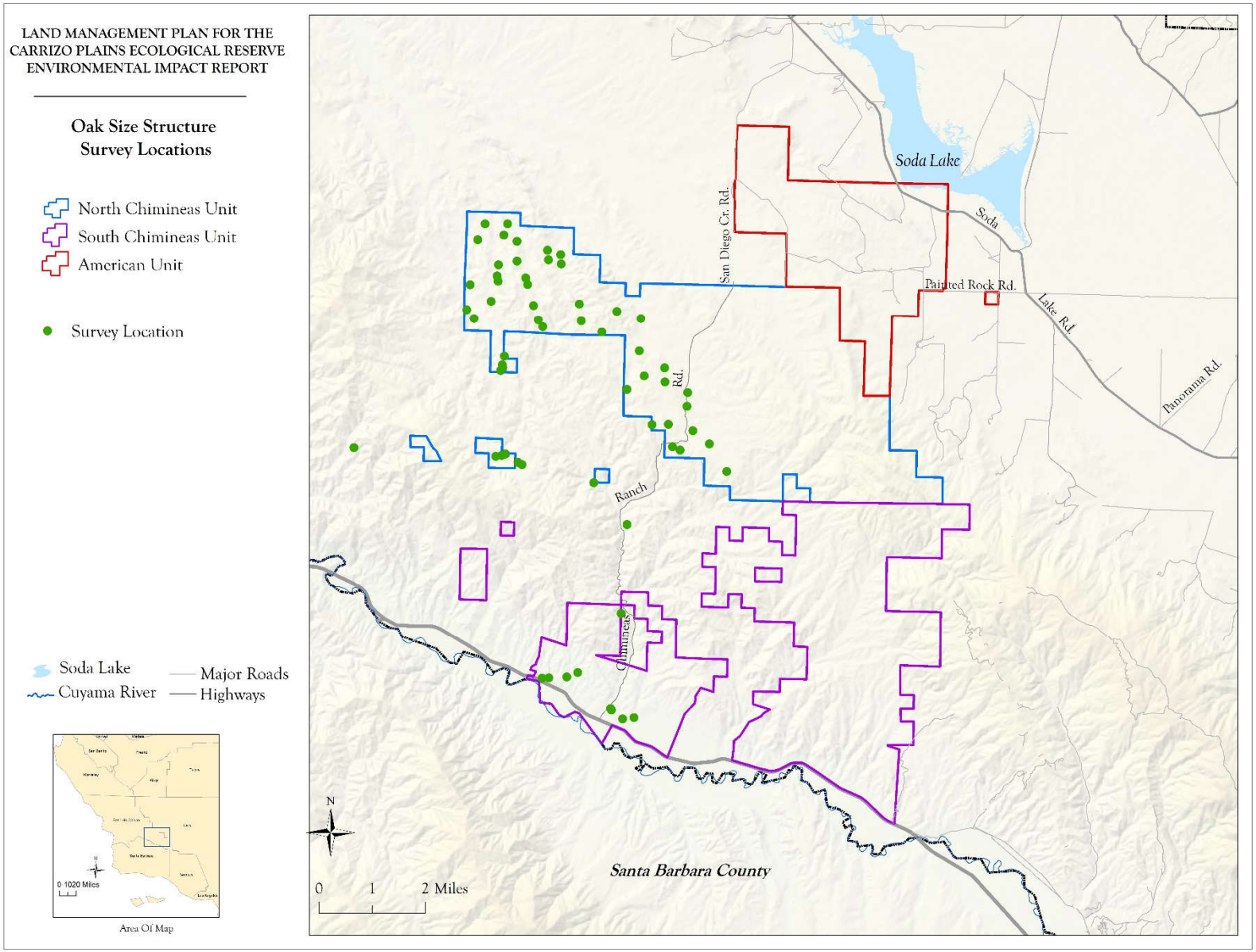

Figure F-3: Oak Size Structure Sample Sites

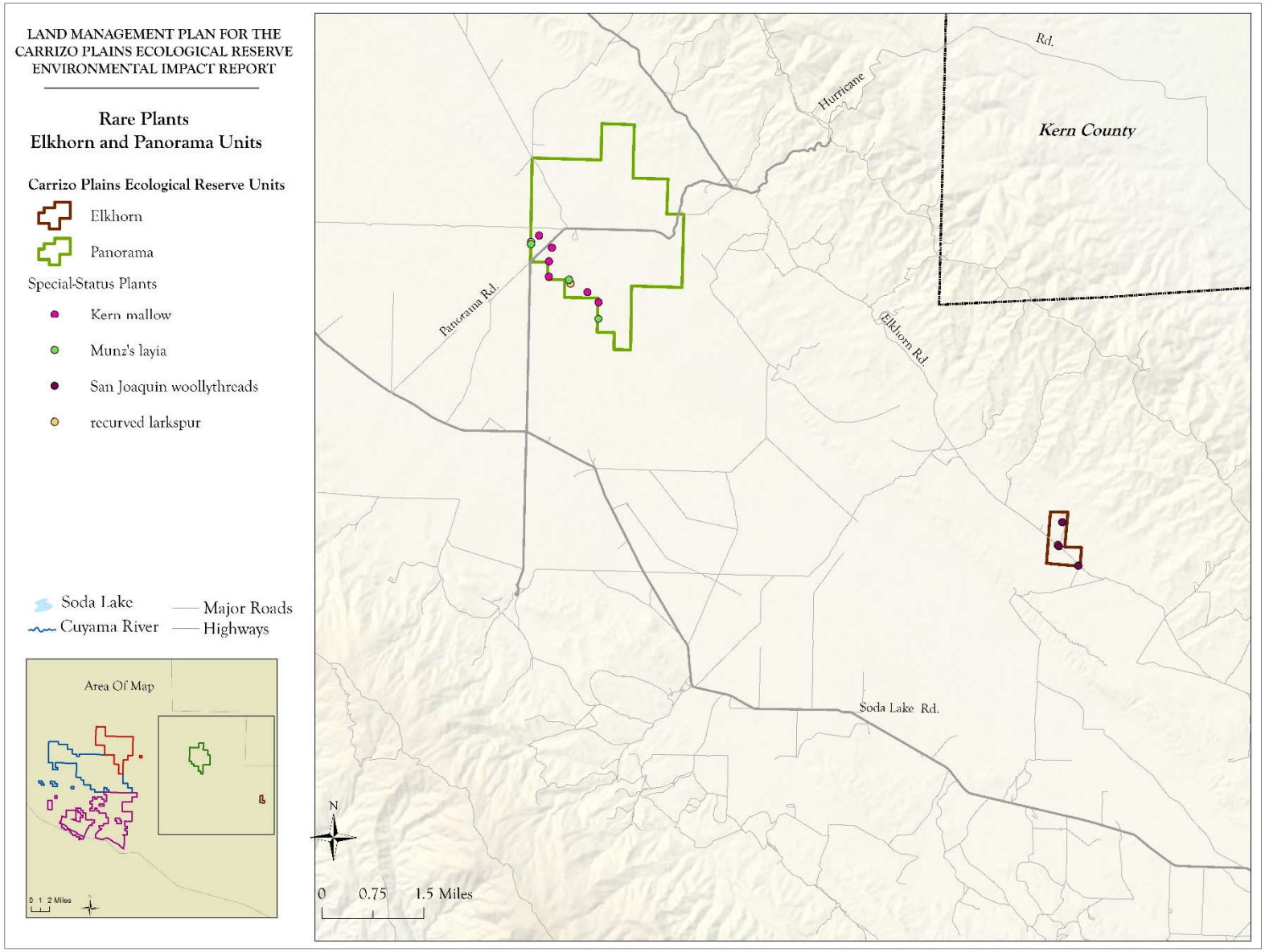

Figure F-4: Rare Plants within the Elkhorn and Panorama Units

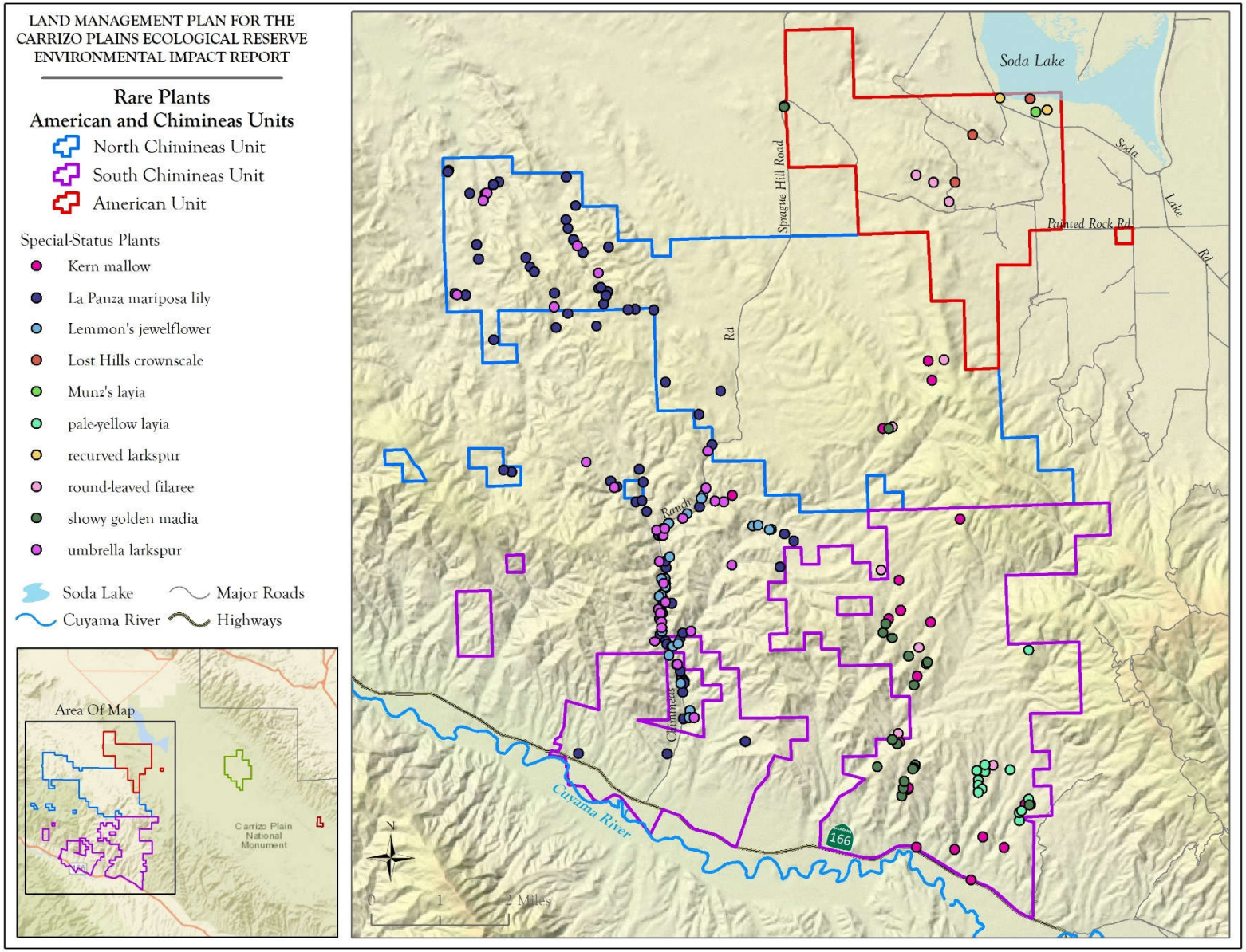

Figure F-5: Rare Plants within the American and Chimineas Units

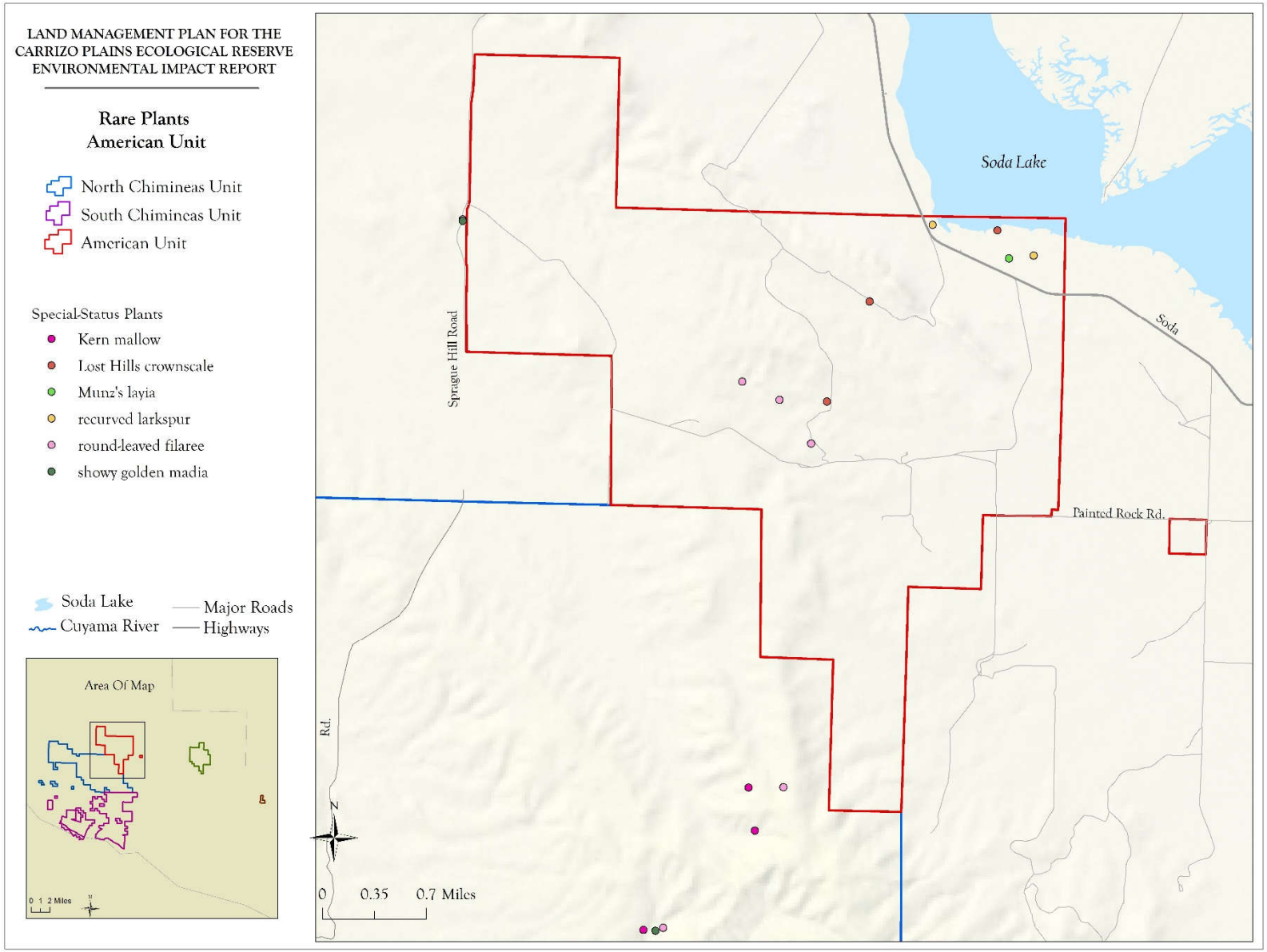

Figure F-6: Rare Plants within the American Unit

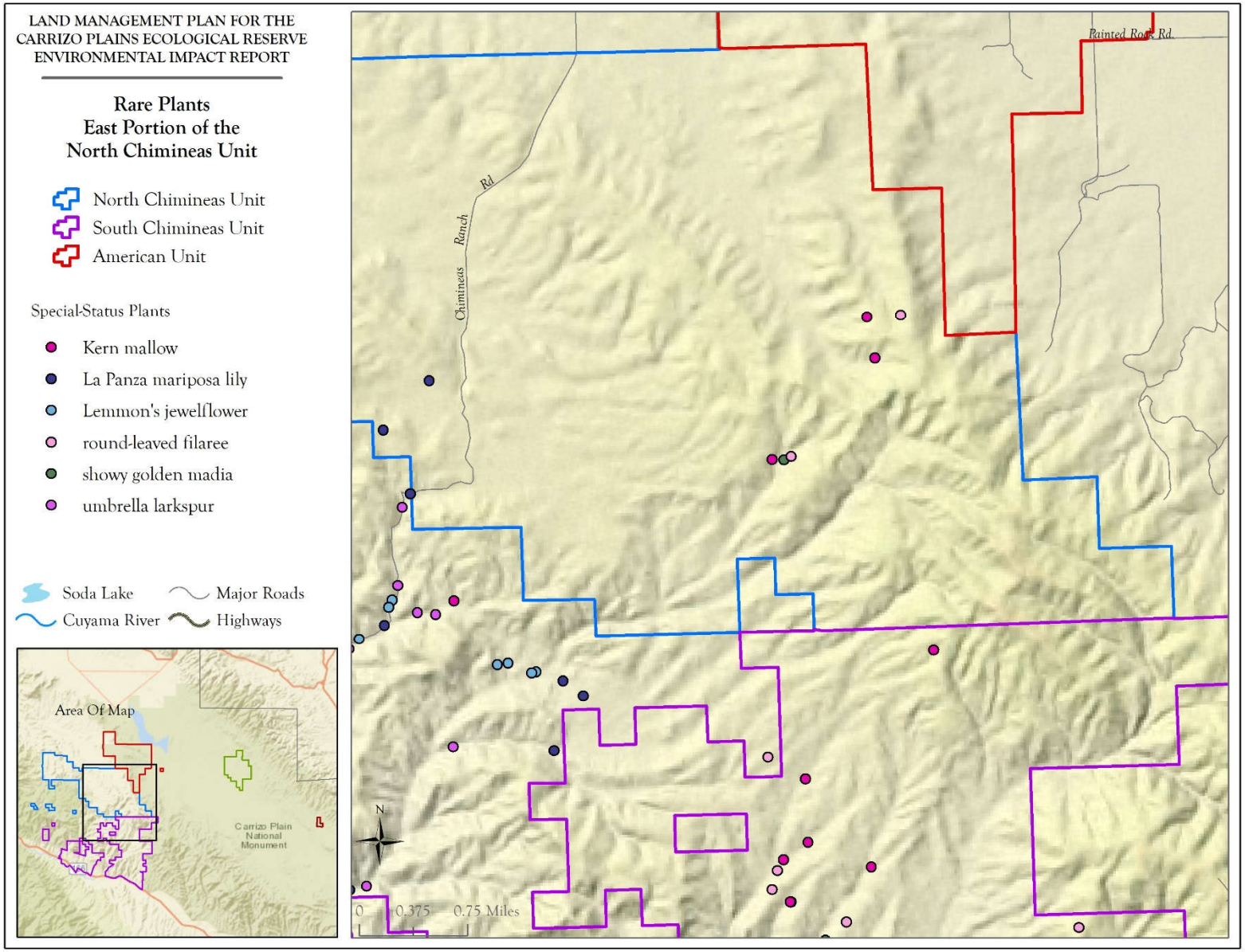

Figure F-7: Rare Plants within the East Portion of the North Chimineas Unit

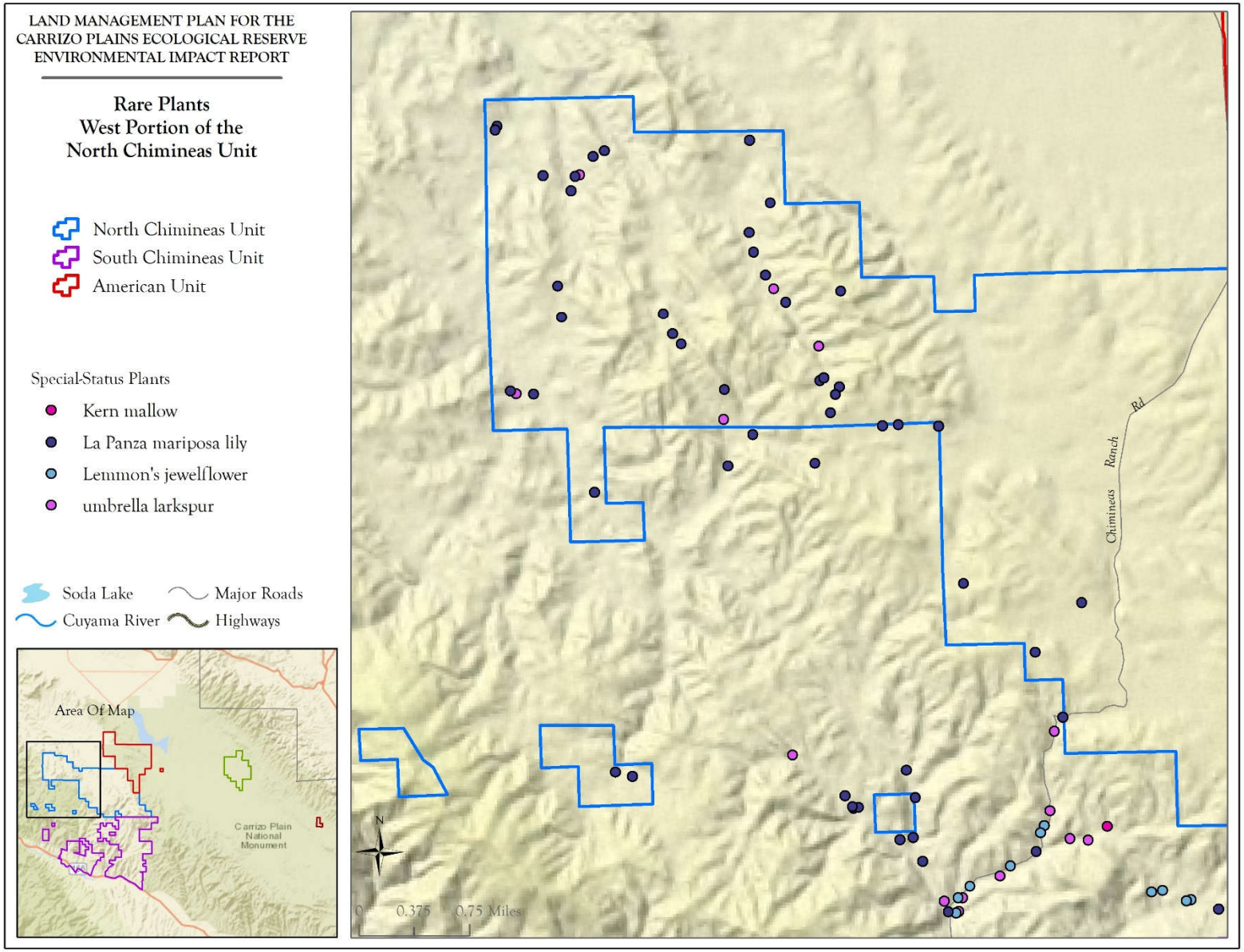

Figure F-8: Rare Plants within the West Portion of the North Chimineas Unit

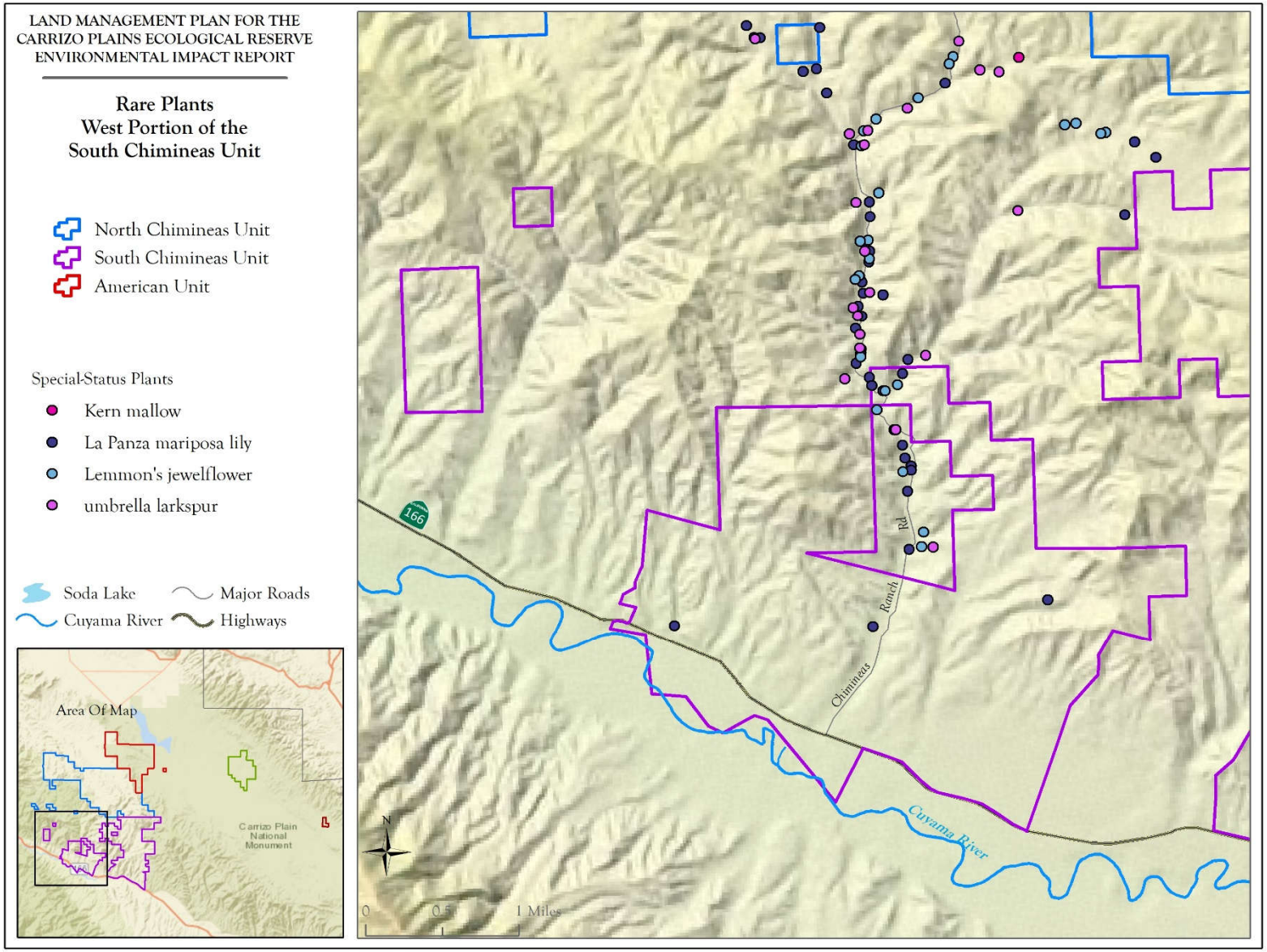

Figure F-9: Rare Plants within the West Portion of the South Chimineas Unit

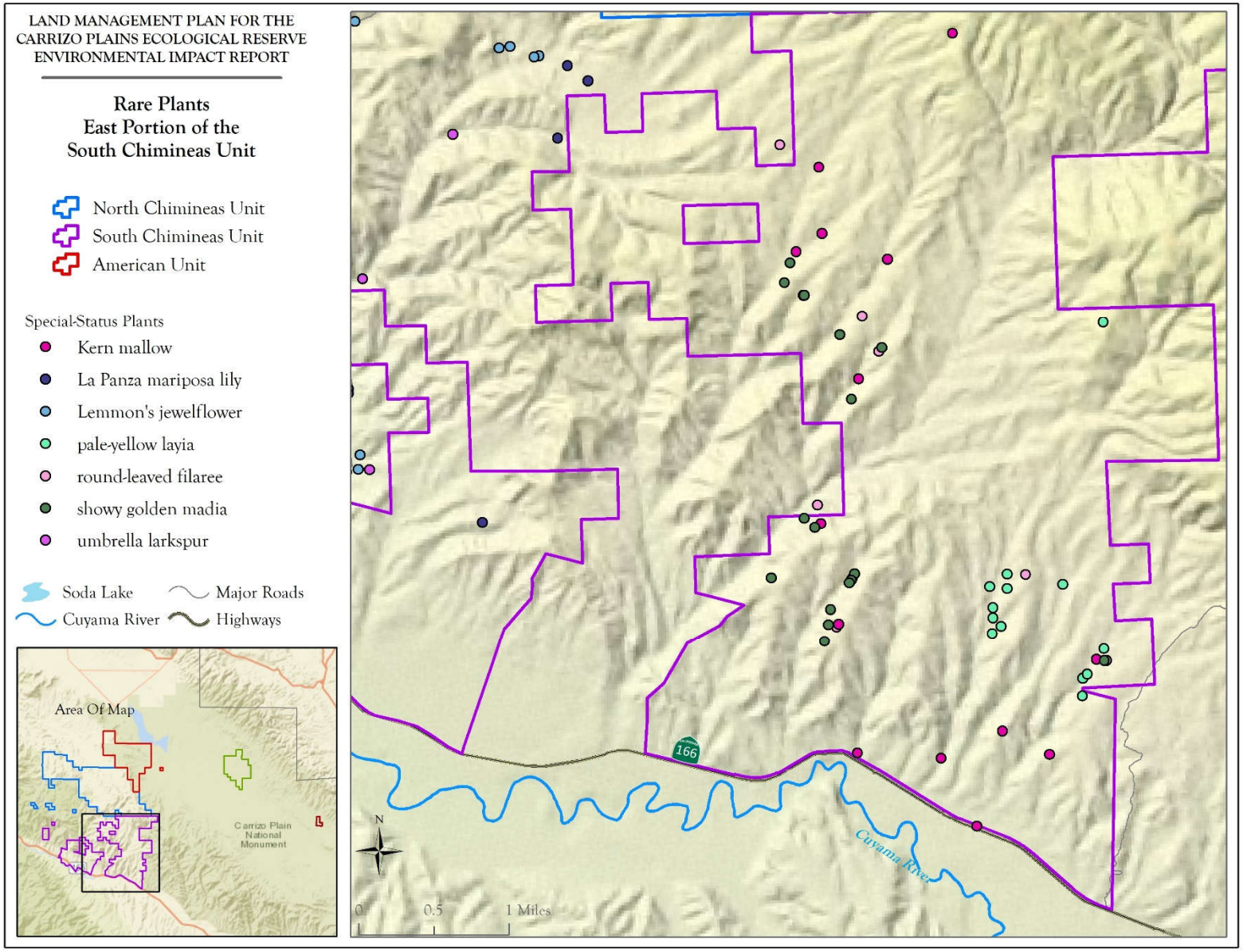

Figure F-10: Rare Plants within the East Portion of the South Chimineas Unit

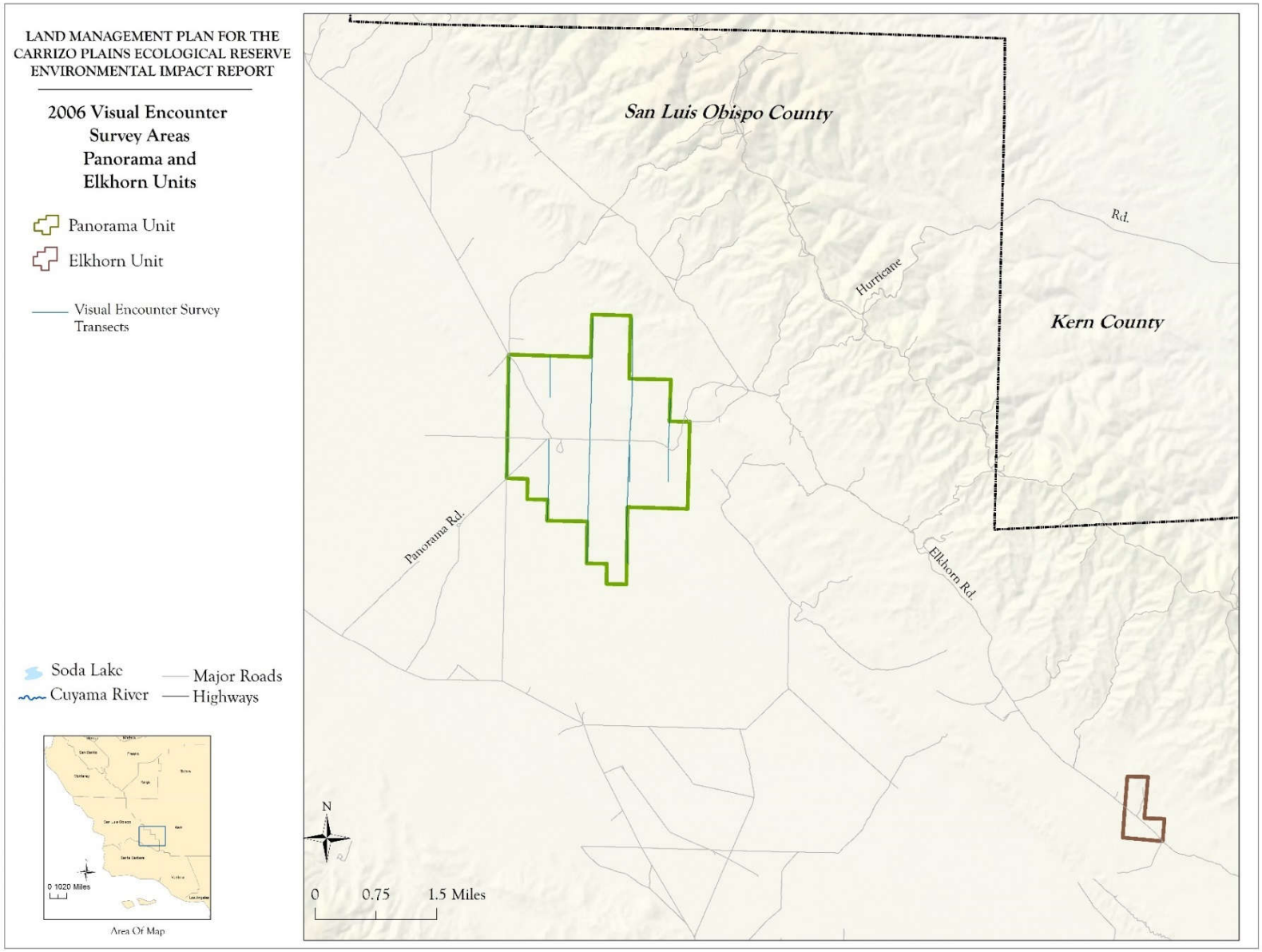

Figure F-11: Visual Encounter Survey Transects within the Elkhorn and Panorama Units

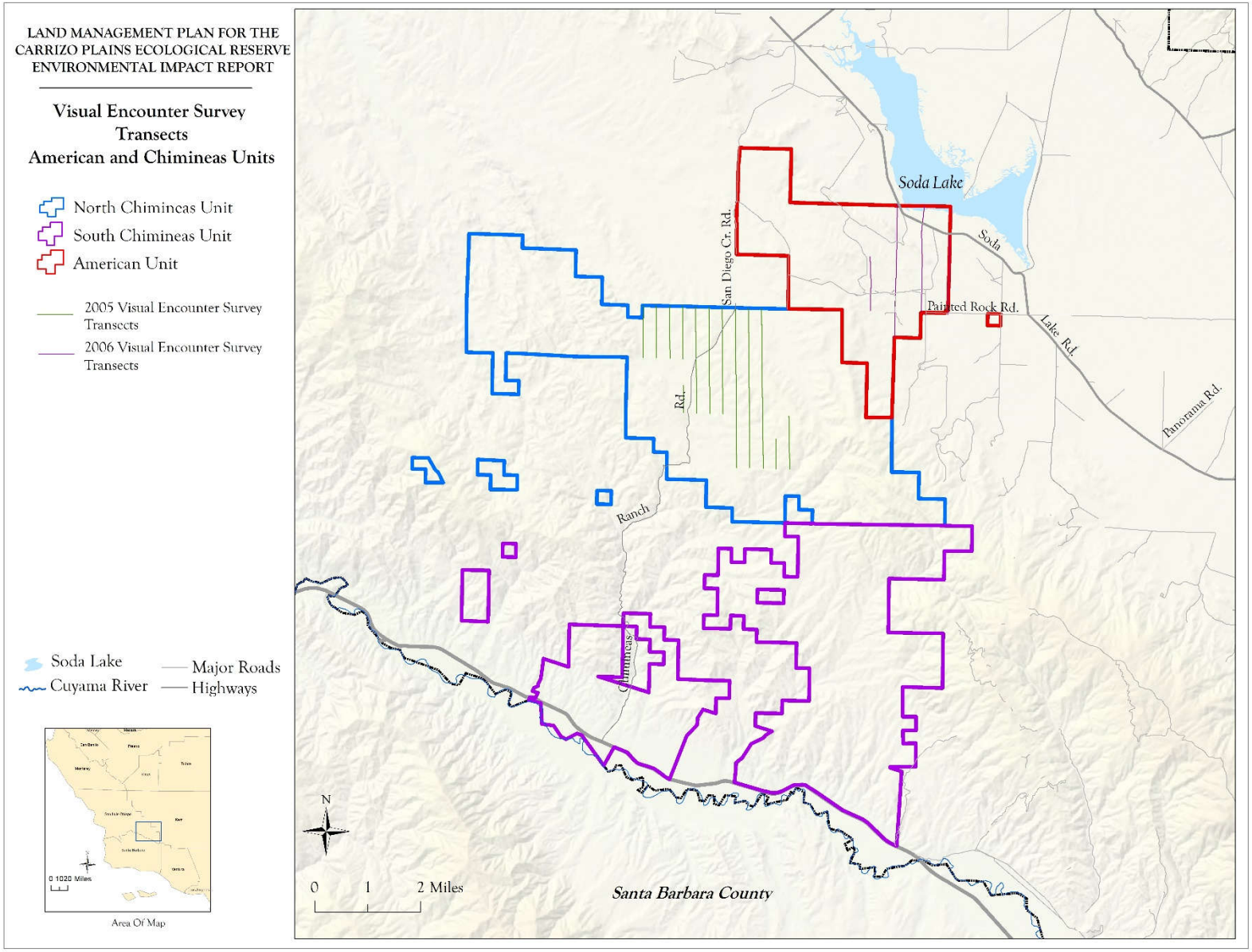

Figure F-12: Visual Encounter Survey Transects within the American and Chimineas Units

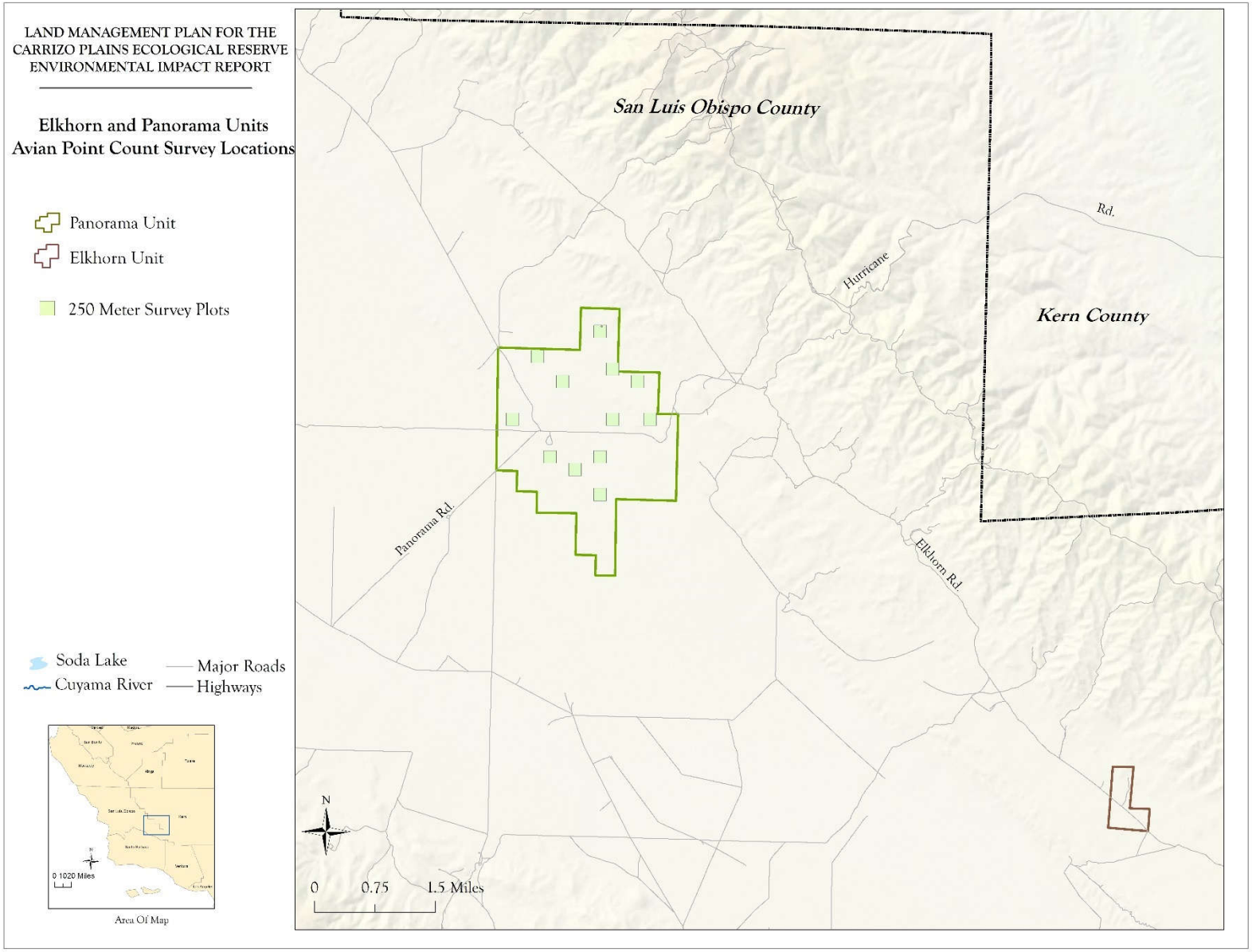

Figure F-13: Avian Point Count Survey Locations within the Elkhorn and Panorama Units

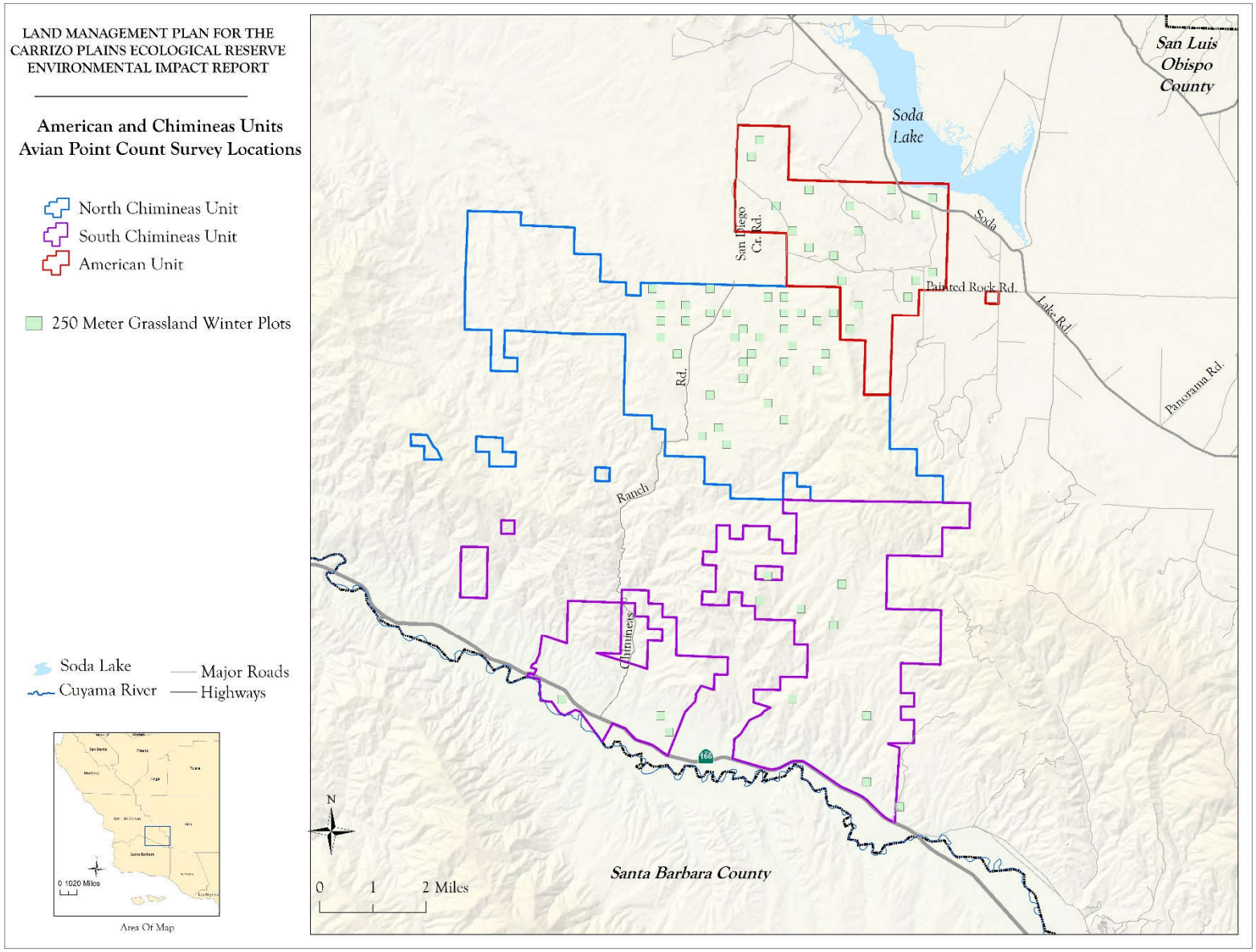

Figure F-14: Avian Point Count Survey Locations within the American and Chimineas Units

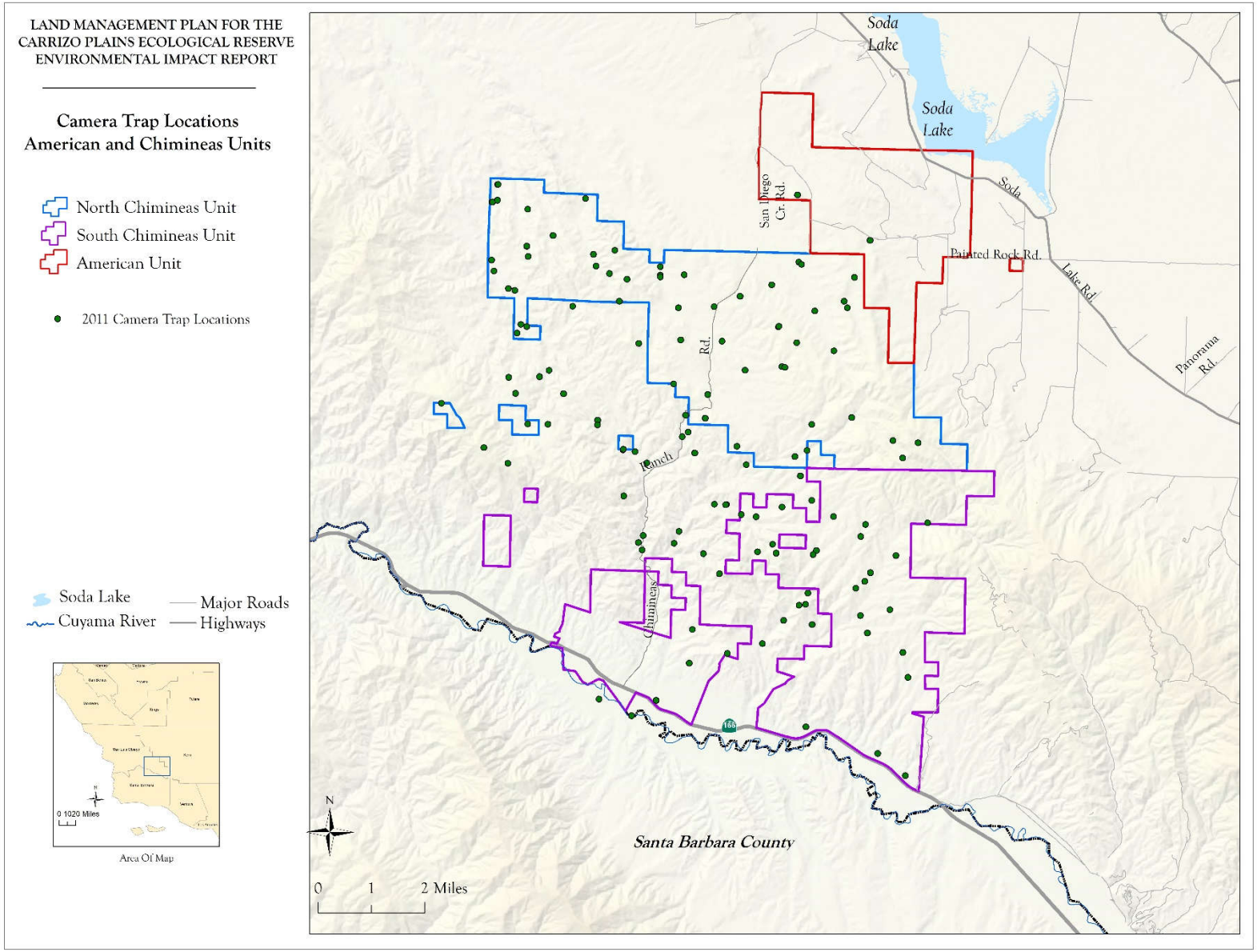

Figure F-15: Camera Trap Locations within the American and Chimineas Units

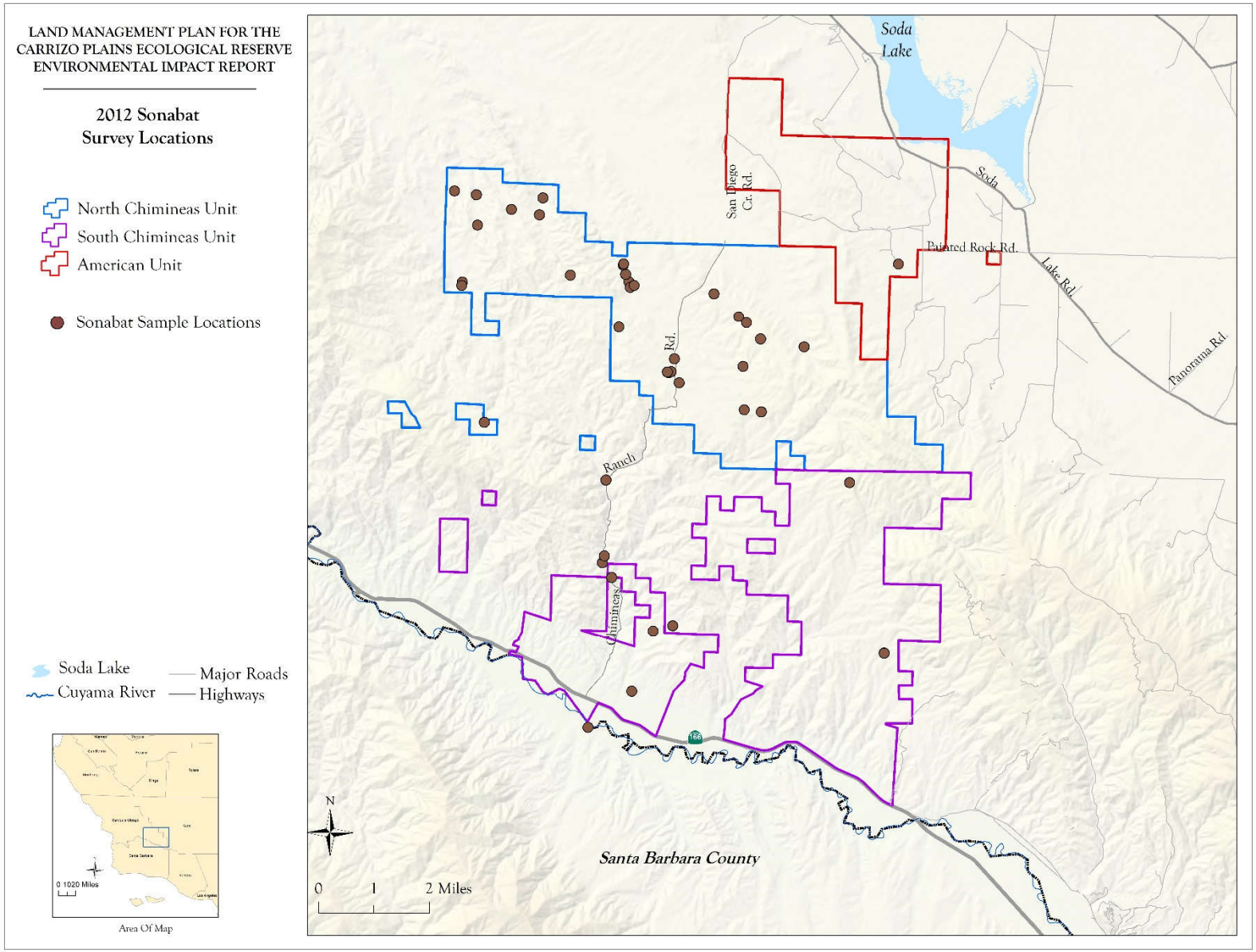

Figure F-16: Sonobat 2012 Survey Locations

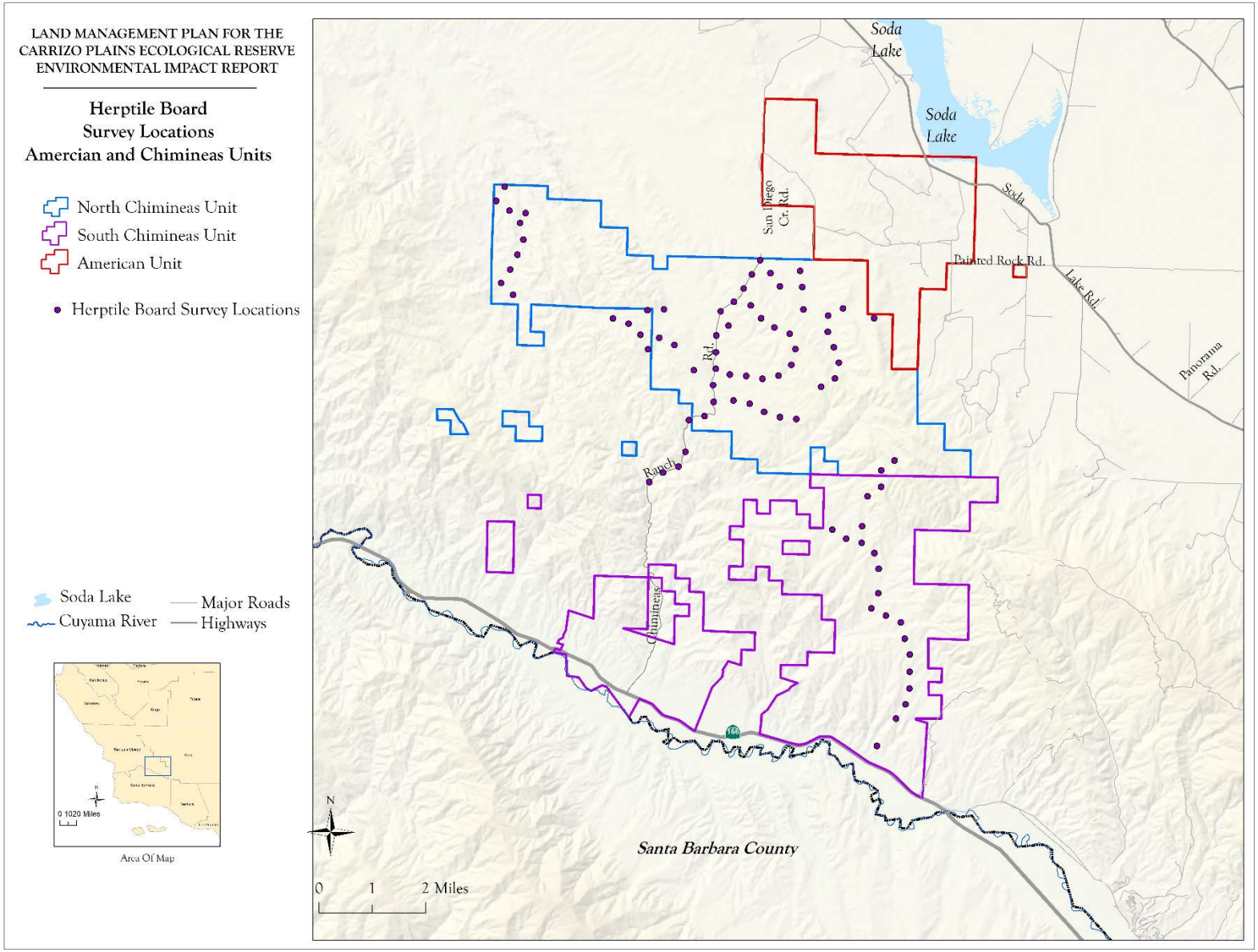

Figure F-17: Reptile and Amphibian Cover Board Survey Locations within the American and Chimineas Units

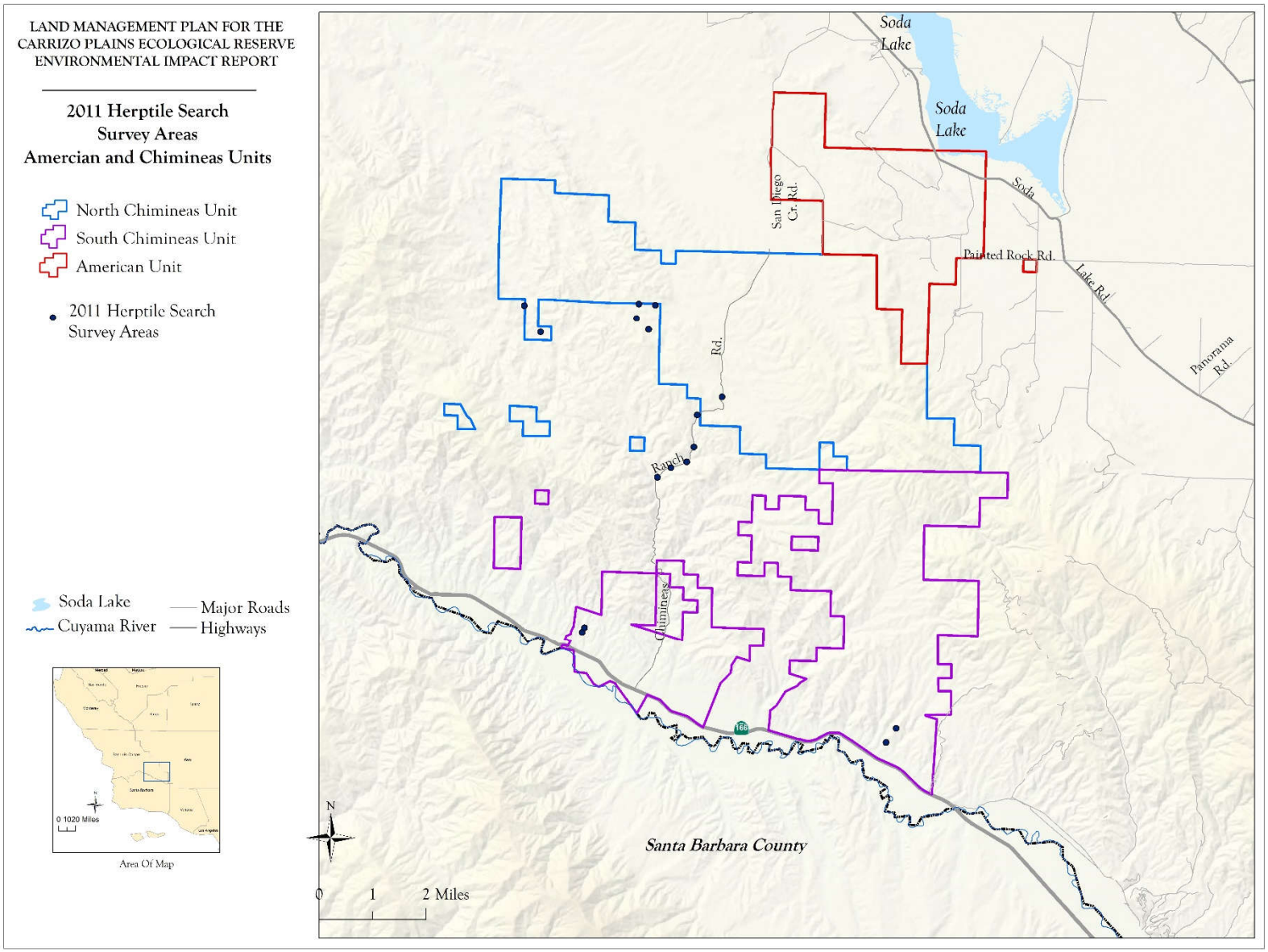

Figure F-18: Reptile and Amphibian Search Locations American and Chimineas Units

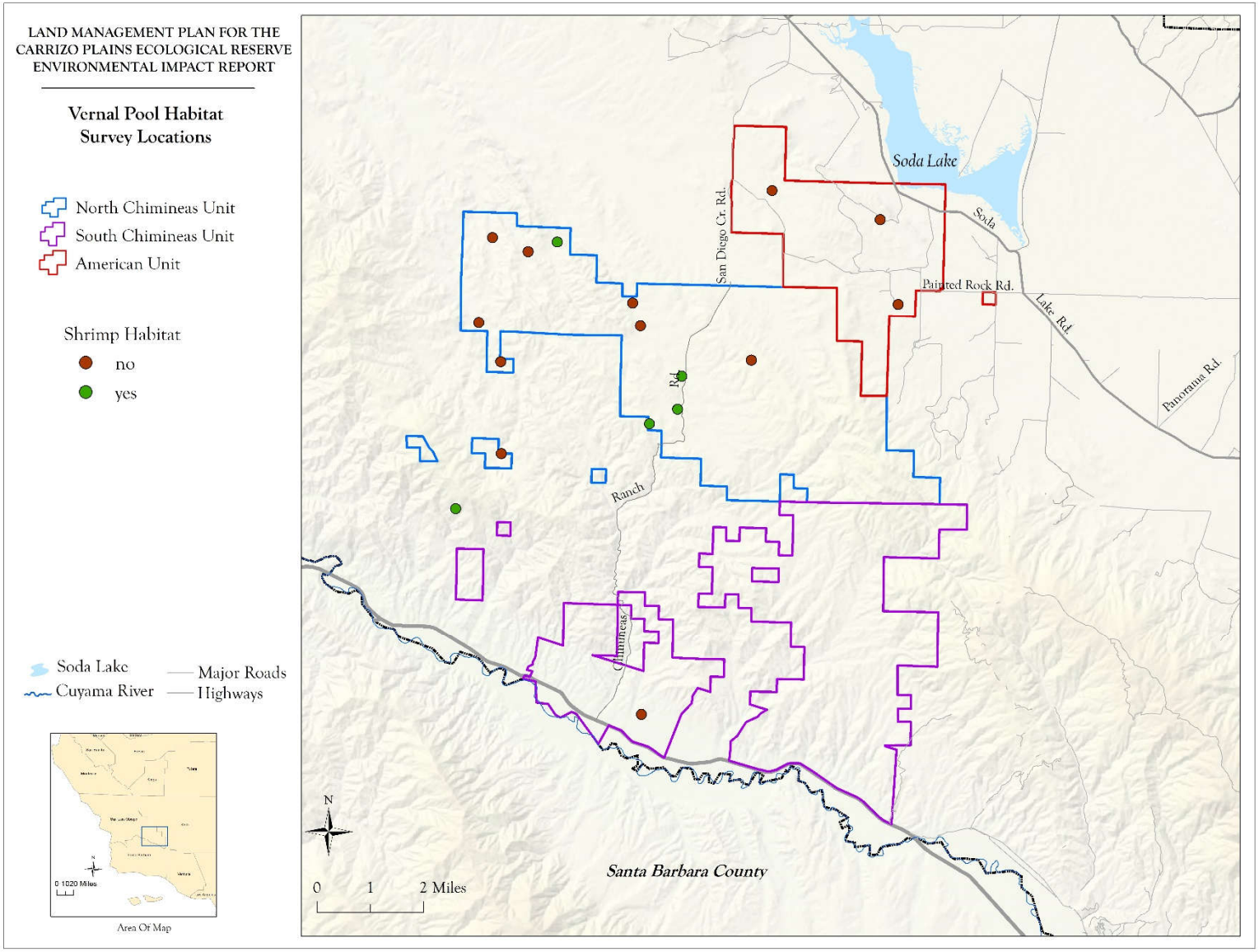

Figure -F-19:Vernal Pool Habitat Surveys

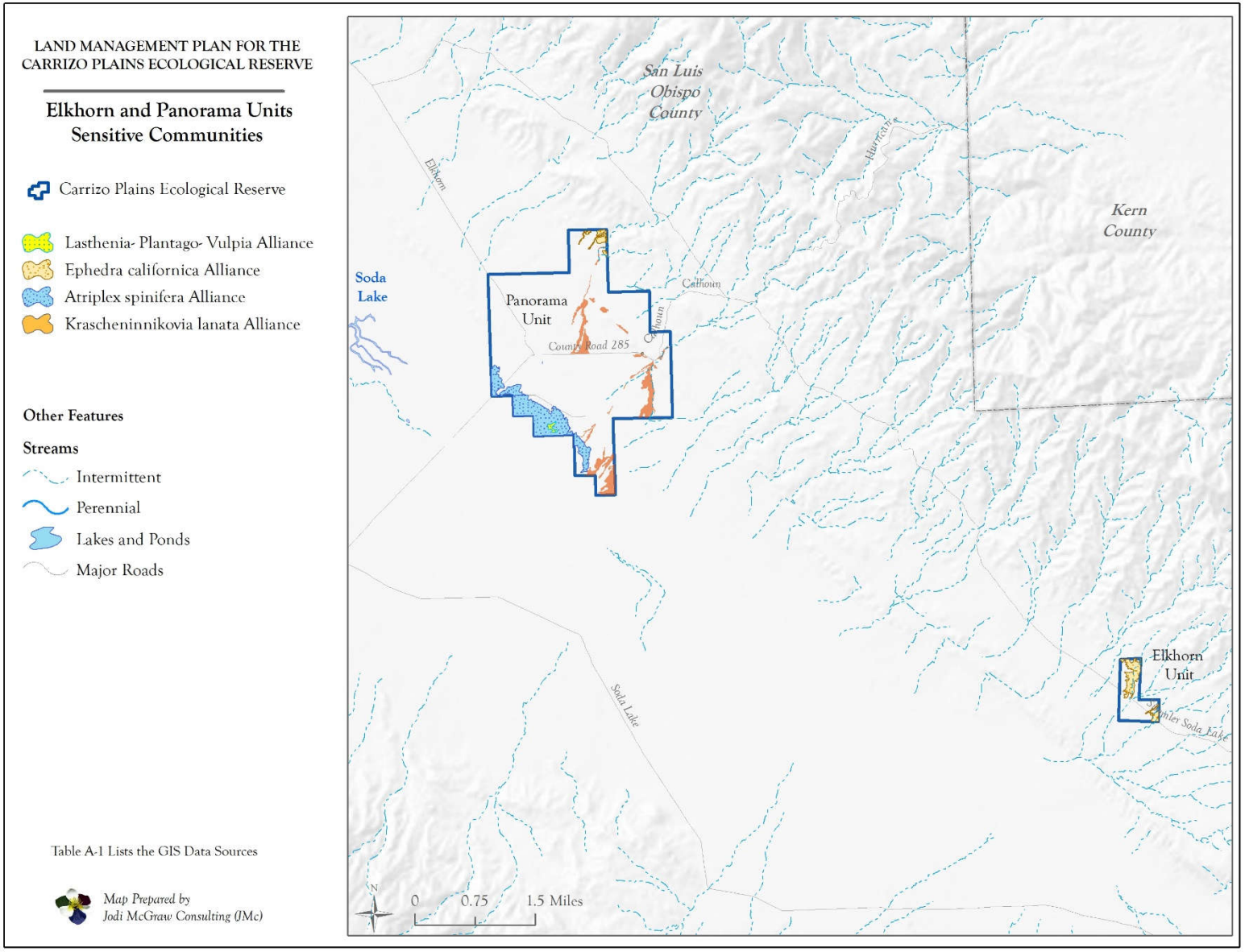

Figure F-20: Sensitive Communities of the Elkhorn Unit

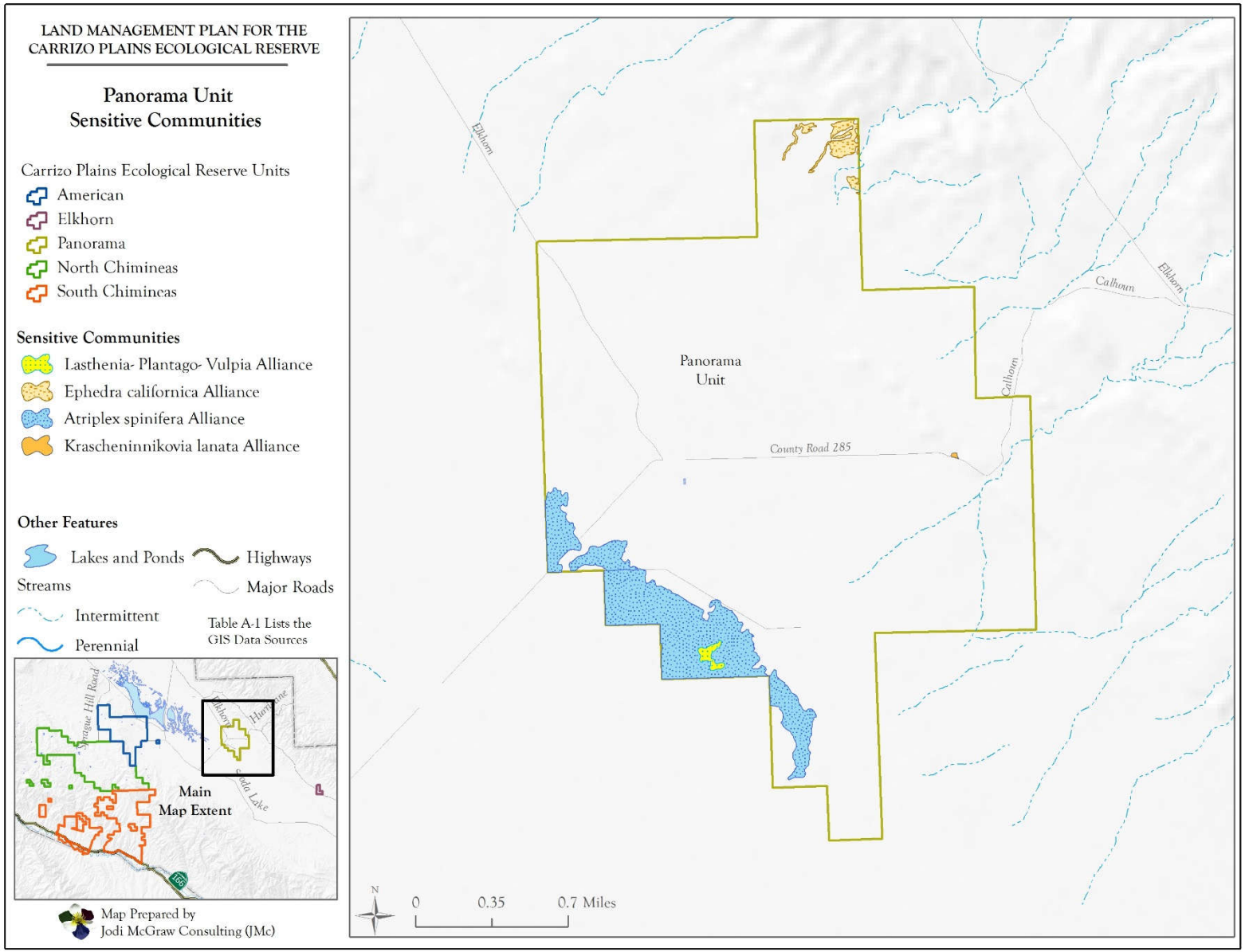

Figure F-21: Sensitive Communities of the Panorama Unit

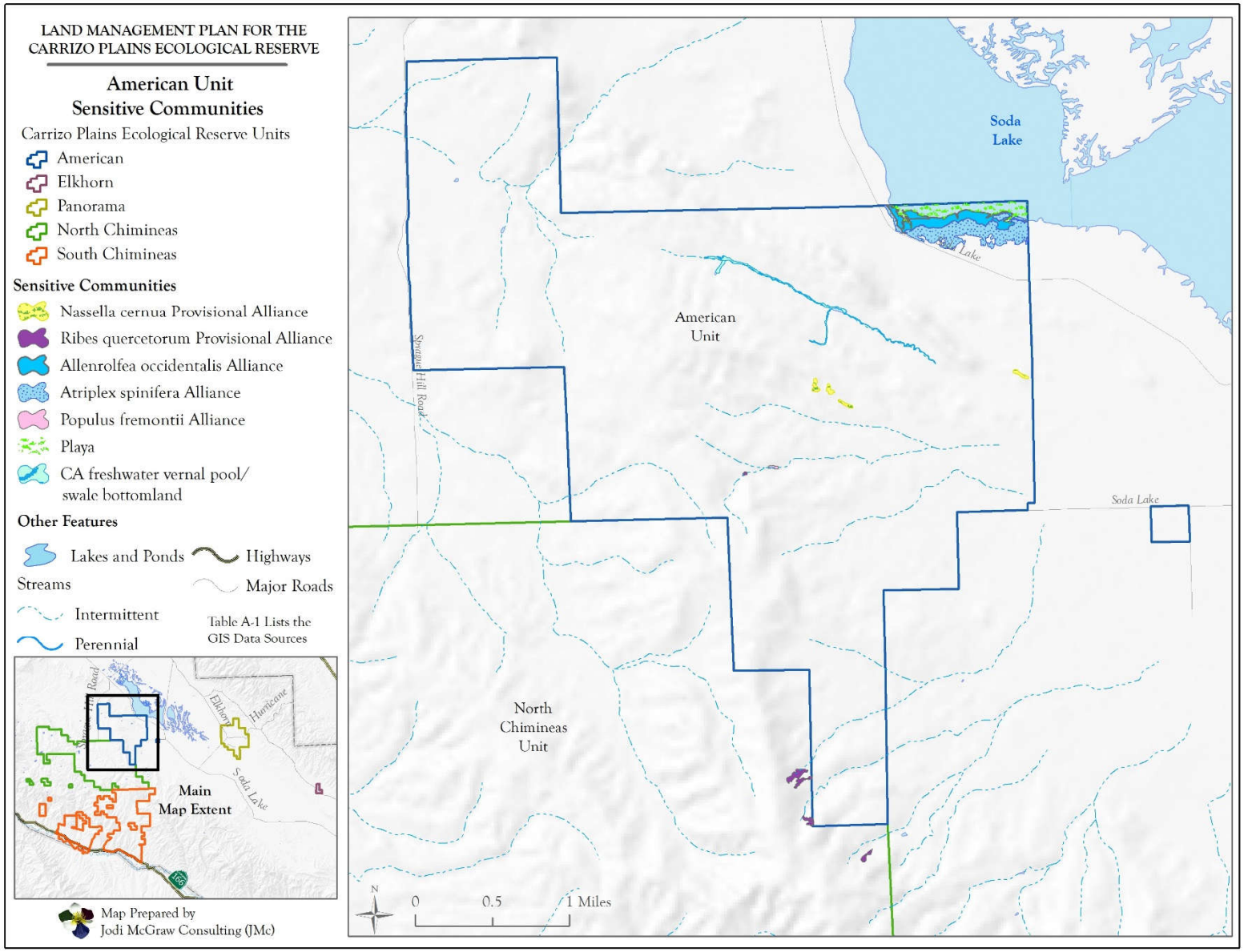

Figure F-22: Sensitive Communities of the American Unit

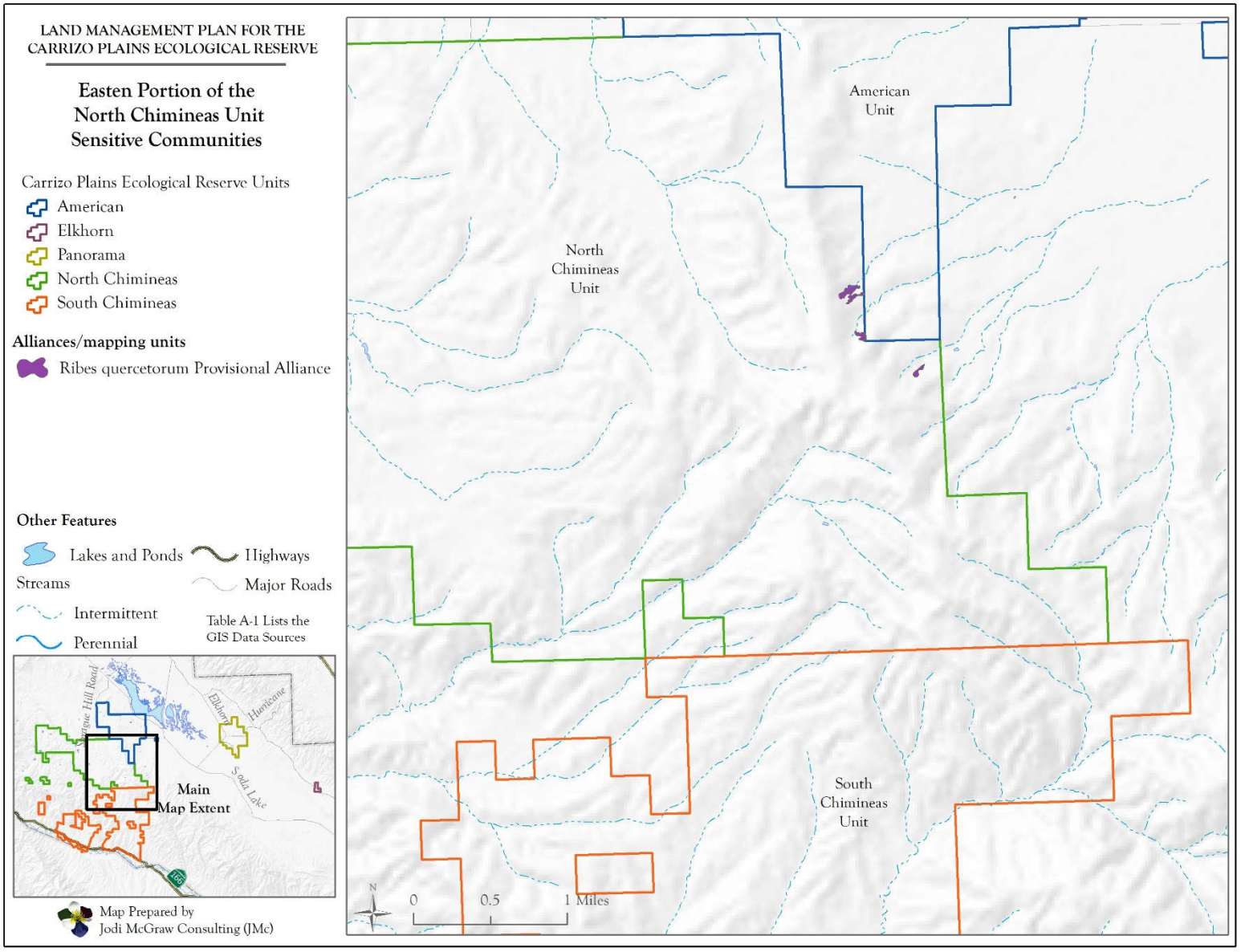

Figure F-23: Sensitive Communities of the Eastern North Chimineas Unit

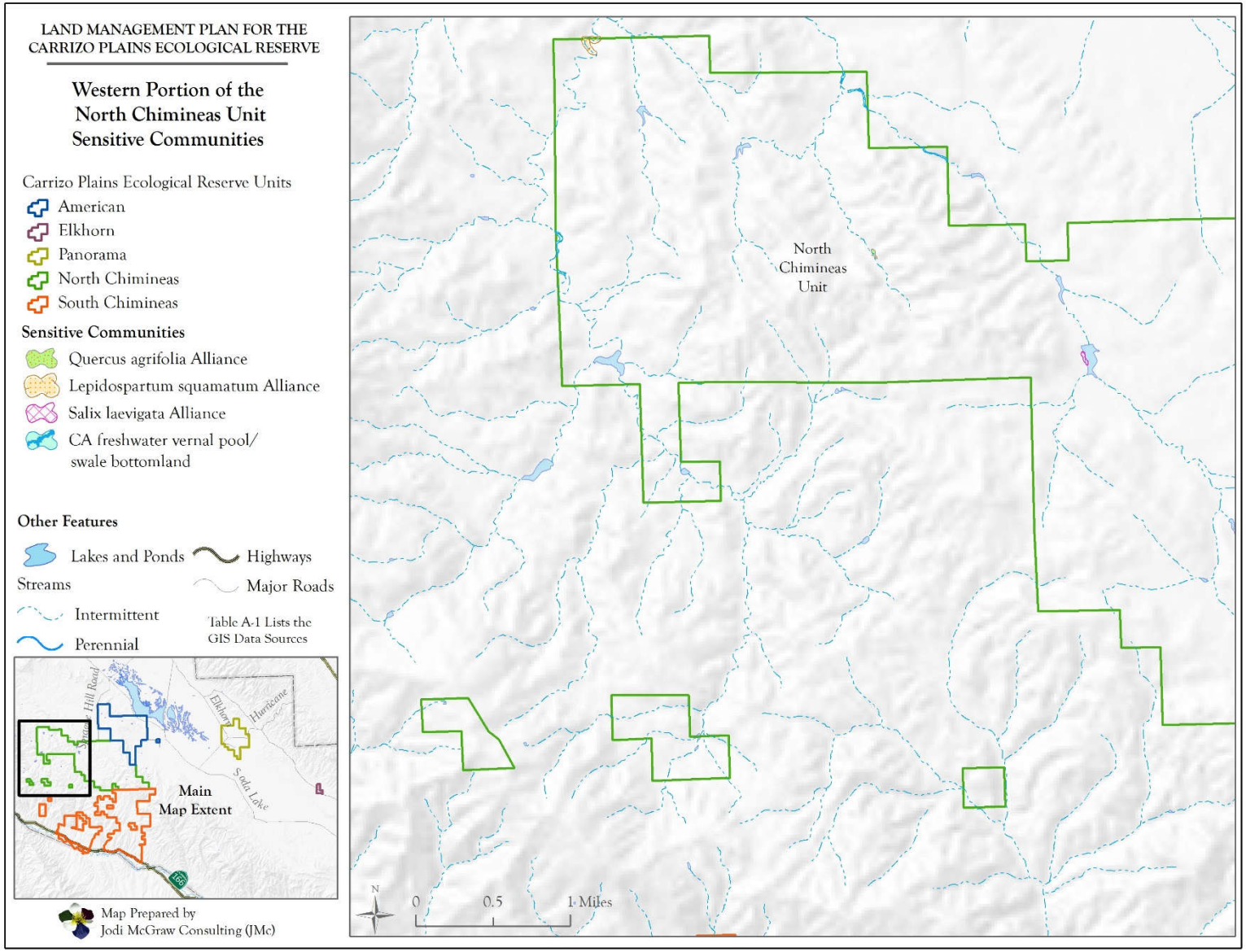

Figure F-24: Sensitive Communities of the Western North Chimineas Unit

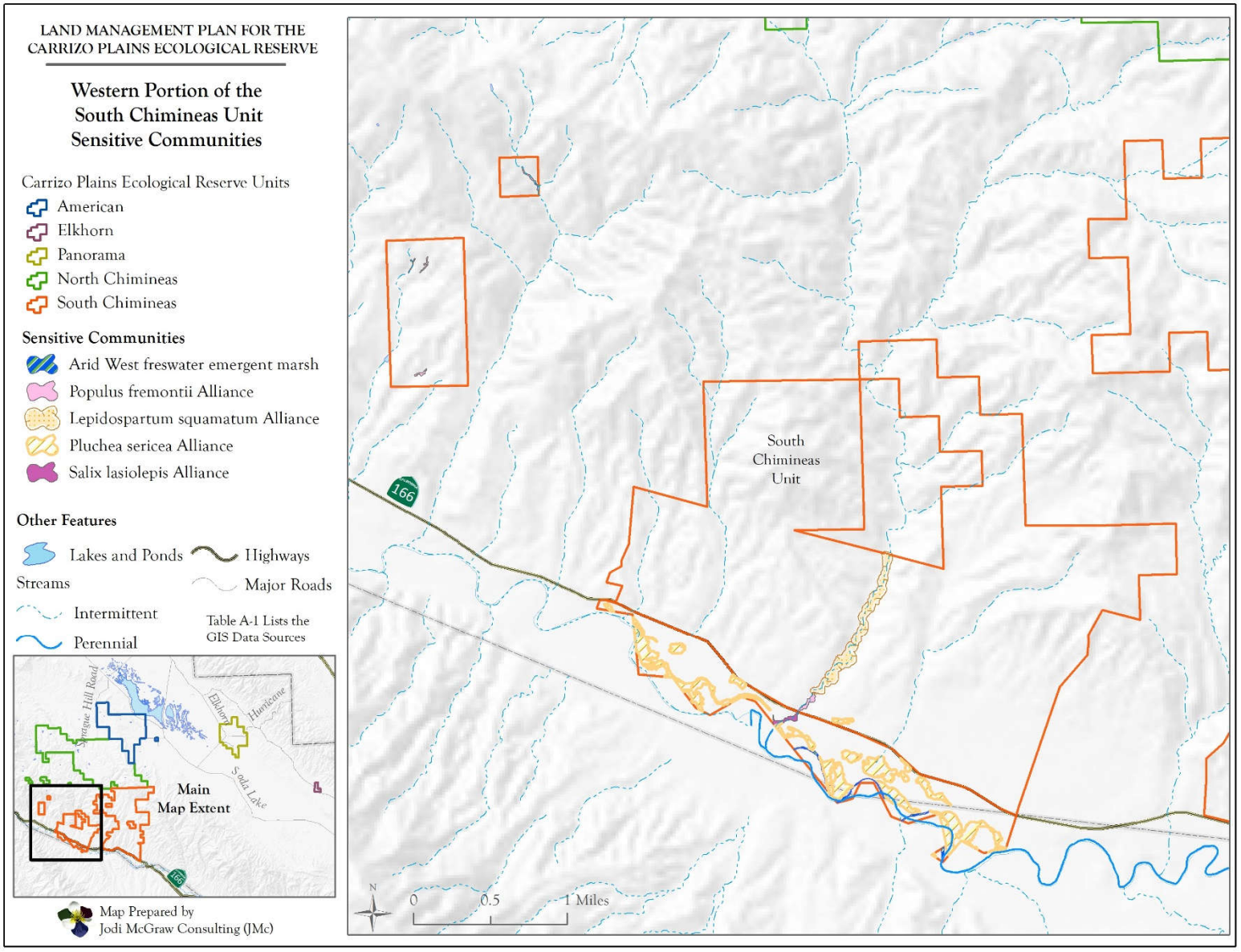

Figure F-25: Sensitive Communities of the Western South Chimineas Unit

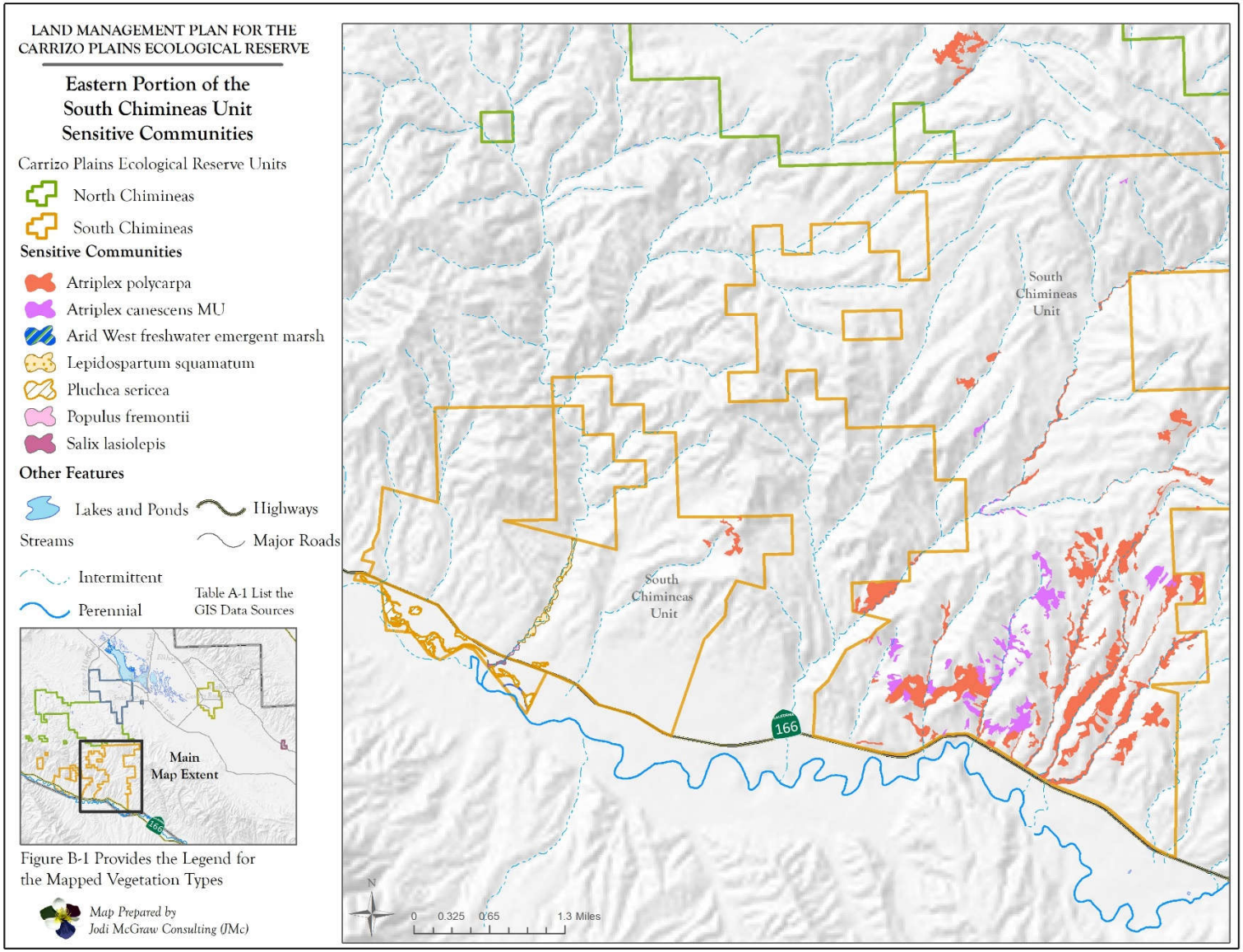

Figure F-26: Sensitive Communities of the Eastern South Chimineas Unit