CALIFORNIA
DEPARTMENT OF FISH AND WILDLIFE

FINDINGS OF FACT

under the
CALIFORNIA ENVIRONMENTAL QUALITY ACT
and the
NATURAL COMMUNITY CONSERVATION PLANNING ACT

AND

NATURAL COMMUNITY CONSERVATION PLAN

PERMIT

(2835-2019-001-02)
for the

Yolo
Natural Community Conservation Plan

January 2019

FINDINGS AND NCCP PERMIT

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BACKGROUND

1.0 INTRODUCTION

This document sets forth findings and the approval of the California Department of Fish and Wildlife (CDFW) for the Yolo Natural Communities Conservation Plan (NCCP). The Yolo NCCP document is also a Habitat Conservation Plan (HCP) and will be referred collectively with this NCCP as the Yolo HCP/NCCP. In approving the Yolo HCP/NCCP as provided for in the California Natural Community Conservation Planning Act (NCCPA), Fish and Game Code sections 2800–2835[1], CDFW is acting as a responsible agency under the California Environmental Quality Act (CEQA), Public Resources Code section 21000 et seq. for the NCCP. Unless otherwise noted in this document, capitalized terms have the same definitions as in the Yolo HCP/NCCP.

1.1 The Natural Community Conservation Planning Act

The NCCPA provides for the preparation and implementation of large-scale natural resource conservation plans as an alternative to reviewing impacts of urban development on a project-by-project and species-by-species basis. A Natural Community Conservation Plan (NCCP) must provide for "the protection of habitat, natural communities, and species diversity on a landscape or ecosystem level" (Section 2820(a)(3)), while allowing "compatible and appropriate economic development, growth, and other human uses" (Section 2805(h)). In authorizing the NCCPA, the Legislature declared, in part, that an NCCP provides one option for ensuring appropriate mitigation that is roughly proportional to impacts on fish and wildlife, and promotes the conservation of broad-based natural communities and species diversity (Section 2801(d)). When it approves an NCCP, CDFW may authorize the "take" of species whose conservation and management is provided for in the NCCP, including species listed as endangered, threatened, or candidate under the California Endangered Species Act (CESA), section 2050 et seq., species designated as fully protected and included in sections 3511, 4700, 5050, and 5515, and other non-listed species (Covered Species).

The NCCPA was originally enacted in 1991[2] and later amended in 1993[3], 1994[4], 1996[5], and 2000[6]. The NCCPA was repealed and replaced in 2002 by Senate Bill (SB) 1077, which codified a number of CDFW's administrative standards and practices for NCCP development and implementation, and added some new requirements. It was amended again in 2003[8] and in 2011[9]. With the revisions, many of the substantive standards and mandatory elements for an NCCP formerly contained in guidelines prepared

[1]All section references are to the Fish and Game Code, unless otherwise indicated.
[2]Statutes 1991, chapter 765, section 2, page 3424 (A.B. 2172).
[3]Statutes 1993, chapter 708, section 1, page 4034 (S.B. 755).
[4]Statutes 1994, chapter 220, section 1, page 1778 (S.B. 1352).
[5]Statutes 1996, chapter 593, sections 1 and 2, page 2702 (A.B. 3446).
[6]Statutes 2000, chapter 87, sections 1-3, page 1207 (S.B. 1679).
[7]Statutes 2002, chapter 4, sections 1 and 2, page 81 (S.B. 107). Minor housekeeping changes were subsequently enacted as part of S.B. 2052 (Stats. 2002, ch. 133, §§ 1 and 2, page 568).
[8]Statutes 2003, chapter 61, section 1, page 95 (S.B. 572).
[9]Statutes 2011, chapter 596, section 2, page 89 (S.B. 618).

by CDFW are now found in section 2820. In 2011, changes were made to sections 2805 and 2835 to allow for the take of fully protected species included as Covered Species in an NCCP.

1.2 Yolo Habitat Conservation Plan/Natural Community Conservation Plan

The purpose of the Yolo HCP/NCCP is to provide for the conservation of twelve Covered Species and the natural communities and agricultural land on which they depend, as well as a streamlined permitting process to address the effects of a range of future anticipated activities on these 12 species. The Yolo HCP/NCCP encompasses the boundaries of Yolo County, totaling approximately 653,549 acres and a 1,174-acre riparian area on the south side of Putah Creek in Solano County (Plan Area). The Yolo HCP/NCCP will improve habitat conservation efforts in the Plan Area; encourage sustainable economic activity; and maintain and enhance agricultural production. The Yolo HCP/NCCP is intended to complement other existing large blocks of protected land in the Plan Area that contribute to and function in large part, though not necessarily exclusively, for the protection of biological resources.

The Plan Area is subdivided into 22 geographically based planning units (Figure ES-2):

- Little Blue Ridge
- North Blue Ridge
- South Blue Ridge
- Capay Hills
- Dunnigan Hills
- Upper Cache Creek
- Lower Cache Creek
- Upper Putah Creek
- Lower Putah Creek
- Hungry Hollow Basin
- Willow Slough Basin
- Colusa Basin
- Colusa Basin Plains
- North Yolo Basin
- South Yolo Basin
- Yolo Basin Plains
- North Yolo Bypass
- South Yolo Bypass
- Woodland
- Davis
- West Sacramento
- Winters

Four of the planning units are in urban areas where most of the development will occur while another 13 planning units will be the focus of conservation planning efforts in the eastern two-thirds of the Plan Area. The remaining five planning units are in the western portion of the Plan Area.

The Yolo HCP/NCCP will protect, enhance, and restore natural communities, including listed and unlisted species habitat; protect and enhance cultivated lands through crop restrictions and in some cases adding hedgerows and other features to improve the habitat value of the cultivated lands; and provide for the conservation of Covered Species within the Plan Area. The Yolo HCP/NCCP creates a conservation and management program that comprehensively coordinates the implementation of the NCCP permit (Permit) requirements through the development of a county-wide Conservation Strategy, including identification of priority acquisition areas in riparian zones or natural communities with important species habitat.

The Yolo HCP/NCCP has been prepared pursuant to the NCCPA of 2003, and as a Habitat Conservation Plan (HCP) pursuant to Section 10(a)(1)(B) of the federal Endangered Species Act (ESA). The Yolo HCP/NCCP provides the basis for issuance of long-term species Take permits under the federal Endangered Species Act (ESA) and NCCPA. Upon permit issuance, the United States Fish and Wildlife Service (USFWS) authorizes Take pursuant to the ESA and CDFW authorizes Take pursuant to the NCCPA. The USFWS and CDFW will be collectively referred to as the Wildlife Agencies. Except as otherwise noted, all references to tables, figures, and text sections pertain to those in the Yolo HCP/NCCP.

The Yolo HCP/NCCP will provide conservation for the following 12 Covered Species:

- Palmate-bracted bird's-beak (*Chloropyron palmatum*) (State Endangered, Federal Endangered)
- Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*) (Federal Threatened)
- California tiger salamander (*Ambystoma californiense*) (State Threatened, Federal Threatened)
- Western pond turtle (*Actinemys marmorata*) (California Species of Special Concern)
- Giant garter snake (*Thamnophis gigas*) (State Threatened, Federal Threatened)
- Swainson's hawk (*Buteo swainsoni*) (State Threatened)
- White-tailed kite (*Elanus leucurus*) (State Fully Protected)
- Western yellow-billed cuckoo (*Coccyzus americanus occidentalis*) (State Endangered, Federal Threatened)
- Western burrowing owl (*Athene cunicularia hypugaea*) (California Species of Special Concern)
- Least Bell's vireo (*Vireo bellii pusillus*) (State Endangered, Federal Endangered)
- Bank swallow (*Riparia riparia*) (State Threatened)
- Tri-colored blackbird (*Agelaius tricolor*) (Candidate for State listing[10])

The following agencies are Permittees and are requesting take authorization under the NCCP Permit: the Yolo Habitat Conservancy (YHC), Yolo County, and the incorporated cities of Davis, West Sacramento, Winters, and Woodland (collectively, Permittees). Each of these Permittees is required to fully and faithfully perform all obligations assigned to them collectively, and to each of them individually, under the NCCP Permit, the Yolo HCP/NCCP, and the Implementing Agreement (IA).

The YHC, formerly known as the Joint Powers Authority, was established in 2002 to oversee the development of the Yolo HCP/NCCP. The YHC Board of Directors (Board) consists of elected representatives appointed by the Permittees. The Board is charged with, among other roles, assisting in the planning, preparation, and subsequent administration of the Yolo HCP/NCCP.

[10] At the time of Permit issuance, the California Fish and Game Commission determined tricolored blackbird was warranted for listing as a threatened species under the California Endangered Species Act.

In 2005, the Permittees entered into a Planning Agreement with the Wildlife Agencies, pursuant to the NCCPA that defined the initial scope of the program as well as the roles and responsibilities of the Permittees involved in the development of the Yolo HCP/NCCP. The Permittees have elected to assign primary responsibility for implementing the Yolo HCP/NCCP to YHC on behalf of the other Permittees. The YHC will oversee the assembly and operation of the Reserve System; implementation of conservation actions; develop and oversee the management and monitoring programs; and manage compliance with all terms of the NCCP Permit, the Yolo HCP/NCCP, and the IA.

Each Permittee will designate staff members to advise the YHC on implementation of the Yolo HCP/NCCP. The Permittees may enter into agreements individually, amongst themselves, or with other entities to designate responsibility for carrying out certain actions under the Yolo HCP/NCCP. The Permittees are ultimately responsible for compliance with all the terms and conditions of the NCCP Permit and the YHC's performance.

Entities that are not subject to the jurisdiction of the Permittees may conduct or initiate project or ongoing activities within the Plan Area that may affect Covered Species and which require Take authorization from the Wildlife Agencies. These entities may include existing or future school districts, water districts, irrigation districts, transportation agencies, local park districts, geological hazard abatement districts, other utility or special districts that own land or provide public services, or individuals with activities that may result in Take but that do not require a discretionary permit. These public agencies or individuals, known as Special Participating Entities, can request coverage under the Yolo HCP/NCCP during implementation.

The Yolo HCP/NCCP identifies Covered Activities that are based on the projects and activities allowed by the Permittees' respective general plans. Covered Activities are those projects and activities that will have direct or indirect effects on the Covered Species and natural communities and for which the Permittees' are requesting Take authorization. A project identified as a Covered Activity in the Yolo HCP/NCCP does not imply or grant entitlement for implementation. Project applicants are required to gain project approvals from local jurisdictions and other local, state, and federal agencies as necessary. The Covered Activities are organized into two categories, spatially defined and non-spatially defined. These categories are further subdivided into five categories and eight subcategories and are consistent with local planning processes. The categories are described as:

- Spatially defined
    - Urban projects and activities
        - General urban development
        - Urban public services, infrastructures, and utilities
        - Urban projects in rural areas

    - Rural projects and activities
        - General rural development
        - Rural public services, infrastructure, and utilities
        - Parks and open space
        - Agricultural economic development
        - Aggregate mining

- Non-spatially defined
    - Public and private operations and maintenance activities and temporary activities associated with construction activities
    - Conservation Strategy implementation and Covered Activities on Reserve Lands
    - Relocation of western burrowing owl
    - Neighboring landowner agreements

The Yolo HCP/NCCP Conservation Strategy provides for the conservation of Covered Species in the Plan Area by protecting, enhancing, restoring, and managing natural communities, Covered Species habitats, and occurrences of Covered Species. Conservation resulting from the Yolo HCP/NCCP will add to some lands that already have varying levels of conservation status in the Plan Area such as the Yolo Bypass Wildlife Area. The Yolo HCP/NCCP Conservation Strategy will achieve the following objectives:

- Conserve, restore, and provide for the management of representative natural and seminatural communities
- Establish a Reserve System that provides for the conservation of Covered Species within the Yolo HCP/NCCP Plan Area and linkages to adjacent habitat outside of the Plan Area
- Protect and maintain habitat areas that are large enough to support sustainable populations of Covered Species
- Incorporate in the Reserve System a range of environmental gradients and high habitat diversity to provide for shifting species distributions in response to changing circumstances (e.g. in response to climate change)
- Sustain the effective movement and genetic interchange of organisms between habitat areas in a manner that maintains the ecological integrity of the Reserve System

The Yolo HCP/NCCP Conservation Strategy includes specific and measurable biological goals and objectives (Section 6.3) and comprehensive conservation measures (Section 6.4). The biological goals and objectives articulate what the Conservation Strategy is intended to achieve while the conservation measures describe how the Permittees' will meet the biological goals and objectives.

The biological goals and objectives reflect the expected ecological outcomes of full implementation of the Yolo HCP/NCCP. The biological goals set out the broad principles used to help guide the development of the Conservation Strategy. The biological objectives describe the conservation commitments. The biological objectives are measurable and quantitative and clearly state a desired result that will collectively achieve the biological goals. The biological goals and objectives are the foundation of the Conservation Strategy and are intended to provide the following functions:

- Describes the desired biological outcomes of the Conservation Strategy and how those outcomes will provide for the conservation of Covered Species and their habitats
- Provides quantitative commitments and timeframes for achieving the desired outcomes
- Serves as benchmarks by which to measure progress in achieving those outcomes across multiple temporal and spatial scales

- Provides metrics for the monitoring program that will evaluate the effectiveness of the conservation measures and, if necessary, provide a basis to adjust the conservation measures to achieve the desired outcomes

The Yolo HCP/NCCP includes conservation measures and are grouped into three categories:

- Conservation Measure 1, Establish Reserve System, describes the commitments for land acquisition and enrollment to establish the Reserve System. The measure includes acreage commitments for natural communities and species habitat, describes land protection mechanisms and enrollment requirements, and provides guidelines and commitments for identifying lands to acquire.

- Conservation Measure 2, Restore Natural Communities, describes the commitments for natural community and species habitat restoration. The measure defines restoration, specifies restoration commitments, and provides restoration criteria and techniques.

- Conservation Measure 3, Manage and Enhance the Reserve System, describes the commitments for natural community and species habitat management and enhancement. The measure defines management and enhancement, describes the requirements for preparing reserve management plans, and describes management and enhancement actions at the landscape, natural community, and species levels.

Permit Term

The Permit term is the time period in which all Covered Activities can receive Take authorization under the Yolo HCP/NCCP, consistent with the requirements of the Yolo HCP/NCCP. The Permit term is a 50-year duration that will commence on the date the Permit and IA are executed. The Permit term would allow for the full and successful implementation of the Covered Activities, the Conservation Strategy, the monitoring and adaptive management program, and the funding strategy.

1.3 Implementing Agreement

CDFW plans to execute a Yolo HCP/NCCP IA with the USFWS and Permittees, concurrently with its issuance of this Permit. The IA is designed to ensure the implementation of the Yolo HCP/NCCP, to bind each Permittee to the terms of the Yolo HCP/NCCP, and to provide remedies and recourse for failure to adhere to the terms of the Yolo HCP/NCCP. This Permit specifically applies to the Yolo HCP/NCCP as implemented pursuant to the IA.

CDFW finds that the Yolo HCP/NCCP and IA provide the necessary assurances that the Yolo HCP/NCCP will be carried out by Permittees. By accepting the Permit, Permittees are bound to fully implement the provisions of the Yolo HCP/NCCP in accordance with this Permit and the IA.

ADMINISTRATIVE RECORD

2.0 ADMINISTRATIVE RECORD OF PROCEEDINGS

For purposes of these findings, the administrative record of proceedings for CDFW's discretionary issuance of this NCCP Permit consists, at a minimum, of the following documents, except where privileges prevent their disclosure.

- Any Yolo HCP/NCCP related materials prepared by Permittees and submitted to CDFW
- Any staff reports and related documents prepared by CDFW with respect to its compliance with CEQA and with respect to the issuance of an NCCP Permit for the Yolo HCP/NCCP
- Any written testimony or documents submitted by any person to CDFW relevant to these findings and CDFW's discretionary actions with respect to the Yolo HCP/NCCP
- Any notices issued to comply with CEQA, the NCCPA, or with any other law relevant to and governing the processing and approval of this NCCP Permit by CDFW
- Any written comments received by CDFW in response to, or in connection with, environmental documents prepared for this project
- All written evidence or correspondence submitted to, or transferred from, CDFW with respect to compliance with CEQA and with respect to the Yolo HCP/NCCP
- Any proposed decisions or findings related to the Yolo HCP/NCCP submitted to CDFW by its staff, YHC, Yolo HCP/NCCP supporters and opponents, or other persons
- The documentation of the final decision by CDFW, including all documents cited or relied on in these findings adopted pursuant to CEQA and the NCCPA
- The documentation of the final decision by USFWS associated with Biological Opinion Number 08ESMF00-2017-F-3219-1 including all documents adopted or approved pursuant to the National Environmental Protection Act (NEPA) and the ESA
- Any other written materials relevant to CDFW's compliance with CEQA or CDFW's decision on the merits with respect to the Permit for the Yolo HCP/NCCP, including any draft environmental documents that were released for public review, and copies of studies or other documents relied upon in any environmental document prepared for the project and either made available to the public during a public review period or included in CDFW's files on the Yolo HCP/NCCP, and all non-privileged internal agency communications, including staff notes and memoranda related to the Yolo HCP/NCCP or compliance with CEQA
- Matters of common knowledge to CDFW, including but not limited to federal, state, and local laws and regulations
- Any other materials required to be in CDFW's administrative record of proceedings by Public Resources Code Section 21167.6(e)

The custodian of the documents comprising the administrative record of proceedings is CDFW, located at 1700 Ninth Street, 2nd Floor, Sacramento, California 95811. All related inquiries should be directed to the Habitat Conservation Planning Branch at (916) 653-4875.

CDFW has relied on all of the documents listed in this section in exercising its independent judgment and reaching its decision with respect to the Yolo HCP/NCCP, even if every document was not formally

presented to CDFW or its staff as part of the CDFW files generated in connection with the Yolo HCP/NCCP. Without exception, any documents set forth above not found in CDFW's files for the Yolo HCP/NCCP fall into one of two categories. The first category includes documents that reflect prior planning or legislative decisions of which CDFW was aware when approving the Yolo HCP/NCCP (see City of Santa Cruz v. Local Agency Formation Comm. (1978) 76 Cal.App.3d 381, 391–392; Dominey v. Department of Personnel Administration (1988) 205 Cal.App.3d 729, 738, fn. 6). The second category includes other documents that influence the expert advice of CDFW staff, which then provided advice to the decision-makers at CDFW with respect to the NCCP Permit for the Yolo HCP/NCCP. For that reason, such documents form part of the underlying factual basis for CDFW's decision related to the Yolo HCP/NCCP (see Public Resources Code, Section 21167.6(e)(10); Browning-Ferris Industries v. City Council of City of San Jose (1986) 181 Cal.App.3d 852, 866; Stanislaus Audubon Society, Inc. v. County of Stanislaus (1995) 33 Cal.App.4th 144, 153, 155).

FINDINGS OF FACT

3.0 FINDINGS UNDER CEQA

3.1 Environmental Documents

The YHC is the CEQA lead agency for purposes of the Yolo HCP/NCCP and has completed environmental review and approval of the Yolo HCP/NCCP (see generally Public Resources Code Section 21067; California Code of Regulations, Title 14, § 15367). The YHC analyzed the environmental effects of implementing the Yolo HCP/NCCP.

Pursuant to CEQA, Public Resources Code Section 21000 et seq., and California Code of Regulations, Title 14, § 15000 et seq. (CEQA Guidelines), the YHC determined that an Environmental Impact Report (EIR) consisting of a Draft EIR, a Final EIR and appendices would be prepared for the proposed project (i.e., the Yolo HCP/NCCP). CDFW concurs with that determination.

The YHC as lead agency prepared the Yolo HCP/NCCP that it adopted on May 7, 2018 and a Final Environmental Impact Statement (EIS) and EIR that it certified on May 7, 2018. Specifically, the YHC prepared and adopted the Yolo HCP/NCCP and associated Appendices A-P and certified the Yolo Habitat Conservation Plan/Natural Community Conservation Plan Final EIS/EIR Volumes 1 and 2. The State Clearinghouse Number for the EIS/EIR is SCH No. 2011102043. In analyzing and approving the Yolo HCP/NCCP and certifying the EIS/EIR, the YHC considered the effects, both individual and collective, of all activities involved in the project (Public Resources Code, § 21002.1(d)).

The YHC issued a Notice of Preparation (NOP), which was circulated to responsible agencies and interested groups and individuals for review and comment on October 21, 2011. The NOP was published in the *Davis Enterprise*, *Woodland Daily Democrat*, *Winters Express*, *West Sacramento News Ledger*, *West Sacramento Press*, and the *Sacramento Bee* as well on the YHC website https://www.yolohabitatconservancy.org/documents. In addition, two public scoping meetings were held on November 7, 2011 with verbal and written comments being accepted. By the close of the

scoping period, 16 letters representing comments from eight government agencies, seven individuals, and one non-government organization had been received. One letter was received from a government agency after the comment period ended.

In order to comply with CEQA, the YHC filed a Notice of Availability (NOA) with the State Clearinghouse upon completion of the Draft EIS/EIR. The YHC distributed the NOA and the Draft EIS/EIR to interested agencies, organizations, and individuals for review and comment and made the Draft EIS/EIR available for review at public libraries. The public review period was June 1, 2017 through August 30, 2017. Due to the large geographic range of the Yolo HCP/NCCP, nine public meetings were held to maximize the opportunity for public participation. Written comments were accepted at the public meetings. Public meetings were held during the review period on the following dates and locations:

- June 6, 2017 at the Woodland City Council Meeting, 300 First Street in Woodland
- June 8, 2017 at the Yolo County Planning Commission, 625 Court Street in Woodland
- June 12, 2017 at the West Sacramento Environmental and Utilities Commission, 1110 West Capitol Avenue in West Sacramento
- June 15, 2017 at the West Sacramento Planning Commission, 1110 West Capitol Avenue In West Sacramento
- June 19, 2017 at the YHC Board Meeting, 625 Court Street in Woodland
- June 27, 2017 at the Yolo County Board of Supervisors Chambers, 625 Court Street in Woodland
- June 28, 2017 at the West Sacramento City Council, 1110 West Capitol Avenue in West Sacramento
- June 29, 2017 at the City of Davis Public Meeting, 646 A Street in Davis
- August 1, 2017 at the Winters City Council Meeting, 318 First Street in Winters

The YHC received 32 written comments on the Draft EIS/EIR. Responses to comments were prepared by the YHC and changes were made to the Draft EIS/EIR. The responses to comments, changes to the Draft EIS/EIR, and additional information were published in the Final EIS/EIR, dated April 2018. CEQA Guidelines section 15088.5 requires a lead agency to recirculate an EIR for further review and comment when significant new information is added to the EIR after public notice is given of the availability of the Draft EIR but before certification. The YHC determined that the Final EIS/EIR did not contain significant new information and that recirculation of the EIS/EIR was not required. CDFW reviewed the Draft and Final EIS/EIR.

At all public meetings during the preparation of the Yolo HCP/NCCP, the YHC staff and its consultants provided information about the proposed project, the potential environmental impacts, and the CEQA review process. At each meeting, members of the public had the opportunity to ask questions, provide written comments, and express their concerns and interests for the proposed project.

CDFW has prepared these findings to comply with CEQA. CDFW is a responsible agency under CEQA with respect to the Yolo HCP/NCCP because of its authority under the NCCPA (see generally Public Resources Code § 21002.1(d) and 21069; CEQA Guidelines § 15381; see also California Code of Regulations, Title 14 § 783.3(a)). CDFW accordingly makes the findings, which appear in Section 3.5 below, under CEQA as part of its discretionary decision to approve the Yolo HCP/NCCP and authorize Take of Covered Species whose conservation and management are provided for in the Yolo HCP/NCCP.

These findings pertain to the proposed project and the EIS/EIR prepared for the proposed project (SCH No. 2011102043). The Final EIS/EIR and all appendices comprise the EIS/EIR referenced in these findings. The purpose of the joint EIS/EIR is to evaluate the potential for environmental effects from the adoption and implementation of the Yolo HCP/NCCP and the issuance of Take Permits for species pursuant to the NCCPA. The joint EIS/EIR also evaluates the potential for environmental effects of the issuance of authorizations pursuant to Section 10(a)(1)(B) of the federal ESA as required by NEPA.

3.2 CEQA Findings Requirement

CEQA requires public agencies to adopt certain findings before approving a project for which an EIR was prepared. The findings that appear below are intended to comply with the CEQA mandate that no public agency shall approve or carry out a project for which an EIR has been certified that identifies one or more significant effects thereof unless the agency makes one or more of the following findings (Public Resources Code section 21081, subdivision (a), CEQA Guidelines section 15091, subdivision (a); see also CEQA Guidelines section 15082, subdivision (b)(2)):

(1) Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant effects on the environment

(2) Those changes or alterations are within the responsibility and jurisdiction of another public agency and have been, or can and should be, adopted by that other agency

(3) Economic, legal, social, technological, or other considerations, including considerations for the provision of employment opportunities for highly trained workers, make infeasible the mitigation measures or alternatives identified in the EIR (Public Resources Code § 21081(a); CEQA Guidelines § 15091(a))

These findings are also intended to comply with the requirement that each finding made by CDFW be supported by substantial evidence in the administrative record and be accompanied by a brief explanation of the rationale for each finding (CEQA Guidelines §§ 15091(a) and (b)). To that end, these findings provide the written, specific reasons supporting CDFW's decisions under CEQA as they relate to the approval of the Yolo HCP/NCCP under the NCCPA.

Because CDFW adopts these findings as a responsible agency, the scope of these findings and CDFW's analysis under CEQA are more limited than that of the lead agency (Public Resources Code § 21167.2; CEQA Guidelines §§ 15096(f)–(h)). In its capacity as a responsible agency, CDFW is also bound by the legal presumption that the EIR certified by the YHC fully complies with CEQA (Public Resources Code §§ 21167.2 and 21167.3; City of Redding v. Shasta County Local Agency Formation Com (1989), 209 Cal.App.3d 1169, 1178–1181; Laurel Heights Improvement Association v. Regents of the University of California (1993), 6 Cal.4th 1112, 1130; see also CEQA Guidelines § 15231). In fact, CDFW is bound by the presumption of adequacy, except in extremely narrow circumstances (Public Resources Code § 21167.2; CEQA Guidelines §§ 15096(e) and (f)). CDFW concludes such circumstances do not exist in the present case based on substantial evidence in its administrative record for the NCCP Permit.

3.3 Scope of CEQA Findings

CDFW is a responsible agency under CEQA for purposes of approving the Yolo HCP/NCCP because of its authority under the NCCPA and the lead agency's prior actions with respect to the project. As a responsible agency, CDFW's CEQA obligations are more limited than those of the lead agency (CEQA Guidelines § 15096(g)(1)). CDFW, in particular, is "responsible for considering only the effects of those activities involved in [the] project which it is required by law to carry out or approve" (Public Resources Code § 21002.1(d)). Thus, while CDFW must "consider the environmental effects" of the Yolo HCP/NCCP as disclosed in the environmental documents described above, CDFW "has responsibility for mitigating or avoiding only the direct or indirect environmental effects of those parts of the project which it decides to carry out, finance, or approve" (CEQA Guidelines §§ 15096(f) and (g)(1)). Accordingly, because CDFW's exercise of discretion is limited to approval of the Yolo HCP/NCCP and associated Take authorizations, CDFW is responsible for considering only the environmental effects that fall within its authority under the NCCPA.

CDFW's more limited obligations as a responsible agency affect the scope of, but not the obligation to adopt, findings required by CEQA. Findings are required by each public agency that approves a "project for which an environmental impact report has been certified which identifies one or more significant effects on the environment…" (Public Resources Code § 21081(a); CEQA Guidelines § 15091(a); see also Public Resources Code § 21068 ("significant effect on the environment" defined); CEQA Guidelines § 15382 (same)). Because the YHC certified the EIR in approving the Yolo HCP/NCCP, the obligation to adopt findings under CEQA necessarily applies to CDFW as a responsible agency (CEQA Guidelines § 15096(h); Resource Defense Fund v. Local Agency Formation Comm. of Santa Cruz County (1987) 191 Cal.App.3d 886, 896–898).

The specific provision of the CEQA Guidelines addressing the responsible agency findings obligation is section 15096(h). That section provides, in pertinent part, that a "responsible agency shall make the findings required by section 15091 for each significant effect of the project and shall make the findings in section 15093 if necessary" (CEQA Guidelines § 15096(h)). The scope of this charge in the guidelines is governed by statutory language concerning the extent of responsible agency decision-making authority under CEQA. As noted above, the controlling statute provides that a "responsible agency shall be responsible for considering only the effects of those activities involved in a project which it is required by law to carry out or approve" (Public Resources Code § 21002.1(d)). The same section underscores that the more limited scope of review for responsible agencies necessarily "applies only to decisions by a public agency to carry out or approve a project…" (Ibid.).

3.4 Legal Effect of the CEQA Findings

These findings are not merely informational. To the extent CDFW relies on implementation of particular measures to make a necessary finding under the NCCPA, those measures constitute a binding set of obligations that take effect when CDFW issues the Permit for the Yolo HCP/NCCP. CDFW believes that all mitigation and conservation measures that it has relied on for purposes of its findings are separately required under the Yolo HCP/NCCP or the IA, or are express conditions of this Permit. Consequently, CDFW does not anticipate that as a practical matter these findings alone will increase obligations of those operating under authority of this Permit.

3.5 CEQA Findings Regarding Potentially Significant Environmental Effects

The YHC Final EIS/EIR for the Yolo HCP/NCCP analyzed the following impacts: Biological Resources, Land Use, Agricultural and Forestry Resources, Public Services and Utilities, Recreation and Open Space, Hydrology and Water Quality, Population and Housing, Socioeconomics and Environmental Justice, Cultural and Paleontological Resources, Transportation, Noise, Air Quality, Climate Change, Geology, Soils, and Mineral Resources, Visual Resources, and Hazardous Materials and the cumulative impacts associated with the overall Yolo HCP/NCCP. Issues deemed to be not significant and not selected for detailed analysis included: Aesthetics and Land Use Planning.

The Final EIS/EIR identified several potentially significant environmental impacts that could result due to implementation of the Yolo HCP/NCCP. The YHC concluded as the CEQA lead agency for the project that these significant impacts could be mitigated to a level below significance through the implementation of mitigation measures described in the Yolo HCP/NCCP. The YHC determined as the lead agency for the project under CEQA that implementation of the Yolo HCP/NCCP would result in less than significant impacts to the following categories: Biological Resources, Public Services and Utilities, Recreation and Open Space, Hydrology and Water Quality, Population and Housing, Socioeconomics and Environmental Justice, Cultural and Paleontological Resources, Transportation, Noise, Air Quality, Climate Change, Geology, Soils, and Mineral Resources, Visual Resources, and Hazardous Materials. Potentially significant impacts to Land Use will be reduced to a less-than-significant level through implementation of mitigation measures identified in the EIS/EIR. Potentially significant impacts to Agricultural and Forestry Resources from the conversion of farmlands to non-agricultural lands are unavoidable. There were no mitigation measures feasible for the impacts.

The EIS/EIR reiterates some of the information found in the Yolo HCP/NCCP and incorporates by reference the conservation, avoidance, minimization, and mitigation measures included in the Yolo HCP/NCCP. The Yolo HCP/NCCP discusses in detail specific incidental Take minimization measures designed to avoid and minimize the actual mortality or injury of Covered Species individuals (Chapter 4). Avoidance and minimization measures required in the Yolo HCP/NCCP include, but are not limited to: (1) general project design (Chapter 4.3.1); (2) general construction operations (Chapter 4.3.2); (3) avoidance and buffers around sensitive natural communities (Chapter 4.3.3); and, (4) species-specific Take avoidance and minimization measures (Chapter 4.3.4). The primary means of mitigating impacts and conserving Covered Species and natural communities is by implementing the Conservation Strategy as outlined in the Yolo HCP/NCCP (Chapter 6). The primary elements of the Conservation Strategy include:

- Establishment of a Reserve System
- Enhancement and management of the Reserve System
- Restoration of natural communities and species habitat
- Protection and maintaining habitat areas that are large enough to support sustainable populations for the Covered Species
- Incorporate into the Reserve System a range of environmental gradients and high habitat diversity to provide for shifting species distributions in response to changing circumstances
- Sustain the effective movement and genetic interchange of organisms between habitat areas in a manner that maintains the ecological integrity of the Reserve System

Vegetation communities or land cover types that provide habitat for Covered Species that will be altered due to Covered Activities will be mitigated by conserving and managing the same or higher value communities within the Reserve System. The Reserve System will be built adjacent to and around already protected Baseline Public and Easement Lands. Baseline Public and Easement Lands are lands that were conserved prior to implementation of the Yolo HCP/NCCP. The Conservation Strategy involves integrating newly protected lands with the Baseline Public and Easement Lands and enrolling the Baseline Public and Easement Lands into the Reserve System as Pre-Permit Reserve Lands. The Pre-Permit Reserve Lands will be counted toward the conservation component of the Conservation Strategy, and will not be used for mitigation purposes. Table 6-1(b) of the Yolo HCP/NCCP describes the land type commitment of the Reserve System. Table 6-2(a) and (b) of the Yolo HCP/NCCP further describes the natural community land commitments for each of the land types within the Reserve System. Management measures will be implemented at the landscape, natural community, and species-specific levels on the Reserve Lands. Management plans will be developed for the Reserve System that will guide habitat enhancement and management actions for each of the lands enrolled in the Reserve System to achieve the biological objectives. Permittees will periodically update the management plans to incorporate changes in maintenance, management, and monitoring requirements based on new knowledge gained through the monitoring and adaptive management program (Chapter 6.5).

The following section presents CDFW's responsible agency findings with respect to the potentially significant environmental effects authorized by CDFW pursuant to this NCCP Permit issued to the Permittees under the NCCPA. This Permit includes 12 Covered Species in the Yolo HCP/NCCP (Table 1-1) and the EIS/EIR. The Take of Covered Species is allowed upon Permit issuance per Section 5.0 of this Permit and Findings.

CEQA Findings

The impacts to Covered Species are addressed in Chapter 5 of the Yolo HCP/NCCP and in Chapter 4 of the Final EIS/EIR. Mitigation measures for the Covered Activities are identified in Chapters 4 and 6 of the Yolo HCP/NCCP.

As required by the NCCPA, the Yolo HCP/NCCP must conserve native biological diversity, habitats for native species, natural communities, and local ecosystems. This conservation will cover a broad range of natural resources, including native species that are common or rare. The Yolo HCP/NCCP addresses 12 listed and non-listed Covered Species including one plant and eleven wildlife species.

Covered Plant Species

Impact 3.5.1 Approval of the HCP/NCCP authorized under the Permit could result in potentially significant adverse impacts to the plant Covered Species, palmate-bracted bird's-beak (*Chloropyron palmatum*).

Finding 3.5.1 CDFW finds that conservation measures required in the Yolo HCP/NCCP will avoid, minimize, and/or mitigate the potentially significant impacts of the Yolo

HCP/NCCP to the plant Covered Species to **below a level of significance** (Public Resources Code, Section 21081(a)(1); CEQA Guidelines, Section15091(a)(1)).

Palmate-bracted bird's-beak

Baseline: Palmate-bracted bird's-beak is endemic to the west side of the Sacramento Valley, the north side of the Sacramento National Wildlife Refuge Complex, the San Joaquin Valley, and the Springtown area of the Livermore Valley. Between 1983 and 1990, a single population was restricted to a single property within the Plan Area that is known as the City of Woodland Preserve. The size of this population ranged from 200 to 1,400 flowering individuals (EIP Associates 1990). Additional individuals were discovered in 1996 and 1998 on the adjoining Woodland Regional Park, Brauner, and Maupin properties (Showers 1996; EIP Associates 1998, Center for Natural Lands Management 2012, Dean 2009).

The Plan Area contains approximately 312 acres of modeled habitat (habitat that has the potential to support the species) in two areas, one area overlaps with two planning units. The first area is located in the Colusa Basin Plains planning unit and the second area overlaps the Woodland and Willow Slough Basin planning unit.

Impacts: Covered Activities could permanently remove four acres of modeled habitat. Implementation of the Yolo HCP/NCCP will avoid occupied and historic populations of palmate-bracted bird's-beak within this modeled habitat. There will be no project-related direct Take of palmate-bracted bird's-beak; however, Take may occur as a result of management and enhancement activities to promote recovery.

Mitigation/Conservation: There are two documented occurrences within the Plan Area, which are located in the Woodland and Willow Slough Basin planning units. One occurrence is located on protected land managed by the Center for Natural Lands Management. The second occurrence is located at Woodland Regional Park. The Yolo HCP/NCCP will protect the second occurrence by placing a conservation easement on 33 acres of occupied habitat on Woodland Regional Park. The site will be monitored and adaptively managed to increase the 10-year average population size of palmate-bracted bird's-beak by at least 10% by managing and enhancing the habitat. The Yolo HCP/NCCP will also protect 141 acres of modeled and/or occupied habitat through Pre-Permit Reserve Lands.

Habitat where palmate-bracted bird's-beak has been located within any of the last 15 years will be avoided. Project proponents will conduct planning level surveys within 250 feet of modeled habitat. A 250-foot buffer will be established around all current and historic populations, or greater distance depending on site-specific topography to avoid hydrologic effects. A shorter buffer distance may apply if it is determined to avoid affects and is approved by the YHC and the Wildlife Agencies.

Discussion: Palmate-bracted bird's-beak is restricted to seasonally flooded, saline-alkali soils in lowland plains and basins at elevations of less than 155 meters (500 feet) (USFWS 1998). Small differences in soil topography are critical for seedling establishment, as seedlings establish on banks and sides of raised irrigation ditches and on small berms in areas subject to overland flows (Showers 1988). The Plan Area contains approximately 312 acres of modeled habitat with four acres of impact occurring in modeled habitat. Covered Activities would result in a loss of one percent of habitat. Loss of palmate-bracted

bird's-beak habitat is not expected to result in the direct loss of individual plants, as plants will be avoided during project implementation. Implementation of the Yolo HCP/NCCP will protect 33 acres of habitat located within the Woodland Regional Park, approximately 11 percent of the remaining habitat. An additional 141 acres will be included in the Pre-Permit Reserve Lands. A total of 174 acres (56 percent) of the habitat within the Plan Area will be permanently protected. All known occurrences within the Plan Area will be 100 percent protected. The Yolo HCP/NCCP will provide a net benefit to the palmate-bracted bird's-beak through the assembly of a Reserve System in association with existing conservation lands, and the management and monitoring of Reserve System lands to support the species and their habitat. All Reserve System lands will be monitored and adaptively managed to sustain populations of palmate-bracted bird's-beak and their habitat.

Summary of CEQA Findings for Covered Plant Species

CDFW finds that issuance of this Permit could result in significant impacts on the plant Covered Species from implementation of the Covered Activities associated with the Yolo HCP/NCCP; however, CDFW also finds that all impacts on this species and its habitat associated with CDFW's issuance of this Permit will be avoided or mitigated to below a level of significance under CEQA through adherence to, and implementation of, the Yolo HCP/NCCP. CDFW's findings under CEQA with respect to this species is consistent with the findings of the lead agency on the same subject (see Final EIS/EIR Chapter 4). CDFW's findings are based on the overall Conservation Strategy, species-specific minimization and avoidance measures, monitoring and adaptive management program, and species-specific biological goals and objectives (Yolo HCP/NCCP Chapters 4, 5, and 6).

Covered Wildlife Species

Impact 3.5.2 Approval of the Yolo HCP/NCCP authorized under the Permit could result in potentially significant adverse impacts on the Covered Wildlife Species: valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*), California tiger salamander (*Ambystoma californiense*), western pond turtle (*Actinemys marmorta*), giant garter snake (*Thamnophis gigas*), Swainson's hawk (*Buteo swainsoni*), white-tailed kite (*Elanus leucurus*), western yellow-billed cuckoo (*Coccyzus americanus occidentalis*), western burrowing owl (*Athene cunicularia hypugaea*), least Bell's vireo (*Vireo bellii pusillus*), bank swallow (*Riparia riparia*), and tricolored blackbird (*Agelaius tricolor*).

Finding 3.5.2 CDFW finds that conservation measures required in the Yolo HCP/NCCP will avoid, minimize, and/or mitigate the potentially significant impacts of the Yolo HCP/NCCP on Covered Wildlife Species to **below a level of significance** (Public Resources Code, Section 21081(a)(1); CEQA Guidelines, Section15091(a)(1)).

Valley Elderberry Longhorn Beetle

Baseline: The Plan Area supports an estimated 13,379 acres of modeled valley elderberry longhorn beetle habitat, including 9,447 acres of riparian habitat and 3,932 acres of nonriparian habitat.

There are numerous records of occupied and potential valley elderberry longhorn beetle habitat occurring throughout the Sacramento River corridor (Eya 1976; Jones & Stokes 1985, 1986, 1987a, 1987b; USFWS 1984; Barr 1991; Collinge et al. 2001; California Natural Diversity Database [CNDDB] 2000), as well as along Putah Creek from Monticello Dam east to Davis (Eya 1976; USFWS 1984; Barr 1991; Collinge et al. 2001; CNDDB 2005) and along Cache Creek (Barr 1991; CNDDB 2005). However, because comprehensive surveys for valley elderberry longhorn beetle in the Plan Area have not been conducted and because known occurrences throughout the species' range are based mostly on incidental observations (e.g., CNDDB), the population size and locations of this species in the Plan Area are not fully known. Few surveys focused on valley elderberry longhorn beetle have been conducted within and adjacent to the Plan Area and the total extent of potential habitat is unknown. There are 18 extant CNDDB occurrences of valley elderberry longhorn beetle in the Plan Area.

Impacts: Covered Activities will permanently remove up to 584 acres (four percent) of modeled habitat, including 523 acres (six percent) of riparian habitat and 61 acres (two percent) of nonriparian habitat. Covered Activities will temporarily remove one acre of nonriparian habitat in the Plan Area. Since modeled habitat does not necessarily support the species' host plant, which is required for occupancy, the loss of modeled habitat as described above overestimates the actual extent of habitat loss for this species.

The greatest expected habitat losses resulting from Covered Activities are in the West Sacramento planning unit and South Yolo Basin planning unit. Approximately 64 percent of the riparian (329 acres) and 52 percent of the nonriparian (32acres) habitat loss is expected to occur in the West Sacramento planning unit as a result of urban development and levee improvements. Approximately 23 percent of riparian (119 acres) and 34 percent of nonriparian (21 acres) habitat loss is expected to occur in the South Yolo Basin planning unit, much of which will result from development within the unincorporated community of Clarksburg. Operations and maintenance are expected to permanently remove an estimated 13 acres of riparian habitat and one acre of nonriparian habitat.

Mitigation/Conservation: The Yolo HCP/NCCP will newly protect at least 1,600 acres of modeled habitat, restore up to 576 acres of valley foothill riparian natural community if all of the proposed valley foothill riparian habitat is removed, and include 130 acres of Pre-Permit Reserve Lands. Most of this protection and restoration will occur in the areas with the highest concentrations of valley elderberry longhorn beetle occurrences in the Plan Area, the Lower Cache Creek and Lower Putah Creek planning units.

When siting valley foothill riparian natural community protection, the Yolo HCP/NCCP will prioritize areas that support elderberry shrubs and that are connected to occupied or potentially occupied habitat. This will provide habitat to accommodate potential future expansion of the valley elderberry longhorn beetle population.

To avoid Take of valley elderberry longhorn beetle, the project proponent will maintain a buffer of at least 100 feet from any elderberry shrub with stems greater than one inch in diameter at ground level. For elderberry shrubs that cannot be avoided with a designated buffer distance as described above, a qualified biologist will quantify the number of stems one inch or greater in diameter to be affected, and document the presence or absence of exit holes. The YHC will use this information to determine the number of plants or cuttings to plant on a riparian restoration site to help offset the loss. Additionally,

prior to construction, the project proponent will transplant elderberry shrubs identified within the project footprint that cannot be avoided.

Transplantation will only occur if a shrub cannot be avoided and, if indirectly affected, the indirect effects would otherwise result in the death of stems or the entire shrub. If the project proponent chooses, in coordination with a qualified biologist, not to transplant the shrub because the activity would not likely result in death of stems of the shrub, then the qualified biologist will monitor the shrub annually for a five-year monitoring period. The monitoring period may be reduced with concurrence from the Wildlife Agencies if the latest research and best available information at the time indicates that a shorter monitoring period is warranted. If death of stems of at least one inch in diameter occurs within the monitoring period, and the qualified biologist determines that the shrub is sufficiently healthy to transplant, the project proponent will transplant the shrub in coordination with the qualified biologist. If the shrub dies during the monitoring period, or the qualified biologist determines that the shrub is no longer healthy enough to survive transplanting, then the YHC will offset the shrub loss.

Transplanted shrubs will be sited in a location in the Yolo HCP/NCCP Reserve System that has been approved by the YHC. Elderberry shrubs outside the project footprint but within the 100-foot buffer will not be transplanted.

Discussion: Although the distribution of valley elderberry longhorn beetle in modeled habitat in the Plan Area is not well known, numerous occurrences of this species have been recorded in the Lower Cache Creek and West Sacramento planning units (Eya 1976; Jones & Stokes 1985, 1986, 1987a, 1987b; U.S. Fish and Wildlife Service 1984; Barr 1991; Collinge et al. 2001; California Department of Fish and Game 2000), where a majority of the habitat loss will occur. The Plan Area supports an estimated 13,379 acres of modeled valley elderberry longhorn beetle habitat, including 9,447 acres of riparian habitat and 3,932 acres of nonriparian habitat.

Implementation of the Yolo HCP/NCCP will result in an estimated net increase of 53 acres of valley foothill riparian habitat (576 acres restored and 523 acres lost) in the Plan Area if all of the proposed valley foothill riparian habitat is removed. With full Yolo HCP/NCCP implementation, 2,306 acres (17 percent) of the valley elderberry longhorn beetle habitat in the Plan Area will be conserved (23 percent riparian habitat and 3 percent of non-riparian habitat). The Yolo HCP/NCCP will provide a net benefit to the valley elderberry longhorn beetle through the assembly of a Reserve System in association with existing conservation lands, and the management and monitoring of Reserve System lands to support the species. All Reserve System lands will be monitored and adaptively managed to sustain populations of valley elderberry longhorn beetle and their habitat.

California tiger salamander

Baseline: The Plan Area supports an estimated 87,509 acres of modeled California tiger salamander habitat, including 1,004 acres of aquatic habitat and 86,505 acres of upland habitat. Little is known of the population trends of California tiger salamanders in Yolo County. Recorded occurrences of California tiger salamanders in Yolo County include an occurrence of several larvae in a stock pond on the west slope of Capay Hills east of Rumsey Rancheria (Downs 2005), and five occurrences in the northern end of the Solano-Colusa vernal pool region, west and northwest of Dunnigan (CNDDB 2007). Four recorded occurrences were located within an area bounded by Interstate 5 to the east, Bird Creek to the south,

and Buckeye Creek to the north and west. These four occurrences are within an area that comprises the Dunnigan Creek Unit (Central Valley Region Unit 1) and located in designated USFWS critical habitat. Land ownership within this unit is entirely private (70 FR 49380) and therefore restricted. Another historical, but extirpated occurrence in the Dunnigan Creek Unit, was recorded from a site adjacent to the designated critical habitat. A fifth recorded occurrence, from 1993, represents an individual found in the Willows apartment complex in Davis, adjacent to a stormwater detention basin managed by the City of Davis (CNDDB 2007).

Impacts: Covered Activities will permanently remove up to 12 acres (one percent) of California tiger salamander aquatic breeding habitat and up to 398 acres (less than one percent) of California tiger salamander upland habitat in the Plan Area. Covered Activities will temporarily remove one acre of both aquatic and upland habitat.

The greatest loss of habitat is expected to occur in the Dunnigan Hills area. The majority of California tiger salamander occurrences in the Plan Area (five out of six) were recorded in the Dunnigan Hills planning unit. While Covered Activities will not remove any of these current occurrences, rural development within the Dunnigan growth boundary will occur in the location of an extirpated occurrence. Unincorporated community development in the Dunnigan Hills and Colusa Basin Plains planning units within the Dunnigan growth boundary will result in an estimated 11 acres of aquatic habitat loss and 336 acres of upland habitat loss. These amounts make up approximately 92 percent of the total aquatic habitat loss and 96 percent of the total upland habitat loss anticipated to occur within these planning units due to Covered Activities. Near the Capay Hills planning unit, there is also a known occurrence where an estimated five percent (10 acres) of the upland habitat loss will occur. Conservation actions could result in the conversion of up to 10 acres of California tiger salamander upland habitat (e.g., grassland) to aquatic habitat to meet a no net loss of aquatic California tiger salamander habitat.

Fragmentation could also potentially result from California tiger salamander breeding habitat removal from surrounding upland habitat. Covered Activities will remove approximately 55 acres of upland habitat within 1.2 miles of the 12 acres of aquatic habitat.

Mitigation/Conservation: The Yolo HCP/NCCP will protect 4,430 acres of grassland natural community, at least 2,000 acres of which will be sited in California tiger salamander modeled upland habitat in the Dunnigan Hills planning unit. The Yolo HCP/NCCP will also protect at least 36 acres of aquatic California tiger salamander habitat in association with the 2,000 acres of protected upland habitat. Additionally, the Yolo HCP/NCCP will restore (or create, if restoration opportunities are limited) at least one acre of aquatic habitat for each acre lost, and an additional 24 acres of aquatic habitat independent of effect, for a total of 36 acres of aquatic restoration if all of the proposed aquatic habitat is loss. In addition, the Yolo HCP/NCCP will enroll 27 acres of aquatic habitat and 340 acres of upland habitat into the Pre-Permit Reserve Lands.

Except for habitat management and enhancement, all Covered Activities will provide a 500-foot avoidance buffer from aquatic California tiger salamander habitat. If a Covered Activity is outside the Dunnigan Creek Unit of California tiger salamander critical habitat and cannot avoid aquatic habitat by at least 500 feet, the project proponent will either conduct visual and dip-net surveys, consistent with

CDFW protocol, during the period for November 1 to May 15 or assume presence. If the species is present or assumed to be present, the Covered Activity will not remove aquatic habitat until at least four new occupied breeding pools are discovered or established in the Plan Area. After the four new occupied breeding pools are protected, and with concurrence from the Wildlife Agencies, up to three breeding pools may be impacted by Covered Activities. The breeding habitat may not be removed if the Wildlife Agencies determine that the Covered Activity would remove a significant occurrence of this species that could be necessary for maintaining the genetic diversity or regional distribution of the species. The Yolo HCP/NCCP will conserve a total of at least five breeding pools supporting California tiger salamander throughout all water year types (i.e. drought year, wet year, moderate rainfall year) independent of effects.

Discussion: With implementation of the Yolo HCP/NCCP, up to 99 acres of California tiger salamander aquatic habitat and 2,340 acres of upland habitat will be conserved within the Plan Area. Up to 36 acres of aquatic habitat and 2,000 acres of upland habitat and at least five breeding pools that support breeding through all water year types will be newly protected. An additional 367 acres of lands will be included in the Pre-Permit Reserve Lands. Additionally, for each acre of aquatic habitat that is lost, one acre of aquatic habitat will be restored or created. The Yolo HCP/NCCP will provide a net benefit to the California tiger salamander through the assembly of a Reserve System in association with existing conservation lands, and the management and monitoring of Reserve System lands to support the species. All Reserve System lands will be monitored and adaptively managed to sustain populations of California tiger salamander and their habitat.

Western Pond Turtle

Baseline: The Plan Area includes 191,092 acres of modeled habitat for the western pond turtle, 53,907 acres of aquatic habitat and 137,185 acres of upland habitat. The aquatic habitat includes five land cover types: water, bulrush-cattail wetland alliance, bulrush-cattail freshwater marsh super alliance, alkali bulrush-bulrush brackish marsh super alliance, and rice. The nesting and overwintering habitat includes all undeveloped upland vegetation land cover types between 1,312 and 1,630 feet from aquatic habitat (Holland 1994).

Queries conducted in January 2008 of the collection database of the California Academy of Sciences (2008) yielded seven Yolo County records of western pond turtles, all from 1997. Two of those records were from Davis Creek, near Davis Creek Reservoir in western Yolo County. The remaining five records were from the University of California (UC) Davis Arboretum and Arboretum Waterway. Spinks et al. (2003) estimate a naturally occurring population of 53 individuals (95 percent CI = 48, 66) within the Arboretum Waterway. A similar query of records of the Museum of Vertebrate Zoology (2008) in Berkeley yielded no record of the western pond turtle in Yolo County. The California Natural Diversity Database (CNDDB) (2007) lists one record from 1990 of multiple western pond turtle individuals along Putah Creek and an unnamed tributary. This site is located less than 1.6 kilometers (1 mile) south-southeast of Winters, along the southern boundary of Yolo County. The CNDDB reports another occurrence from 2005 within Cache Creek, from Camp Haswell extending for 5.3 miles upstream. Spinks noted a healthy population is also present at the Cache Creek Nature Preserve just west of Woodland (personal communications, pg, A-26, Yolo HCP/NCCP 2017). Jennings and Hayes' (1994) distribution map shows one other extant occurrence from near the northeast corner of Yolo County and three extant

occurrences from the Sacramento River Basin, along the southeastern boundary of Yolo County. At least three western pond turtles were observed within the Willow Slough Bypass between County Road 104 and County Road 105 during 2007 (unpublished notes of E. Hansen, pg. A-26, Yolo HCP/NCCP 2017). No other records from Yolo County, either extant or extirpated, were discovered.

More recent observations of western pond turtle have been made by Whisler (personal communications, pg, A-26, Yolo HCP/NCCP 2017). These include the following:

- Sacramento River at Gray's Bend observed in 1983, and were repeatedly observed through 2012
- Putah Creek Riparian Reserve at UC Davis between the University Airport and the Old Davis Road Bridge, observed throughout this area in 2014
- Putah Creek Sinks (2010 and 2011) in the Yolo Bypass Wildlife Area, observed in the Putah Creek Sinks along with red-eared sliders and American bullfrogs
- Lower Willow Slough area, one adult western pond turtle observed sunning in the Conaway Ranch Water Delivery Canal at Yolo County Roads 104 and 27 on March 27, 2010
- Sacramento River Delta, western pond turtles observed in Babel Slough and Winchester Lake during 2015
- West Sacramento, several western pond turtles in the borrow sloughs near the Water Treatment Plant south of Burrows Road in 2009
- City Davis, several western pond turtles observed at the storm water detention basins and other ponds in Davis (West Davis Pond) and North Davis Ponds (Northstar Park Pond and Julie Partansky Pond) along with red-eared sliders and American bullfrogs

It is likely that the western pond turtle once occurred in a relatively continuous distribution within suitable habitat in Yolo County, although there is no known site in Yolo County where extirpation of a population has occurred. The population at the UC Davis Arboretum is characterized by a demographic profile characteristic of senescing populations but has been supplemented by at least 33 captive-hatched individuals since 1996 (Spinks et al. 2003). Because the oldest record is from 1990, status changes that may have occurred prior to 1990 would not be evident from an examination of existing records. Moreover, although no extirpations have been recorded at any known occupied sites in Yolo County, recent survey data could not be located, and data on population trends at those sites are lacking. Therefore, with the exception of the UC Davis Arboretum, current status and population trends of the western pond turtle within the Plan Area are unknown.

Impacts: Covered Activities will result in loss of up to 3,502 acres of western pond turtle habitat, including up to 369 acres of aquatic habitat (less than one percent) and 3,133 acres of nesting and overwintering habitat (two percent) in the Plan Area. An estimated 1,118 acres of the upland habitat loss will result from habitat restoration, as these uplands will be converted to aquatic habitat for western pond turtle. Additionally, up to 143 acres of western pond turtle habitat (31 acres of aquatic and 112 acres of nesting and overwintering) will be temporarily disturbed as a result of construction for bridge replacements and along with the Cache Creek Resources Management Plan operations and maintenance.

Urban development in the Woodland, Davis, West Sacramento, and Winters planning units will have an estimated 45 percent of western pond turtle habitat loss, including 278 acres of aquatic habitat and 1,507 acres of nesting and overwintering habitat. Another 108 acres (three percent) and 177 acres (five percent) of the habitat loss is expected to result from activities in the Dunnigan Hills and South Yolo Basin planning units. The remainder of the habitat loss will likely be distributed in the North and South Blue Ridge planning units, Capay Hills planning unit, Upper and Lower Cache Creek planning units, Upper and Lower Putah Creek planning units, Hungry Hollow Basin, Willow Slough Basin, Colusa Basin, Colusa Basin Plains, North Yolo Basin, and North Yolo Bypass planning units.

Covered Activities could result in fragmentation of western pond turtle habitat. In particular, ponds and other aquatic habitat could become isolated in urban development areas, affecting the ability for western pond turtles to travel between ponds. This would adversely affect dispersal and genetic exchange for the species. Ascent Environmental assessed the effects of fragmentation that would potentially result from western pond turtle aquatic habitat being removed from surrounding upland habitat. They identified upland habitat within 1,640 feet of the aquatic habitat that will be removed and deducted the upland habitat acreage that would be directly removed by Covered Activities. Of the habitat that would remain after loss resulting from Covered Activities, they identified areas that would remain within 1,640 feet of another source of aquatic habitat. They estimated that with the expected aquatic habitat loss, an estimated 569 acres of upland habitat would no longer be adjacent to suitable aquatic habitat.

Mitigation/Conservation: The western pond turtle will benefit from the protection of 2,400 acres of aquatic habitat, 3,475 acres of upland habitat, and restoration of up to 369 acres of aquatic habitat if all of the proposed aquatic habitat is removed. Additionally, 2,098 acres of aquatic habitat and 978 acres of upland habitat will be protected on Pre-Permit Reserve Lands.

Implementation of the Yolo HCP/NCCP will also enhance riverine natural communities with the addition of logs, rocks, and/or emergent vegetation for basking sites and other western pond turtle habitat features.

If modeled upland habitat for western pond turtle will be impacted, a qualified biologist must be present and will assess the likelihood of western pond turtle nests occurring in the disturbance area (based on sun exposure, soil conditions, and other species habitat requirements). Project proponents must follow design requirements for the valley foothill riparian and lacustrine and riverine natural communities avoidance and mitigation measures which require a 100-foot (minimum) permanent buffer zone from the canopy drip-line (the farthest edge on the ground where water will drip from the tree canopy, based on the outer boundary of the tree canopy).

If a qualified biologist determines that there is a moderate to high likelihood of western pond turtle nests within the disturbance area, the qualified biologist will monitor all initial ground disturbing activity for nests that may be unearthed during the disturbance and will move out of harm's way any turtles or hatchlings found.

Discussion: With implementation of the Yolo HCP/NCCP, up to 2,400 acres of western pond turtle aquatic habitat (four percent) and 3,475 acres of upland habitat (two percent) will be conserved within the Plan Area. Up to 369 acres of aquatic habitat will be restored. An additional 2,098 acres of aquatic

habitat and 978 acres of upland habitat will be protected on Pre-Permit Reserve Lands. The Yolo HCP/NCCP will provide a net benefit to the western pond turtle through the assembly of a Reserve System in association with existing conservation lands, and the management and monitoring of Reserve System lands to support the species. All Reserve System lands will be monitored and adaptively managed to sustain populations of western pond turtle and their habitat.

Giant Garter Snake

Baseline: The Plan Area includes 77,056 acres of modeled giant garter snake habitat, with 31,168 acres of rice habitat, 6,596 acres of aquatic (lacustrine and riverine) habitat, 25,897 acres of freshwater emergent wetland habitat, 6,612 acres of active season upland movement habitat, and 6,783 acres of overwintering habitat. The Plan Area includes the floodplains of the Sacramento River as well as those of Cache, Willow, and Putah creeks. Upon receding, these creeks may have provided the wetland habitat and prey utilized by giant garter snakes during the spring and summer active season. The historical distribution of giant garter snakes in the Plan Area is unclear, however, with the majority of sightings made only in recent decades (Hansen 1986; CNDDB 2007).

Giant garter snakes are documented in two distinct subpopulations along the western edge of Yolo County, the Colusa Basin and Willow Slough/Yolo Bypass subpopulations. (CNDDB 2007 Hansen 2006, 2007, 2008; Wylie et al. 2004; Wylie and Martin 2005; Wylie and Amarello 2006). The Colusa Basin subpopulation is located in the northeastern portion of the Plan Area, in the Colusa Basin and Colusa Basin Plains planning units. The Willow Slough/Yolo Bypass subpopulation is located in the southeastern portion of the Plan Area, primarily in the Willow Slough Basin and South Yolo Bypass planning units but extending into the Woodland planning unit.

Evidence that giant garter snakes may once have been distributed throughout the easterly reaches of Yolo County is illustrated by reported sightings in portions of Solano County adjacent to Yolo County, in South Fork Putah Creek near Davis, and in the Liberty Farms region of the Yolo Basin. Repeated attempts to assess local distribution suggest that both the Liberty Farms and Putah Creek populations are probably extirpated (Hansen 1986; Wylie and Martin 2005; personal communications from D. Kelly, pg, A-35, Yolo HCP/NCCP 2017).

Impacts: Implementation of the Covered Activities will result in the permanent removal of up to 87 acres of modeled giant garter snake rice habitat (less than one percent), 109 acres of aquatic habitat (two percent), 76 acres of fresh emergent wetland habitat (less than one percent), 441 acres of active season upland movement habitat (seven percent), and 1,235 acres of overwintering habitat (18 percent). These losses represent an estimated three percent of the total modeled giant garter snake habitat in the Plan Area. An estimated 57 miles (five percent) of drainage channels providing giant garter snake aquatic habitat will be permanently affected by Covered Activities, including 20 miles from development-related activities and 37 miles from operations and maintenance. Covered Activities will also temporarily remove one acre of aquatic habitat, three acres of active season upland habitat, and five acres of overwintering habitat.

Mitigation/Conservation: The Yolo HCP/NCCP will protect 7,195 acres of giant garter snake habitat, including 2,800 acres of rice habitat, 420 acres of lacustrine/riverine habitat, 500 acres of freshwater emergent wetland habitat, 1,160 acres of active season upland movement habitat, and 2,315 acres of

overwintering habitat. Additionally, the Yolo HCP/NCCP will restore up to 76 acres of freshwater emergent wetland and up to 109 acres of aquatic habitat for giant garter snake to result in no net loss of aquatic habitat. In addition to the newly protected and restored giant garter snake habitat, the Yolo HCP/NCCP will enroll 2,910 acres of Pre-Permit Reserve Lands supporting giant garter snake into the Reserve System, and will monitor, and adaptively manage these lands consistent with the Yolo HCP/NCCP Conservation Strategy.

To reduce impacts to giant garter snakes from Covered Activities, project proponents will avoid effects on areas where planning-level surveys indicate the presence of suitable habitat for giant garter snake. To avoid effects on giant garter snake aquatic habitat, the project proponent will conduct no in-water/in-channel activity and maintain a permanent 200-foot non-disturbance buffer from the outer edge of potentially occupied aquatic habitat. If the project proponent cannot avoid effects of construction activities, the project proponent will implement the measures below to minimize effects of construction projects.

- Conduct preconstruction clearance surveys using USFWS-approved methods within 24 hours prior to construction activities within identified giant garter snake aquatic and adjacent upland habitat. If construction activities stop for a period of two weeks or more, conduct another preconstruction clearance survey within 24 hours prior to resuming construction activity.
- Restrict all construction activity involving disturbance of giant garter snake habitat to the snake's active season, May 1 through October 1. During this period, the potential for direct mortality is reduced because snakes are expected to move and avoid danger.
- In areas where construction is to take place, encourage giant garter snakes to leave the site on their own by dewatering all irrigation ditches, canals, or other aquatic habitat (i.e., removing giant garter snake aquatic habitat) between April 15 and September 30. Dewatered habitat must remain dry, with no water puddles remaining, for at least 15 consecutive days prior to excavating or filling of the habitat. If a site cannot be completely dewatered, netting and salvage of giant garter snake prey items may be necessary to discourage use by snakes.
- Provide environmental awareness training for construction personnel, as approved by the YHC. Training may consist of showing a video prepared by a qualified biologist, or an in-person presentation by a qualified biologist. In addition to the video or in-person presentation, training may be supplemented with the distribution of approved brochures and other materials that describe resources protected under the Yolo HCP/NCCP and methods for avoiding effects.
- A qualified biologist will prepare a giant garter snake relocation plan which must be approved by the YHC prior to work in giant garter snake habitat. The qualified biologist will base the relocation plan on criteria provided by CDFW or USFWS, through the YHC.
- If a live giant garter snake is encountered during construction activities, immediately notify the project's biological monitor and the Wildlife Agencies. The monitor will stop construction in the vicinity of the snake, monitor the snake, and allow the snake to leave on its own. The monitor will remain in the area for the remainder of the work day to ensure the snake is not harmed or,

if it leaves the site, does not return. If the giant garter snake does not leave on its own, the qualified biologist will relocate the snake consistent with the relocation plan described above.

- Employ the following management practices to minimize disturbances to habitat:
    - Install temporary fencing to identify and protect adjacent marshes, wetlands, and ditches from encroachment from construction equipment and personnel.
    - Maintain water quality and limit construction runoff into wetland areas through the use of hay bales, filter fences, vegetative buffer strips, or other accepted practices. No plastic, monofilament, jute, or similar erosion-control matting that could entangle snakes or other wildlife will be permitted.

Ongoing maintenance activities will be limited to the giant garter snake's active season when possible. All personnel involved in maintenance activities within giant garter snake habitat will first participate in environmental awareness training for giant garter snake, as described above for construction-related activities. To minimize the Take of giant garter snake, the local water or flood control agency will limit maintenance of conveyance structures located within modeled giant garter snake habitat to clearing one side along at least 80 percent of the linear distance of canals and ditches during each maintenance year (e.g., the left bank of a canal is maintained in the first year and the right bank in the second year). To avoid collapses when resloping canal and ditch banks composed of heavy clay soils, clearing will be limited to one side of the channel during each maintenance year.

For channel maintenance activities conducted within modeled habitat for giant garter snake, the project proponent will place removed material in existing dredged sites along channels where prior maintenance dredge disposal has occurred. For portions of channels that do not have previously used spoil disposal sites and where surveys have been conducted to confirm that giant garter snakes are not present, removed materials may be placed along channels in areas that are not occupied by giant garter snake and where materials will not re-enter the canal due to of stormwater runoff.

Discussion: With implementation of the Yolo HCP/NCCP, up to 7,195 acres of giant garter snake habitat will be conserved within the Plan Area including 2,800 acres of rice habitat, 420 acres of lacustrine and riverine habitat, 500 acres of freshwater habitat, 1,160 acres of active season upland movement habitat, and 2,315 acres of overwintering habitat. Additionally, the Yolo HCP/NCCP will restore up to 76 acres of freshwater emergent wetland and up to 109 acres of aquatic habitat for giant garter snake to result in no net loss of aquatic habitat. In addition to the newly protected and restored giant garter snake habitat, the Yolo HCP/NCCP will enroll 2,910 acres of Pre-Permit Reserve Lands.

The Yolo HCP/NCCP will provide a net benefit to the giant garter snake through the assembly of a Reserve System in association with existing conservation lands, and the management and monitoring of Reserve System lands to support the species. All Reserve System lands will be monitored and adaptively managed to sustain populations of giant garter snake and their habitat.

Swainson's Hawk

Baseline: Baseline surveys conducted in 2007 located a total of 290 active breeding territories in Yolo County (Estep 2008). This was the first comprehensive baseline of this species in the Plan Area, and thus

cannot be used to assess a trend in the number of breeding pairs in Yolo County. However, based on the results of a long-term population study conducted in Yolo County since the mid-1980s (Estep in preparation), there appears to have been an upward trend in the number of breeding pairs. Estep noted 48 active nests in 1988 with a steady increase through 2000. The highest nesting concentrations are from north of Woodland to County Road 12, along oak and cottonwood dominated riparian corridors such as Willow Slough, Putah Creek, and the Sacramento River, and between Davis and Woodland and west to approximately Interstate 505 and east to the Sacramento River (Estep 2008). While this may be at least partially attributed to increasing observer detection skill in the early years of the study, this local population appears to be at least stable with respect to the number of breeding pairs. Whether or not this population is stable based on productivity and recruitment is undetermined.

Impacts: Covered Activities will permanently remove up to 651 acres (four percent) of modeled nesting habitat and 10,806 acres (four percent) of modeled foraging habitat for Swainson's hawk in the Plan Area. In addition, Covered Activities will temporarily remove up to 224 acres of foraging habitat as a result of operations and maintenance, bridge replacement, and other temporary construction activities. Each temporary disturbance is expected to be small, likely no greater than approximately ten acres (and often much less). Habitat restoration could result in conversion of up to 1,039 acres of Swainson's hawk foraging habitat (an estimated 803 acres agricultural and 236 acres natural) to wetland natural communities that do not provide habitat for this species. An estimated 642 acres of foraging habitat will be converted to nesting habitat for this species.

An estimated 52 percent of the Swainson's hawk nesting habitat loss (495 acres) and 41 percent of the foraging habitat loss (4,407 acres) is expected to result from development in the urban planning units of Woodland, Davis, West Sacramento, and Winters. Covered Activities will remove up to 20 nest trees. A nest tree is defined as a tree that has supported an active nest anytime within the previous five years.

Mitigation/Conservation:

The Yolo HCP/NCCP will protect, manage, and enhance 18,792 acres of unprotected Swainson's hawk foraging habitat, including 14,362 acres of cultivated lands and 4,430 acres of natural foraging habitat, protect 1,600 acres of valley foothill riparian nesting habitat, and 20 Swainson's hawk nests. In addition, up to 651 acres of valley foothill riparian habitat will be restored to result in no net loss of this natural community which could provide nesting habitat. Additionally, the Yolo HCP/NCCP will enroll 4,580 acres of foraging habitat and 215 acres of nesting habitat as Pre-Permit Reserve Lands. The YHC will monitor and adaptively manage these lands consistent with the Yolo HCP/NCCP Conservation Strategy as required to meet the objectives of the Yolo HCP/NCCP.

With implementation of the Yolo HCP/NCCP, trees suitable for Swainson's hawk nesting within cultivated lands Reserve System will be planted as needed to achieve a density of one suitable nesting tree per 10 acres across Reserve System lands.

If project level planning surveys identify nesting habitat within 1,320 feet of the project footprint and activities cannot avoid potential nest trees between March 15 and August 30 (as determined by the qualified biologist), the project proponent will retain a qualified biologist to conduct preconstruction surveys for active nests consistent with guidelines provided by the Swainson's Hawk Technical Advisory Committee (2000) within 15 days prior to the beginning of the construction activity. If active nests are

found during preconstruction surveys, a 1,320-foot initial temporary nest disturbance buffer shall be established. If project related activities within the temporary nest disturbance buffer are determined to be necessary during the nesting season, then the qualified biologist will monitor the nest and will, along with the project proponent, consult with CDFW to determine the best course of action necessary to avoid nest abandonment or Take of individuals. Work may be allowed only to proceed within the temporary nest disturbance buffer if Swainson's hawk are not exhibiting agitated behavior, such as defensive flights at intruders, getting up from a brooding position, or flying off the nest, and only with the agreement of the Wildlife Agencies. The designated on-site biologist/monitor shall be on-site daily while construction-related activities are taking place within the 1,320-foot buffer and shall have the authority to stop work if raptors are exhibiting agitated behavior. If a nest tree must be removed, the removal must occur outside the nesting season, during a year when the nest is not active, or after young have fledged and the nest is no longer being used by Swainson's hawks.

For Covered Activities that involve pruning or removal of a potential Swainson's hawk nest tree, the project proponent will conduct preconstruction surveys that are consistent with the guidelines provided by the Swainson's Hawk Technical Advisory Committee (2000). If active nests are found during preconstruction surveys, no tree pruning, or removal of the nest tree will occur during the period between March 15 and August 30 within 1,320 feet of an active nest, unless a qualified biologist determines that the young have fledged, and the nest is no longer active.

Discussion: With implementation of the Yolo HCP/NCCP, 18,792 acres of unprotected Swainson's hawk foraging habitat, including 14,362 acres of cultivated lands and 4,430 acres of natural foraging habitat will be protected, enhanced, and managed, 1,600 acres of valley foothill riparian nesting habitat will be protected, and 20 Swainson's hawk nests will be protected. In addition, up to 651 acres of valley foothill riparian habitat will be restored to result in no net loss of this natural community which could provide nesting habitat. Additionally, the Yolo HCP/NCCP will enroll 4,580 acres of foraging habitat and 215 acres of nesting habitat as Pre-Permit Reserve Lands.

The Yolo HCP/NCCP will provide a net benefit to the Swainson's hawk through the assembly of a Reserve System in association with existing conservation lands, and the management and monitoring of Reserve System lands to support the species. All Reserve System lands will be monitored and adaptively managed to sustain populations of Swainson's hawk and their habitat.

White-tailed kite

Baseline: The Plan Area includes 268,230 acres of modeled habitat for white-tailed kite, with 31,732 acres of nesting habitat, 101,758 acres of primary foraging habitat, and 134,740 acres of secondary foraging habitat. Nesting habitat includes several woodland and riparian vegetation types, including isolated patches of trees in agricultural fields, below an elevation of 500 feet.

White-tailed kite has been reported from most of the open, lowland habitats within the Plan Area. The California Natural Diversity Database (CNDDB 2009) reports six nest sites, all in the vicinity of Davis. A total of 13 nest sites was reported during a survey of the lowland portion of the Plan Area conducted in 2007 (Estep 2008). Most were found in riparian areas, including three along Putah Creek, three along Willow Slough, two along Dry Slough, one along the Sacramento River, one along the Willow Slough

Bypass, and one along the Knights Landing Ridge Cut. Two nonriparian sites included one in West Sacramento and one near Dunnigan. Whisler (personal communication, pg. A-59, Yolo HCP/NCCP, 2017) reported several suburban nests in east and north Davis and the Willowbank area, El Macero Golf Course, and UC Davis during 2001 and 2002. No trend information for the Plan Area is available.

Impacts: Covered Activities will permanently remove up to 11,239 acres of modeled white-tailed kite habitat, including 661 acres of nesting habitat with up to one nest tree removed, 2,609 acres of primary foraging habitat, and 7,969 acres of secondary foraging habitat. This loss represents three percent of nesting habitat and eighteen percent of foraging modeled habitat in the Plan Area. Additionally, Covered Activities will temporarily remove up to 234 acres of foraging habitat. Temporary impacts last less than one year. Each temporary disturbance is expected to be small, likely no greater than approximately ten acres (and often much less). Disturbance of small areas of cultivated lands during the 50-year Permit term is unlikely to adversely affect white-tailed kite foraging behavior. Cultivated lands regularly experience temporary disturbances and continue to provide habitat for white-tailed kite when the disturbance is completed.

An estimated 44 percent of the white-tailed kite habitat loss will result from urban development in the urban planning units, including the Woodland, Davis, West Sacramento, and Winters planning units. The remainder of the habitat loss will be distributed throughout modeled habitat in the Plan Area and will result from various activities such as unincorporated community development in Dunnigan Hills, Monument Hills, and Madison.

Ascent Environmental assessed the effects of fragmentation that would potentially result from white-tailed kite nesting habitat being removed from the vicinity of surrounding foraging habitat. They identified foraging habitat within 0.8 miles of the nesting habitat that will be removed (based on the distance the species typically forages from the nest). They deducted the upland habitat acreage that would be directly removed by Covered Activities. Of the habitat that would remain after loss resulting from Covered Activities, they identified areas that would remain within 0.8 mile of nesting habitat. They estimated that with the expected nesting habitat loss, all foraging habitat that would remain within 0.8 mile of nesting habitat.

Mitigation/Conservation: The Yolo HCP/NCCP will protect 4,430 acres of grassland natural community and 14,362 acres of non-rice cultivated lands seminatural community for a total of 18,792 acres of foraging habitat as well as protect 1,600 acres of nesting habitat and two nesting trees within the Plan Area. Additionally, the Yolo HCP/NCCP will enroll a total of 3,545 acres, 215 acres of nesting habitat and 3,300 acres of foraging white-tailed kite habitat into the Pre-Permit Reserve Lands and up to 965 acres of nesting habitat will be restored if all proposed foraging habitat is removed.

Additional management and enhancement activities will further increase habitat functions for white-tailed kite by improving habitat diversity in the Plan Area. These activities include enhancing grassland natural community and cultivated lands seminatural community to improve prey base, protecting existing nest trees on protected cultivated lands, and planting new trees within the cultivated landscape as well as within riparian and valley grassland communities.

If a construction project cannot avoid potential nest trees (as determined by the qualified biologist) between March 15 and August 30 by 1,320 feet, the project proponent will retain a qualified biologist to

conduct preconstruction surveys for active nests consistent with guidelines provided by the Swainson's Hawk Technical Advisory Committee (2000) within 15 days prior to the beginning of the construction activity. If active nests are found during preconstruction surveys, a 1,320-foot initial temporary nest disturbance buffer shall be established. If project related activities within the temporary nest disturbance buffer are determined to be necessary during the nesting season, then the qualified biologist will monitor the nest and will, along with the project proponent, consult with CDFW to determine the best course of action necessary to avoid nest abandonment or Take of individuals. Work may be allowed only to proceed within the temporary nest disturbance buffer if white-tailed kite are not exhibiting agitated behavior, such as defensive flights at intruders, getting up from a brooding position, or flying off the nest, and only with the agreement of the Wildlife Agencies. The designated on-site biologist shall be on-site daily while construction-related activities are taking place within the 1,320-foot buffer and shall have the authority to stop work if the white-tailed kites are exhibiting agitated behavior.

For Covered Activities that involve pruning or removal of a potential white-tailed kite nest tree, the project proponent will conduct preconstruction surveys that are consistent with the guidelines provided by the Swainson's Hawk Technical Advisory Committee (2000). If active nests are found during preconstruction surveys, no tree pruning, or removal of the nest tree will occur during the period between March 15 and August 30 within 1,320 feet of an active nest, unless a qualified biologist determines that the young have fledged, and the nest is no longer active.

Discussion: With implementation of the Yolo HCP/NCCP, 18,792 acres of the white-tailed kite foraging habitat and 1,600 acres of their nesting habitat will be preserved and up to 965 acres of nesting habitat will be restored if all nesting habitat is removed. Additionally, the Yolo HCP/NCCP will enroll a total of 3,545 acres of habitat, 215 acres of nesting and 3,300 acres of foraging white-tailed kite habitat into the Pre-Permit Reserve Lands.

The Yolo HCP/NCCP will provide a net benefit to the white-tailed kite through the assembly of a Reserve System in association with existing conservation lands, and the management and monitoring of Reserve System lands to support the species. All Reserve System lands will be monitored and adaptively managed to sustain populations of white-tailed kite and their habitat.

Western Yellow-Billed Cuckoo

Baseline: While there are few historical records from Yolo County, presumably the species nested within Yolo County along the west side of the Sacramento River and possibly along smaller tributary drainages, including Putah Creek, Willow Slough, and Cache Creek.

Since 1965, there have been nine records of western yellow-billed cuckoo in Yolo County, including the following:

- Willow Slough in 1965
- Sacramento River in 1977
- Elkhorn Regional Park in 1982
- Gray's Bend in 1997

- City of Davis in 2001
- Putah Creek Sinks in June 2005
- Cache Creek Settling Basin in July 2005
- Fremont Weir in June 2006
- Fremont Weir in July 2006

These records were reported in Gaines (1974), Yolo Audubon Society Checklist Committee (2004), Yolo Audubon Society (2005), and by Steve Hampton[11]. All of these records are presumed to be migrants or nonbreeding individuals. While there are no confirmed breeding records for Yolo County, they are fairly common nesters just across the Sacramento River in Sutter County, especially in riparian forests along the western toe drain of the Sutter Bypass. Beedy observed up to 15 birds responded to taped vocalizations while canoeing this area in a single day in mid-June 1995 (personal observation, pg. A-68, Yolo HCP/NCCP, 2017).

Very little potential breeding habitat remains in Yolo County, and the mostly channelized and riprapped banks of the Sacramento River provide few opportunities for river meandering and/or riparian restoration that would provide suitable western yellow-billed cuckoo breeding habitat (Grecco 2008). While migrants could potentially use riparian habitats along the Sacramento River and other watercourses, there are few areas that support sufficient contiguous patches of suitable habitat to support breeding cuckoos.

The Plan Area includes 3,868 acres of modeled habitat for western yellow-billed cuckoo. Modeled habitat for the western yellow-billed cuckoo includes suitable riparian vegetation types that occur in patch sizes of 25 acres or greater and have a width of at least 330 feet.

Impacts: Covered Activities will permanently remove up to 59 acres of modeled western yellow-billed cuckoo habitat, representing approximately two percent of the current extent of modeled habitat in the Plan Area. The habitat loss is distributed primarily among the Lower Cache Creek and North and South Yolo planning units. Although Covered Activities will temporarily remove up to one acre of western yellow-billed cuckoo habitat, this acre is considered a permanent loss because restoration of the disturbed area is unlikely to be completed within one year of its removal. This acre is, therefore, included in the permanent loss acreage. There will be no additional temporary loss of western yellow-billed cuckoo habitat.

Mitigation/Conservation: The Yolo HCP/NCCP will protect 1,600 acres of valley foothill riparian natural community, at least 500 acres of which will provide modeled habitat for western yellow-billed cuckoo. Additionally, the Yolo HCP/NCCP will restore valley foothill riparian natural community to result in no net loss of the valley foothill riparian natural community, including 60 acres of modeled habitat for western yellow-billed cuckoo. The Yolo HCP/NCCP will also provide 135 acres of nesting and foraging habitat within the Pre-Permit Reserve Lands. The Yolo HCP/NCCP will prioritize conservation of habitat corridors along Cache Creek, Putah Creek, and Sacramento River/Yolo Bypass, each of which supports a

[11] http://www.tertial.us/yolobirds/yolorare.htm

large contiguous patch of modeled western yellow-billed cuckoo habitat, although there are no nesting records of the species in these areas. The Yolo HCP/NCCP will also enhance and maintain the functions of the protected and restored valley foothill riparian natural community by reducing the relative extent of nonnative plants that degrade habitat function and improving native plant diversity and vegetation structure.

Project proponents will retain a qualified biologist to conduct planning-level surveys and assess whether habitat for western yellow-billed cuckoo is present within 500 feet of Covered Activities. If habitat is present, the project proponent will redesign the project to avoid or minimize activities within 500 feet of western yellow-billed cuckoo habitat. If the activity will encroach within 500 feet of habitat and there are no breeding (or nesting) season records for the species within one-quarter mile of the covered activity within the previous three years, a qualified biologist will conduct planning-level surveys for active nests, consistent with USFWS protocol, during the period from June 1 to August 30.

If an occupied territory is discovered during planning-level surveys, or there is a record of the species occurring within one-quarter mile of the Covered Activity within the previous three years, the project proponent will design the project to avoid activities within 500 feet of suitable habitat, unless the YHC and the Wildlife Agencies approve a shorter distance.

If an activity occurs within 500 feet of suitable habitat during the breeding season, regardless of whether or not a qualified biologist detected the species during planning-level surveys or there are records for the species in the area, a qualified biologist will conduct preconstruction surveys that are consistent with USFWS protocol during the same season when the activity will occur. If the biologist finds active territories (i.e., presence of a singing male), the project proponent will avoid activity within 500 feet of suitable habitat that is contiguous with the territory from June 1 to August 30. Adjacent parcels under different land ownership will be surveyed only if access is granted or if the parcels are visible from authorized areas.

Discussion: With implementation of the Yolo HCP/NCCP, 1,600 acres of valley foothill riparian natural community will be preserved of which 500 acres will be western yellow-billed cuckoo modeled habitat. In addition, 60 acres of modeled western yellow-billed cuckoo habitat sited in valley foothill riparian will be restored to result in no net loss of the valley foothill riparian natural community. The Yolo HCP/NCCP will also provide 135 acres of nesting and foraging habitat within the Pre-Permit Reserve Lands.

The Yolo HCP/NCCP will provide a net benefit to the western yellow-billed through the assembly of a Reserve System in association with existing conservation lands, and the management and monitoring of Reserve System lands to support the species. All Reserve System lands will be monitored and adaptively managed to sustain populations of western yellow-billed cuckoo and their habitat.

Western Burrowing Owl

Baseline: The Plan Area supports an estimated 103,853 acres of modeled habitat for the western burrowing owl consisting of 37,694 acres of primary habitat and 66,160 acres of other habitat. Other habitat includes selected pasture types where uncultivated field borders may be suitable for nesting burrows and fields that may be suitable for foraging.

The current distribution of western burrowing owls in Yolo County is localized primarily in remaining low elevation uncultivated areas, such as the grasslands along the western edge of the Central Valley, the pasturelands in the southern panhandle, and the Yolo Bypass Wildlife Area. Other sites include some urban and semi-urban areas, particularly in and around the City of Davis, and other scattered locations associated with edges of cultivated lands.

While comprehensive surveys of the Plan Area have not been conducted, coordinated surveys have been undertaken in portions of the Plan Area. The results of these surveys and incidental reports indicate that the majority of known western burrowing owl breeding locations are in the southern portion of Yolo County, centered in and around the City of Davis, the Yolo Bypass Wildlife Area, and the southern panhandle. A total of 50 breeding pairs were reported in Yolo County in 2007, and surveys of these same sites in 2014 indicated that only 15 breeding pairs were present in these locations. These data represent only reported sightings from several locations in Yolo County where surveys were conducted and data were recorded and made available. This summary does not represent the total number of western burrowing owl breeding pairs in the county. However, it does represent the most significant known breeding areas for western burrowing owl in Yolo County.

During 2010 and 2011, Whisler noted there were 6 documented western burrowing owl nests northeast of Davis along the north side of CR 28H between CR 102 and 104 (personal communication, pg. A-76, Yolo HCP/NCCP, 2017). During 2015, Whisler observed only one pair of western burrowing owl north of CR 28H, just west of CR 104. This pair was in the former ConAgra (Hunt-Wesson) property nesting on a dirt mound.

Impacts: Covered Activities will remove up to 861 acres (two percent) of western burrowing owl primary habitat and 2,311 acres (three percent) of other habitat not considered western burrowing owls primary habitat such as cultivated lands, which are typically less suitable habitat. In addition, 1 acre of primary habitat and 218 acres of other habitat may also be temporarily lost due to Covered Activities. Covered Activities also include the relocation of up to eight individuals associated with up to four occupied sites.

Mitigation/Conservation: The Yolo HCP/NCCP will protect 3,000 acres of modeled primary habitat and; at least 2,500 acres of modeled other habitat, and will enroll 1,100 acres of modeled western burrowing owl habitat into the Pre-Permit Reserve Lands. Additional western burrowing owl habitat is likely to be protected to meet the Swainson's hawk habitat protection commitment because much of the Swainson's hawk modeled cultivated lands foraging habitat is also modeled habitat for western burrowing owl. Within the protected western burrowing owl habitat, the Yolo HCP/NCCP will maintain two active nesting sites for each nesting pair displaced by Covered Activities and will maintain one active nesting site or single owl site for each non-breeding owl displaced by Covered Activities.

Protected western burrowing owl habitat will be managed and enhanced to improve habitat value. The Yolo HCP/NCCP will enhance and maintain the functions of protected grassland (primary habitat) by installing artificial burrows, creating conditions for increasing the abundance of native rodents and reducing the relative cover of nonnative grasses and forbs that reduces habitat value for Covered Species as well as other native species. The Yolo HCP/NCCP will also maintain and enhance the cultivated lands seminatural community (other habitat).

The project proponent will retain a qualified biologist to conduct planning-level surveys and identify western burrowing owl habitat within or adjacent to (i.e., within 500 feet of) a covered activity. If habitat for this species is present, additional surveys for the species by a qualified biologist are required, consistent with CDFW guidelines.

If western burrowing owls are identified during the planning-level survey, the project proponent will minimize activities following the buffer guidelines in the Yolo HCP/NCCP. Occupied habitat is considered fully avoided if the project footprint does not impinge on a nondisturbance buffer around the suitable burrow. For occupied burrowing owl nest burrows, this nondisturbance buffer could range from 150 to 1,500 feet, depending on the time of year and the level of disturbance, based on current CDFW guidelines. The Yolo HCP/NCCP generally defines low, medium, and high levels of disturbances of western burrowing owls as follows:

- Low: Typically 71-80 dB, generally characterized by the presence of passenger vehicles, small gas-powered engines (e.g., lawn mowers, small chain saws, portable generators), and high-tension power lines. Includes electric hand tools (except circular saws, impact wrenches and similar). Management and enhancement activities would typically fall under this category. Human activity in the immediate vicinity of western burrowing owls would also constitute a low level of disturbance, regardless of the noise levels.

- Moderate: Typically 81-90 dB, and would include medium- and large-sized construction equipment, such as backhoes, front end loaders, large pumps and generators, road graders, dozers, dump trucks, drill rigs, and other moderate to large diesel engines. Also includes power saws, large chainsaws, pneumatic drills and impact wrenches, and large gasoline-powered tools. Construction activities would normally fall under this category.

- High: Typically 91-100 dB, and is generally characterized by impacting devices, jackhammers, compression ("jake") brakes on large trucks, and trains. This category includes both vibratory and impact pile drivers (smaller steel or wood piles) such as used to install piles and guard rails, and large pneumatic tools such as chipping machines. It may also include large diesel and gasoline engines, especially if in concert with other impacting devices. Felling of large trees (defined as dominant or subdominant trees in mature forests), truck horns, yarding tower whistles, and muffled or underground explosives are also included. Very few Covered Activities are expected to fall under this category, but some construction activities may result in this level of disturbance.

If the project does not fully avoid direct and indirect effects on nesting sites, the project proponent will retain a qualified biologist to conduct preconstruction surveys and document the presence or absence of western burrowing owls that could be affected by the Covered Activity. Prior to any ground disturbance related to Covered Activities, the qualified biologist will conduct the preconstruction surveys within three days prior to ground disturbance in areas identified in the planning-level surveys as having suitable burrows, consistent with CDFW guidelines. The qualified biologist will conduct the preconstruction surveys three days prior to ground disturbance. Time lapses between ground disturbing activities will trigger subsequent surveys prior to ground disturbance.

If the biologist finds the site to be occupied by western burrowing owls during the breeding season (February 1 to August 31), the project proponent will avoid all nest sites, based on buffer distances, during the remainder of the breeding season or while the nest is occupied by adults or young (occupation includes individuals or family groups that forage on or near the site following fledging). Construction may occur inside of the disturbance buffer during the breeding season if the nest is not disturbed and the project proponent develops an avoidance and minimization measures plan that is approved by the YHC and the Wildlife Agencies prior to project construction, based on the following criteria:

- The YHC and the Wildlife Agencies approve the avoidance and minimization measures plan provided by the project proponent.
- A qualified biologist monitors the owls for at least three days prior to construction to determine baseline nesting and foraging behavior (i.e., behavior without construction).
- The same qualified biologist monitors the owls during construction and finds no change in nesting and foraging behavior in response to construction activities.
- If the qualified biologist identifies a change in nesting and foraging behavior as a result of construction activities, the qualified biologist will have the authority to stop all construction related activities within the non-disturbance buffers. The qualified biologist will report this information to the YHC and the Wildlife Agencies within 24 hours, and the YHC will require that these activities immediately cease within the non-disturbance buffer. Construction cannot resume within the buffer until the adults and juveniles from the occupied burrows have moved out of the project site, and the YHC and the Wildlife Agencies agree.
- If monitoring indicates that the nest is abandoned prior to the end of nesting season and the burrow is no longer in use, the project proponent may remove the non-disturbance buffer, only with concurrence from the Wildlife Agencies. If the burrow cannot be avoided by construction activity, the biologist will excavate and collapse the burrow in accordance with CDFW's 2012 guidelines to prevent reoccupation after receiving approval from the Wildlife Agencies.

If evidence of western burrowing owl is detected outside the breeding season (September 1 to January 31), the project proponent will establish a non-disturbance buffer around occupied burrows following the buffer guidelines in the Yolo HCP/NCCP, as determined by a qualified biologist. Construction activities within the disturbance buffer are allowed if the following criteria are met to prevent western burrowing owls from abandoning important overwintering sites:

- A qualified biologist monitors the western burrowing owls for at least three days prior to construction to determine baseline foraging behavior (i.e., behavior without construction).
- The same qualified biologist monitors the western burrowing owls during construction and finds no change in owl foraging behavior in response to construction activities.
- If there is any change in roosting and foraging behavior as a result of construction activities, these activities will cease within the buffer.

- If the western burrowing owls are gone for at least one week, the project proponent may request approval from the YHC and the Wildlife Agencies for a qualified biologist to excavate and collapse usable burrows to prevent the western burrowing owls from reoccupying the site if the burrow cannot be avoided by construction activities. The qualified biologist will install one-way doors for a 48-hour period prior to collapsing any potentially occupied burrows. After all usable burrows are excavated, the buffer will be removed and construction may continue.

Monitoring must continue as described above for the nonbreeding season as long as the burrow remains active. A qualified biologist will monitor the site, consistent with the requirements described in the Yolo HCP/NCCP, to ensure that buffers are enforced and the western burrowing owls are not disturbed.

Passive relocation (i.e., exclusion) of western burrowing owls has been used in the past in the Plan Area to remove and exclude western burrowing owls from active burrows during the nonbreeding season (Trulio 1995). Exclusion and burrow closure will not be conducted during the breeding season for any occupied burrow. If the YHC determines that passive relocation is necessary, the project proponent will develop a wester burrowing owl exclusion plan in consultation with CDFW. The methods will be designed as described in the species monitoring guidelines (California Department of Fish and Game 2012) and consistent with the most up-to-date checklist of passive relocation techniques. This may include the installation of one-way doors in burrow entrances by a qualified biologist during the nonbreeding season. Other methods of passive or active relocation may be allowed, based on best available science, if approved by the Wildlife Agencies. Artificial burrows will be constructed prior to exclusion and will be created less than 300 feet from the existing burrows on lands that are protected as part of the Reserve System.

Discussion: With implementation of the Yolo HCP/NCCP, 5,500 acres of primary habitat and 2,500 acres of secondary habitat for western burrowing owl will be preserved. Additionally, the Yolo HCP/NCCP will also enroll 1,100 acres of which 330 acres is primary habitat and 770 acres is secondary habitat within the Pre-Permit Reserve Lands.

The Yolo HCP/NCCP will provide a net benefit to the western burrowing owl through the assembly of a Reserve System in association with existing conservation lands, and the management and monitoring of Reserve System lands to support the species. All Reserve System lands will be monitored and adaptively managed to sustain populations of western burrowing owl and their habitat.

Least's Bell Vireo

Baseline: The Plan Area includes 4,719 acres of modeled least Bell's vireo habitat. The habitat model for least Bell's vireo habitat consists of various land cover types in the valley foothill riparian natural community. In April 2010, two male least Bell's vireos were positively identified in the southern portion of the Yolo Bypass Wildlife Area, and the two birds subsequently returned in the spring of 2011 per J.P. Galvan (personal communication, pg. A-85, Yolo HCP/NCCP, 2017). During the 2010 surveys of the Putah Creek Sinks in the Yolo Bypass Wildlife Area, two pairs of least Bell's vireo were observed performing courtship activities and territorial defense against other least Bell's vireos. On April 26, 2010, an adult least Bell's vireo was observed carrying nesting material, though there was no evidence of successful nesting or obvious signs of nesting during the surveys.

In 2011**, t**he two 2010 least Bell's vireo territories in the Putah Creek Sinks were occupied by two least Bell's vireo pairs. The male in each pair was observed singing and defending the territory, signs of breeding behavior. Courtship activities were observed in one of the two pairs. One male was also defending its territory from a third adult. There were no further least Bell's vireo detections in late July or August of 2011. There were no least Bell's vireo detections during 2012. One vireo was detected in 2013 on May 9, but none were detected after that date.

Impacts: Covered Activities will permanently remove up to 39 acres (less than one percent). Three acres of the least Bell's vireo habitat loss will result from operations and maintenance activities, including stream maintenance and enhancement along Cache Creek through the Cache Creek Resources Management Plan. The remainder of the habitat loss is distributed among the Lower Cache Creek, Colusa Basin, North Yolo, and North Yolo Bypass planning units. No least Bell's vireo habitat will be temporarily lost as a result of Covered Activities.

Mitigation/Conservation: The Yolo HCP/NCCP will protect 1,600 acres of valley foothill riparian natural community of which 600 acres is modeled least Bell's vireo habitat. Within the 1,600 acres, up to 608 acres will be restored to least Bell's vireo habitat if all the valley foothill riparian habitat is removed. In addition, the Yolo HCP/NCCP will enroll 110 acres into the Pre-Permit Reserve Lands. The Yolo HCP/NCCP will focus conservation within a habitat corridor along Cache Creek, Putah Creek, and the Sacramento River, each of which supports a large contiguous patch of modeled least Bell's vireo habitat. The Yolo HCP/NCCP will also enhance and maintain the functions of the protected and restored valley foothill riparian community by reducing the relative extent of nonnative plants that degrade habitat function and improving native plant diversity and vegetation structure.

The project proponent will retain a qualified biologist to conduct planning-level surveys and determine if habitat for least Bell's vireo is present within 500 feet of Covered Activities. If habitat is present, the project proponent will redesign the project to avoid or minimize activities within 500 feet of least Bell's vireo habitat. If the activity will encroach within 500 feet of habitat and there are no breeding season records for the species within one-quarter mile of the Covered Activity within the previous three years, the qualified biologist will conduct planning-level surveys for active territories, consistent with USFWS (2001) guidelines, during the breeding season (April 1 to July 15).

If an occupied territory is discovered during planning-level surveys, or there is a record of the species occurring within one-quarter mile of the Covered Activity within the previous three years, the project proponent will design the project to avoid activities within 500 feet of suitable habitat, unless the YHC and the Wildlife Agencies approve a shorter distance. If an activity occurs within 500 feet of suitable habitat during the breeding season, regardless of whether or not the species was detected during planning-level surveys or there are records for the species in the area, a qualified biologist will conduct preconstruction surveys, consistent with USFWS (2001) guidelines, during the same season when the activity will occur. If active territories are found, the project proponent will avoid activity within 500 feet of the habitat from April 1 to July 15. This buffer may be reduced with approval from the YHC and the Wildlife Agencies.

The project proponent will avoid disturbance of previous least Bell's vireo territories (up to three years since known nest activity) during the breeding season, unless the disturbance is to maintain public

safety. If occupied territories are identified, a qualified biologist will monitor construction activities in the vicinity of all active territories to ensure that Covered Activities do not affect nest success.

The required buffer may be reduced in areas where barriers or topographic relief features are adequate for protecting the nest from excessive noise or other disturbance. YHC staff members will coordinate with the Wildlife Agencies and evaluate exceptions to the minimum nondisturbance buffer distance on a case-by-case basis. Adjacent parcels under different land ownership will be surveyed only if access is granted or if the parcels are visible from authorized areas.

Discussion: With implementation of the Yolo HCP/NCCP, 600 acres of modeled habitat will be preserved and up to 608 acres of least Bell's vireo habitat will be restored if all the proposed valley foothill riparian habitat is removed. Additionally, the Yolo HCP/NCCP will also enroll 110 acres within the Pre-Permit Reserve Lands.

The Yolo HCP/NCCP will provide a substantial net benefit to the least Bell's vireo through the assembly of a Reserve System in association with existing conservation lands, and the management and monitoring of Reserve System lands to support the species. All Reserve System lands will be monitored and adaptively managed to sustain populations of least Bell's vireo and their habitat.

Bank Swallow

Baseline: The Plan Area includes 962 acres of modeled nesting habitat for bank swallow. Modeled habitat for the bank swallow includes stream channels with suitable nesting substrate of vertical and friable river banks free of rip-rap (barren-gravel and sand bars land cover type).

In the Plan Area, colonies ranging from 10 to 400 burrows were observed along the Sacramento River and Cache Creek in 1987 (CNDDB 2005). Breeding occupancy was estimated as ranging between 10 to 70 percent at the various colonies; however, many of the colonies were unoccupied or inactive. During a survey in 2000, four colonies totaling 488 burrows were found along the Sacramento River in Yolo County between Verona and Knight's Landing (R. Schlorff and C. Swolgaard unpublished data, p. A-91 Yolo HCP/NCCP 2017). Assuming an occupancy rate of 45 percent, as used by California Department of Fish and Wildlife (Wright et al. 2011), this population was estimated at 202 pairs. An active colony persisted along Cache Creek in a gravel quarry until at least 2001 (Yolo Audubon Society 2004).

According to Whisler, on April 10, 2011, bank swallows were observed building a nest in the bank of the cross-channel from the Port of West Sacramento to the Sacramento River (personal communication, pg. A-91, Yolo HCP/NCCP, 2017). The colony failed when the Sacramento River rose from heavy rains that spring. This was likely the southernmost colony along the Sacramento River, and in the most urban area along the Sacramento River. According to Whisler, no colonies have been detected since then (personal communication, pg. A-91, Yolo HCP/NCCP, 2017).

Impacts: Covered Activities from the Cache Creek Resource Management Plan may permanently remove up to 37 acres of barren floodplain (gravel and sand bars) that may be modeled bank swallow nesting habitat. It is expected that additional barren floodplain will form during the 50-year Permit term as a result of the natural, dynamic fluvial processes along Cache Creek. No bank swallow habitat will be temporarily lost as a result of Covered Activities.

Mitigation/Conservation: The Yolo HCP/NCCP will conserve land within a habitat corridor along Cache Creek, which supports much of the modeled bank swallow habitat in the Plan Area. In this area, the Yolo HCP/NCCP will protect at least 50 acres of occupied bank swallow habitat. Additionally, protected floodplain along Cache Creek will be managed to provide high-value foraging habitat for bank swallows by promoting open grass and wildflower vegetation and by controlling invasive plant species.

Project proponents will retain a qualified biologist to identify and quantify (in acres) bank swallow nesting habitat within 500 feet of project footprint. If activities occur during the nesting season, a 500-foot buffer will be established around the nest site. If a 500-foot buffer from nesting habitat cannot be maintained, the qualified biologist will check records maintained by the YHC and CDFW to determine if bank swallow nesting colonies have been active on the site within the previous five years. If there are no records of nesting bank swallows on the site, the qualified biologist will conduct visual surveys during the period from March 1 to August 31 to determine if a nesting colony is present.

If Covered Activities occur during the nesting season, surveys will be necessary but the 500-foot survey distance and buffer distance may be reduced upon YHC and Wildlife Agencies approval based on site-specific conditions, such as the level of noise and disturbance generated by the activity, the duration of the activity, and the presence of visual and noise buffers (e.g., vegetation, structures) between the activity and the nesting colony.

If an active bank swallow colony is present or has been present within the last five years within the planning-level survey area, the project proponent will notify the YHC and the Wildlife Agencies in writing within 15 working days. The project proponent will design the project to avoid adverse effects within 500 feet of the colony site(s), unless a shorter distance is approved by the YHC and Wildlife Agencies, based on site-specific conditions such as visual barriers (trees or structures) between the activity and the colony. Adjacent parcels under different land ownership will be surveyed only if access is granted or if the parcels are visible from authorized areas.

Discussion: Implementation of the Yolo HCP/NCCP will protect at least 50 acres of unprotected occupied bank swallow habitat. The Yolo HCP/NCCP will provide a substantial net benefit to bank swallow through the assembly of a Reserve System in association with existing conservation lands, and the management and monitoring of Reserve System lands to support the species. All Reserve System lands will be monitored and adaptively managed to sustain populations of bank swallow and their habitat.

Tricolored Blackbird

Baseline: The Plan Area includes 265,813 acres of tricolored blackbird habitat, consisting of 4,680 acres of nesting habitat and 261,133 acres of foraging habitat. Nesting habitat includes marsh vegetation (e.g., bulrush and cattail) or thorny vegetation (e.g., blackberry) in the Yolo Bypass, Capay Valley, and Dunnigan Hills areas. Foraging habitat includes all potentially suitable vegetation types within eight miles of nesting habitat. Foraging habitat generally consists of grassland and agricultural areas with similar structure (e.g., pasture, grain and hay crops).

Recent surveys revealed very few nesting colonies in Yolo County (personal communication, pg. A-98, Yolo HCP/NCCP, 2017). Fourteen colonies were documented in the county from 1994 to 2004, with populations estimated from 15 to 1,500 adults. Surveys in 2007 revealed a highly successful colony of

more than 30,000 breeding adults in milk thistle on the Conaway Ranch in the Yolo Bypass. This was one of only three documented colonies statewide that were large and successful, and this colony was estimated to have produced about 30,000 young (Meese 2007). Other recent colony sites in Yolo County included: "Bill's Grasslands," a newly-discovered colony located within a patch of Himalayan blackberry approximately one km south of the intersection of County Roads 92B and 15B that was active in 2006 and again in 2007. This colony was active again in 2012 in a slightly different location off Road 92B. Another colony in milk thistle on County Road 88B, about two km north of State Route 16 that was active in 2005 and 2007, but not in 2006. Four small colonies were also found in the Yolo Bypass in 2005 that have not been occupied since. Per Meese, a historical colony at the Sunsweet Drying facility, just south of County Road 27 and about 1 km west of I-505, has not been active in the past three years (personal communication, pg. A-98, Yolo HCP/NCCP, 2017). A total of 1,900 adults were observed at two colonies in the Yolo Bypass during the 2008 statewide survey (Kelsey 2008).

Impacts: Covered Activities will permanently remove up to 9,028 acres of modeled tricolored blackbird habitat, including 86 acres of nesting habitat and 8,942 acres of foraging habitat including 1,030 acres for habitat restoration to non-foraging habitat. This loss represents three percent of the total tricolored blackbird modeled habitat in the Plan Area. Additionally, Covered Activities will temporarily remove up to 230 acres of foraging habitat. Each temporary disturbance is expected to be small, likely no greater than approximately ten acres and the disturbance will not last no more than one year.

An estimated forty-three percent of the tricolored blackbird habitat loss will result from urban development in the urban planning units: Woodland, Davis, West Sacramento, and Winters. Roughly half of the nesting habitat losses (48 acres) in the Plan Area are modeled in the West Sacramento planning unit and likely to result from levee improvements. The remainder of the habitat loss will be distributed throughout modeled habitat in the Plan Area and will result from various activities such as unincorporated community development in Dunnigan Hills, Monument Hills, and Madison.

Mitigation/Conservation: The protection of grassland and cultivated lands seminatural community is expected to contribute an estimated 16,610 acres of tricolored blackbird foraging habitat to the Reserve System. The Yolo HCP/NCCP will also protect 500 acres of fresh emergent wetland natural community, at least 200 acres of which will be sited in modeled tricolored blackbird nesting habitat. The Yolo HCP/NCCP will restore fresh emergent wetland to achieve no net loss of this natural community, potentially providing additional nesting opportunities for tricolored blackbird. Additionally, at least 4,150 acres of existing protected tricolored blackbird habitat on Pre-Permit Reserve Lands will be enrolled into the Reserve System, including 4,000 acres of foraging habitat and 150 acres of nesting habitat. The Reserve System will include at least two tricolored blackbird colony, which will be managed to maintain the colony.

Project proponents will retain a qualified biologist to identify and quantify (in acres) tricolored blackbird nesting and foraging habitat within 1,300 feet of the footprint of the covered activity. If a 1,300-foot buffer from nesting habitat cannot be maintained, the qualified biologist will check records maintained by the YHC (which will include CNDDB data, and data from the tricolored blackbird portal) to determine if tricolored blackbird nesting colonies have been active in or within 1,300 feet of the project footprint during the previous five years. If there are no records of nesting tricolored blackbirds on the site, the

qualified biologist will conduct visual surveys to determine if an active colony is present, during the period from March 1 to July 30, consistent with protocol described by Kelsey (2008).

If an active tricolored blackbird colony is present or has been present within the last five years within the planning-level survey area, project proponents will design the project to avoid adverse effects within 1,300 feet of the colony site(s), unless a shorter distance is approved by the YHC and the Wildlife Agencies. If a shorter distance is approved, project proponents will still maintain a 1,300-foot buffer around active nesting colonies during the nesting season but may apply the approved lesser distance outside the nesting season. Adjacent parcels under different land ownership will be surveyed only if access is granted or if the parcels are visible from authorized areas.

Discussion: Implementation of the Yolo HCP/NCCP will protect at least 16,610 acres of foraging habitat consisting of grassland and cultivated lands and 200 acres of fresh emergent wetlands modeled nesting habitat. Additionally, at least 4,150 acres of existing protected tricolored blackbird habitat on Pre-Permit Reserve Lands will be enrolled into the Reserve System, including 4,000 acres of foraging habitat and 150 acres of nesting habitat. The Reserve System will include at least two tricolored blackbird colonies.

The Yolo HCP/NCCP will provide a net benefit to tricolored blackbirds through the assembly of a Reserve System in association with existing conservation lands, and the management and monitoring of Reserve System lands to support the species. All Reserve System lands will be monitored and adaptively managed to sustain populations of tricolored blackbirds and their habitat.

Summary of CEQA Findings for Covered Wildlife Species

CDFW finds that issuance of this Permit could result in significant impacts on the Covered Wildlife Species from implementation of the Covered Activities proposed in the Yolo HCP/NCCP. CDFW also finds that all impacts on these species and their habitats that could result from CDFW's issuance of the Permit will be avoided and/or mitigated to below a level of significance under CEQA through adherence to, and implementation of, the Yolo HCP/NCCP. CDFW's findings under CEQA with respect to these species are consistent with the findings of the lead agency on the same subject. CDFW's findings for wildlife Covered Species are based on the overall Conservation Strategy, species-specific biological objectives, avoidance and minimization measures, and the adaptive management and monitoring program (Yolo HCP/NCCP Chapters 4-6).

3.6 Mitigation, Monitoring, and Reporting Program

Every agency that makes CEQA findings must adopt a Mitigation, Monitoring, and Reporting Program (MMRP) to ensure that the mitigation measures required as conditions of approval are carried out (CEQA Guidelines, Section 15097(d)). The Yolo HCP/NCCP EIS/EIR has identified impacts described as the Covered Activities for the 50-year project term and included, as part of the project, land acquisition commitments for the Reserve System including restoration commitments (Tables 2-2, 2-3, and 2-4), Covered Species occupancy commitments (Table 2-5), biological goals and objectives (Table 2-6), conservation measures (page 2-46) and avoidance and minimization measures (AMMs) (Table 2-7) that will conserve the twelve Covered Species in the Plan Area.

The key element of the Yolo HCP/NCCP's Conservation Strategy is the development of the Reserve System. The Reserve System will protect lands that support the Covered Species and the natural communities for which they depend upon. The Reserve System will be monitored and adaptively managed consistent with the Yolo HCP/NCCP biological goals and objectives. The biological goals and objectives will provide: 1) quantitative commitments and timeframes for achieving the desired outcomes; 2) serve as benchmarks by which to measure progress in achieving the desired outcomes; and 3) provide metrics for the monitoring program that will evaluate the effectiveness of the conservation measures and, if necessary, provide a basis to adjust the conservation measures to achieve the desired outcomes. The conservation measures are the actions that will be taken to in order to meet the biological goals and objectives.

The Yolo HCP/NCCP will mitigate for the loss of wetlands, open water, and riparian natural communities from Covered Activities at a mitigation ratio of 1:1. The Yolo HCP/NCCP provides a limit of 912 acres of removal of these natural communities, and therefore the amount of acreage loss of the natural community would be restored or created for a no net loss (1:1) for these natural communities. In addition, the Yolo HCP/NCCP will restore or create an additional 44 acres of these natural communities that will provide beneficial habitat for the Covered Species.

The AMMs in the Yolo HCP/NCCP are designed to avoid and minimize take of Covered Species and to reduce impacts to natural communities during implementation of the Covered Activities. The AMMs are grouped into five categories and are fully described in Appendix C of the EIS/EIR.

Compliance monitoring will track the status of the Yolo HCP/NCCP implementation and will document that the Yolo HCP/NCCP is meeting all of its requirements. The YHC will track and ensure compliance with the Yolo HCP/NCCP and provide these results to the Wildlife Agencies by April 30 of every year. Compliance monitoring as described in Section 6.5.3.1 of the Yolo HCP/NCCP will be composed of:

- Tracking loss of natural communities and Covered Species
- Tracking implementation of acquisition, restoration, and creation actions
- Tracking implementation of AMMs
- Tracking and reporting of management and monitoring activities

A database will be developed and maintained to track the relevant data necessary for Yolo HCP/NCCP implementation. This data will be included in the annual report submitted to the Wildlife Agencies and is described in Section 7.9.2 of the Yolo HCP/NCCP and is summarized below:

- Implementation of conservation measures
- Assessment of the impacts of the Covered Activities
- Evaluation of the results of the monitoring and directed studies
- Description of adaptive management activities
- Financial reports
- Actions implemented responding to changed circumstances

The YHC will be the responsible entity for enforcing compliance with the requirements of the Yolo HCP/NCCP including the land acquisition commitments, Covered Species occupancy commitments, biological goals and objectives, conservation measures, AMMs, and annual reporting to the Wildlife Agencies in the timeframe described in Table 2-8.

CDFW has considered the requirements of the Yolo HCP/NCCP including the land acquisition commitments, Covered Species occupancy commitments, biological goals and objectives, conservation measures, AMMs, and annual reported and adopts these requirements as the MMRP.

3.7 Alternatives

Where a lead agency has determined that, even after the adoption of all feasible mitigation measures, a project as proposed will still cause one or more significant environmental effects that cannot be substantially lessened or avoided, the lead agency, prior to approving the project as mitigated, must first determine whether, with respect to such impacts, there remain any project alternatives that are both environmentally superior and feasible within the meaning of CEQA (see, e.g., *Citizens for Quality Growth v. City of Mt. Shasta (1988) 198 Cal.App.3d 433,445*).

CDFW faces a similar obligation as a responsible agency under CEQA (CEQA Guidelines, Section 15096, subd. (g)). As noted above, however, when considering alternatives and mitigation measures, CDFW "has responsibility for mitigating or avoiding only the direct or indirect environmental effects of those parts of the project which it decides to carry out, finance, or approve" (*Id*., subd. (g)(1)). Those effects in the present case are limited to the environmental effects authorized by CDFW under NCCPA for the Yolo HCP/NCCP. In that regard, and consistent with CEQA Guidelines, issuance of the NCCP Permit is prohibited if there are "any feasible alternative or feasible mitigation measures within CDFW's powers that would substantially lessen or avoid any *significant* effect" associated with that decision (*Id*., subd., (g)(2) [emphasis added]).

As demonstrated above in Section 3.5, no significant environmental effects that fall within the responsibility and jurisdiction of CDFW remain unmitigated. In adopting findings under CEQA, agencies need not consider the feasibility of project alternatives if they adopt mitigation measures that "substantially lessen or avoid" a project's significant adverse impacts (*Laurel Heights Improvement Assoc. v. Regents of the University of California* (1988) 47 Cal.3d 376, 400-403; an EIR must contain meaningful discussion of both project alternatives and mitigation measures).

3.8 Statement of Overriding Considerations

CDFW's approval of the Yolo HCP/NCCP will not result in any adverse environmental impacts that remain significant and unavoidable. CDFW is not adopting a Statement of Overriding Considerations under CEQA.

FINDINGS UNDER NCCPA

4.0 FINDINGS UNDER NCCPA

All NCCPs must contain certain substantive elements identified in current or former sections of the NCCPA.

4.1 NCCPA of 2003 and NCCP Findings

The Yolo HCP/NCCP must be completed, approved, and implemented pursuant to the NCCPA and CDFW must evaluate the adequacy of the NCCP by reference to the statute.

Finding 4.1.1 **CDFW finds that the Yolo HCP/NCCP has been developed consistent with the process identified in the Planning Agreement as per Section 2820(a)(1).**

Section 2820(a)(1) requires that the Yolo HCP/NCCP be developed consistent with the Planning Agreement entered into pursuant to Section 2810. The Planning Agreement for the Yolo HCP/NCCP was signed by the Yolo County Habitat Conservation Plan/Natural Communities Conservation Plan Joint Powers Authority (now called the YHC) and include collectively the County of Yolo and the cities of Davis, Winters, Woodland, and West Sacramento (Parties) on December 16, 2004, the USFWS on February 14, 2005, and CDFW on February 8, 2005. The Planning Agreement terminated five years from the effective date. The Parties entered into an amendment that extended the terms of the Planning Agreement for an additional three years terminating on February 8, 2013. A second amendment to the Planning Agreement was executed by the Parties that extended the terms of the Planning Agreement through April 30, 2019.

The Planning Agreement defined the initial scope of the program and defined the roles and responsibilities of the Parties in the development of the Yolo HCP/NCCP that would fulfill the requirements of the NCCPA and the federal ESA. The development of the Yolo HCP/NCCP required incorporation of independent scientific input and analysis, public participation, and opportunities for comments from the general public and stakeholders.

The Planning Agreement required the establishment of a stakeholder's steering committee to assist in negotiating the Yolo HCP/NCCP. The stakeholder's steering committee, now called the Advisory Committee, was appointed in 2004 consisting of the Permittees, landowners, agricultural community, conservation organizations, and land developers. The group held open meetings on a regular basis (generally monthly) to review relevant materials and documents; evaluated and synthesized ideas, data, and information; and discussed and resolved complex issues. The Advisory Committee sought to reach a consensus when possible and provided recommendations to the YHC's Board of Directors on a range of matters, as reflected in the Yolo HCP/NCCP.

The Advisory Committee formed working groups to focus on specific issues regarding development of the Yolo HCP/NCCP. These groups included the Biological Working Group, Agriculture Working Group, Urban Interface Working Group, and Riparian Resources Working Group. The working groups met on an *ad hoc* basis to develop supporting information and to consider the Yolo HCP/NCCP components including scientific data and analysis, approaches to conservation strategies, and adaptive management and monitoring. Many of the results of the workgroup deliberations were used in development of the Conservation Strategy.

At the initial stage of the Yolo HCP/NCCP planning process, the YHC developed an outreach program to create a wide range of opportunities for the public to learn about the various elements of the Yolo HCP/NCCP and facilitated public input during the course of its development. The YHC developed and maintained an electronic mailing server to notify interested members of the public of upcoming meetings and to distribute draft documents pertaining to the planning process as they became available. The YHC's Board of Directors and Advisory Committee held regular, public meetings beginning in mid-2013, and posted all meeting agendas and minutes online.

In addition to regular public meetings by the YHC's Board of Directors and the Advisory Committee, representatives of the Yolo HCP/NCCP conducted dozens of briefings for community organizations, local jurisdictions within and adjacent to the Plan Area, and environmental organizations. Representatives made public presentations throughout the Plan Area and regularly distributed information about the Yolo HCP/NCCP through newsletters and updated fact sheets that explained its purpose and described its various components. In 2017, representatives conducted nine public meetings on the June 1, 2017 Public Review Draft HCP/NCCP and Public Review Draft Environmental Impact Statement/Report (EIS/EIR). In addition, the YHC created a website for the Yolo HCP/NCCP that contained the documents, upcoming meetings, and past meeting minutes.

During the process of developing the Yolo HCP/NCCP, the Parties negotiated the Implementation Agreement as required by the Planning Agreement and was made public as Appendix E of the June 1, 2017 Public Review Draft HCP/NCCP.

The YHC recognized that the funding for development and implementation must be funded primarily from locally derived sources that could include, but are not limited to, federal, State, and locally derived funds. The YHC estimated the full cost of Yolo HCP/NCCP implementation to demonstrate that adequate funding is available to meet regulatory standards. Plan funding will come from several different sources, which fall into one of four categories:

- HCP/NCCP Fees. This source includes private and public sector development effect fees. Fees are also charged on specialized effects such as wetlands (wetland fee) and temporary effects (temporary effect fee). These Yolo fees are described in Section 8.4.1, *HCP/NCCP Fees*.
- Local Funding. Non-fee local funding will complement fee-based funding sources. Non-fee local funding will take many forms but consist primarily of activities funded and managed by local government agencies in cooperation with the YHC that will offset costs to implement the Yolo HCP/NCCP. Additional funding is expected from private foundations. These non-fee local funding sources cannot be used for mitigation purposes; they will be directed toward the NCCP portion of the Yolo HCP/NCCP (i.e., provide for the conservation of Covered Species in the Plan Area necessary to meet the requirements of the NCCPA). Local funding sources are described in Section 8.4.2, *Local Funding*.
- Interest Income. The YHC is expected to gain substantial revenue from interest on the Yolo HCP/NCCP endowment as it grows prior to its use to fund costs in perpetuity after the 50-year Permit term. The YHC will also gain limited income from interest on revenue not yet spent. Interest income is described in Section 8.4.2.5, *Interest Income*.

- State and Federal Funding. This source includes federal and state grant programs. Certain state and federal funding can be used only for portions of the Yolo HCP/NCCP that provide for the conservation of Covered Species in the Plan Area (i.e., not for mitigation). State and federal funding sources are described in Section 8.4.3, *State and Federal Funding*.

The terms of the Planning Agreement were implemented as per the roles and responsibilities assigned to the respective Parties. Therefore, CDFW finds that the Yolo HCP/NCCP has been developed consistent with the process identified in the Planning Agreement entered into pursuant to Section 2810 (Section 2820(a)(1)).

The Planning Agreement shall be binding upon CDFW, other participating federal, state, and local agencies, and participating private landowners (Section 2810(b)(1).).

Section 5 of the Planning Agreement states that "the Parties and Wildlife Agencies intend that this Agreement will fulfill the NCCPA requirements pertaining to planning agreements and will establish a mutually agreeable process for preparing the NCCP/HCP that fulfills the requirements of the NCCPA and FESA". The Parties that signed the Planning Agreement were the JPA, USFWS, and CDFW. By signing the Planning Agreement, all signatories are bound to the terms and conditions of the Planning Agreement.

Therefore, CDFW finds that the Yolo HCP/NCCP was developed consistent with the Planning Agreement such that upon signing the Planning Agreement it is binding upon CDFW, USFWS, and Permittees.

The Planning Agreement identifies the geographic scope (Section 2810(b)(2)) and participating parties.

Section 5.1.1 and Exhibit A of the Planning Agreement define the geographic scope of the Yolo HCP/NCCP as the jurisdictional boundary of Yolo County. The Yolo HCP/NCCP has since extended the geographical scope to include 1,174 acres of riparian habitat along Putah Creek in Solano County for conservation. The geographic scope has remained consistent through all of the planning stages including the final Yolo HCP/NCCP.

Therefore, CDFW finds that the Yolo HCP/NCCP was developed consistent with the Planning Agreement process regarding the geographic scope of the Yolo HCP/NCCP and the Permittees.

The Planning Agreement identifies a preliminary list of those natural communities and the endangered, threatened, candidate, or other species known, or reasonably expected to be found, in those communities, that are intended to be the initial focus of the Yolo HCP/NCCP (Section 2810(b)(3)).

Section 5.1.3 of the Planning Agreement identify the endangered, threatened, proposed, candidate, and other species known or reasonably expected to be found in the natural communities covered by the Yolo HCP/NCCP, and to be initially addressed by the Yolo HCP/NCCP. The participating partners developed the preliminary list, which included 28 plant and animal species in five habitat types. These species and communities constituted the broadest list of those to be evaluated for coverage under the Yolo HCP/NCCP. All of these species were evaluated for coverage under the Yolo HCP/NCCP and based on the Covered Species selection criteria discussed in Appendix C of the Yolo HCP/NCCP; this list was reviewed and refined down to the final list of twelve species.

Therefore, CDFW finds that the Yolo HCP/NCCP has been developed consistent with the Planning Agreement process to identify natural communities and species in those communities, including endangered, threatened, proposed, and candidate plants and animals.

The Planning Agreement identifies preliminary conservation objectives for the planning area (Section 2810(b)(4)).

Section 4 of the Planning Agreement states that the preliminary conservation objectives the Parties intend to achieve through the Yolo HCP/NCCP are:

- Preserve and enhance the natural diversity of native plant and animal communities throughout the Planning Area
- Protect the viability of identified special status plant and animal species
- Identify and designate biologically sensitive habitat areas, from both the existing network of conservation activities in the County and other areas to be identified
- Preserve habitat, and contribute to the recovery of threatened, endangered and other identified plant and animal species covered by the HCP/NCCP ("Covered Species")
- Reduce the need to list additional species
- Set forth specific habitat-based goals and objectives expressed in terms of amount and quality of habitat to be protected and preserved
- Determine the extent of impacts to species from incidental Take caused by Covered Activities
- Provide an effective adaptive management and monitoring strategy for Covered Species and natural communities

The Planning Agreement establishes a process for the inclusion of independent scientific input to recommend scientifically sound strategies for species and natural communities proposed to be covered by the Yolo HCP/NCCP, recommend a reserve design to address these species, recommend management principles and conservation goals used for monitoring and adaptive management of the Yolo HCP/NCCP, and identify data gaps and uncertainties (Section 2810(b)(5)).

Sections 5.1.4, 5.1.5, and 5.1.6 of the Planning Agreement discuss using the best scientific information and prioritizing data collection for the preparation of the Yolo HCP/NCCP. Preference for data collection was be given to the data essential to address conservation requirements of natural communities and Covered Species. The data developed for the Yolo HCP/NCCP included the following:

- Existing land use broken down into detailed categories
- City and District boundaries and Urban Limit lines
- Existing preserves and other public lands, including conservation easements
- Habitat areas including areas of concern for listed and Covered Species as agreed to by the Wildlife Agencies
- Parcel ownership for the unincorporated areas that cross-over between Solano and Yolo counties
- Waterways, flood zones, and riparian corridors
- Watershed boundaries

- Habitat quality
- Agricultural resources of significant to Covered Species
- Historical and current locations of species
- Vernal pool areas by types
- Vegetation types
- Easements, zoning designations and land-use limitations

Preparation of the Yolo HCP/NCCP was guided by independent scientific input and analysis. For that purpose, independent scientist represented a broad range of disciplines, including conservation biology and locally relevant ecological knowledge. The independent scientist recommended: 1) scientifically sound conservation strategies for species and natural communities proposed to be covered by the Yolo HCP/NCCP; 2) a set of reserve design principles that addressed the needs of species, landscapes, ecosystems, and ecological processes in the Planning Area and proposed to be addressed by the Yolo HCP/NCCP; 3) management principles and conservation goals that could be used in developing a framework for the monitoring and adaptive management component of the Yolo HCP/NCCP; and 4) identified gaps and uncertainties so that risk factors could be elevated.

In 2006, an Independent Science Advisors (Advisors) comprised of a group of experts in conservation ecology and specific biological resources, were assembled. The Advisors operated independent of the Permittees, the Permittee's consultants, and other entities involved in the preparation of the Yolo HCP/NCCP to ensure objectivity. The Advisors reviewed the information that was prepared by the consultants and completed subsequent research and discussions. After reviewing the information, conducting tours of the Plan Area, meetings with the Advisory Committee, the Advisors formulated recommendations for the Yolo HCP/NCCP development and implementation. Recommendations were provided to the YHC (Spencer et al 2006) regarding the scope of the Yolo HCP/NCCP, information gaps, conservation design, conservation analyses, and adaptive management and monitoring. The Advisor's recommendations were used to guide the Yolo HCP/NCCP planning.

The Advisors was facilitated by Dr. Wayne Spencer (Conservation Biology Institute, San Diego) and was composed of Dr. Reed Noss (University of Central Florida), Dr. Jayme Marty (The Nature Conservancy), Dr. Mark Schwartz (University of California, Davis), Dr. Elizabeth Soderstrom (Natural Heritage Institute), Peter Bloom (Western Foundation of Vertebrate Zoology) and Dr. Glenn Wylie (USGS Western Ecological Research Center).

The Advisors have extensive experience in the design of wildlife, habitat, and ecosystem monitoring programs, open space conservation, sensitive habitats that occur within the Plan Area, impacts of nonnative invasive species on threatened and endangered species, and development of appropriate management and mitigation programs.

The Advisors met during a two-day period to review information from Phase 1 of the Yolo HCP/NCCP planning process and offer recommendations for Phase II. The Panel made recommendation about the Yolo HCP/NCCP's goals, Covered Species and Covered Activities. Some of the Panel's recommendations were:

- The JPA develop explicit hierarchical goals for the Yolo HCP/NCCP that consider measures of biological diversity and ecosystem function, in addition to species-specific goals for the Covered Species.
- The list of Covered Species addressed in the Yolo HCP/NCCP not be overly focused on listed species and species likely to be listed in the future.
- Consider creating two lists of species:
    - Those to be analyzed for coverage under Take authorizations
    - Focal species that may otherwise help achieve the Yolo HCP/NCCP's biological goals and objectives
- The Yolo HCP/NCCP assess its likely impacts on aquatic resources and how it may best contribute to their recovery in coordination with other planning efforts.
- Use a more formal focal-species selection process, to ensure that all natural communities and limiting factors are adequately addressed by the Yolo HCP/NCCP.
- Consider inclusion of native invertebrates, native fishes, wintering waterfowl, grasshopper sparrow, heron rookeries, yellow-billed magpies, American badger, ringtail, cougar, valley oak, and blue oak.
- The Yolo HCP/NCCP should comprehensively analyze and account for the likely spatial patterns of future urban and exurban developments relative to existing development.

Therefore, CDFW finds that the Yolo HCP/NCCP has been developed consistent with the Planning Agreement process for the collection of data and independent guidance to meet scientifically sound principles for the conservation of species.

The Planning Agreement requires coordination with federal wildlife agencies with respect to the federal Endangered Species Act (2810(b)(6)).

Section 3.3 of the Planning Agreement states that the NCCPA requires coordination with USFWS with respect to the federal ESA. The YHC and the Wildlife Agencies held frequent meetings to address project coordination and technical issues during the preparation of the Yolo HCP/NCCP (Chapter 1.3.3). The Wildlife Agencies provided review and guidance on a number of key elements of the Yolo HCP/NCCP including compliance with federal ESA and the NCCPA.

Therefore, CDFW finds that the Yolo HCP/NCCP has been developed consistent with the Planning Agreement process requiring coordination with federal wildlife agencies with respect to the federal ESA.

The Planning Agreement encourages concurrent planning for wetlands and waters of the United States (Section 2810(b)(7)).

Section 2.3.2 of the Planning Agreement states that the Joint Powers Authority, now known as the Yolo Habitat Conservancy (YHC), intends to address impacts to wetlands and waters of the United States to be consistent with, or meet the requirements of the Clear Water Act regarding Covered Activities. The Yolo HCP/NCCP provides a summary of all applicable state and federal laws including the federal and state wetland laws and regulations (Chapter 1.4.5). The Yolo HCP/NCCP will restore freshwater emergent marsh habitat to achieve a no net loss of one acre of restoration for every one acre of habitat loss (Chapter 6.3.3.5.2).

Therefore, CDFW finds that the Yolo HCP/NCCP has been developed consistent with the Planning Agreement process that encourages concurrent planning for wetlands and waters of the United States.

The Planning Agreement establishes a process for interim project review (Section 2810(b)(8).).

Section 5.1.8 of the Planning Agreement established a process to ensure that interim projects approved or initiated in the Plan Area before completion of the Yolo HCP/NCCP do not compromise the successful development or implementation of the Yolo HCP/NCCP. The interim project processing as outlined in Exhibit B of the Planning Agreement states that the YHC shall notify CDFW and USFWS of proposed development or construction projects in the Planning Area that meet the criteria described in the Reportable Interim Projects section of Exhibit B. The notification shall occur when the YHC determines that the proposed project is not exempt from CEQA and shall include:

- The location of the proposed project shall be described on an aerial photo of the site and surrounding area
- The land cover types present on the site of the proposed development shall be listed
- Any other biological information available to the JPA about the project area

The YHC reviewed interim projects and provided project proponents, Wildlife Agencies, and the appropriate Permittee comments on the interim project during the CEQA public review period that included a map of the interim project location identifying the Covered Species and natural communities in the area of the interim project.

In 2002, the Permittees and CDFW entered into a Swainson's hawk mitigation agreement. The purpose of the agreement was to continue to provide for mitigation of impacts to Swainson's hawk consistent with CEQA through acquisition and protection of Swainson's hawk foraging habitat while work continued on the Yolo HCP/NCCP. A Swainson's hawk mitigation receiving site is property that is encumbered by a conservation easement for the purpose of providing mitigation credits to offset the impacts of future development. Permittees would collect fees from developers to pay for an acreage-based mitigation fee in an amount to fund the acquisition, enhancement, and long-term management of one acre of Swainson's hawk foraging habitat for every one-acre of foraging habitat that is lost to urban development. The mitigation fees would be paid into a trust account to be used for the sole purpose of acquiring for preservation of Swainson's hawk habitat in Yolo County. Once the Yolo HCP/NCCP is approved, the Yolo HCP/NCCP will replace the Swainson's hawk mitigation agreement. Pre-existing Swainson's hawk mitigation receiving sites may continue to operate through the Yolo HCP/NCCP.

Therefore, CFDW finds that the Yolo HCP/NCCP was developed consistent with the Planning Agreement requirement for an interim review process.

The Planning Agreement establishes a process for public participation throughout the Yolo HCP/NCCP development and review pursuant to Section 2815 (Section 2810(b)(9).).

Section 5.1.7 of the Planning Agreement describes how the Yolo HCP/NCCP will be prepared in an open and transparent process. The preparation of the Yolo HCP/NCCP will include public review and comments as well as a working group that will review the Yolo HCP/NCCP at key stages of its development.

In 2004, the YHC appointed a Steering Advisory Committee (SAC), which provided input and advice during the development of the Yolo HCP/NCCP. The SAC consisted of representatives as described in the Planning Agreement and included representatives from the agricultural community, environmental groups, local scientific community, development community, landowners, conservation groups, and public agencies.

The SAC held meetings monthly, which were open to the public, reviewing relevant materials and documents, evaluated and synthesized ideas, data, and information, and discussed and resolved complex issues. During these meetings, the SAC received both oral and written comments. The SAC formed working groups to focus on specific issues regarding the development of the Yolo HCP/NCCP. The SAC provided recommendations on a range of matters and are reflected in the Yolo HCP/NCCP.

The YHC and the steering committee provided access to information to those interested in the Yolo HCP/NCCP largely through steering committee meetings, workshops, public forums, and public YHC Board meetings. In addition, an outreach program was developed to create a wide range of opportunities for the public to learn about the Yolo HCP/NCCP and public input was included during the course of its development. An electronic mailing server was developed and maintained to notify interested members of the public of upcoming meetings and to distribute draft documents pertaining to the planning process. Numerous briefings were conducted for community organizations, local jurisdictions, and environmental organizations.

All draft documents and materials were made available to the public in a timely manner, meetings were held regularly, and interested organizations and individuals were engaged through public workshop events. Permittees had also provided public access to many of the documents related to the development of the Yolo HCP/NCCP through their website: https://www.yolohabitatconservancy.org/.

Therefore, CDFW finds that the Yolo HCP/NCCP was developed consistent with the Planning Agreement with regard to public participation.

The Planning Agreement requires that draft documents associated with the HCP/NCCP that are being considered for adoption be available for review and comment 60 days prior to adoption (Section 2810(b)(9), pursuant to Section 2815).

Section 5.1.7.3 requires public review draft documents that are being considered for adoption by the Permittees be available for public review and comment for a minimum of 60 days prior to their adoption. On October 21, 2011, a Notice of Preparation (NOP) was sent to the State Clearinghouse, Responsible and Trustee Agencies, federal agencies, and interested parties. The comment period on the NOP was October 21, 2011 to December 5, 2011. Two scoping meetings were held for the public and interested parties on November 7, 2011. A total of 14 people attended these meetings and a total of 16 comments were received during the comment period.

The draft Yolo HCP/NCCP and the draft EIS/EIR were released on June 1, 2017 with a 90-day public review and comment period concluding on August 30, 2017. Nine public meetings were held during this 90-day review period with 32 letters, emails, and/or comment cards received. The final Yolo HCP/NCCP and final EIS/EIR for the Yolo HCP/NCCP were adopted and certified on May 7, 2018.

Therefore, CDFW finds that the Yolo HCP/NCCP was developed consistent with the Planning Agreement regarding review of draft documents.

Finding 4.1.2 **CDFW finds that the Yolo HCP/NCCP integrates adaptive management strategies that are periodically evaluated and modified based on information from the monitoring program and other sources, which will assist in the conservation of Covered Species and ecosystems within the Plan Area (Section 2820(a)(2)).**

Chapter 6.5, *Monitoring and Adaptive Management*, describes the monitoring and adaptive management program of the Yolo HCP/NCCP. The monitoring and adaptive management program will ensure compliance with the Yolo HCP/NCCP requirements, assess the status of Covered Species and other native species, natural communities, and ecosystem processes within the Reserve System and in certain cases outside of the Reserve System, and measure the effectiveness of the Conservation Strategy in achieving the biological goals and objectives. Monitoring will inform and change management actions to continually improve outcomes for Covered Species and natural communities.

Due to the degree of uncertainty and natural variability associated with ecosystems and their responses to management, adaptive management is necessary. Although the best scientific information was used during the development of the Yolo HCP/NCCP, there are varying degrees of uncertainty associated with the management techniques and conditions within and outside the Plan Area. The status of Covered Species and natural communities may change in an unexpected way during the implementation of the Yolo HCP/NCCP. Additional and different management measures will be identified in the future in order to more effectively implement the Conservation Strategy. Results of the monitoring may also indicate some management measures are less effective than anticipated. To address these uncertainties, the YHC will use an adaptive approach to inform management and design the monitoring program to support this adaptive approach. Integrating adaptive management and monitoring is critical to the successful implementation of the Conservation Strategy. Monitoring is the foundation of an adaptive approach, and adaptive management actions are developed from the results of monitoring.

The monitoring of an adaptive management program is an experimental approach in which monitoring will yield scientifically valid results that inform management decisions. Information collected through the monitoring and other experiments will be used to manage Reserve System lands to protect Covered Species and other native species habitat and natural communities. Results of the monitoring and targeted studies will be shared among the Permittees and with other regional restoration and management programs and the Wildlife Agencies. A well-coordinated and scalable monitoring program will enable the Permittees, the Wildlife Agencies, and others to measure and evaluate change in resources and threats within individual Reserve System lands, across the entire Plan Area. Such coordination requires standardization of protocols, sampling design, and training of personnel, as well as integrative data analysis and outside review by scientists. Science and technical advisors will evaluate

the effectiveness of existing or proposed management actions and provide recommendations to be incorporated into the Yolo HCP/NCCP as agreed to by the Wildlife Agencies.

Adaptive management actions will likely take place in response to:

- Results of targeted studies
- Downward trends in the status of Covered Species or key natural-community variables
- New information from literature or other relevant research that indicates a feasible and superior alternative method for achieving the biological goals and objectives exists
- Monitoring that indicates that the expected or desired result of a management action did not occur
- When new threats are identified through the ongoing development of conceptual models or through other monitoring efforts in the Plan Area

Therefore, CDFW finds that the Yolo HCP/NCCP integrates adaptive management strategies that are periodically evaluated and modified based on information from the monitoring program and other sources, which will assist in the conservation of Covered Species and ecosystems within the Plan Area.

Finding 4.1.3 **CDFW finds that the Yolo HCP/NCCP provides for the protection of habitat, natural communities, and species diversity on a landscape or ecosystem level through the creation and long-term management of habitat reserves or other measures that provide equivalent conservation of Covered Species appropriate for land, aquatic, and marine habitats within the plan area (Section 2820(a)(3)).**

The Yolo HCP/NCCP will provide habitat for the Covered Species as well as non-Covered Species by conserving large amounts of land adjacent to protected Baseline Public and Easement Lands already with varying levels of conservation within the Plan Area. The Reserve System is an assemblage of lands within the Plan Area that have been placed under a conservation easement or protected through fee title, in perpetuity that will meet the biological goals and objectives of the Yolo HCP/NCCP. For lands in public ownership that allow recreational uses, a conservation easement will be placed on the properties that are compatible with the Yolo HCP/NCCP. The conservation and management of the Reserve System will provide for the conservation of Covered Species within the Plan Area. In addition, the Yolo HCP/NCCP will:

- Protect and maintain habitat areas that are large enough to support sustainable populations of Covered Species
- Incorporate in the Reserve System a range of environmental gradients and high habitat diversity to provide for shifting species distributions in response to changing circumstances
- Sustain the effective movement and genetic interchange of organisms between habitat areas in a manner that maintains the ecological integrity of the Reserve System.

The Yolo HCP/NCCP is designed as a multiple species conservation plan in which species protection will be achieved, in large part, by providing for the protection of habitat, natural communities and species diversity on a landscape level. In order to provide the required protections, newly protected Baseline Public and Easement Lands will be selected based on their proximity to other protected or open space lands, known value for the Covered Species, and protection and restoration of ecological connectivity

and diversity. The Reserve System as a whole will protect a wide range of topographic gradients, elevations and exposures and create large areas of contiguous protected lands.

Lands will be acquired within the Conservation Reserve Area (Figure 6-5), unless the land is adjacent to the Conservation Reserve Area and is approved by the Wildlife Agencies; and these acquired lands will not be located in Woodland, Davis, West Sacramento, and Winters planning units unless necessary to protect a western burrowing owl colony. Lands that are acquired cannot currently be in a protected status (i.e. existing conservation easement).

Acquisition of newly protected lands will be identified as Priority 1 or Priority 2 acquisition. Priority 1 lands must have at least one of the following attributes:

1. Is adjacent to Category 1 or Category 2 Baseline Public and Easement Lands and includes two or more of the following:

    - Swainson's hawk habitat in the Hungry Hollow Basin, Willow Slough Basin, Colusa Basin Plains, and North and South Yolo Basin planning units
    - Giant garter snake habitat
    - California tiger salamander habitat in the Dunnigan Hills planning unit
    - Western burrowing owl occurrences and western burrowing owl habitat in the Yolo Basin Plains and South Yolo Bypass planning units
    - Valley foothill riparian in the Lower Cache Creek, Lower Putah Creek, Willow Slough Basin, Colusa Basin Plains, and South Yolo Basin planning units.

2. Includes Swainson's hawk habitat in the Willow Slough Basin or Colusa Basin Plains planning units, and is adjacent to Category 1 or Category 2 Baseline Public and Easement Lands (Table 6-1(a))
3. Includes grassland or lacustrine/riverine within the California tiger salamander critical habitat unit
4. Includes palmate-bracted bird's beak habitat on the Woodland Regional Park site
5. Includes giant garter snake habitat in the Willow Slough Basin, Colusa Basin, Colusa Basin Plains, Yolo Basin Plains, and North and South Yolo Bypass planning units, and is adjacent to Category 1 or Category 2 Baseline Public and Easement Lands (Table 6-1(a))
6. Contains valley foothill riparian in the Lower Cache Creek and Lower Putah Creek planning units
7. Includes portions of "Giant Garter Snake Potential Reserve Design Corridor" (Figure 6-6, *Priority Acquisition Areas*)

A property has Priority 2 acquisition priority if it is outside but adjacent to Priority 1 lands, and has at least one of the following attributes:

1. Two or more of the following:
    - Swainson's hawk habitat in the Hungry Hollow Basin, Willow Slough Basin, Colusa Basin Plains, South Yolo Basin, or Yolo Basin Plains planning units

- Giant garter snake habitat
- California tiger salamander habitat in the Dunnigan Hills planning unit
- Western burrowing owl occurrences
- Valley foothill riparian in the Lower Cache Creek or Lower Putah Creek planning units

2. Giant garter snake habitat in the Willow Slough Basin, Colusa Basin, Colusa Basin Plains, and the North and South Yolo Bypass planning units
3. Swainson's hawk habitat in the Willow Slough Basin and Colusa Basin Plains planning units

The Yolo HCP/NCCP has identified biological goals and objectives to ensure the Reserve System is managed for the Covered Species. The Yolo HCP/NCCP will prepare and implement management plans for the protected natural and semi-natural communities as well as for the protected cultivated lands. The Reserve System will be divided into reserve units. Reserve unit management plans will be developed covering the entire Reserve System that will guide site-specific management. Site-specific management plans will be developed for each property within the Reserve System and will rely on the applicable reserve unit management plan to provide management approaches, prohibitions, and other conditions specific to relevant natural or semi-natural community types and Covered Species. Pre-Permit Reserve Lands that are cultivated lands will have a single management plan that will apply to all cultivated land easements included in the Reserve System.

The reserve unit management plans will be developed within five years of the first parcel acquired in each reserve unit and will be updated every five years with review and approval from the Wildlife Agencies. The initial site-specific management plans will also need review and approval from the Wildlife Agencies and may be modified without the approval of the Wildlife Agencies as long as the changes are consistent with the reserve unit management plan. Modifications to a site-specific management plan that is not consistent with the reserve unit management plan will undergo a Wildlife Agency review and approval.

Therefore, CDFW finds that the Yolo HCP/NCCP provides for the protection of habitat, natural communities, and species diversity on a landscape or ecosystem level through the creation and long-term management of habitat reserves through the Reserve System or other measures that provide equivalent conservation of Covered Species appropriate for land and aquatic habitats within the Plan Area.

Finding 4.1.4.A **CDFW finds that the development of reserve systems and conservation measures in the Plan Area provides, as needed for the conservation of species: conservation, restoration, and management of representative natural and semi-natural landscapes to maintain the ecological integrity of large habitat blocks, ecosystem function, and biological diversity (Section 2820(a)(4)(A)).**

The Yolo HCP/NCCP's Conservation Strategy provides for the conservation of Covered Species by protecting, enhancing, restoring, and managing natural communities, Covered Species habitat, and occurrences of Covered Species. The Conservation Strategy includes specific and measurable biological goals and objectives, and comprehensive conservation measures. The biological goals and objectives articulate what the Conservation Strategy is intended to achieve while the conservation measures describe how the biological goals and objectives will be met.

The Conservation Strategy involves integrating newly protected lands with protected Baseline Public and Easement Lands. The Reserve System will be built adjacent to and around the protected Baseline Public and Easement Lands and will increase the size and connectivity of the network of protected lands as well as support natural communities and Covered Species. The Reserve System will include a variety of environmental gradients within and across a diversity of protected and restored natural communities within the Plan Area. Prioritization will be given to lands known to be occupied by Covered Species or that support suitable habitat that is contiguous with occupied habitat. The Yolo HCP/NCCP will enroll some of the Baseline Public and Easement Lands into the Reserve System as Pre-Permit Reserve Lands and will be monitored and adaptively managed consistent with the Yolo HCP/NCCP biological goals and objectives identified in the Conservation Strategy.

There are 90,967 acres of Baseline Public and Easement Lands within the Plan Area of which 34,264 acres are protected by perpetual conservation easements or state mandate with a primary management goal related to ecological protection. In addition, there are 53,730 acres within the Plan Area with a management goal related to ecological protection that will not be protected with perpetual conservation easements. The Plan Area contains another 2,973 acres of public open space also without perpetual conservation easements and their primary management goal is not for ecological protection.

Table 5-4 provides total acreage of existing natural communities in the Plan Area as well as acreage identified by Baseline Public and Easement Lands, lands outside of the Baseline Public and Easement area, and the amount of acreage required for each natural community for compensation and conservation for the Covered Species and natural communities. These natural communities provide habitat value for the Covered Species as well as other sensitive species. The Yolo HCP/NCCP contains conservation measures for cultivated lands seminatural, grassland, valley foothill riparian, alkali prairie, fresh emergent wetland, and lacustrine and riverine natural communities, and the Conservation Strategy provides acreage commitments for these natural communities such that they will all be represented in the Reserve System. The Conservation Strategy provides acreage commitments for natural communities and Covered Species for newly protected lands as well as for Pre-Permit Reserve Lands (Tables 6-2(a) and 6-2(b)). Implementation of the Yolo HCP/NCCP will result in:

- 24,406 acres of newly protected natural communities and Covered Species habitat
- Up to 956 acres of restoration or creation if the maximum allowable wetland or riparian loss is reached, 44 acres of restoration that are independent of effects and 912 aces restored or created as a result of habitat loss
- 8,000 acres of Pre-Permit Reserve Lands enrolled into the Reserve System

A minimum of 32,406 acres of land will be conserved under the Yolo HCP/NCCP up to a total of 33,362 acres if the maximum wetland or riparian habitat loss occurs. Each prospective Reserve System land will be evaluated based on species-specific criteria, which includes habitat suitability (including patch size), landscape and land management attributes. The Yolo HCP/NCCP will protect the highest quality natural communities and Covered Species habitat in the Plan Area to optimize the ecological value of the Reserve System for conserving Covered Species and native biodiversity.

The Yolo HCP/NCCP has identified three broad Conservation Measure categories and are as follows:

- Conservation Measure 1. *Establish Reserve System*. This conservation measure provides conservation actions related to reserve design, land acquisition, and enrollment of Baseline Public and Easement Lands into the Reserve System as Pre-Permit Reserve Lands to create the Reserve System.
- Conservation Measure 2. *Restore Natural Communities*. This conservation measure provides actions related to restoring three natural communities and their Covered Species habitat. The measure includes restoration siting, design measures, and restoration techniques.
- Conservation Measure 3. *Manage and Enhance the Reserve System*. This conservation measure provides conservation actions related to managing and enhancing the Reserve System consistent with reserve management plans.

Therefore, CDFW finds that the acquisition of the Reserve System lands and conservation measures within the Plan Area provides, as needed, for the conservation of species, conservation, restoration, and management of representative natural and semi natural landscapes to maintain the ecological integrity of the larger existing habitat blocks, ecosystem function, and biological diversity.

Finding 4.1.4.B **CDFW finds that the development of reserve systems and conservation measures in the Plan Area provides, as needed for the conservation of species: the establishment of one or more reserves or other measures that provide equivalent conservation of Covered Species within the Plan Area and linkages between them and adjacent habitat areas outside the Plan Area (Section 2820(a)(4)(B)).**

As previously discussed in Finding 4.1.4.A, the newly protected lands will be adjacent to and between protected Baseline Public and Easement Lands. There is currently 34,264 acres of land in the Plan Area under permanent conservation easements that protect natural communities and special status species habitat. The Yolo HCP/NCCP will build upon those lands by preserving an additional 24,406 acres of land to be enrolled into the Reserve System. The Conservation Strategy has identified the Reserve Area (Figure 6-5) and priority acquisition areas throughout the Plan Area (Figure 6-6). In addition, Conservation Measure 1 will prioritize land acquisition that will contribute to the establishment of a corridor comprised of patches of woody and herbaceous riparian vegetation within the following specific areas: 1) the Cache Creek floodplain and extending the length of Cache Creek; 2) within the Putah Creek floodplain and extending the length of Putah Creek; and 3) along the Sacramento River and Yolo Bypass.

The Yolo HCP/NCCP has identified ecological corridors (Figure 6-3) that will provide connectivity between natural communities inside and outside the Plan Area and will provide connectivity between habitat types that support different life history functions for the Covered Species. The ecological corridor habitat types south of the Yolo Bypass and north of the Colusa Basin consist of wetland habitat, the ecological corridor habitat types north of Dunnigan Hills consists of grassland habitat, while the ecological corridor habitat types along Putah Creek and the Sacramento River provide riparian and riverine habitat. The ecological corridors identified in the Plan includes Essential Connectivity Areas identified as a component of the California Essential Connectivity Project (Spencer et al. 2010).

Therefore, CDFW finds that the acquisition of preserves and conservation measures within the Plan Area provides, as needed, for the conservation of Covered Species, the establishment of one or more Reserve

Areas or other measures that provide equivalent conservation of Covered Species within the Plan Area and linkages between them and adjacent habitat areas outside of the Plan Area.

Finding 4.1.4.C **CDFW finds that the development of reserve systems and conservation measures in the Plan Area provides, as needed for the conservation of species: the protection and maintenance of habitat areas large enough to support sustainable populations of Covered Species (Section 2820(a)(4)(C)).**

As stated in Fish and Game Code Section 2820(a)(4)(C), the Plan Area must contain conserved habitat areas large enough to support sustainable populations of the twelve Yolo HCP/NCCP Covered Species. While the size of a habitat area is an important factor in predicting the sustainability of a species, other factors, including edge effects, can reduce the effective size of habitat areas. The types and quantities of edge effects vary considerably, making the area of effect difficult to quantify. However, the urban/wildland interface extends along many protected areas in the Plan Area, and much of the protected lands are already subjected to some type of edge effect.

To conserve sustainable populations of the Covered Species in the Plan Area, a Conservation Strategy was developed for each species (Chapter 6) that integrates newly protected lands with protected Baseline Public and Easement Lands (Table 1) and enrolling some of the Baseline Public and Easement Lands into the Reserve System as Pre-Permit Reserve Lands. The Reserve System is based on modeled suitable habitat protected and conserved by the Yolo HCP/NCCP. The Conservation Strategy identifies specific and measurable biological goals and objectives for the landscape and each natural community and Covered Species.

The Yolo HCP/NCCP will use a minimum Covered Species habitat patch size for the Covered Species (Table 6-5) to guide in determining which Reserve System lands to acquire. Reserve Systems will be designed of sufficient sizes to: (1) ensure the intended conservation benefits for the target Covered Species; (2) ensure that they can be effectively managed given site constraints; and, (3) connect with protected Baseline Public and Easement Lands. As stated above in Finding 4.1.4A, a minimum of 32,406 acres of land will be conserved under the Yolo HCP/NCCP up to a total of 33,362 acres if the maximum wetland or riparian habitat loss occurs. Each prospective Reserve System land will be evaluated based on species-specific criteria, which includes habitat suitability (including patch size), landscape, and land management attributes. The Yolo HCP/NCCP will protect the highest quality natural communities and Covered Species habitat in the Plan Area to optimize the ecological value of the Reserve System for conserving Covered Species and native biodiversity.

Protecting larger land areas tends to protect a diverse array of species' habitats at varied elevations and protects conservation resources from potential detrimental effects of adjacent land uses, minimizing potential conflicts between conservation management activities and other uses on adjacent lands.

Table 1. The amount of modeled habitat within the Plan Area.

	Modeled Suitable Habitat (acres) in Plan Area				
Covered Species	Total Modeled Habitat	Currently Protected Land	Yolo HCP/NCCP Newly Protected Land	Restoration on Protected Lands	Pre-Permit Land
Valley elderberry longhorn beetle	13,379	707	1,600	576	130
California tiger salamander	87,509	4,240	2,036	36	367
Western pond turtle	191,092	19,297	5,875	369	3,076
Giant garter snake	77,056	10,445	7,195	185	2,310
Swainson's hawk	309,087	14,058	20,392	651	4,795
White-tailed kite	268,230	13,062	20,392	965	3,515
Western yellow-billed cuckoo	3,868	350	500	60	135
Western burrowing owl	103,854	2,169	5,500	0	1,100
Least Bell's vireo	4,719	359	600	608	110
Bank swallow	962	0	50	0	0
Tricolored blackbird	265,813	12,346	16,810	0	4,150
Palmate-bracted bird's-beak	312		33	0	141

Each Covered Species is discussed below in regard to how much habitat is needed for a sustainable population within the Plan Area based on the best available scientific information.

Valley Elderberry Longhorn Beetle

Valley elderberry longhorn beetle is limited to portions of the Central Valley (USFWS 1999; USFWS 2006), first collected from "Sacramento, CA," the precise location unknown (Fisher 1921). There are 201 extant CNDDB occurrences of valley elderberry longhorn beetle in California of which 18 occur within the Plan Area.

In Yolo County, numerous records of occupied and potential valley elderberry longhorn beetle habitat occur throughout the Sacramento River corridor (Eya 1976; Jones & Stokes 1985, 1986, 1987a, 1987b; USFWS 1984; Barr 1991; Collinge et al. 2001; CNDDB 2000), as well as along Putah Creek from Monticello Dam east to Davis (Eya 1976; USFWS 1984; Barr 1991; Collinge et al. 2001; CNDDB 2005) and along Cache Creek (Barr 1991; CNDDB 2005). However, because comprehensive surveys for valley elderberry longhorn beetle in Yolo County have not been conducted and because known occurrences

throughout the species' range are based mostly on incidental observations (e.g., CNDDB), the population size and locations of this species in the Yolo Plan Area are not fully known. Few surveys focused on valley elderberry longhorn beetle have been conducted within and adjacent to Yolo County, and the total extent of potential habitat is unknown. Within and adjacent to Yolo County exist several preserves, parks, and mitigation banks that support valley elderberry longhorn beetle occurrences, including Lake Solano Park and the American River Parkway.

Habitat connectivity is a critical factor for the valley elderberry longhorn beetle due to the species' poor dispersal abilities (Collinge et al. 2001). The Yolo HCP/NCCP will protect, restore and enhance corridors of valley elderberry longhorn beetle riparian habitat that are spatially distributed to provide landscape-level connectivity among protected habitats. The Yolo HCP/NCCP will protect 1,600 acres, restore up to 576 acres of valley foothill riparian natural community in the Plan Area. In addition to the lands the Yolo HCP/NCCP will protect, there are 707 acres of valley foothill riparian natural community that is Category 1 Baseline Public Easement Lands (lands with an irrevocable conservation easement mandate or state mandate) and the 1,373 acres that are Category 2 Baseline Public Easement Lands (lands without an irrevocable conservation mandate but with a management goal and/or acquisition purpose related to ecological protection). The Yolo HCP/NCCP will enroll 130 acres of Baseline Public Easement Lands as Pre-Permit Reserve Lands. Most of this protection and restoration will occur in the areas with the highest concentrations of valley elderberry longhorn beetle occurrences in the Plan Area, the Lower Cache Creek and Lower Putah Creek planning units.

When siting valley foothill riparian natural community protection, the Yolo HCP/NCCP will prioritize areas that support elderberry shrubs and that are connected to occupied or potentially occupied habitat. This will provide habitat to accommodate potential future expansion of the valley elderberry longhorn beetle population. Replacing a single removed elderberry shrub is required and must include 1,800 square feet of area for restoration. The actual number of elderberry shrubs to be planted will depend on the number of elderberry stems that are one-inch in diameter or greater removed by Covered Activities, and whether or not the stems removed show signs of occupancy by valley elderberry longhorn beetles (occupied stems have a higher replacement ratio than unoccupied stems).

The habitat will be protected, managed and monitored to support valley elderberry longhorn beetle. Therefore, CDFW finds that the development of a Reserve System in the Plan Area protects and maintains habitat areas that are large enough to support sustainable populations of valley longhorn beetle.

California Tiger Salamander

California tiger salamander occur throughout much of their historical range (Trenham et al. 2000) and can be common at localities where it still occurs. Populations are thought to be declining due to habitat loss. Little is known of the population trends of California tiger salamanders in Yolo County. Recorded occurrences of California tiger salamanders in Yolo County include an occurrence of several larvae in a stock pond on the west slope of the Capay Hills east of Rumsey Rancheria (Downs 2005), and five occurrences in the northern end of the Solano-Colusa vernal pool region, west and northwest of Dunnigan (CNDDB 2007) (Figure A-15). Four recorded occurrences were located within an area bounded

by Interstate 5 to the east, Bird Creek to the south, and Buckeye Creek to the north and west. These four occurrences are from within an area that now comprises the Dunnigan Creek Unit (Central Valley Region Unit 1) of designated critical habitat Land ownership within this unit is entirely private (70 FR 49380) and therefore restricted (another historical, but extirpated occurrence, is recorded from a site adjacent to the designated critical habitat). A fifth recorded occurrence, from 1993, represents an individual found in the Willows apartment complex in Davis, adjacent to a stormwater detention basin managed by the City of Davis (CNDDB 2007). Queries of the online databases of the California Academy of Sciences (2008) and Museum of Vertebrate Zoology (2008) yielded no additional occurrence records.

Based on a Monterey County study and a limited understanding of essential terrestrial habitats and buffer requirements of the species, Trenham et al. (2001) recommended that plans to maintain local populations of California tiger salamanders should include pond(s) surrounded by buffers of terrestrial habitat occupied by burrowing mammals, but noted that single isolated ponds might not support populations indefinitely even if surrounded by optimal uplands (Pechman and Wilbur 1994; Semlitsch and Bodie 1998 in Trenham et al. 2001). Based on individual dispersal of juveniles up to 1000 meters from their pool of origin, Searcey and Shaffer (2008) estimated that 95 percent of the reproductive value from a single large pond falls within approximately 2.4 km. Based on these findings, Shaffer et al. (2008) recommend a minimum buffer of 1 mile around breeding pools, relating to a preserve size of approximately 800 hectares (1,977 acres), greatly exceeding the 290 meter upper bound described by Semlitsch and Bodie (2003).

The Yolo HCP/NCCP will protect 36 acres of newly protected aquatic habitat, restore a minimum of 24 acres of aquatic habitat up to 36 acres, dependent on the amount of impacts, and enroll 36 acres of Pre-Permit Reserve Lands. Within the protected aquatic habitat, at least five California tiger salamander breeding pools will support all life stages of the California tiger salamander through all water year types, consistent with the occupancy commitment as presented in Table 6-2(c). The Yolo HCP/NCCP will also protect 4,430 acres of unprotected grassland, including at least 3,000 acres in the Dunnigan Hills planning unit, the USFWS considers this planning unit as critical habitat for the California tiger salamander. At least 2,000 acres of the 4,430 acres of protected grasslands will be modeled California tiger salamander upland habitat sited in the Dunnigan Hills planning unit within 1.3 miles of aquatic habitat for California tiger salamander. In addition to the lands that the Yolo HCP/NCCP will protect, there are 26 acres of aquatic habitat and 4,214 acres of upland habitat of Category 1 Baseline Public Easement Lands and 543 acres of aquatic and 3,682 acres of upland habitat of Category 2 Baseline Public Easement Lands. The Yolo HCP/NCCP will protect an additional 340 acres of Baseline Public Easement Lands modeled upland CTS habitat as Pre-Permit Reserve Lands.

The protected lands should be contiguous with other protected land to allow for dispersal and other possible movement corridors, and should follow geographical features (i.e., draws) that are more likely to be used as movement corridors. In addition, protected habitat patches will be at least 1,000 acres in size with multiple breeding pools as recommended by Penrod et al. (2013) to support a viable California tiger salamander population. A protected habitat patch will include lands enrolled into the Yolo HCP/NCCP, and may also include other lands protected and managed for California tiger salamander with Wildlife Agency-approved management plans and perpetual conservation easements that include

the Wildlife Agencies as third-party beneficiaries. Configuration should follow geographical features (i.e., draws) that are more likely to be used as movement corridors.

The habitat will be protected and managed and monitored to support California tiger salamander. Therefore, CDFW finds that the development of a Reserve System in the Plan Area protects and maintains habitat areas that are large enough to support sustainable populations of California tiger salamander.

Western Pond Turtle

Western pond turtle range extends primarily from Pacific slopes of western Washington south to the San Francisco Bay area, where it intergrades with the southwestern pond turtle. In California, the western pond turtle ranges primarily from Pacific slopes along the Oregon-California boundary south to the San Francisco Bay Area. Molecular analysis place western pond turtles into four distinct clades, the clade for the Plan Area is called the San Joaquin clade from California's Great Central Valley (Spinks and Shaffer 2005). Queries conducted in January 2008 of the collection database of the California Academy of Sciences (2008) yielded seven Yolo County records of western pond turtles, all from 1997. Two of those records were from Davis Creek, near Davis Creek Reservoir in western Yolo County. The remaining five records were from the University of California (UC) Davis Arboretum (one individual) and Arboretum Waterway (four individuals). Spinks et al. (2003) estimate a naturally occurring population of 53 individuals within the Arboretum Waterway.

A similar query of records of the Museum of Vertebrate Zoology (2008) in Berkeley yielded no record of the western pond turtle in Yolo County. The CNDDB (2007) lists one record from 1990 of multiple western pond turtle individuals along Putah Creek and an unnamed tributary. This site is located less than 1.6 kilometers (1 mile) south-southeast of Winters, along the southern boundary of Yolo County. The CNDDB reports another occurrence from 2005 within Cache Creek, extending for 5.3 miles between Camp Haswell to an upper regional park, northwest of Capay Valley. Per Spinks, a healthy population is also present at the Cache Creek Nature Preserve just west of Woodland (personal communications, pg, A-26, Yolo HCP/NCCP 2017). Jennings and Hayes' (1994) distribution map shows one other extant occurrence from near the northeast corner of Yolo County and three extant occurrences from the Sacramento River Basin, along the southeastern boundary of Yolo County. At least three western pond turtles were observed within the Willow Slough Bypass between County Road 104 and County Road 105 during 2007 (unpublished notes of E. Hansen, pg. A-26, Yolo HCP/NCCP 2017). No other records from Yolo County, either extant or extirpated, were discovered.

More recent observations of western pond turtle have been made by Whisler (personal communications, pg, A-26, Yolo HCP/NCCP 2017). These include the following:

- Sacramento River at Gray's Bend observed in 1983, and were repeatedly observed through 2012
- Putah Creek Riparian Reserve at UC Davis between the University Airport and the Old Davis Road Bridge, observed throughout this area in 2014

- Putah Creek Sinks (2010 and 2011) in the Yolo Bypass Wildlife Area, observed in the Putah Creek Sinks along with red-eared sliders and American bullfrogs
- Lower Willow Slough area, one adult western pond turtle observed sunning in the Conaway Ranch Water Delivery Canal at Yolo County Roads 104 and 27 on March 27, 2010
- Sacramento River Delta, western pond turtles observed in Babel Slough and Winchester Lake during 2015
- West Sacramento, several western pond turtles in the borrow sloughs near the Water Treatment Plant south of Burrows Road in 2009
- City Davis, several western pond turtles observed at the storm water detention basins and other ponds in Davis (West Davis Pond) and North Davis Ponds (Northstar Park Pond and Julie Partansky Pond) along with red-eared sliders and American bullfrogs

It is likely that the western pond turtle once occurred in a relatively continuous distribution within suitable habitat in Yolo County, although there is no known site in Yolo County where extirpation of a population has occurred. The population at the UC Davis Arboretum is characterized by a demographic profile characteristic of senescing populations, but has been supplemented by at least 33 captive-hatched individuals since 1996 (Spinks et al. 2003). Because the oldest record is from 1990, status changes that may have occurred prior to 1990 would not be evident from an examination of existing records. Moreover, although no extirpations have been recorded at any known occupied sites in Yolo County.

The Yolo HCP/NCCP will protect 2,400 acres of aquatic habitat, 3,475 acres of upland habitat, and restoration of up to 369 acres of aquatic habitat within the Plan Area. In addition to the lands that will be protected by the Yolo HCP/NCCP, there are 4,837 acres of aquatic habitat and 14,460 acres of nesting and overwintering habitat of Category 1 Baseline Public Easement Lands and 3,957 acres of aquatic and 20,691 acres of nesting and overwintering habitat of Category 2 Baseline Public Easement Lands. The Yolo HCP/NCCP will enroll 3,076 of Baseline Public Easement Lands 2,098 acres of aquatic habitat and 978 acres of upland habitat as Pre-Permit Reserve Lands. The western pond turtle Reserve Lands will have a minimum patch size of 2.5 acres of suitable aquatic habitat with a minimum 200-foot buffer of upland grassland or other uncultivated habitats around the perimeter. The habitat will be protected and managed and monitored to support western pond turtle. Therefore, CDFW finds that the development of a Reserve System in the Plan Area protects and maintains habitat areas that are large enough to support sustainable populations of western pond turtle.

Giant Garter Snake

Giant garter snake distribution is variable and extends from near Chico in Butte County south to the Mendota Wildlife Area in Fresno County. Recent occurrence records from the Sacramento-San Joaquin Delta range show giant garter snakes are distributed in thirteen unique population clusters coinciding with historical flood basins, marshes, wetlands, and tributary stream of the Central Valley (Hansen and Brode 1980; Brode and Hansen 1992; USFWS 1999). Giant garter snakes are documented in two distinct

concentrations along the eastern edge of Yolo County (CNDDB 2007; Hansen 2006, 2007a, 2008; Wylie et al. 2004; Wylie and Martin 2005; Wylie and Amarello 2006).

The first concentration lies in the northeastern portion of Yolo County, northwest of Knights Landing and in the southern end of the Colusa Basin near Sycamore Slough and the Colusa Basin Drainage Canal. Wylie and Amarello (2006) report a population density in the Colusa Basin Drainage Canal of 20±3 snakes/km during 2006, falling within 2003 and 2004 confidence intervals, noting, however, that local distribution appears to have shifted away from areas formerly in rice production that have either been fallowed or converted to other crop types.

The second concentration lies in the east-central portion of Yolo County, with records in the Yolo Bypass east of Conaway Ranch near the Tule Canal, the Willow Slough/Willow Slough Bypass from Conaway Ranch south to the Yolo Wildlife Area, the Davis Wetlands complex south of Conaway Ranch between the Willow Slough Bypass and the Yolo Bypass, the Yolo Wildlife Area along the east edge of the Yolo Bypass west levee, and the adjacent rice lands east of the Yolo Wildlife Area.

Surveys conducted in 2005, 2006, and 2007 resulted in captures of thirty-four, nine, and one unique individual(s), respectively, in the Yolo Wildlife Area; eight, eighteen, and eight unique individuals, respectively, in the adjacent ricelands; and thirty-six unique individuals (2007 only) in the Davis Wetlands complex (Hansen in. litt. 2006, 2007, 2008). Hansen (2006, 2007a, 2008) reports an even distribution within size classes, estimating local populations ranging from 8 ± 2.6877 (95 percent confidence interval (C.I.) = 7 to 20) to 57 ± 9.53 (95 percent C.I. = 45 to 84) in the Yolo Wildlife Area; 5 ± 0.4932 (95 percent C.I. = 5 to 5) to 17 ± 5.9655 (95 percent C.I. = 12 to 39) in the adjacent ricelands; and from 26 ± 21.2829 (95 percent C.I. = 11 to 120) to 67 ± 59.7094 (95 percent C.I. = 22 to 322) within the Davis Wetlands Complex (Hansen 2006, 2007a, 2008). Queries of the online databases of the California Academy of Sciences (2008) and Museum of Vertebrate Zoology (2008) yielded one additional occurrence record (CAS 178594) situated within downtown Davis; however, the stated location for this record (a frontage road one mile east of the Yolo Causeway) conflicts with the stated coordinates, leaving the true location unclear.

Evidence that giant garter snakes may once have been distributed throughout the easterly reaches of Yolo County is illustrated by reported sightings in portions of Solano County adjacent to Yolo County, in South Fork Putah Creek near Davis, and in the Liberty Farms region of the Yolo Basin. Repeated attempts to assess local distribution suggest that both the Liberty Farms and Putah Creek populations are probably extirpated (Hansen 1986; Wylie and Martin 2005; D. Kelly personal communication, A-35, Yolo HCP/NCCP, 2017).

Giant Garter snake population densities (snakes per lineal mile of rice irrigation canal) in Yolo county ranged from 13 (95 percent C.I. = 11 to 32) to 92 (95 percent C.I. = 72 to 135) in the Yolo Wildlife Area; 8 (95 percent C.I. = 8 to 8) to 27 (95 percent C.I. = 19 to 63) in the adjacent ricelands; and from 42 (95 percent C.I. = 18 to 193) to 108 (95 percent C.I. = 35 to 518) within the Davis Wetlands Complex (Hansen in. litt. 2006, 2007, 2008).

The Yolo HCP/NCCP will protect 7,195 acres of giant garter snake habitat, including 2,800 acres of rice habitat, 420 acres of lacustrine/riverine habitat, 500 acres of freshwater emergent wetland habitat, 1,160 acres of active season upland movement habitat, and 2,315 acres of overwintering habitat. The minimum patch size requirement is 320 acres and should include suitable linear aquatic habitat with connectivity throughout the larger region and adjacent suitable habitat. Additionally, the Yolo HCP/NCCP will restore up to 76 acres of freshwater emergent wetland and 109 acres of aquatic habitat for giant garter snake to result in no net loss of aquatic habitat. In addition to the newly protected and restored giant garter snake habitat. In addition to the lands the Yolo HCP/NCCP will protect, there are 3,475 acres of rice habitat, 574 acres of aquatic habitat, 5,359 acres of freshwater emergent habitat, 628 acres of active season upland habitat, and 409 acres of overwintering habitat of Category 1 Baseline Public Easement Lands and 1,728 acres of rice habitat, 551 acres of aquatic habitat, 9,541 acres of freshwater emergent habitat, 1,285 acres of active season upland habitat, and 1,524 acres of overwintering habitat of Category 2 Baseline Public Easement Lands. The Yolo HCP/NCCP will enroll 2,910 acres of Baseline Public Easement Lands as Pre-Permit Reserve Lands.

The habitat will be protected and managed and monitored to support giant garter snake. Therefore, CDFW finds that the development of a Reserve System in the Plan Area protects and maintains habitat areas that are large enough to support sustainable populations of giant garter snake.

Swainson's Hawk

Swainson's hawk occur throughout much of the lowland portions of the state. The bulk of the Central Valley population resides in Yolo, Sacramento, Solano, and San Joaquin Counties. In Yolo County, the species is distributed throughout the low elevation agricultural region east of the Interior Coast Range. Closely associated with agricultural cover type, the distribution of the species generally follows the pattern of hay, grain, and row crops. The majority of nesting pairs occur from several miles north of Woodland south to Putah Creek and east to the Sacramento River. Fewer pairs occur in the predominantly rice growing region in the northeastern portion of the county, in the orchard region in the northwest and southwest portions of the county, and the wetland-dominated areas of the southern panhandle. They generally avoid scrub, chaparral, savannah, or oak-dominated habitats in the western portion of the county. The highest nesting concentrations are north of Woodland to County Road 12; along oak and cottonwood-dominated riparian corridors such as Willow Slough, Putah Creek, and the Sacramento River; and between Davis and Woodland, and west to approximately Interstate 505 and east to the Sacramento River (Estep 2008).

Baseline surveys conducted in 2007 located a total of 290 active breeding territories in Yolo County (Estep 2008). This was the first comprehensive baseline of this species in the County, and thus cannot be used to assess a trend in the number of breeding pairs in the County. However, based on the results of a long-term population study conducted in Yolo County since the mid-1980s (Estep in preparation), there appears to have been an upward trend in the number of breeding pairs.

The Yolo HCP/NCCP will protect, manage, and enhance 18,792 acres of unprotected Swainson's hawk foraging habitat, including 14,362 acres of cultivated lands and 4,430 acres of natural foraging habitat,

protect 1,600 acres of valley foothill riparian nesting habitat, and 20 Swainson's hawk nests. In addition, up to 651 acres of valley foothill riparian habitat will be restored to result in no net loss of this natural community which could provide nesting habitat. Reserve Lands for Swainson's hawk foraging habitat will be a minimum of 80 acres unless the Reserve Lands are contiguous with other Swainson's hawk preserves. In addition to the lands the Yolo HCP/NCCP will protect, there are 600 acres of nesting habitat, 7,071 acres of natural foraging habitat, and 6,387 acres of cultivated lands foraging habitat of Category 1 Baseline Public Easement Lands and 1,366 acres of nesting habitat, 7,830 acres of natural foraging habitat, and 1,821 acres of cultivated lands foraging habitat of Category 2 Baseline Public Easement Lands. The Yolo HCP/NCCP will enroll 4,795 acres of Baseline Public Easement Lands, 4,580 acres of foraging habitat and 215 acres of nesting habitat as Pre-Permit Reserve Lands.

The habitat will be protected and managed and monitored to support Swainson's hawk. Therefore, CDFW finds that the development of a Reserve System in the Plan Area protects and maintains habitat areas that are large enough to support sustainable populations of Swainson's hawk.

White-tailed Kite

White-tailed kite distribution includes the East Coast and southeast United States, the southwest United States from Texas to California, and north to Washington State, and from Mexico to South America (Dunk 1995). Relatively stable resident populations occur in California, portions of coastal Oregon and Washington, southern Florida, southern Texas, and portions of northern Mexico. The species is considered rare in remaining portions of its North American range. White-tailed kite has been reported from most of the open, lowland habitats in Yolo County. Six next sites are reported in CNDDB (2009), all in the vicinity of Davis. A total of thirteen nest sites was reported during a survey of the lowland portion of Yolo County conducted in 2007 (Estep 2008). Most were found in riparian areas, including three along Putah Creek, three along Willow Slough, two along Dry Slough, one each along the Sacramento River, Willow Slough Bypass, and Knights Landing Ridge Cut. Two nonriparian sites included one in West Sacramento and one near Dunnigan. Whisler (personal communication, pg. A-59, Yolo HCP/NCCP, 2017) reported several suburban nests in east and north Davis and the Willowbank area, El Macero Golf Course, and UC Davis during 2001 and 2002. No trend information for Yolo County is available.

The Yolo HCP/NCCP will protect 4,430 acres of grassland natural community and 14,362 acres of non-rice cultivated lands seminatural community for a total of 18,792 acres of foraging habitat as well as protect 1,600 acres of nesting habitat and two nesting trees within the Plan Area as well as restore up to 965 acres of nesting habitat if all acreage is loss. In addition to the lands the Yolo HCP/NCCP will protect, there are 3,214 acres of nesting habitat and 9,848 acres of foraging habitat of Category 1 Baseline Public Easement Lands and 1,449 acres of nesting and 5,581 acres of foraging habitat of Category 2 Baseline Public Easement Lands. The Yolo HCP/NCCP will enroll a total of 3,545 acres of Baseline Public Easement Lands, 215 acres of nesting habitat and 3,300 acres of foraging white-tailed kite habitat into the Pre-Permit Reserve Lands. Reserve Lands for white-tailed kite foraging habitat will be a minimum of 80 acres unless the Reserve Lands are contiguous with other white-tailed kite preserves.

The habitat will be protected and managed and monitored to support white-tailed kite. Therefore, CDFW finds that the development of a Reserve System in the Plan Area protects and maintains habitat areas that are large enough to support sustainable populations of white-tailed kite.

Western yellow-billed cuckoo

Western yellow-billed cuckoo historically extended from southern British Columbia to the Rio Grande in northern Mexico, and east to the Rocky Mountains (Bent 1940). Currently the only known populations of breeding western yellow-billed cuckoo are several disjunct locations in California, Arizona, and western New Mexico (Halterman 1991). Western yellow-billed cuckoos still occur in isolated sites in the Sacramento Valley from Tehama to Sutter Counties, along the South Fork of the Kern River, and in the Owens Valley, Prado Basin, and Lower Colorado River Valley (Gaines and Laymon 1984; Laymon 1998). Studies conducted since the 1970s indicate that there may be fewer than 50 breeding pairs in California (Gaines 1977; Laymon and Halterman 1987; Halterman 1991; Laymon et al. 1997). While a few occurrences have been detected elsewhere recently, including the Eel River, the only locations in California that currently sustain breeding populations include the Colorado River system in Southern California, the South Fork Kern River east of Bakersfield, and isolated sites along the Sacramento River in Northern California (Laymon and Halterman 1989; Laymon 1998).

In the Sacramento Valley, only 1 percent of the species' historical habitat remains to support a small population estimated at only 50 pairs in 1987 and 19 pairs in 1989 (Laymon and Halterman 1989). While there are few historical records from Yolo County, presumably the species nested within the county along the west side of the Sacramento River and possibly along smaller tributary drainages, including Putah Creek, Willow Slough, and Cache Creek.

Since 1965, there have been nine records of western yellow-billed cuckoo in Yolo County, including the following:

- Willow Slough in 1965
- Sacramento River in 1977
- Elkhorn Regional Park in 1982
- Gray's Bend in 1997
- City of Davis in 2001
- Putah Creek Sinks in June 2005
- Cache Creek Settling Basin in July 2005
- Fremont Weir in June 2006
- Fremont Weir in July 2006

With implementation of the Yolo HCP/NCCP, 1,600 acres of valley foothill riparian natural community will be preserved of which 500 acres will be western yellow-billed cuckoo modeled habitat. In addition, 60 acres of modeled western yellow-billed cuckoo habitat sited in valley foothill riparian will be restored to result in no net loss of the valley foothill riparian natural community. In addition to the lands the Yolo HCP/NCCP will protect, 350 acres of nesting/foraging habitat of Category 1 Baseline Public Easement

Lands and 812 acres of Category 2 Baseline Public Easement Lands. The Yolo HCP/NCCP will enroll 135 acres of Baseline Public Easement Lands nesting and foraging habitat as Pre-Permit Reserve Lands. Reserve Lands for western yellow-billed cuckoo will be at least 25 acres of mature cottonwood/willow riparian forest in a linear configuration along drainages, unless contiguous with other suitable preserved riparian forests. Habitat patches should be at least 330 feet wide and 990 feet long.

The Yolo HCP/NCCP will provide a net benefit to western yellow-billed cuckoo through the increase of protection of suitable modeled habitat. The habitat will be protected and managed and monitored to support western yellow-billed cuckoo. Therefore, CDFW finds that the development of a Reserve System in the Plan Area protects and maintains habitat areas that are large enough to support sustainable populations of western yellow-billed cuckoo.

Western Burrowing Owl

Western burrowing owl were once widespread and generally common over western North America, in treeless, well-drained grasslands, steppes, deserts, prairies, and agricultural lands (Haug et al. 1993). In California, western burrowing owls are widely distributed in suitable habitat throughout the lowland portions of the state; however, occupied sites have ranged from 200 feet below sea level at Death Valley to above 12,000 feet at Dana Plateau in Yosemite National Park (California Department of Fish and Game [DFG] 2000; Gervais et al. 2008). The current distribution of western burrowing owls in Yolo County is localized primarily in remaining low elevation uncultivated areas, such as the grasslands along the western edge of the Central Valley, the pasturelands in the southern panhandle, and the Yolo Bypass Wildlife Area. Other sites include some urban and semi-urban areas, particularly in and around the City of Davis, and other scattered locations associated with edges of cultivated lands.

While comprehensive surveys of the plan area have not been conducted, coordinated surveys have been undertaken in portions of the county. The results of these surveys and incidental reports indicate that the majority of known western burrowing owl breeding locations are in the southern portion of Yolo County, centered in and around the City of Davis, the Yolo Bypass Wildlife Area, and the southern panhandle. A total of 50 breeding pairs were reported in Yolo County in 2007 (Table A-7), and surveys of these same sites in 2014 indicated that only 15 breeding pairs were present in these locations. These data represent only reported sightings from several locations in Yolo County where surveys were conducted and data were recorded and made available. This summary does not represent the total number of western burrowing owl breeding pairs in the county. However, it does represent the most significant known breeding areas for western burrowing owl in Yolo County. Per Whisler, during 2010 and 2011, there were 6 documented western burrowing owl nests northeast of Davis along the north side of CR 28H between CR 102 and 104 (personal communication, A-76, Yolo HCP/NCCP, 2017). During 2015, Whisler observed only one pair of western burrowing owl north of CR 28H, just west of CR 104. This pair was in the former ConAgra (Hunt-Wesson) property nesting on a dirt mound.

There is evidence that the overall population in the county has declined based on severe declines or extirpations of known colonies. Per Johnson, the western burrowing owl colony on the University of California, Davis campus had declined from 22 pairs in 1981 to one pair in 1991, then rebounded to several pairs in the late 1990s (personal communication, A-77, Yolo HCP/NCCP, 2017). Another colony of

10 pairs documented in 1976 near the Yolo County Airport had been eliminated when the location was flooded in 1983 to create a pond (CNDDB 2007). More recently, a small colony on the north side of Winters was displaced by grading activities in preparation of a new development project.

However, per McNerney, western burrowing owls have increased or continue to be relatively stable during the last several years in other areas, such as the Mace Ranch Preserve and the Wildhouse agricultural buffer and golf course (personal communication, A-78, Yolo HCP/NCCP, 2017) in the Davis area. Habitat restoration efforts by the California Department of Fish and Wildlife (DFW) at the Yolo Bypass Wildlife Area may also be responsible for the increase in reported occurrences of owls at that location. Thus, in some areas, owls appear to respond favorably to protection and restoration efforts.

The Yolo HCP/NCCP will protect 3,000 acres of modeled primary habitat, at least 2,500 acres of modeled other habitat. Additional western burrowing owl habitat is likely to be protected to meet the Swainson's hawk habitat protection commitment because much of the Swainson's hawk modeled cultivated lands foraging habitat is also modeled habitat for western burrowing owl. This is in addition to the 818 acres of primary habitat and 1,351 acres of other habitat of Category 1 Baseline Public Easement Lands and 2,490 acres of primary habitat and 1,546 acres of other habitat of Category 2 Baseline Public Easement Lands. The Yolo HCP/NCCP will enroll 1,100 acres of Baseline Public Easement Lands modeled western burrowing owl habitat as Pre-Permit Reserve Lands. Within the protected western burrowing owl habitat, the Yolo HCP/NCCP will maintain two active nesting sites for each nesting pair displaced by Covered Activities and will maintain one active nesting site or single owl site for each non-breeding owl displaced by Covered Activities.

Protected western burrowing owl habitat will be managed and enhanced to improve habitat value. The Yolo HCP/NCCP will enhance and maintain the functions of protected grassland (primary habitat) by installing artificial burrows, creating conditions for increasing the abundance of native rodents and reducing the relative cover of nonnative grasses and forbs that reduces habitat value for Covered Species as well as other native species. The Yolo HCP/NCCP will also maintain and enhance the cultivated lands seminatural community (other habitat).

The Yolo HCP/NCCP will provide a net benefit to western burrowing owl through the increase of protection of suitable modeled habitat. The habitat will be protected and managed and monitored to support western burrowing owl. Therefore, CDFW finds that the development of a Reserve System in the Plan Area protects and maintains habitat areas that are large enough to support sustainable populations of western burrowing owl.

Least Bell's Vireo

Least Bell's vireo is a riparian obligate, the historical distribution of the least Bell's vireo extended from coastal southern California through the San Joaquin and Sacramento valleys as far north as Tehama County near Red Bluff. The Sacramento and San Joaquin valleys were considered the center of the species' historical breeding range supporting 60 to 80 percent of the historical population (51 FR 16474). The species also occurred along western Sierra foothill streams and in riparian habitats of

the Owens Valley, Death Valley, and Mojave Desert (Cooper 1861 and Belding 1878 in Kus 2002a; Grinnell and Miller 1944).

During 2010-2013, least Bell's vireo surveys were conducted in the Putah Creek Sinks located in the Yolo Bypass Wildlife Area (Whisler 2013, 2015). During 2010, two pairs of least Bell's vireos were observed in the survey area along with one or two additional individuals. Both pairs of vireos were observed performing courtship activities and territorial defense against other least Bell's vireos. On April 26, an adult least Bell's vireo was observed carrying nesting material. There was no evidence of successful nesting by least Bell's vireos. No obvious signs of nesting (e.g., active nests, fledglings, or adults carrying food) were observed during the surveys. The territories were occupied throughout the typical nesting season (April through mid-August).

In 2011**, t**he two 2010 least Bell's vireo territories were occupied by two least Bell's vireo pairs. The male in each pair was observed singing and defending the territory, signs of breeding behavior. Courtship activities were observed in one of the two pairs. One male was also defending its territory from a third adult. There were no further least Bell's vireo detections in late July or August of 2011.
There were no least Bell's vireo detections during 2012. Apparently, the birds did not return to the survey area or they were not detected. One vireo was detected in 2013 on May 9, but none were detected after that date. 2015 surveys are ongoing (Whisler et al. 2015).

The Yolo HCP/NCCP will protect 1,600 acres of valley foothill riparian natural community of which 600 acres is modeled least Bell's vireo habitat. Within the 1,600 acres, up to 608 acres will be restored to least Bell's vireo habitat. This is in addition to the 359 acres of nesting/foraging habitat of Category 1 Baseline Public Easement Lands and 925 acres of nesting/foraging habitat of Category 2 Baseline Public Easement Lands. The Yolo HCP/NCCP will enroll 110 acres of the Baseline Public Easement Lands as Pre-Permit Reserve Lands.

The Yolo HCP/NCCP will focus conservation within a habitat corridor along Cache Creek, Putah Creek, and the Sacramento River, each of which supports a large contiguous patch of modeled least Bell's vireo habitat. The Yolo HCP/NCCP will also enhance and maintain the functions of the protected and restored valley foothill riparian community by reducing the relative extent of nonnative plants that degrade habitat function, and improving native plant diversity and vegetation structure.

The Yolo HCP/NCCP will provide a net benefit to least Bell's vireo through the increase of protection of suitable modeled habitat. The habitat will be protected and managed and monitored to support least Bell's vireo. Therefore, CDFW finds that the development of a Reserve System in the Plan Area protects and maintains habitat areas that are large enough to support sustainable populations of least Bell's vireo.

Bank Swallow

Bank swallow range throughout most of Alaska and Canada, southward from eastern Montana to Nevada, and eastward across the United States to Georgia during the summer months in the western hemisphere. Bank swallows are variably distributed throughout California, Texas, and New Mexico.

Within California, regular breeding of the bank swallow occurs in Siskiyou, Shasta, and Lassen Counties, and along the Sacramento River from Shasta County south to Yolo County (DFG 2000).

In the Plan Area, bank swallow colonies, ranging from 10 to 400 burrows, were observed along the Sacramento River and Cache Creek in 1987 (CNDDB 2005). Breeding occupancy was estimated as ranging 10 to 70 percent at the various colonies. However, many of the colonies were unoccupied or inactive. During a survey in 2000, four colonies totaling 488 burrows were found along the Sacramento River in Yolo County between Verona and Knight's Landing (R. Schlorff and C. Swolgaard unpublished data). Assuming an occupancy rate of 45 percent, as used by California Department of Fish and Wildlife (DFW) (Wright et al. 2011), this population was estimated at 202 pairs. An active colony persisted along Cache Creek in a gravel quarry until at least 2001 (Yolo Audubon Society 2004).

April 10, 2011, Whisler (personal communication, A-91, Yolo HCP/NCCP, 2017) observed bank swallows nest-building in the bank of the cross-channel from the Port of West Sacramento to the Sacramento River. The colony failed when the Sacramento River rose from heavy rains that spring. This was likely the southernmost colony along the Sacramento River, and in the most urban area along the Sacramento River. Per Whisler, no colonies have been detected since then (personal communication, A-91, Yolo HCP/NCCP, 2017).

The Yolo HCP/NCCP will conserve land within a habitat corridor along Cache Creek, which supports much of the modeled bank swallow habitat in the Plan Area. In this area, the Yolo HCP/NCCP will protect at least 50 acres of occupied bank swallow habitat. This is in addition to the six acres of nesting habitat of Category 2 Baseline and Public Easement Lands. There are no lands that are conserved of Category 1 Baseline Public Easement Lands.

The minimum patch size will be at least seventeen feet of open, vertical, and erodible channel bank supporting soils that provide suitable nesting substrate. Additionally, protected floodplain along Cache Creek will be managed to provide high-value foraging habitat for bank swallows by promoting open grass and wildflower vegetation and by controlling invasive plant species.

The Yolo HCP/NCCP will provide a net benefit to bank swallow through the increase of protection of suitable modeled habitat. The habitat will be protected and managed and monitored to support bank swallow. Therefore, CDFW finds that the development of a Reserve System in the Plan Area protects and maintains habitat areas that are large enough to support sustainable populations of bank swallow.

Tricolored Blackbird

Tricolored blackbird are endemic to the western edge of North America; however, about 95 percent of the global population resides in California where breeding has occurred in 46 counties (Beedy and Hamilton 1999). In April 2004, statewide surveys focused on only those colonies that had supported greater than 2000 adults in at least one previous year. Of 184 sites surveyed, only 33 supported active colonies at the time of the survey. Of the 33 colonies, 13 held greater than 2000 adults each, collectively representing greater than 96 percent of the census total (Green and Edson 2004). A statewide survey

performed on April 25 to 27, 2008 found a total of 394,858 adults at 155 sites in 32 counties (Kelsey 2008). The most recent statewide survey for tricolored blackbirds was conducted in 2014, at which time the number of tricolors dropped to 145,135 birds (Meese 2014).

In Yolo County, tricolored blackbirds historically bred primarily in marshes with emergent vegetation. The species forages in grasslands, wetlands, and agricultural fields from March through July, but are irregular visitors during the remainder of the year (Yolo Audubon Society Checklist Committee 2004). Per Meese, recent surveys revealed very few nesting colonies in Yolo County (personal communication, A-98, Yolo HCP/NCCP, 2017). Fourteen colonies were documented in the county from 1994 to 2004, with populations estimated from 15 to 1,500 adults. Surveys in 2007 revealed a highly successful colony of more than 30,000 breeding adults in milk thistle on the Conaway Ranch in the Yolo Bypass. This was one of only three documented colonies statewide that were large and successful, and this colony was estimated to have produced about 30,000 young (Meese 2007). Other recent colony sites in the county included: "Bill's Grasslands," a newly-discovered colony located within a patch of Himalayan blackberry approximately one km south of the intersection of County Roads 92B and 15B that was active in 2006 and again in 2007. This colony was active again in 2012 in a slightly different location off Road 92B. Another colony in milk thistle on County Road 88B, about two km north of State Route 16 that was active in 2005 and 2007, but not in 2006. Four small colonies were also found in the Yolo Bypass in 2005 that have not been occupied since. Per Meese, a historical colony at the Sunsweet Drying facility, just south of County Road 27 and about 1 km west of I-505, has not been active in the past three years (personal communication, A-98, Yolo HCP/NCCP, 2017). A total of 1,900 adults were observed at two colonies in the Yolo Bypass during the 2008 statewide survey (Kelsey 2008).

The protection of grassland and cultivated lands seminatural community is expected to contribute an estimated 16,610 acres of tricolored blackbird foraging habitat to the Reserve System. The Yolo HCP/NCCP will also protect 500 acres of fresh emergent wetland natural community, at least 200 acres of which will be sited in modeled tricolored blackbird nesting habitat and restore up to 86 acres of nesting habitat assuming the maximum acreage is loss. This is in addition to the 730 acres of nesting habitat and 11,616 acres of foraging habitat of Category 1 Baseline Public Easement Lands and 1,244 acres of nesting and 6,303 acres of foraging habitat of Category 2 Baseline Public Easement Lands. The Yolo HCP/NCCP will enroll 150 acres of the Baseline Public Easement Lands into the Reserve System.

Reserve lands of emergent wetland including tule/cattail or riparian scrub will be at least 0.5 acres in size. The Yolo HCP/NCCP will restore fresh emergent wetland to achieve no net loss of this natural community, potentially providing additional nesting opportunities for tricolored blackbird. Additionally, at least 4,150 acres of existing protected tricolored blackbird habitat on Pre-Permit Reserve Lands will be enrolled into the Reserve System, including 4,000 acres of foraging habitat and 150 acres of nesting habitat. The Reserve System will include at least two tricolored blackbird colony, which will be managed to maintain the colony.

The Yolo HCP/NCCP will provide a net benefit to tricolored blackbird through the increase of protection of suitable modeled habitat. The habitat will be protected and managed and monitored to support tricolored blackbird. Therefore, CDFW finds that the development of a Reserve System in the Plan Area

protects and maintains habitat areas that are large enough to support sustainable populations of tricolored blackbird.

Palmate-bracted Bird's-beak

Palmate-bracted bird's-beak is endemic to the west side of the Sacramento Valley, the north side of the Sacramento National Wildlife Refuge (NWR) Complex, the San Joaquin Valley, and the Springtown area of the Livermore Valley. This species is currently known to exist at six locations outside of the Plan Area: Delevan NWR, Sacramento NWR (established from seed collected at the Delevan NWR), Colusa NWR, the Springtown area, western Madera County, and the combined Alkali Sink Ecological Reserve and Mendota Wildlife Management Area (USFWS 1998).

Very little information exists concerning the historical distribution of palmate-bracted bird's-beak in the Plan Area prior to extensive habitat conversion. The documented locations in the Plan Area consist of an extirpated population that was located northeast of the city of Woodland near the Cache Creek Settling Basin and an extant population located southeast of Woodland (CNDDB 2012; Center for Natural Lands Management 2012; Crampton 1979; Dean 2009). Within the last 25 years, the species has been observed in areas adjacent to the Woodland population in an alkali playa/meadow (Crampton 1979) and on Pescadero silty clay, saline-alkali, and Willows clay soil types (Showers 1988, 1996; EIP Associates 1998; Foothill Associates 2002).

Individuals in the existing Woodland population are generally found on small topographic features such as old irrigation checks, banks of shallow ditches, along the shoreline of a pond, and along the upper margin of a vernal pool. The entire population is limited to Pescadero silty clay, saline-alkali, and Willows clay soil types (Andrews 1970; Showers 1988, 1996; EIP Associates 1998).

There are two documented occurrences within the Plan Area, which are located in the Woodland and Willow Slough Basin planning units. One occurrence is located on protected land managed by the Center for Natural Lands Management. The second occurrence is located at Woodland Regional Park. These two occurrences had a total population of under 10,000 plants in 1981 and 907 plants in 2017 (CNDDB 2018). The Yolo HCP/NCCP will protect the second occurrence by placing a conservation easement on 33 acres of occupied habitat on Woodland Regional Park. The site will be monitored and adaptively managed to increase the 10-year average population size of palmate-bracted bird's-beak by at least 10% by managing and enhancing the habitat. The Yolo HCP/NCCP will also enroll141 acres of Category 1 Baseline Public Easement Lands modeled and/or occupied habitat as Pre-Permit Reserve Lands.

The Yolo HCP/NCCP will provide a net benefit to palmate-bracted bird's-beak through the increase of protection of suitable modeled habitat. The habitat will be protected and managed and monitored to support palmate-bracted bird's-beak. Therefore, CDFW finds that the development of a Reserve System in the Plan Area protects and maintains habitat areas that are large enough to support sustainable populations of palmate-bracted bird's-beak.

Finding 4.1.4.D **CDFW finds that the development of reserve systems and conservation measures in the Plan Area provides, as needed for the conservation of species: a**

range of environmental gradients and high habitat diversity to provide for shifting species distributions due to changed circumstances (Section 2820(a)(4)(D)).

The Plan Area encompasses all areas within the boundaries of Yolo County, totaling approximately 653,549 acres, and lies within the California's Great Central Valley and Coast Ranges geomorphic provinces, and its topography is characterized by valley, foothill, and mountain range components. The highest elevation in the Reserve Area located in the Dunnigan Hills planning unit is 446 feet above mean sea level with the lowest elevation located in the southern end of the Yolo Bypass, slightly below sea level. The Reserve System will include a variety of environmental gradients such as slope, elevation, or aspect within and across a diversity of protected and restored natural communities within the Plan Area.

The Plan Area has a Mediterranean-type climate, with cool, wet winters and warm, dry summers. Precipitation occurs primarily in the form of rain from October through April, with very little precipitation during the hot, dry summers. The western side of the Plan Area receives the most precipitation in the Little Blue Ridge and Blue Ridge mountains (21 to 30 inches annually) while the lowest is in areas near the Sacramento River (18 inches annually)(Figure 2-1). Temperatures within the Plan Area range from a high and low of 59 degrees Fahrenheit (°F) and 35°F in January to a high and low of 96°F and 59°F in July. Ensuring a broad array of elevation ranges within the Reserve System is more likely to support future upslope migration of communities and species in response to climate change.

Protection of natural habitat diversity contributes to maintaining the abundance and distribution of associated Covered Species and other native species. By selecting Reserve System lands that contribute to the protection of a high diversity of natural communities, habitat, vegetation types, and species confers the conservation benefits of a diverse mosaic of physical and vegetative structure and composition that protects biodiversity.

The Reserve System will be assembled to complement existing public and protected Baseline Public and Easement Lands within the Plan Area as well lands that have been prioritized for acquisition. The Reserve System will encompass continuous connections across elevation ranges and capture the diversity of natural communities and habitats that result from differences in rainfall and temperature as well as the effects of topographic relief, soil conditions, and other factors. The Yolo HCP/NCCP has identified ecological corridors (Figure 6-3) that will provide connectivity between natural communities inside and outside the Plan Area and will provide connectivity between habitat types that support different life history functions for the Covered Species.

Conservation Measure 1 has included a biological objective to include a variety of environmental gradients within and across a diversity of protected and restored natural communities within the Plan Area. Chapter 6.4.1.4, *Reserve System Assembly*, includes design concepts to achieve this objective. With adequate preservation and enhancement of the natural communities, biological diversity, ecological processes, environmental gradients, and wildlife linkages, the Yolo HCP/NCCP will provide for shifting species distributions due to change circumstances.

Because of the degree of uncertainty and natural variability associated with ecosystems and their responses to management, adaptive management is necessary. An adaptive approach to inform and design the monitoring program will be utilized. It is possible that additional and different management

measures will be identified and implemented during the Permit term. The Yolo HCP/NCCP includes a monitoring and adaptive management program, essential to the successful implementation of the Conservation Strategy.

Therefore, the development of the Reserve System and conservation measures in the Plan Area provides, as needed for the conservation of species, a range of environmental gradients and high habitat diversity to provide for shifting species distributions due to changed circumstances.

Finding 4.1.4.E **CDFW finds that the development of reserve systems and conservation measures in the Plan Area provides, as needed for the conservation of species: for sustaining the effective movement and interchange of organisms between habitat areas in a manner that maintains the ecological integrity of the habitat areas within the Plan Area (Section 2820(a)(4)(E)).**

The Yolo HCP/NCCP will provide a minimum of 24,450 acres of newly protected natural and semi-natural land along with 8,000 acres of Pre-Permit Reserve Lands and up to 956 acres of restored or created lands that will build upon the 34,264 acres already under a permanent conservation easement. The newly protected lands will be sited adjacent to protected Baseline Public and Easement Lands thus allowing for movement and genetic interchange of organisms between habitat areas to maintain biological diversity and ecosystem function. The Yolo HCP/NCCP has identified ecological corridors (Figure 6-3) that will provide connectivity between natural communities inside and outside the Plan Area and will provide connectivity between habitat types that support different life history functions for the Covered Species.

The Yolo HCP/NCCP includes landscape and natural community-level biological goals and objectives that will contribute to conserving the Covered Species. In addition, the Conservation Strategy includes Covered Species specific biological goals and objectives that would not have been met at the landscape or natural community level.

Because of the degree of uncertainty and natural variability associated with ecosystems and their responses to management, adaptive management is necessary. An adaptive approach to inform and design the monitoring program will be utilized. It is possible that additional and different management measures will be identified and implemented during the Permit term. The Yolo HCP/NCCP includes a monitoring and adaptive management program, essential to the successful implementation of the Conservation Strategy.

Development of the Reserve System will allow the movement and interchange of organisms between habitats and Reserve System lands. Therefore, the development of the Reserve System and conservation measures in the Plan Area provides, as needed for the conservation of species, for sustaining the effective movement and interchange of organisms between habitat areas in a manner that maintains the ecological integrity of the habitat areas within the Plan Area.

Finding 4.1.5 **CDFW finds that the Yolo HCP/NCCP identifies activities, and any restriction on those activities, allowed within the reserve areas that are compatible with the conservation of species, habitats, natural communities, and their associated ecological functions (Section 2820(a)(5)).**

Chapter 4.3.5 discusses Reserve System activities and provides measures to avoid and minimize the effects from these activities. Activities that may take place within the Reserve System include:

- Habitat and Covered Species restoration, enhancement, and creation
- Habitat and species monitoring
- Research
- Vegetation management
- Palmate-bracted bird's-beak seed collection
- Stream maintenance for natural community and Covered Species habitat purposes
- Cultivation of specified crop types
- Establishing and maintaining fuel management zones at the wildland/urban interface
- Water management including installation of wells and water delivery
- Canal and ditch maintenance
- Control of invasive nonnative species
- Construction, maintenance, repair, replacement and use of facilities needed to manage the Reserve System including, but not limited to, maintenance sheds, shade structures, roads, culverts, fences, gates, wells, stock tanks, and stock ponds
- Limited recreational use

Activities within the Reserve System are expected to have a net benefit on all Covered Species; however, some activities may have a temporary or permanent adverse impact on Covered Species that may result in Take. The Reserve System is designed to be large and diverse enough to ensure that the net effects of the Reserve System activities are beneficial across the system.

Restriction within the Reserve System include, but are not limited to the use of rodenticides, removal or cutting of trees except for fire hazard, prevention or treatment of disease, health or safety, or threat to agricultural operations, disturbing burrows occupied by western burrowing owls, and avoid disturbing nesting tricolored blackbirds. Avoidance and minimization measures are applicable to Covered Activities on the Reserve System lands (Section 4.3.5).

Therefore, the Yolo HCP/NCCP identifies activities, and any restriction on those activities, allowed within the Reserve System that are compatible with the conservation of species, habitats, natural communities, and their associated ecological functions.

Finding 4.1.6 **CDFW finds that the Yolo HCP/NCCP contains specific conservation measures that meet the biological needs of Covered Species and that are based upon the best available scientific information regarding the status of Covered Species and the impacts of permitted activities on those species (Section 2820(a)(6)).**

Independent Science Advisors consisting of a group of experts in conservation ecology and knowledge of the specific biological resources in the Plan Area provided recommendations that were used in the development of the conservation design, the conservation analysis, and the adaptive management and monitoring program.

The overall Conservation Strategy for Covered Species focuses on the conservation and long-term management of a Reserve System that will meet the ecological needs of the Covered Species, the

restoration of modeled suitable habitat, avoidance and/or minimization of impacts, and the mitigation of unavoidable impacts. The Reserve System will support high quality habitat and will be located in Conservation Reserve Areas (Figure 6-5). The Yolo HCP/NCCP will preserve and restore habitat for the Covered Species as discussed in Finding 4.1.4C. The conservation measures in the Conservation Strategy are based on the best scientific data available and designed using a multi-level ecological approach in accordance with principles of conservation biology and are quantifiable and measurable (Section 6.2.1).

Direct take of seven species is not anticipated, although some direct loss of occupied habitat is expected to occur for Swainson's hawk, white-tailed kite, western yellow-billed cuckoo, western burrowing owl, least Bell's vireo, bank swallow, and tricolored blackbird. Direst take of palmate-bracted bird's-beak is anticipated only for management act ivies while direct take for Covered Activities is anticipated for western pond turtle, California tiger salamander, valley elderberry longhorn beetle, and giant garter snake. The Yolo HCP/NCCP include avoidance and minimization measures (AMMs) to minimize direct and indirect impacts to all of these twelve Covered Species. To reduce impacts due to Covered Activities, the Yolo HCP/NCCP has included general AMMs such as: 1) establishing buffers around sensitive natural communities; 2) designing developments to minimize indirect effects; 3) confine and delineate work areas; 4) cover trenches and holes; 5) control fugitive dust; 6) conduct worker training; 7) control nighttime lighting at project sites; and 8) avoid and minimize effects due to construction staging and temporary work areas (Sections 4.3.1, 4.3.2, and 4.3.3).

The Yolo HCP/NCCP also includes specific Covered Species AMMs (Section 4.3.4) which may be modified over time, depending on the most current guidelines developed by the Wildlife Agencies and based on the best available data. The twelve Covered Species AMMs include 1) pre-construction surveys, 2) buffer establishment; and 3) relocation/transplantation. In general, the pre-construction surveys require the project proponent to retain qualified biologist with the expertise in the Covered Species to conduct pre-construction surveys to identify suitable and occupied habitat; establish buffers as specified for each of the Covered Species; and translocate suitable elderberry plants out habitat out of harm's way prior to Covered Activities, relocate western pond turtle or giant garter snake if discovered during Covered Activities; and relocation of western burrowing owls prior to Covered Activities. In addition, the Yolo HCP/NCCP contains AMMs for Covered Activities within the Reserve System (Section 4.3.5) which include buffers, work windows, moving Covered Species out of harm's way, limits of disturbance, and tree removal.

In addition to preserving occupied habitat, conservation measure 3 (Section 6.4.3) includes additional biological goals for certain Covered Species. The biological goals include: 1) increase the palmate-bracted bird's-beak 10-year running average of the population size by ten percent; 2) add logs, rocks, and/or emergent vegetation within protected and restored lacustrine and riverine natural communities to create basking sites and other habitat features for western pond turtles; 3) ensure at least 80% of the aquatic habitat is perennial for giant garter snake, and the remainder provides aquatic habitat during the giant garter snake's active season at least through July of each summer; 4) establish trees suitable for Swainson's hawk nesting within the cultivated lands of the Reserve System to meet a density of at least one tree per ten acres; 5) enhance habitat for western burrowing owl by installing artificial burrows where natural burrows are lacking, creating berm features, and creation of debris piles to enhance prey populations; 6) enhance bank swallow foraging habitat value by promoting open grass and forb vegetation and controlling invasive plant species; and 7) maintain at least 300 acres, consisting of

150-acre blocks, of tricolored blackbird foraging habitat within the Reserve System free of pesticides as well as manage and enhance their nesting habitat.

Therefore, the Yolo HCP/NCCP contains specific conservation measures that meet the biological needs of Covered Species and that are based upon the best available scientific information regarding the status of Covered Species and the impacts of permitted activities on those species.

Finding 4.1.7 **CDFW finds that the Yolo HCP/NCCP contains a monitoring program (Section 2820(a)(7)).**

The monitoring program is described in Section 6.5, *Monitoring and Adaptive Management*. The purpose of the monitoring program is to ensure compliance with the Yolo HCP/NCCP requirements; assess the status of Covered Species and other native species, natural communities, and ecosystem processes within the Reserve System and in certain cases outside the Reserve System. The monitoring program will also measure the effectiveness of the Conservation Strategy in achieving the biological goals and objectives.

The monitoring program will be integrated with adaptive management into one cohesive program where monitoring will inform and change management actions to continually improve outcomes for Covered Species and natural communities. There are three types of monitoring: compliance monitoring, effectiveness monitoring, and targeted studies.

Compliance monitoring tracks the status of the Yolo HCP/NCCP implementation, documents that the Yolo HCP/NCCP is meeting all of the requirements, and verifies the Permittees are carrying out the terms in the Permits, Yolo HCP/NCCP, and Implementing Agreement. The YHC will track and ensure compliance monitoring and provide the results to the Wildlife Agencies. Compliance monitoring will be composed of:

- Tracking loss of natural communities and Covered Species to ensure Take limits are not exceeded and to ensure compliance with the stay-ahead requirements as described in Chapter 7, *Plan Implementation*
- Tracking implementation of acquisition, restoration, and creation actions
- Tracking implementation of other conservation actions on and off the Reserve System
- Tracking implementation of avoidance and minimization requirements
- Tracking and reporting of management and monitoring activities

Effectiveness monitoring assesses the biological success of the Yolo HCP/NCCP. Effectiveness monitoring will evaluate the implementation and success of the Conservation Strategy as described in Chapter 6 and includes monitoring the effects of management activities. Effectiveness monitoring will determine patterns within the Reserve System relative to the baseline status and trends of biological resources. Included in effectiveness monitoring are monitoring status and trends as well as effects of management actions (effects monitoring).

The Yolo HCP/NCCP will monitor indicators of the status and trends of Covered Species and natural communities to provide data regarding the increase or decrease of these resources in the Plan Area.

Baseline data will first be collected to provide a temporal snapshot of the status of these resources at the first year of monitoring in order to compare to future data. Status and trend monitoring will include quantitative data on Covered Species (population size, distribution), land cover, and modeled habitat as well as nonnative species and other known threats. Qualitative assessments of vegetative structure and/or habitat quality will also be a component of status and trends monitoring.

Effects of management monitoring will ascertain the success of management in achieving desired outcomes, provide information and mechanisms for altering management in achieving desired outcomes, provide information and mechanisms for altering management if necessary, and to evaluate whether the Conservation Strategy was successful. The initial component of effects monitoring will include the development and assessment of performance criteria for management actions. The biological goals and objectives will determine the form of the performance criteria. Once success criteria are developed, effects monitoring will include monitoring these criteria as well as assessing the effects of management on Covered Species. The effects of threat-abatement activities (e.g. density of nonnative invasive plants) will also be evaluated.

Target studies is subdivided into three types: methods testing, pilot projects, and directed studies. Method testing is designed to evaluate alternative monitoring protocols and sampling designs and to select the best technique for obtaining the desired information. The results of method testing would then be used to develop a long-term monitoring protocol.

Pilot projects will be used to ascertain, on a small scale, which management actions may ultimately yield the desired conservation gains prior to initiating a long-term project. They are also a cost-effective way to test management actions.

Direct studies will reduce the levels of uncertainty related to achieving biological goals and objectives. Directed studies will be carried out to gain insight into key questions identified in the Conservation Strategy and during the Yolo HCP/NCCP implementation. Results of these studies will inform management and ensure attainment of the biological goals and objectives.

The results of the compliance and effectiveness monitoring will be provided to the Wildlife Agencies.

CDFW finds that the Yolo HCP/NCCP contains a monitoring program.

Finding 4.1.8 **CDFW finds that the Yolo HCP/NCCP contains an adaptive management program (Section 2820(a)(8).).**

The adaptive management program is described in Section 6.5, *Monitoring and Adaptive Management*. Adaptive management is a decision-making process promoting flexible management such that actions can be adjusted as uncertainties become better understood or as conditions change. The Yolo HCP/NCCP will use information collected through monitoring and other experiments to manage Reserve System lands and protect Covered Species and other native species habitat and natural communities. Monitoring is the foundation of an adaptive approach, and adaptive management actions are developed, in part, from the results of the monitoring.

The adaptive management program will be reviewed by outside scientists. Science and technical advisors will evaluate the effectiveness on proposed management actions. The science and technical advisors recommendations will be incorporated into the implementation of the Yolo HCP/NCCP where appropriate, and approved by the Wildlife Agencies. Results of the monitoring and targeted studies will be shared amongst the Permittees and other regional restoration and management programs.

The Yolo HCP/NCCP will evaluate the effectiveness of conservation efforts following the model outlined in Figure 6-8, *Flowchart of the Adaptive Management Process*. This figure illustrates how the Yolo HCP/NCCP will develop indicators and success criteria and will use monitoring to ensure the effectiveness of the Yolo HCP/NCCP. Using monitoring to provide information for adaptive management actions will require a framework for measuring responses.

Adaptive management actions will likely take place at the following junctures:

- In response to the results of targeted studies including pilot projects
- In response to downward trends in the status of Covered Species or key natural community variables
- When new information from the literature or other relevant research indicates that a feasible and superior alternative method for achieving the biological goals and objectives exists
- When monitoring indicates that the expected or desired result of a management action did not take place
- When threats have been identified through the ongoing development of conceptual models or through other monitoring efforts in the Plan Area

Most adaptive management measures will occur when conservation actions do not produce the desired outcome or when Covered Species or natural-community trends decrease. Such conservation actions include, but are not limited to, the following:

- Alter the timing, location, intensity or type of grazing
- Reduce, increase or otherwise change the pattern of prescribed burning
- Re-evaluate and, if necessary, alter avoidance and minimization measures
- Modify age, timing, location, or type of seedling transplantation for natural-community restoration
- Prioritize or de-emphasize one aspect of noxious weed control such as targeted pesticide use Increase, decrease or desist species-specific conservation actions such as translocation of individuals based on experimental results

CDFW finds that the Yolo HCP/NCCP contains an adaptive management program.

Finding 4.1.9 **CDFW finds that the Yolo HCP/NCCP includes a timeframe and process by which reserves or other conservation measures are to be implemented, including the**

obligations of landowners and plan signatories, and the consequences of the failure to acquire lands in a timely manner (Section 2820(a)(9)).

The Conservation Strategy will be implemented at or faster than the rate at which the loss of natural communities or habitat for Covered Species occurs so that conservation always stays ahead of effects and rough proportionality is maintained between adverse effects on natural communities or Covered Species and conservation measures. The assembly of the Reserve System must stay ahead of impacts that have occurred under the Permit.

Within five years of issuance of the last Wildlife Agency Permit, Pre-Permit Reserve Lands will be enrolled into the Reserve System. All land to be incorporated into the Reserve System must be acquired by year 45 of the of the Permit term. Any restoration or creation actions must be completed by year 40. For inclusion into the Reserve System, newly protected Baseline and Public Easement Lands must meet specific criteria and go through an acquisition process. Both of these are described in Sections 7.5.1 and 7.5.2 of the Yolo HCP/NCCP. The overall purpose of these processes is to ensure that the lands contribute to the Conservation Strategy and that there are no conflicting uses or conditions associated with the land.

The amount of each natural community conserved, restored, or created is a proportion of the total requirement by natural community and must be equal to or greater than the impact on the natural community as a proportion of the total impact expected by all Covered Activities. For example, if 40 percent of the total expected impacts on the grasslands natural community have occurred, then at least 40 percent of the conservation of the collective grasslands natural community must also occur. To allow for start-up tasks to occur, the Stay-Ahead provision will only apply two years after the last local ordinance to implement the Yolo HCP/NCCP takes effect. After two years of implementation of the Yolo HCP/NCCP, the YHCs must measure compliance with the stay-ahead provision using the methods described in Section 7.5.3.1.

The Permittees may fall behind by a maximum of ten percent of its Conservation Strategy acreage requirements (conservation overall and by each applicable land cover type) and still be in compliance with the Stay-Ahead provision. This deviation accounts for the likely pattern of infrequent land acquisition of large parcels, which will allow the Permittees to jump far ahead of impacts with one acquisition. The Permittees will be allowed a ten percent deviation below the required trajectory of conservation. YHC and the Wildlife Agencies will monitor the status of the Stay-Ahead provision throughout the Yolo HCP/NCCP implementation on an annual basis. YHC will include in the annual reports the status of the Stay-Ahead provision. As long as the pace of conservation measure implementation does not fall behind the pace of Covered Activity impacts by more than ten percent, the Permittees will meet the Stay-Ahead provision.

If the Stay-Ahead provision is not met, YHC and the Wildlife Agencies will meet and confer within 30 days of the annual report to assess the situation. If the Wildlife Agencies determine that the Yolo HCP/NCCP is out of compliance with the Stay-Ahead provision, the Wildlife Agencies will determine if the Permittees have maintained rough proportionality. Rough proportionality means implementation of

mitigation and conservation measures on a plan basis is roughly proportional in time and extent to the impact on habitat or Covered Species authorized under the Yolo HCP/NCCP. If the Wildlife Agencies If the Wildlife Agencies issue a notification to YHC that rough proportionality is not met, the Wildlife Agencies and YHC will meet to develop a mutually agreeable plan of action to remedy the situation and achieve compliance as outlined in Section 7.5.3.3.

If the plan of action has been exercised, and the YHC cannot comply with the Stay-Ahead provision, the Yolo HCP/NCCP will be reevaluated. An amendment may be warranted that would address the compliance situation. If the Wildlife Agencies determine the Yolo HCP/NCCP is not meeting terms and conditions of the Permit, the Yolo HCP/NCCP, and the IA, the Wildlife Agencies may suspend or revoke regulatory authorizations.

Therefore, CDFW finds that the Yolo HCP/NCCP includes a timeframe and process by which the Reserve System or other conservation measures are to be implemented, including the obligations of Yolo HCP/NCCP signatories, and consequences of the failure to acquire lands in a timely manner.

Finding 4.1.10 **CDFW finds that the Yolo HCP/NCCP contains provisions that ensure adequate funding to carry out the conservation actions identified in the Yolo HCP/NCCP (Section 2820(a)(10)).**

The cost of implementing the Yolo HCP/NCCP over the 50-year Permit term is estimated to be $424,962,000. This estimate includes the cost of land acquisition, plan administration, natural community management and restoration, biological monitoring, remedial measures, and contingency. The Yolo HCP/NCCP funding will come from fee and non-fee funding. Fee funding includes private and public sector development impact fees while non-fee funding consists of in-lieu land acquisitions and activities funded by local government agencies, state and federal grants, and interest income.

The Yolo HCP/NCCP funding will come from a variety of sources (Table 8-6) and are broken down into two categories, fee funding and non-fee funding. Fee funding is generated when impacts occur and the entity causing the impacts pays a fee to fund the Conservation Strategy to offset the impacts and contribute to recovery. Non-fee funding comes from a variety of sources, such as in-lieu land acquisition, interest and investment income, and state and federal grant funds.

Fee funding will utilize a variety of private and public development-based fees to fund mitigation that will offset losses of land cover types, Covered Species habitat, and other biological values. These one-time fees pay for the full cost of mitigating project effects on the Covered Species and natural communities. Fees will be based on the maximum allowable permanent and temporary effects on the land cover types as shown in Table 6-3. The Yolo HCP/NCCP used land cover effects as land cover is the best predictor of potential species habitat and is applicable to all of the Covered Species.

Fee Funding from Covered Activities

Funding for mitigating Covered Activities and contributing to recovery will include land cover fee, wetland fee, and temporary effect fee. The land cover fee is based on the mitigation of a new development's effects on land cover types at the project site that support the Covered Species. The

basis for the land cover fee is that the primary effect on Covered Species is through the direct and indirect loss of degradation of habitat. The primary determinant is the amount of effects by land cover types because habitat for Covered Species are closely tied to land cover types. Land cover fees are based on the area of impact. The area of impact for the purposes of assessing the land cover fee is defined as the areas where permanent impact occurs, plus an area 50 feet from the effects, but not extending beyond the boundary of the parcel. The 50-foot buffer accounts for indirect effects of construction and operation of the project. Linear public projects will be assessed a land cover fee that is based on the area of effect plus a 10-foot buffer, regardless of parcel size.

The land cover fee will not be assessed if the project proponent conveys a portion of the development site or provides land separate from the development site for the Reserve System. YHC and the Wildlife Agencies must approve the inclusion. A portion of the land cover fee may still be required to pay for the Yolo HCP/NCCP costs related to land management, monitoring, and other administrative or operational costs.

Project proponents are required to map all land cover types, including all fresh emergent wetland, valley foothill riparian, and lacustrine and riverine types. Public and private proponents impacting wetland land cover types will be required to pay a wetland fee in addition to the land cover fee. The wetland fee is intended to pay the full cost of restoration of these land cover types off-site, including design, implementation, post-construction monitoring, management, and remediation throughout the Permit term. The wetland fee may be waived if the project proponent conducts wetland mitigation through restoration at a ratio of at least 1:1, and if YHC and Wildlife Agencies agree that the restoration can be counted toward the restoration commitments in the Yolo HCP/NCCP.

Covered Activities that have temporary effects on Covered Species are direct effects that will alter land cover for less than one year and that allow the disturbed area to recover to pre-project or ecologically improved conditions within one year of completing construction will be subject to a temporary effect fee unless specifically excluded as specified in Section 8.4.1.4.1. Temporary effects that occur in the same location repeatedly during the Permit term and that pay the full land cover fee will be counted and tracked as permanent effect. This fee may be waived in the exchange for land dedication or wetland restoration, based on the nature of the effect.

Permittees will collect all fees paid by private project proponents in their jurisdiction. Permittees will transfer these fees to YHC on a regular basis but at least quarterly or more frequently if needed. All fees paid by public agencies (i.e. the Permittees) will be similarly collected and transferred to YHC. Permittees may pre-pay fees if desired to assist with ensuring YHC has a reliable source of revenue for ongoing costs.

Fees must meet the following criteria:

- Fees will assist in meeting FESA, CESA, and NCCPA requirements
- Fees generate sufficient funding to offset a proportionate share of the Yolo HCP/NCCP's costs, including endowment contributions to fund all post-permit activities in perpetuity (see

Section 8.3.8, *Costs in Perpetuity*) and reimbursement of the local share of plan preparation costs (see Section 8.3.9, *Plan Preparation Costs*)

- Fees are consistent with the general level of costs that would be associated with comparable project-by-project mitigation of biological effects in the Plan Area
- Fees compare favorably with the actual or expected future cost of FESA and CESA permitting on a project-by-project basis, including the costs of regulatory uncertainty and project delays associated with a typical permitting process

The underlying analysis for the Yolo HCP/NCCP fee calculations is provided in Appendix I, *Funding Plan* of the Yolo HCP/NCCP.

The dynamic nature of the costs associated with the Yolo HCP/NCCP requires a flexible approach to funding through time. Fees will be adjusted automatically and periodically. The two primary costs of the Yolo HCP/NCCP is land acquisition and operations and maintenance and most likely change at different rates over time. Conservation easement costs can fluctuate on an annual basis and at rates that are significantly different from the general inflation rate. Other costs, including the cost of personnel, supplies, and equipment will more likely closely follow the general rate of inflation. To account for the differences between the differing rates of inflation, YHC will update the Yolo HCP/NCCP fees automatically on an annual basis and by a date determined by YHC's Board of Directors.

Every five years, YHC will complete a fee assessment to review the costs and the underlying assumptions that were developed as part of the original funding plan as well as estimate the remaining costs to implement the Yolo HCP/NCCP. YHC will adjust the fees based on the assessment to ensure full funding of the mitigation share of the remaining Yolo HCP/NCCP costs, including endowment contributions and plan preparation. Automatic annual fee increases will resume after the period fee assessment and will continue until the next 5-year assessment.

Non-fee Funding

Some funds for implementation will come from local sources other than the Yolo HCP/NCCP fees. Local agencies and foundations have committed to provide funding that will support the Yolo HCP/NCCP or conduct activities that offset the costs. Cache Creek Resource Management Plan and the Lower Putah Creek Coordinating Committee will perform activities directly in support of the Yolo HCP/NCCP. The City Council for the City of Davis, the Yolo County Board of Supervisors, the governing board of both the Solano County Water Agency and the Lower Putah Creek Coordinating Committee passed resolutions that support a partnership with YHC, consistent with the Yolo HCP/NCCP.

A small source of income will come from interest and other earnings on fund balances generated by land cover fee revenues held prior to expenditure. A large amount of interest income from earnings on the endowment prior to the end of the Permit term is also expected.

Loss of habitat is the primary threat to most listed species, and land acquisition is often the most effective and efficient means of protecting habitats essential for the recovery of listed species before

development or other land use changes impair or destroy key habitat values. Land acquisition is costly and often neither the Wildlife Agencies individually have the necessary resources to acquire habitats essential for the recovery of listed species. There are several grant funding opportunities such as the USFWS grant programs that provide funding for the acquisition of threatened and endangered species habitat in support of approved and draft species recovery plans. The Wildlife Conservation Board also can grant funds to other governmental entities or nonprofit organizations to acquire real property or rights in real property. There are other existing state and federal grant programs that could provide additional funding to the Yolo HCP/NCCP.

Other local, state, and federal sources may also be available. During the Permit term, local agencies are expected to generate new local sources of funding through a variety of mechanisms such as donations of land, surcharges on Special Participating Entities, or future open space taxes and fees. Although not expected to be substantial, these future new local funding sources could contribute to the conservation costs of the Yolo HCP/NCCP.

Despite the conservative assumptions, revenue may fall short of the costs. The YHC will request the Board of Directors to increase the fees to compensate. In addition, the Yolo HCP/NCCP included a contingency fund which is intended to primarily offset land management or monitoring costs that may be higher than predicted by the Yolo HCP/NCCP on a short-term basis. If this fund is inadequate with respect to offsetting these costs, or if the costs are predicted to exceed revenue on a long-term basis, then YHC will consider whether to adjust management and monitoring requirements, or raise revenue from the fees or other sources to offset the funding shortfall. YHC will consult with the Wildlife Agencies on any adjustment to management and monitoring requirements as well as to discuss the funding shortfall.

Therefore, CDFW finds that the Yolo HCP/NCCP contains provisions that ensure adequate funding to carry out the conservation actions identified in the Yolo HCP/NCCP.

4.2 Findings Regarding the IA

Finding 4.2.1 **CDFW finds that the IA contains provisions defining species coverage, including conditions of coverage (2820(b)(1)).**

The Implementing Agreement has identified twelve species for coverage under the Permit. Take of Covered Species is authorized contingent on the Permittees implementing the Yolo HCP/NCCP which includes, but not limited to, adopting local ordinances to implement the Yolo HCP/NCCP, using the agreed upon avoidance and minimization measures, collecting fees and assembling the Reserve System, managing the Reserve System, providing funding so that the management will be assured in perpetuity, maintaining a rough proportionality between impacts and conservation, and reporting regularly to the Wildlife Agencies.

Therefore, CDFW finds that the IA contains provisions defining species coverage, including conditions of coverage.

Finding 4.2.2 **CDFW finds that the IA contains provisions for establishing the long-term protection of any habitat reserve or other measures that provide equivalent conservation of Covered Species (2820(b)(2)).**

Section 9 of the Implementing Agreement contains provisions for establishing a Reserve System that will include protected areas existing at the time of the Yolo HCP/NCCP approval as well as the permanent protection of additional lands to be acquired in accordance to the Yolo HCP/NCCP. The Reserve System lands will be protected with a conservation easement or acquired through fee title and actively managed and enhanced for the benefit of Covered Species and, in some instances, restoration and creation of natural communities.

The Conservation Strategy provides acreage commitments for the Reserve System (Tables 6-2(a) and 6-2(b)). Implementation of the Yolo HCP/NCCP will result in:

- 24,406 acres of newly protected natural communities and Covered Species habitat
- Up to 956 acres of restoration or creation if the maximum allowable wetland or riparian loss is reached (44 acres of restoration independent of effects and 912 aces restored or created as a result of habitat loss)
- 8,000 acres of additional Pre-Permit Reserve Lands enrolled into the Reserve System

A minimum of 32,406 acres of land will be conserved under the Yolo HCP/NCCP up to a total of 33,362 acres if the maximum natural community and Covered Species habitat loss occurs.

Acquisition of the Reserve Lands will follow the criteria as described in Conservation Measure 1, *Establish Reserve System* (Section 6.4.1) and will follow the design criteria as described in Section 6.4.1.4.1, *Reserve System Design Criteria*.

Therefore, CDFW finds that the IA contains provisions for establishing the long-term protection of any habitat reserve or other measures that provide equivalent conservation of Covered Species.

Finding 4.2.3 **CDFW finds that the IA contains specific terms and conditions, which, if violated, would result in the suspension or revocation of the NCCP Permit, in whole or in part. CDFW further finds that the IA includes a provision requiring notification to the Yolo HCP/NCCP participant of a specified period of time to cure any default prior to suspension or revocation of the NCCP Permit in whole or in part (2820(b)(3)).**

Section 6.2 of the IA contains the basic provisions for resolution of disputes. The initial step to resolve most disputes will be initiated at the staff or field personnel level. If one or both of the Wildlife Agencies objects to any action or inaction by any one of the Permittees, a written notice will be provided to the Permittees and Wildlife Agency unless an immediate response to circumstances is warranted. The Permittee will respond in writing to the notice within 30 days of receipt. The response shall describe the actions proposed to take to resolve the objection or explain why the objection is unfounded. If the response does not resolve the objection to the Wildlife Agency satisfaction, the Wildlife Agency will notify the Permittee and will meet with the Permittee to attempt to resolve the dispute within 30 days

after receipt of the Wildlife Agency response but may occur later upon agreement with the Wildlife Agencies and relevant Permittee.

If the dispute is not resolved, any one of the Permittees or Wildlife Agencies may elevate the dispute to a meeting of the chief executives of the involved Permittee or Wildlife Agency. The meeting will occur within 45 days of a request by any Permittee or Wildlife Agency after completion of the dispute resolution procedure.

The Permittees will use the same procedure discussed above to raise and resolve objections to any action or inaction of a Wildlife Agency, and the Wildlife Agency will respond in the same manner to notice delivered by any Permittee.

Section 16.3 of the IA contains the provisions for suspending the Permit, in whole or in part, in the event of any material violation of the Permit or material breach of the IA. The Permit will not be suspended until it has: (1) pursued dispute resolution in accordance with Section 6 of the IA; (2) requested that the Permittees take appropriate remedial actions; and (3) providing the Permittees with written notice of the facts or conduct which may warrant the suspension, and an adequate and reasonable opportunity for the Permittees to demonstrate why suspension is not warranted. These actions may be taken concurrently, or sequentially, as appropriate, in the sole discretion of the CDFW.

In the event CDFW suspends the Permit, in whole or in part, as soon as possible but no later than 10 days after such suspension, CDFW shall confer with the Permittees concerning how the suspension can be lifted. After conferring with the Permittees, CDFW shall identify reasonable, specific actions, if any, necessary to effectively redress the suspension. As soon as possible, but no later than 30 days after the conference, CDFW shall send the Permittees written notice of any available, reasonable actions necessary to effectively redress the suspension. Upon satisfactory performance of such actions as determined by CDFW, CDFW shall immediately reinstate the Permit. All shall act expeditiously and cooperatively to reinstate the Permit.

The process for revocation of the Permit, in whole or in part, is discussed in Section 16.3.3 of the IA. CDFW will revoke or terminate the Permit, in whole or in part, only if: (1) for a violation of the Permit or breach of the IA by the Permittees where the Permittees fail to cure the violation or breach after receiving actual notice of it from CDFW and a reasonable opportunity to cure it, or CDFW determines in writing that such violation or breach cannot be effectively redressed by other remedies or enforcement action; or (2) where revocation of the Permit, in whole or in part, is necessary to avoid the likelihood of jeopardy to a listed species.

CDFW will not revoke or terminate the Permit, in whole or in part, without first requesting the Permittees take appropriate remedial action, and providing the Permittees with notice in writing of the facts or conduct which warrant the partial or total revocation or termination and a reasonable opportunity, but not less than 60 days, to demonstrate or achieve compliance with the NCCPA, Permit, and the IA. CDFW will not revoke or terminate the Permit, in whole or part, to avoid the likelihood of jeopardy to a listed species, without first (1) notifying the Permittees of those measures, if any, that the

Permittees may undertake to prevent jeopardy to the listed species and maintain the Permit, and (2) providing a reasonable opportunity to implement such measures.

Therefore, CDFW finds that the IA contains specific terms and conditions, which, if violated, would result in the suspension or revocation of the Permit, in whole or in part. CDFW also finds that the IA includes a provision requiring notification to the Yolo HCP/NCCP participant of a specified period of time to cure any default prior to suspension or revocation of the Permit in whole or in part.

Finding 4.2.3A **CDFW finds that the IA specifies the action CDFW shall take if the participant fails to provide adequate funding (2820(b)(3)(A)).**

Section 13.4 of the IA discusses the effect of funding shortfalls. If the fee revenues do not keep pace with Reserve System operation and management needs, the Permittees will consider various options in consultation with the Wildlife Agencies. Any shortfall in non-fee revenues, such as local, state, or federal agency contributions, will be treated similarly, with YHC first making reasonable adjustments to expenditures to reduce costs while continuing to meet the Yolo HCP/NCCP obligations. If such adjustments are inadequate, the YHC will consult with the Wildlife Agencies to determine the best course of action.

If any circumstance where consultation occurs, the course of action will depend upon full consideration of relevant factors. If it appears that the level of Take by the Permit will not be used during the term, substantially reducing the Yolo HCP/NCCP fee revenues, it is anticipated that the Permittees will apply for an amendment to extend the Permit in accordance with Section 17.3 of the IA, *Extension of the Permits*, to allow the full use of Take and full implementation of the Yolo HCP/NCCP. Alternatively, the Permittees may apply for a Permit modification or amendment in accordance with Section 15 of the IA, *Modifications and Amendments*, to reduce the amount of Take and related obligations in the Permits.

Therefore, the IA specifies the action CDFW shall take if the participant fails to provide adequate funding.

Finding 4.2.3B **CDFW finds that the IA specifies the action CDFW shall take if the participant fails to maintain rough proportionality between impacts on habitat or Covered Species and conservation measures (2820(b)(3)(B)).**

If rough proportionality is not being maintained pursuant to Chapter 7 of the Yolo HCP/NCCP, the Permittees and the Wildlife Agencies will meet and confer to determine a plan of action that will remedy the situation and achieve compliance. If the Permittees are unable to achieve compliance after the exercise of all available authority and use of all available resources, the Wildlife Agencies will reevaluate the Permits, relevant components of the Yolo HCP/NCCP, and the IA. The Wildlife Agencies may advise the Permittees on a potential modifications or amendment that would address the compliance situation or, if no such strategy appears viable, the Wildlife Agencies may suspend or revoke their Permits, in whole or in part.

The Permittees and the Wildlife Agencies acknowledge failure to fulfill the requirements of the Yolo HCP/NCCP and the Permits would constitute a violation of the Permits and the Wildlife Agencies will take appropriate responsive actions to address any such violation in the accordance with the ESA and NCCPA, which could include suspension or revocation of the Permits, in whole or in part. The partial suspension or revocation may include removal of one or more Covered Species or reduction in the scope of the Take authorizations.

In the event that CDFW has determined that the Permittees have failed to meet the rough proportionality standard provided in Section 9.3.2 of the IA, and if the Permittees have failed to cure the default or entered into an agreement to do so within 45 days of written notice of the determination, CDFW will suspend the Permit in whole or in part in accordance with Section 2820 of the California Fish and Game Code.

Therefore, CFDW finds that the IA specifies the action CDFW shall take if the participant fails to maintain rough proportionality between impacts on habitat or Covered Species and conservation measures.

Finding 4.2.3C **CDFW finds that the IA specifies the action CDFW shall take if the Yolo HCP/NCCP participant adopts, amends, or approves any plan or project without the concurrence of the Wildlife Agencies that is inconsistent with the objectives and requirements of the approved Yolo HCP/NCCP (2820(b)(3)(C)).**

Section 5 of the IA describes the roles and responsibilities of the Permittees. Permittees will fully perform the obligations under the Permits, the Yolo HCP/NCCP, and the IA. Permittees individually and collectively are responsible for compliance with all applicable terms and conditions of the Permits. Permittees have elected to assign primary responsibility for implementing the Yolo HCP/NCCP to the YHC. YHC may delegate implementation of specific actions to other third parties but the YHC will remain responsible for ensuring overall implementation of the Yolo HCP/NCCP on behalf of the other Permittees in accordance with the Permits.

Adoption, amendment, or approval of any plan or project that is inconsistent with the objectives and requirements of the Yolo HCP/NCCP is potentially in violation of the provisions of the Yolo HCP/NCCP and, by incorporation, the IA. In the event of this occurring, the Wildlife Agencies staff would meet and confer with the Permittees to discuss the possible violation. If there were no immediate resolution, the Permittees and the Wildlife Agencies would enter into the dispute resolution process as describe in Section 6.2.1 of the IA. Failure to resolve the issue could conclude with suspension or revocation of the Permit, pursuant to the procedures in Section 16 of the IA.

Therefore, CDFW finds that the IA specifies the action CDFW shall take if the HCP/NCCP participant adopts, amends, or approves any plan or project without the concurrence of the Wildlife Agencies that is inconsistent with the objectives and requirements of the approved Yolo HCP/NCCP.

Finding 4.2.3D **CDFW finds that the IA specifies the action CDFW shall take if the level of take exceeds that authorized by the NCCP Permit (2820(b)(3)(D)).**

The Yolo HCP/NCCP is incorporated into the IA per Section 4.1 of the IA. The Yolo HCP/NCCP describes the habitat Take limits (Table 5-2(a)) and Take limits by Covered Species (Table 5-2(b)). The IA does not allow changes in the design or management of the Reserve System, or any other aspect of the Yolo HCP/NCCP, that would increase the amount and nature of the Take of Covered Species, or increase the impacts of the Take of Covered Species, beyond that analyzed in the Yolo HCP/NCCP, any amendments thereto, or included in the Permits as stated in Section 11.2.3 of the IA. Any change to the Take limit must be reviewed as a Permit amendment as required under Section 15.4 of the IA.

If the Yolo HCP/NCCP exceeds the level of take authorized in this Permit then, per Section 16.3 of the IA, in the event of any material violation of the Permit or material breach of the IA by the Permittees, CDFW may suspend the Permit in whole or in part. CDFW may also revoke or terminate the Permit pursuant to Section 16.3 of the IA. The Permittees will remain liable for all incidental take of Covered Species that occurred prior to revocation and shall fully implement all measures required under the Yolo HCP/NCCP to minimize and mitigate for such take until the applicable Wildlife Agency determines that all Take of Covered Species that occurred under the Permit has been mitigated to the maximum extent practicable in accordance with the Yolo HCP/NCCP. Regardless of whether the Permit is terminated, suspended, or revoked, the Permittees acknowledge that lands added to the Reserve System must be protected, managed and monitored in perpetuity.

Therefore, CDFW finds that the IA specifies the action CDFW shall take if the level of Take exceeds that authorized by the Permit.

Finding 4.2.4 **CDFW finds that the IA contains provisions specifying procedures for amendment of the Yolo HCP/NCCP and the IA (2820(b)(4)).**

The IA states the Parties of the IA may from time to time modify the Yolo HCP/NCCP, the IA or the Permits, in accordance with Section 15 of the IA and the requirements of the ESA, CESA, NCCPA, NEPA, and CEQA. An amendment to the Yolo HCP/NCCP will require corresponding amendments to the Permit. The Permittees may submit a formal application, consistent with the requirements described in Section 7.8.3 of the Yolo HCP/NCCP for an amendment to the Yolo HCP/NCCP and the Permit. The Permittees will provide written notice to all of the other Parties of any proposed amendment to the Yolo HCP/NCCP and the Permits. The Wildlife Agencies shall process any such application in accordance with all applicable laws and regulations, including those stated above. Each Wildlife Agency will review and approve or disapprove the proposed revisions to the Yolo HCP/NCCP and Permit amendment with detailed findings, commensurate with the level of environmental review appropriate to the magnitude of the proposed amendment. The IA may be amended only by a written agreement executed by the authorized representative of all Parties.

Therefore, CDFW finds that the IA contains provisions specifying procedures for amendment of the Yolo HCP/NCCP and the IA.

Finding 4.2.5 **CDFW finds that the IA contains provisions ensuring implementation of the monitoring program and adaptive management program (2820(b)(5)).**

As stated in Section 11 of the IA, the YHC will implement the Yolo HCP/NCCP monitoring and adaptive management program as described in Section 6.5 of the Yolo HCP/NCCP. The overarching purpose of the Yolo HCP/NCCP monitoring and adaptive program is to inform and, in some instances, refine the Yolo HCP/NCCP requirements and continually improve outcomes for Covered Species and natural communities. The Yolo HCP/NCCP describes three main types of monitoring (Section 6.5.3), compliance monitoring, effectiveness monitoring, and targeted studies.

An adaptive management program, described in Section 6.5, will be implemented. The purpose of the adaptive management is to adapt the design and management of the Reserve System to maximize the likelihood of the successful implementation of the Conservation Strategy. The Wildlife Agencies will provide biological expertise and policy-level recommendations to the YHC regarding potential changes to the design and management of the Reserve System based on the results of monitoring and the advice of science and technical advisors. The YHC will confer with the Wildlife Agencies before initiating adaptions to the design or management of the Reserve System. The YHC will also consult with the science and technical advisors regarding the scientific aspects of the Yolo HCP/NCCP implementation as described in Section 7.2.4.2. The YHC will incorporate recommendations provided by these advisors into the Yolo HCP/NCCP implementation, if agreed to by the Wildlife Agencies.

The YHC and the Wildlife Agencies will attempt in good faith to reach agreement regarding any such adaptions, the Wildlife Agencies may propose alternative adaptions. If an agreement cannot be reached, the Parties may initiate the dispute resolution procedure provided in Section 6.2 of the IA.

Therefore, CDFW finds that the IA contains provisions ensuring implementation of the monitoring program and adaptive management program.

Finding 4.2.6 **CDFW finds that the IA contains provisions for oversight of Yolo HCP/NCCP implementation for purposes of assessing mitigation performance, funding, and habitat protection measures (2820(b)(6)).**

The Wildlife Agencies will provide technical assistance and review, collaboration, and consultation to the Permittees regarding implementation of the Yolo HCP/NCCP (Sections 5.2 and 5.3). The Wildlife Agencies will have oversight of the implementation and the adaptive management program of the Yolo HCP/NCCP, as described in Chapter 6 of the Yolo HCP/NCCP (Section 7.4). Wildlife Agency approval is required for certain components of the Conservation Strategy such as approval of lands into the Reserve System (Section 9.2), revisions to the Conservation Easement template (Section 9.2.1), oversight on maintaining rough proportionality (Section 9.3.1), approval of all reserve unit management plans (Section 10.1.1), and funding shortfall (Section 13.4).

The YHC will prepare annual reports on the Yolo HCP/NCCP implementation and related matters as well as an annual work plan and budget, and every ten years, a comprehensive review document. The annual report will summarize actions taken to implement the Yolo HCP/NCCP during the previous calendar year. All annual reports, work plans and budgets, and ten-year review documents will be submitted to the Wildlife Agencies (Section 14.1). Together with monitoring of the funding stream and the dispute resolution and Permit suspension/revocation processes in IA Section 16, these measures, specified in

the IA, provide adequate opportunity to detect problems with implementing the Conservation Strategy as planned and to carry out corrective actions.

Therefore, CDFW finds that the IA contains provisions for oversight of Yolo HCP/NCCP implementation for purposes of assessing mitigation performance, funding, and habitat protection measures.

Finding 4.2.7 **CDFW finds that the IA contains provisions for periodic reporting to the Wildlife Agencies and the public for purposes of information and evaluation of Yolo HCP/NCCP progress (2820(b)(7)).**

The YHC will prepare and submit to the Wildlife Agencies by April 30th of each year, an annual report on the Yolo HCP/NCCP implementation as described in Chapter 7 of the Yolo HCP/NCP (Sections 7.9.1 - 7.9.4). The annual report will also be presented to the YHC's Board of Directors public meeting. In addition, the YHC will prepare an annual work plan and budget, and every ten years, a comprehensive review document that will be submitted to the Wildlife Agencies, made available to interested members of the public, and maintained on the YHC website (Section 14.1 of the IA).

Per Section 14.2, the YHC will track all aspects of compliance with the Permits, the Yolo HCP/NCCP, and the IA. The YHC will maintain related information and data of various types, as set forth in Section 7.9.3 of the Yolo HCP/NCCP, to track progress toward successful implementation of the Conservation Strategy. The database that is developed for compliance tracking must be compatible with the HabiTrak system developed by CDFW. The YHC database will be developed to assemble, store, and analyze all monitoring data in the database, including but not limited to data from the monitoring and adaptive management program described in Chapter 6 of the Yolo HCP/NCCP. The YHC will make the database available to CDFW and the other Permittees and USFWS.

Therefore, CDFW finds that the IA contains provisions for periodic reporting to the Wildlife Agencies and the public for purposes of information and evaluation of the Yolo HCP/NCCP progress.

Finding 4.2.8 **CDFW finds that the IA contains mechanisms to ensure adequate funding to carry out the conservation actions identified in the Yolo HCP/NCCP (2820(b)(8)).**

The Permittees will fund all actions of the Permits, the Yolo HCP/NCCP and the IA through a comprehensive funding strategy as described in Chapter 8 of the Yolo HCP/NCCP and Section 13.1 of the IA. Activities to be funded include cost of land acquisition, administration of the Yolo HCP/NCCP, natural community management and restoration, biological monitoring, remedial measures, and contingency.

The funding strategy includes: (1) Yolo HCP/NCCP fees; (2) local funding from Permittees or other local government agencies; (3) interest income from the Yolo HCP/NCCP endowment and revenues not yet spent; and (4) state and federal funding. As the dynamic nature of the costs associated with the Yolo HCP/NCCP implementation requires a flexible approach to funding through time, the Yolo HCP/NCCP includes two mechanisms for adjusting the fee levels: automatic adjustments and periodic assessments. To account for rate inflations, the YHC will update the Yolo HCP/NCCP fee automatically on an annual basis and be a date determined by the YHC's Board of Directors. Every five years, the YHC will complete

a fee assessment to review the costs and the underlying assumptions the YHC developed as part of the original funding plan as well as estimate the remaining costs to implement the Yolo HCP/NCCP.

In the event there is inadequate funding to implement the Yolo HCP/NCCP, YHC and the Wildlife Agencies will meet to discuss options to address the shortfall. Where consultation occurs, the course of action will vary depending upon consideration of the factors. Permittees could apply for an amendment to extend the Permit in accordance with Section 17.3 of the IA or request for a Permit modification in accordance with Section 15 of the IA to reduce the amount of Take and related obligations in the Permit.

Therefore, CDFW finds that the IA contains mechanisms to ensure adequate funding to carry out the conservation actions identified in the Yolo HCP/NCCP.

Finding 4.2.9 **CDFW finds that the IA contains provisions to ensure that implementation of mitigation and conservation measures on the Yolo HCP/NCCP basis is roughly proportional in time and extent to the impact on habitat or Covered Species authorized under the Yolo HCP/NCCP. CDFW further finds that these provisions identify the conservation measures, including assembly of reserves where appropriate and implementation of monitoring and management activities, that will be maintained or carried out in rough proportion to the impact on habitat or Covered Species and the measurements that will be used to determine if this is occurring (2820(b)(9)).**

The IA is a contract that obligates the Permittees to carry out the implementation of the Yolo HCP/NCCP, which the Yolo HCP/NCCP has been incorporated into the IA (Section 4.1). The Permittees will fully and faithfully perform all obligations assigned to the them collectively, and to each of them individually, under the Permits, the Yolo HCP/NCCP, and the IA (Section 5.1). As stated in Section 9.3, under Fish and Game Code § 2820(b)(3)(B), the Conservation Strategy of an NCCP must be implemented at or faster than the rate of loss of natural communities or habitat for Covered Species. To assist in applying this requirement to implementation of the Yolo HCP/NCCP, Section 7.5.3 of the Yolo HPC/NCCP includes schedules and procedures to assist in the rough proportionality requirement.

Section 8.1 refers to Chapter 4 of the Yolo HCP/NCCP which includes conditions to avoid, minimize, and mitigate for the Take of Covered Species resulting from Covered Activities. These conditions are designed to form a countywide program that will be implemented systematically to: prevent Take of individuals of certain Covered Species; avoid impacts to Covered Species to the maximum extent practicable; minimize adverse effects on Covered Species and natural communities to the maximum extent practicable; and avoid and minimize direct and indirect impacts on wetlands and streams. Each Permittee will incorporate all applicable conditions within all Covered Activities that it implements. In addition, the County and the Cities will require all applicable conditions as conditions of approval for all other projects that they approve, and the YHC will ensure that the conditions are incorporated in all SPE Covered Activities. Local implementing ordinances, addressed briefly in Section 7.3.1.1 of the IA, will be adopted by the County and each City to assist in achieving these requirements.

The Yolo HCP/NCCP identifies conservation measures, including assembly of Reserve System lands where appropriate and implementation of monitoring and management activities that will be maintained or carried out in rough proportion to the impact on habitat of the Covered Species and the measurements that will be used to determine if this is occurring.

After two years of the Yolo HCP/NCCP implementation, the YHC must measure its compliance with the stay-ahead provision. To measure compliance with the stay-ahead provision, the amount of each natural community conserved, restored, or created as a proportion of the total requirement by natural community must be equal to or greater than the impact on the natural community as a proportion of the total impact expected by all Covered Activities. This method of aggregating land cover types into natural communities applies only to measurement of the stay-ahead provision.

The YHC will monitor the status of the stay-ahead provision as well as the Wildlife Agencies on an annual basis. The YHC will report the status of the stay-ahead provision in each annual report, beginning with the Year 2 annual report. As long as the pace of conservation measure implementation does not fall behind the pace of Covered Activity impacts by more than ten percent, the YHC will meet the stay-ahead provision.

Chapter 6 of the Yolo HCP/NCCP describes the Conservation Strategy and conservation measures. The Yolo HCP/NCCP contains three broad categories of conservation measures with corresponding measurable biological goals and objectives. The conservation measures describe the quantitative commitments and timeframes for land acquisition, habitat restoration, and habitat management and enhancement.

The monitoring and adaptive management strategy of the Yolo HCP/NCCP (Section 6.5) describes how the YHC will determine if the goals and objectives are being met and how the YHC will adjust the strategy, as needed, to ensure the goals and objectives are being met.

The Permittees will ensure the lands that are added to the Reserve System, and required habitat restoration, creation, and enhancement, occurs at or faster than the pace at which impacts occur, fulfilling the NCCPA requirement to ensure that implementation of mitigation and conservation measures of the Yolo HCP/NCCP is roughly proportional in time and extent to the impact on habitat or Covered Species. The Permittees will ensure that the pace at which the Reserve System is created, and at which required habitat restoration, creation, and enhancement occurs on the Reserve System lands, does not fall behind the pace at which impacts occur by more than ten percent for any land cover types. The rough proportionality provision will apply only after two years from the last local ordinance taking effect.

Therefore, CDFW finds that the IA contains provisions to ensure that implementation of mitigation and conservation measures on the Yolo HCP/NCCP basis is roughly proportional in time and extent to the impact on habitat or Covered Species authorized under the Yolo HCP/NCCP.

4.3 Findings Regarding Provisions for Permit Suspension or Revocation

Finding 4.3 **CDFW finds that the IA contains provisions for suspension or revocation of the NCCP Permit, in whole or in part, if the Yolo HCP/NCCP participant does not maintain proportionality between take and conservation measures specified in the IA and does not either cure the default with 45 days or enter into an Agreement with CDFW within 45 days to expeditiously cure the default (2820(c)).**

See Finding 4.2.3B.

4.4 Findings Regarding Public Review of Monitoring Program Data and Reports

Finding 4.4 **CDFW finds that any data and reports associated with the monitoring program shall be available for public review and that the entity managing the Yolo HCP/NCCP shall also conduct public workshops annually to provide information and evaluate progress toward attaining the conservation objectives of the Yolo HCP/NCCP (2820(d)).**

As discussed in Finding 4.2.7, YHC will prepare an annual report on the Yolo HCP/NCCP implementation as described in Chapter 7 of the Yolo HCP/NCP that will be submitted to the Wildlife Agencies, made available to interested members of the public, and maintained on the YHC website (Section 14.1). The annual report will also be presented to the YHC's Board of Directors at a public meeting.

The annual report will provide the following information:

- Documentation of the implementation of habitat conservation measures
- An assessment of the nature and extent of the impacts of Covered Activities on natural communities and Covered Species
- An evaluation of the results of monitoring and directed studies
- A description of adaptive management activities
- A financial report
- A description of implemented actions to respond to changed circumstances

Therefore, CDFW finds that any data and reports associated with the monitoring program shall be available for public review and the entity managing the Yolo HCP/NCCP shall also conduct public workshops annually to provide information and evaluate progress toward attaining the conservation objectives of the Yolo HCP/NCCP.

4.5 Findings Regarding Review of Subsequent Projects

Finding 4.5 **CDFW finds that the Yolo HCP/NCCP participant that is the lead agency or responsible agency shall incorporate in the review of any subsequent project in**

the Plan Area the feasible mitigation measures and alternatives related to the biological impacts on Covered Species and their habitat developed in the program EIR (2820(e)).

The EIS/EIR for the Yolo HCP/NCCP Covered Activities to Covered Species essentially incorporated the elements of the Yolo HCP/NCCP Conservation Strategy as mitigation measures for impacts under CEQA. Covered Activities that occur after the Yolo HCP/NCCP implementation must be consistent with the mitigation measures in the Yolo HCP/NCCP.

Mitigation to comply with CEQA consists of two components, implementing the Conservation Strategy and applying the appropriate avoidance and minimization measures of the Yolo HCP/NCCP. The EIS/EIR summarizes the Yolo HCP/NCCP Conservation Strategy in Chapter 2 as well as includes a brief discussion of the avoidance and minimization measures for each species.

All public and private project proponents covered by the Yolo HCP/NCCP must complete a Yolo HCP/NCCP application package and submit to the relevant Permittee. The application package must contain an avoidance and minimization measure plan. The project proponent will include the applicable avoidance and minimization measure based on the requirements described in Section 4.3, *Avoidance and Minimization Measures*.

Therefore, CDFW finds that the Yolo HCP/NCCP participant that is the lead agency or responsible agency shall incorporate in the review of any subsequent project in the Plan Area the feasible mitigation measures and alternatives related to the biological impacts on Covered Species and their habitat developed in the program EIR.

4.6 Findings To Provide Assurances To Yolo HCP/NCCP Participants

Finding 4.6 **CDFW finds that the level of assurances provided to Yolo HCP/NCCP participants is commensurate with long-term conservation assurances and associated implementation measures pursuant to the approved Yolo HCP/NCCP (2820(f)).**

Section 12.2 of the IA provides assurances to the Permittees that as long as the Yolo HCP/NCCP is being implemented consistent with the substantive terms of the Permit, the Yolo HCP/NCCP, and the IA. CDFW shall not require the Permittees to provide additional land, water or financial compensation or additional restrictions on the use of land, water, or other natural resources during the term of the Permit without the consent of the Permittees.

Therefore, and for the reasons more fully described in Findings 4.6.1A through 4.6.1H and Finding 4.6.2, CDFW finds that the level of assurances provided to the Permittees is commensurate with long-term conservation assurances and associated implementation measures pursuant to the approved Yolo HCP/NCCP.

Finding 4.6.1A **CDFW finds that the level of assurances and time limits for assurances specified in the IA were based on the level of knowledge of the status of the Covered Species and natural communities (2820(f)(1)(A)).**

Approximately 175 species for inclusion as Covered Species under the Yolo HCP/NCCP were evaluated based on: 1) geographic range; 2) listing status; 3) effects of Covered Activities; 4) adequacy of existing data on the species; and 5) cost and funding.

To be recommended for coverage:

- The species must be currently known to occur or is expected to occur in the Plan Area based on knowledge of the species geographic range and the presence of suitable habitat
- The species must currently be currently listed under the ESA or CESA, is likely to become listed during the term of the Permits, or is fully protected under the California Fish and Game Code
- The species could be adversely affected by Covered Activities that are currently occurring within the Plan Area or are likely to occur over the life of the Permits.
- Sufficient data is available regarding the species' life history, habitat requirements, and presence in the Plan Area to adequately evaluate effects on the species and develop appropriate conservation measures
- Funding would be available to provide sufficient monitoring and conservation over the 50-year Permit Term to meet NCCP standards for the species

The YHC applied these criteria iteratively from reviews conducted by the planning team based on a variety of published and unpublished sources and input from the Advisory Committee, the Wildlife Agencies, Independent Science Advisors, independent species experts, and the public (Appendix C.2 of the Yolo HCP/NCCP). Species that met all five of these criteria were recommended for coverage. Fish species were not proposed for coverage under the Yolo HCP/NCCP.

The Yolo HCP/NCCP includes the following four vegetation communities, corresponding to the major land cover types: 1) alkali prairie and vernal pool complexes; 2) valley foothill riparian; 3) lacustrine and riverine; and 4) fresh emergent wetland. The twelve Covered Species depend on these natural communities.

Appendix A, *Covered Species Accounts*, summarize the main elements of each species' life history, including habitat and species associations (e.g., vegetation communities, interspecific relationships), key habitat requirements (e.g., soils, cliffs, burrows, nest trees, flow regimes, disturbance), area requirements, dispersal abilities, reproductive requirements and abilities, forage and cover needs, temporal requirements of various needs, and relevant behavioral ecology. It also describes the habitat models used for each Covered Species for the development of the Yolo HCP/NCCP.

The biological data presented in these accounts provide the basis for the effects analysis and Conservation Strategy for the Yolo HCP/NCCP. The Covered Species accounts summarize each species' overall distribution and describe where in the Plan Area the species are known to occur based on

available GIS data, published and unpublished literature, and expert knowledge. The Covered Species accounts also identify the status and population trend for each species and known or potential threats and other limiting factors throughout its range and specifically in the Plan Area.

Information in the Covered Species accounts was used to: (1) develop the species habitat models for evaluating the distribution of potentially suitable habitat in the Plan Area for each Covered Species; (2) assess the level of adverse effects from Covered Activities; (3) develop species goals and objectives as well as conservation measures to implement the Conservation Strategy; and (4) inform the adaptive management and monitoring program.

The Wildlife Agencies provided technical input on the baseline data, Covered Species list, Covered Species accounts, existing ecological conditions report, Covered Activities, effects analysis, and Conservation Strategy.

There is sufficient information about the status of each Covered Species and the natural communities to warrant provision of long-term assurances to the Yolo HCP/NCCP Permittees.

Finding 4.6.1B **CDFW finds that the level of assurances and time limits specified in the IA were based on the adequacy of analysis of the impact of take on Covered Species (2820(f)(1)(B)).**

Implementation of Covered Activities pursuant to the Yolo HCP/NCCP may result in Take of some Covered Species and their habitat (Chapter 3). The major direct effects to Covered Species will result from habitat loss associated with Covered Activities. Because the Yolo HCP/NCCP utilizes a habitat-based approach, the determination of direct and indirect effects on Covered Species is based on the habitat removed or disturbed for each Covered Species. To the extent feasible, based on the best available data and Covered Species habitat models, the level of Take for each proposed Covered Species and their habitat has been described and quantified in Tables 5-2(a) and 5-2(b) of the Yolo HCP/NCCP. Estimated levels of Take were quantified on the basis of anticipated impacts to habitat assumed to be suitable for each Covered Species.

In addition to the quantitative analysis of natural community and Covered Species habitat loss, the Yolo HCP/NCCP also estimated the effects of habitat fragmentation on California tiger salamander, western pond turtle, giant garter snake, Swainson's hawk, and white-tailed kite.

For each Covered Species, the section on *Impact of Take on the Species*, Section 5.7.2 through Section 5.7.12, describes the combined effects of Covered Activities on the long-term survival and recovery of the Covered Species, in the context of the Covered Species' range and abundance, and the best available information regarding stressors on the Covered Species.

There is sufficient information about the impacts to each of the Covered Species and the natural communities to warrant provision of long-term assurances to the Yolo HCP/NCCP Permittees.

Finding 4.6.1C **CDFW finds that the level of assurances and time limits specified in the IA were based on the use of the best available science to make assessments about the impacts of take, the reliability of mitigation strategies, and the appropriateness of monitoring techniques (2820(f)(1)(C)).**

The allowable amount of Take as described in Tables 5-2(a) and 5-2(b) associated with the Covered Activities was quantified by overlaying the direct and indirect effect footprints on natural communities, predicted Covered Species habitat, Covered Species occurrence data, and designated critical habitat at a scale and level of resolution appropriate for regional resource planning. Effects resulting from the Reserve System lands implementation activities were estimated for natural communities, predicted Covered Species occurrence data, and designated critical habitat. Natural communities that will be impacted by a Covered Activity will be verified at the project-level during implementation. The mitigation strategies, discussed in Section 4.3.4, were developed based on the most current guidelines developed by the Wildlife Agencies and based on the best available data.

The Yolo HCP/NCCP provides specific conservation measures to meet the biological needs of each of the Covered Species (Chapter 6). As described in Finding 4.6.1A and 4.6.1B, the best available scientific information was used to develop the Conservation Strategy and assess impacts to Covered Species and natural communities from implementation of the Yolo HCP/NCCP.

There is sufficient available scientific information about impacts, mitigation and conservation Strategies, and monitoring methodology to warrant provision of long-term assurances to the Yolo HCP/NCCP Permittees.

Finding 4.6.1D **CDFW finds that the level of assurances and time limits specified in the IA were based on the appropriateness of the size and duration of the Yolo HCP/NCCP with respect to quality and amount of data (2820(f)(1)(D)).**

As described in Findings 4.6.1A – 4.6.1C, numerous sources were used in consultation with regional experts and consultation with the Wildlife Agencies. The biological data presented in the Covered Species accounts provide the basis for the effects analysis and Conservation Strategy for the Yolo HCP/NCCP. The Covered Species accounts summarizes each Covered Species overall distribution and describes where in the Plan Area the Covered Species are known to occur based on available GIS data, published and unpublished literature, and expert knowledge. The Covered Species accounts also identify the status and population trend for each Covered Species and known or potential threats and other limiting factors throughout its range and specifically in the Plan Area.

Information in the Covered Species accounts was used to develop Covered Species habitat models for evaluating the distribution of potentially suitable habitat in the Plan Area for each Covered Species and to develop predictive habitat models to quantify and display the known or potential distribution of suitable habitat for each Covered Species in the Plan Area. Information in the Covered Species accounts was also used to assess the level of adverse effects from Covered Activities, develop Covered Species goals and objectives as well as conservation measures to implement the Conservation Strategy, and inform the adaptive management and monitoring program.

For each Covered Species habitat model, one or more of the vegetation types or soil types that are commonly associated with the Covered Species were used to predict the distribution of potentially suitable habitat. Some Covered Species required a more complex species habitat model that considered many additional factors and habitat associations (e.g., elevation, slope, distance to water, or other factors, in addition to vegetation community or soil type).

Known locations of occurrences of Covered Species, derived mostly from the CNDDB, were incorporated into the GIS data and used both to formulate habitat models (e.g., identifying the mapped land cover type in which the species typically occurs) and test the habitat models (e.g., determining if all known occurrences fall within the modeled habitat). Evaluations of habitat extent were made using aerial imagery to delineate occupied, rather than modeled, habitat of Covered Species for which information was available. The date of baseline occurrence data was September 2015 for the CNDDB data; individual surveys are listed in Appendix A, *Covered Species Accounts,* in the occurrence sources (e.g., Estep 2007, 2008 for the Swainson's hawk). Further refinement was made to the habitat models by using known ranges of species, as found in the extent maps of the California Wildlife Habitat Relationships Systems. This was done in coordination with CDFW staff members. Expert input from CDFW was also used to filter habitat model outputs to known locations of suitable habitat by planning units. Additionally, Eric Hansen and species experts from USFWS and United States Geological Survey validated the giant garter snake habitat model.

Comprehensive survey information across the entire Plan Area on known species locations was not available for the Covered Species; therefore, the species habitat models were especially useful tools for estimating the potential distribution of each species. Although species habitat modeling is not a replacement for field data, this approach is an important part of the conservation planning process because of the following:

- Lack of comprehensive species data in the Plan Area
- Difficulty of conducting supplemental surveys on private land
- Need for prediction and extrapolation in areas lacking adequate data
- Need for synthesis and analysis of multiple data sources across the entire Plan Area

Species distribution modeling and analysis are used to extrapolate biological data in a consistent and comprehensive manner across a study area. Extrapolation of these data avoids the geographic bias often inherent in occurrence data (e.g., CNDDB). Species distribution models, used in parallel with field data for known species occurrences, guide conservation planning analysis and decisions. The models allow for the prediction of presence/absence based on predicted suitable habitat.

The Covered Species habitat models were developed with consideration of error rates for identifying actual suitable habitat. Habitat model errors include both false-negative habitat (those areas that are actually suitable habitat but are not included within the modeled habitat area) and false-positive habitat (those areas that are not actually suitable habitat but are included within the modeled habitat area). The general rule used in developing the species habitat models was to reduce false negatives for habitat to the greatest extent possible within the resolution of the GIS data available but not to increase false-positives for habitat to such an extent that the habitat provides no valuable information for

conservation planning or impact assessment. The habitat models generally overestimate the amount of actual habitat in the Plan Area because the approach for minimizing false-negatives was used.

The size and duration of the Yolo HCP/NCCP was informed by abundant high-quality data about land use, ecological processes, Covered Species, natural communities, stressors, and management and monitoring techniques. This warrants the provision of long-term assurances to the Yolo HCP/NCCP Permittees.

Finding 4.6.1E **CDFW finds that the level of assurances and time limits specified in the IA were based on the sufficiency of mechanisms for long-term funding of all components of the Yolo HCP/NCCP and contingencies (2820(f)(1)(E)).**

As previously discussed in Finding 4.1.10, the cost of implementing the Yolo HCP/NCCP over the 50-year Permit term is estimated to be $424,962,000. This estimate includes the cost of land acquisition, plan administration, natural community management and restoration, biological monitoring, remedial measures, and contingency. The Yolo HCP/NCCP funding will come from fee and non-fee funding. Table 8-6 describes the funding source and funding amounts.

Fee funding will utilize a variety of private and public development-based fees to fund mitigation that will offset losses of land cover types, Covered Species habitat, and other biological values. Fee funding is generated when impacts occur and the entity causing the impacts pays a fee to fund the Conservation Strategy to offset the impacts and contribute to recovery. These one-time fees pay for the full cost of mitigating project effects on the Covered Species and natural communities. Fees will be based on the maximum allowable permanent and temporary effects on the land cover types as shown in Table 6-3.

Non-fee funding comes from a variety of sources, such as in-lieu land acquisition, interest and investment income, activities funded by local government agencies, and state and federal grant funds.

An endowment will be created during the Permit term to fund all needed implementation occurring after the Permit term. An endowment of approximately $13.7 million in 2017 dollars is needed to generate average annual real returns to fund post-Permit term management and monitoring of the Reserve System as described in Chapter 8, *Costs and Funding*. Annual real returns on endowment fund balances were assumed to equal 3.25 percent. This key assumption was based on a current habitat endowment management program operated by the National Fish and Wildlife Foundation under agreement with CDFW. The 3.25 percent annual real rate of return is net after of NFWF administrative fees and inflation.

The endowment will be built over the entire Permit term through allocation of a percentage of the Yolo HCP/NCCP fee revenue (Section, 8.4.1*, HCP/NCCP Fees*). Nominal rates of return on endowments routinely exceed inflation. Consequently, of the total endowment fund balance required at the end of the Permit term, only about 40 percent will come directly from the Yolo HCP/NCCP fee revenue, or about $5.6 million (2017 dollars; Table 3 in Appendix I). The remainder of the funding will come from endowment capital gains, interest, and dividend income on endowment investments. Fee levels will be

adjusted as needed to ensure sufficient endowment funding by the end of the Permit term (see Section 8.4.1.6, *Adjustment of HCP/NCCP Fees*).

There are sufficient mechanisms for long term funding of the mitigation for and conservation of the Covered Species and the natural communities to warrant provisions of long-term assurances to the Yolo HCP/NCCP Permittees.

Finding 4.6.1F **CDFW finds that the level of assurances and time limits specified in the IA were based on the degree of coordination and accessibility of centralized data for analysis and evaluation of the effectiveness of the Yolo HCP/NCCP (2820(f)(1)(F)).**

All aspects of compliance with the Permits, the Yolo HCP/NCCP, and the IA will be tracked. To track compliance, the YHC will maintain data as specified below.

- YHC will track the amount of land cover and Covered Species habitat temporarily and permanently removed as a result of Covered Activities regularly but no less than annually by overlaying impacts that year (and cumulatively) with each species habitat model in a GIS exercise to ensure that impact caps are not exceeded. Modeled habitat impacts and modeled habitat acquisition requirements will be tracked according to the most recently developed land cover maps and habitat models. Implementation of species surveys described in Chapter 5, *Effects on Covered Species and Natural Communities*, and the remaining Conservation Strategy will be directed by the most current land cover maps and habitat models, as updated and maintained by the YHC throughout the Permit term
- The location, extent, and timing of land acquisition and Yolo HCP/NCCP Reserve System establishment
- The status of implementation of each conservation action in the Conservation Strategy
- The success of the conservations actions in meeting the biological objectives in the Conservation Strategy
- Descriptions of recorded conservation easements, lands acquired in fee title, interagency memorandums of agreement, or any other agreements entered into for the purposes of protecting, enhancing, restoring, or creating Covered Species habitat
- The location, extent, and timing of effects on land cover types, based on reports submitted by project proponents and Permittees for Take authority under the Yolo HCP/NCCP
- The location and extent of compliance with the Covered Species occupancy requirements
- The location, extent, and timing of restoration or creation of applicable land cover types
- The location, extent, timing, and progress of plant occurrence creation and enhancement
- The location, extent, timing, and success rates of implementation of all other conservation actions described in the Conservation Strategy

This tracking will help ensure that habitats for Covered Species and natural communities are conserved within the Reserve System at a rate commensurate with the timing and magnitude of effects from Covered Activities. The data will also be linked to supporting information that documents the Yolo

HCP/NCCP compliance. Annual reports will be generated based on the information in the centralized database.

The YHC will prepare annual reports to provide an accounting of compliance with the Yolo HCP/NCCP and its associated authorizations and facilitate interagency coordination, scientific exchange, and public outreach. The YHC will submit annual reports to the Wildlife Agencies that serve the following purposes:

- Provide the necessary data and information to demonstrate that the Yolo HCP/NCCP is being properly implemented
- Identify the effect of plan implementation on Covered Species and on the effectiveness of the Conservation strategy at advancing the Yolo HCP/NCCP's biological goals and objectives
- Document actions taken under the adaptive management program (e.g., process, decisions, changes, results, corrective actions)
- Describe schedules and costs related to the implementation of actions over one-year timeframes

There are sufficient mechanisms for coordination, centralized storage, and accessibility of data to warrant provisions of long-term assurances to the Yolo HCP/NCCP.

Finding 4.6.1G **CDFW finds that the level of assurances and time limits specified in the IA were based on the degree to which a thorough range of foreseeable circumstances are considered and provided for under the adaptive management program (2820(f)(1)(G)).**

Changed circumstances as defined in Section 2805, subdivision (c) of Fish and Game Code defines this as "reasonably foreseeable circumstances that could affect a Covered Species or geographic area covered by the plan". Section 2805, subsection (k) of Fish and Game Code defines unforeseeable circumstances as "affecting one or more species, habitat, natural community, or geographic area covered by a conservation plan that could not reasonably have been anticipated at the time of plan development, and that result in a substantial adverse change in the status of one or more Covered Species".

The Yolo HCP/NCCP has identified potential changed circumstances that can be reasonably be identified within the Plan Area as:

- New species listings
- Climate change
- Wildfire
- Nonnative invasive species or disease
- Flooding
- Drought
- Earthquakes
- Loss of Swainson's hawk habitat and populations declining below the threshold, as specific in Section 7.7.1.2.8, *Regional Loss of Swainson's Hawk Habitat*

If a changed circumstance occurs within the Plan Area, as outlined above, the Permittees will modify their activities as described in Sections 7.7.1.2.1 through 7.7.1.2.8 to the extent necessary to address the effects of the changed circumstances on the Conservation Strategy and the actions will be reported to the Wildlife Agencies.

As stated in Section 11.3 of the IA, changed circumstances are not unforeseen circumstances. Other changes not identified as changed circumstances will be treated as unforeseen circumstances.

A thorough range of foreseeable circumstances were considered and provided for in the Yolo HCP/NCCP. Therefore, provisions of long-term assurances to the Yolo HCP/NCCP Permittees is warranted.

Finding 4.6.1H **CDFW finds that the level of assurances and time limits specified in the IA were based on the size and duration of the Yolo HCP/NCCP (2820(f)(1)(H)).**

The Plan Area includes all lands within the boundaries of Yolo County, totaling approximately 653,549 acres, and a 1,174-acre expanded Plan Area for riparian conservation in Solano County on the south side of Putah Creek. As described in Findings 4.1.4A – 4.1.4E, the Reserve System was designed to be: (1) large enough to maintain the ecological integrity of large habitat blocks, ecosystem function, and biological diversity; (2) provide equivalent conservation of Covered Species within the Plan Area; (3) protect and maintain habitat areas large enough to support sustainable populations of Covered Species; (4) incorporate a range of environmental gradients and high habitat diversity to provide for shifting species distributions due to changed circumstances and provide for the effective movement and interchange of organisms between habitat areas; and, (5) maintain the ecological integrity of the habitat areas within the Plan Area.

As discussed in Finding 4.1.4A, a minimum of 32,406 acres of land will be conserved under the Yolo HCP/NCCP up to a total of 33,362 acres if the wetland or riparian habitat loss occurs. The Conservation Strategy provides acreage commitments by natural communities and by Covered Species for newly protected lands as well as for Pre-Permit Reserve Lands (Tables 6-2(a) and 6-2(b)). Implementation of the Yolo HCP/NCCP will result in:

- 24,406 acres of newly protected natural communities and Covered Species habitat
- Up to 956 acres of restoration or creation if the maximum allowable wetland or riparian loss is reached (44 acres of restoration independent of effects and 912 aces restored or created as a result of habitat loss)
- 8,000 acres of Pre-Permit Reserve Lands enrolled into the Reserve System

Growth scenarios developed by the Sacrament Area Council of Governments predicted that 80 percent of residential development and 56 percent of nonresidential development will be completely built out by approximately 2042 and nonresidential development by 2056. Therefore, a minimum of 40 years is necessary to cover build out of the Covered Activities. A 50-year Permit term is necessary so that all conservation actions can be successfully completed to offset the adverse effects of the Covered Activities.

The size of the Yolo HCP/NCCP Planning Area and Reserve System and the duration of the Permit are sufficient to warrant the provision of the long-term assurances.

Finding 4.6.2 **CDFW finds that the level of assurances provided to the Permittees is commensurate with long-term conservation assurances and associated implementation measures in regards to unforeseen circumstances pursuant to the approved Yolo HCP/NCCP (2820(f)(2)).**

The long-term conservation assurance and associated implementation measures are described in the Conservation Strategy and the responses for addressing changed circumstances are described in Section in 7.7.1. These include habitat restoration and enhancement, conservation, management and monitoring actions and dedicated resources to support these actions.

Provided that the Yolo HCP/NCCP is being implemented consistent with the substantive terms of the Permit, the Yolo HCP/NCCP, and the IA, Permittees are not required to provide additional land, water or financial compensation or additional restrictions on the use of land, water, or other natural resources during the term of the Permit without the consent of the Permittees as described in Section 12.2 of the IA.

Per Section 2823 of Fish and Game Code, CDFW shall suspend or revoke any Permit, in whole or in part, issued for the Take of a species subject to 2835 if the continued Take of the species would result in jeopardizing the continued existence of the species.

Long-term conservation assurances and associated implementation measures regarding unforeseen circumstances were considered and provided for in the Yolo HCP/NCCP. Therefore, providing long term assurances to the Yolo HCP/NCCP Permittees is warranted.

4.7 Findings Regarding Whether Take and Coverage are Warranted

Finding 4.7.1 **CDFW finds that the following species are authorized for take under the Yolo HCP/NCCP and coverage is warranted based on regional or landscape level consideration, such as healthy population levels, widespread distribution throughout the Plan Area, and life history characteristics that respond to habitat-scale conservation and management actions (2821(a)(1))**.

Adequate habitat-scale conservation and management actions, with additional species-specific conservation measures and monitoring in an adaptive management framework, will be implemented for the following species: Swainson's hawk.

Swainson's hawk (*Buteo swainsoni*) is a long-winged, medium-sized soaring raptor, (48 to 56 centimeters [19 to 22 inches] and 693 to 1367 grams [24.46 to 48.26 ounces]) that nests and roosts in large trees in flat, open grassland or agricultural landscapes.

In North America, Swainson's hawk nest in the grassland plains and agricultural regions from southern Canada (and possibly in the northern provinces and territories, and Alaska) to northern Mexico. Other

than a few documented small wintering populations in the United States (Herzog 1996; England et al. 1997), the species winters primarily in the Pampas region of Argentina. The Central Valley population winters between Mexico and central South America (Bradbury et al. in preparation).

Early accounts described Swainson's hawk as one of the most common raptors in California, occurring throughout much of the lowland portions of the state (Sharp 1902). Since the mid-1800s, native habitats that supported the species have undergone a gradual conversion to agricultural or urban uses. Today, native grassland habitats are virtually nonexistent in the state, and only remnants of the once vast riparian forests and oak woodlands still exist (Katibah 1983). While the species has successfully adapted to certain agricultural landscapes, this habitat loss has caused a substantial reduction in the breeding range and in the size of the breeding population in California (Bloom 1980; England et al. 1997). Current breeding populations occur primarily in the Central Valley, but also in the Klamath Basin, the northeastern plateau, Owens Valley, and rarely in the Antelope Valley (Grinnell and Miller 1944; Bloom 1980; Garrett and Dunn 1981). The bulk of the Central Valley population resides in Yolo, Sacramento, Solano, and San Joaquin Counties.

In Yolo County, the species is distributed throughout the low elevation agricultural region east of the Interior Coast Range. Closely associated with agricultural cover type, the distribution of the species generally follows the pattern of hay, grain, and row crops. The majority of nesting pairs occur from several miles north of Woodland south to Putah Creek and east to the Sacramento River. Fewer pairs occur in the predominantly rice growing region in the northeastern portion of the county, in the orchard region in the northwest and southwest portions of the county, and the wetland-dominated areas of the southern panhandle. They generally avoid scrub, chaparral, savannah, or oak-dominated habitats in the western portion of the county.

Baseline surveys conducted in 2007 located a total of 290 active breeding territories in Yolo County (Estep 2008). This was the first comprehensive baseline of this species in the Plan Area, and thus cannot be used to assess a trend in the number of breeding pairs in the County. However, based on the results of a long-term population study conducted in Yolo County since the mid-1980s (Estep in preparation), there appears to have been an upward trend in the number of breeding pairs. Estep noted 48 active nests in 1988 with a steady increase through 2000. The highest nesting concentrations are from north of Woodland to County Road 12, along oak and cottonwood dominated riparian corridors such as Willow Slough, Putah Creek, and the Sacramento River, and between Davis and Woodland and west to approximately Interstate 505 and east to the Sacramento River (Estep 2008). While this may be at least partially attributed to increasing observer detection skill in the early years of the study, this local population appears to be at least stable with respect to the number of breeding pairs. Whether or not this population is stable based on productivity and recruitment is undetermined.

The Plan Area contains 293,414 acres of foraging habitat comprised of 79,336 acres of modeled natural and 214,078 acres of cultivated foraging habitat, 15,673 acres of modeled nesting habitat of which 12,565 acres is valley foothill riparian habitat and approximately 290 active nesting trees based on the 2007 nesting survey by Estep (J. Estep, personal communication, November 9, 2018). There have been 534 nests documented from the 1980s to 2013 The Yolo HCP/NCCP will protect, manage, and enhance 18,792 acres of unprotected Swainson's hawk foraging habitat, including 14,362 acres of cultivated

lands and 4,430 acres of natural foraging habitat, and protect 1,600 acres of valley foothill riparian nesting habitat. In addition, the Yolo HCP/NCCP will restore 965 acres of modeled nesting habitat. The Yolo HCP/NCCP will enroll 4,580 acres of modeled foraging habitat and 215 acres of modeled nesting habitat as Pre-Permit Reserve Lands. The Reserve System will include the protection of at least 20 active (active within the last 5 five years) Swainson's hawk nests. In addition, trees suitable for Swainson's hawk nesting will be established within cultivated lands of the Reserve System as needed to achieve a density of one suitable nesting tree per 10 acres.

Cultivated lands within the Reserve System will be planted with cover strips and hedgerows to provide rodent habitat to increase prey abundance for Swainson's hawk. Protected lands will be planted with crop types that provide foraging habitat value for these species, inclusive of crop types of lesser foraging value that must be grown in rotation to maintain long-term viability for cultivation of the target crop types, orchards and vineyards do not have habitat value for Swainson's hawk and will not be planted in the Reserve System. Where possible, priority will be given to lands that are regularly planted in alfalfa, pasture or clover. A cultivated management plan for the Reserve System will be developed for all cultivated lands easements which will be reviewed and approved
by the Wildlife Agencies. The YHC will monitor and adaptively manage the Reserve System consistent with the Yolo HCP/NCCP Conservation Strategy as required to meet the objectives of the Yolo HCP/NCCP.

Reserve System Lands should be contiguous with other suitable agricultural lands at a minimum of 2,760 acres. The Yolo HP/NCCP will focus on preserving lands that include potential nesting habitat (e.g. woodland patches, riparian, tree rows, isolated trees) or have potential for enhancement of both nesting and foraging values.

In the Plan Area Covered Activities will permanently remove up to 651 acres of modeled nesting habitat and 10,806 acres of modeled foraging habitat for Swainson's hawk. In addition, Covered Activities will temporarily remove up to 224 acres of foraging habitat as a result of operations and maintenance, bridge replacement, and other temporary construction activities. Take is limited to only nesting and foraging habitat and up to 20 nest trees. Take of individuals is not permitted. Each temporary disturbance is expected to be small, likely no greater than approximately ten acres (and often much less). Habitat restoration could result in conversion of up to 1,039 acres of Swainson's hawk foraging habitat (an estimated 803 acres agricultural and 236 acres natural) to wetland natural communities that do not provide habitat for this species. An estimated 642 acres of foraging habitat will be converted to nesting habitat for this species.

In the urban planning units of Woodland, Davis, West Sacramento, and Winters an estimated 495 acres of the Swainson's hawk nesting habitat loss and 4,407 acres of the foraging habitat loss is expected to result from development. Covered Activities will remove up to 20 nest trees. A nest tree is defined as a tree that has supported an active nest anytime within the previous five years.

The Yolo HCP/NCCP will protect and enhance nesting and foraging habitat, protect 20 nest trees and minimize impacts to Swainson's hawk. Therefore, coverage is warranted for Swainson's hawk.

Finding 4.7.2 **CDFW finds that the following species are authorized for take under the Yolo HCP/NCCP and coverage is warranted based on regional or landscape level considerations with site-specific conservation and management requirements that are clearly identified in the Yolo HCP/NCCP for species that are generally well-distributed, but that have core habitats that must be conserved (2821(a)(2)).**

Adequate landscape-level considerations, with additional species-specific conservation measures and monitoring, in an adaptive management framework will be implemented for the following species: valley elderberry longhorn beetle, California tiger salamander, western pond turtle, giant garter snake, white-tailed kite, western burrowing owl, and tricolored blackbird.

Valley elderberry longhorn beetle

The valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*) is an atypical lepturine; the Lepturinae is a subfamily of the Cerambycidae (longhorn beetle family). Valley elderberry longhorn beetles are separated from all other lepturines by the form of the mandibles, which are broad and short, without internal pubescence (Linsley and Chemsak 1972). Originally described by Horn (1881), valley elderberry longhorn beetle is black in color, with red to orange margins on the elytra (wing covers), which fades to yellow after death. The pronotum (plate behind the head) is smooth, with confluent punctuations. The elytra are densely punctate or rugose. Adult beetles range from 14 to 25 millimeters (mm) (0.55 to 0.98 inch) in length (Linsley and Chemsak 1972).

The valley elderberry longhorn beetle is completely dependent on its host plant, the elderberry (Linsley and Chemsak 1972, 1997; Eng 1984; Barr 1991; Collinge et al. 2001). This shrub is a component of riparian forests throughout the Central Valley. Although this shrub occasionally occurs outside riparian areas, shrubs supporting the greatest beetle densities are located in areas where the shrubs are abundant and interspersed among dense riparian forest, including Fremont cottonwood (*Populus fremontii*), box elder (*Acer negundo*), California sycamore (*Platanus racemosa*), California walnut (*Juglans californica*), white alder (*Alnus rhombifolia*), willow (*Salix* spp.), button willow (*Cephalanthus occidentalis*), Oregon ash (*Fraxinus latifolia*), wild grape (*Vitis californica*), California hibiscus (*Hibiscus californica*), and poison oak (*Toxicodendron diversilobum*) (Barr 1991; USFWS 1999; Collinge et al. 2001). There is also a strong association between blue elderberries and valley oaks which historically extended beyond riparian zones. Isolated elderberry shrubs separated from contiguous habitat by extensive development are not typically considered to provide viable habitat for valley elderberry longhorn beetle (USFWS 1998; Collinge et al. 2001).

The valley elderberry longhorn beetle subspecies is a narrowly defined, endemic taxon, limited to portions of the Central Valley (USFWS 1999; USFWS 2006) occurring below 900 meters (2,953 feet) in elevation (USFWS 1999). There are numerous records of occupied and potential valley elderberry longhorn beetle habitat occurring throughout the Sacramento River corridor (Eya 1976; Jones & Stokes 1985, 1986, 1987a, 1987b; USFWS 1984; Barr 1991; Collinge et al. 2001; CNDDB 2000), as well as along Putah Creek from Monticello Dam east to Davis (Eya 1976; USFWS 1984; Barr 1991; Collinge et al. 2001; CNDDB 2005) and along Cache Creek (Barr 1991; CNDDB 2005). However, because comprehensive

surveys for valley elderberry longhorn beetle in the Plan Area have not been conducted and because known occurrences throughout the species' range are based mostly on incidental observations (e.g., CNDDB), the population size and locations of this species in the Plan Area are not fully known. Few surveys focused on valley elderberry longhorn beetle have been conducted within and adjacent to the Plan Area and the total extent of potential habitat is unknown. There are 18 extant CNDDB occurrences of valley elderberry longhorn beetle in the Plan Area.

The Plan Area supports 9,447 acres of modeled valley foothill riparian and 3,932 acres of non-riparian habitat. The Yolo HCP/NCCP will newly protect at least 1,600 acres of modeled valley foothill riparian habitat, restore up to 576 acres of valley foothill riparian natural community, and include 130 acres of Pre-Permit Reserve Lands. Most of this protection and restoration will occur in the areas with the highest concentrations of valley elderberry longhorn beetle occurrences in the Plan Area, the Lower Cache Creek planning unit and Lower Putah Creek planning unit. The Yolo HCP/NCCP will focus preservation on areas that provide a gradient of habitat conditions that support elderberry extending from woody riparian to adjacent valley oak woodland.

Covered Activities will permanently remove up to 584 acres of modeled habitat, including 523 acres of riparian habitat and 61 acres of nonriparian habitat. Covered Activities will temporarily remove one acre of nonriparian habitat. Take includes habitat and individuals. Since modeled habitat does not necessarily support the species' host plant, which is required for occupancy, the loss of modeled habitat as described above overestimates the actual extent of habitat loss for this species.

The greatest expected habitat losses resulting from Covered Activities are in the West Sacramento planning unit and South Yolo Basin planning unit. Approximately 329 acres of the riparian and 32 acres of the nonriparian habitat loss is expected to occur in the West Sacramento planning unit as a result of urban development and levee improvements. Approximately 119 acres of riparian and 21 acres of nonriparian habitat loss is expected to occur in the South Yolo Basin planning unit, much of which will result from development within the unincorporated community of Clarksburg. Operations and maintenance are expected to permanently remove an estimated 13 acres of riparian habitat and one acre of nonriparian habitat.

The Yolo HCP/NCCP will benefit valley elderberry longhorn beetle with the protection and restoration of valley foothill riparian habitat. Therefore, coverage is warranted for valley elderberry longhorn beetle.

California tiger salamander

The California tiger salamander (*Ambystoma californiense*) is an amphibian in the family Ambystomatidae. These terrestrial salamanders are large and thickset, with a wide, rounded snout (69 FR 47212). Adults range in size from 7.5 to 12.5 centimeters (cm) (2.95 to 4.92 inches) snout-to-vent length (SVL) (Jennings and Hayes 1994).

The California tiger salamander is endemic to California and is restricted to grasslands, oak savannah, and coastal scrub communities of lowlands and foothill regions where aquatic sites are available for breeding. California tiger salamanders are typically found at elevations below 460 meters (1,509 feet) (68 FR 13498), although the known elevational range extends up to 1,053 meters (3,458 feet) (Jennings

and Hayes 1994). Breeding sites generally consist of natural ephemeral pools (Barry and Shaffer 1994) or artificial ponds that mimic them (e.g., stock ponds that are allowed to dry).

Breeding sites may also include perennial features with open water refugia that do not support populations of bullfrog (*Rana catesbeiana*) or predatory fishes (Holomuzki 1986; Fitzpatrick and Shaffer 2004). Pools characterized by deep water may also support larvae through metamorphosis in relatively dry years (Trenham et al. 2000), whereas shallow pools may not (Semlitsch et al. 1996). Populations associated with shallow, natural vernal pools may be more dependent on suitable hydroperiod (Trenham et al. 2000).

Outside of the breeding season, post-metamorphic California tiger salamanders spend most time in burrows of small mammals, such as California ground squirrels and Botta's pocket gopher (*Thomomys bottae*) (Storer 1925; Loredo and Van Vuren 1996; Petranka 1998; Trenham 1998a). Active rodent burrow systems are considered an important component of California tiger salamander upland habitat (Seymour and Westphal 1994; Loredo et al. 1996). Utilization of burrow habitat created by burrowing mammals such as ground squirrels suggests a commensal relationship (a relationship between two species in which one obtains food or other benefits without detriment or benefit to the other) between the two species (Loredo et al. 1996). Loredo et al. (1996) indicate that active ground-burrowing rodent populations are probably necessary to sustain California tiger salamander populations because inactive burrow systems begin to deteriorate and collapse over time.

Within the coastal range, California tiger salamander occurs from southern San Mateo County south to San Luis Obispo County, with isolated populations in Sonoma and northwestern Santa Barbara Counties (CNDDB 2005). In the Central Valley and surrounding Sierra Nevada foothills, the species occurs from northern Yolo County southward to northwestern Kern County and northern Tulare and Kings Counties (CNDDB 2005). Throughout its range, occurrences of California tiger salamander are strongly associated with uplifted and dissected undeformed to moderately deformed Plio-Pleistocene sediments (Jennings and Hayes 1994, Wahrhaftig and Birman 1965).

Little is known of the population trends of California tiger salamanders in Yolo County. Recorded occurrences of California tiger salamanders in Yolo County include an occurrence of several larvae in a stock pond on the west slope of Capay Hills east of Rumsey Rancheria (Downs 2005), and five occurrences in the northern end of the Solano-Colusa vernal pool region, west and northwest of Dunnigan (CNDDB 2007). Four recorded occurrences were located within an area bounded by Interstate 5 to the east, Bird Creek to the south, and Buckeye Creek to the north and west. These four occurrences are from within an area that now comprises the Dunnigan Creek Unit (Central Valley Region Unit 1) of designated USFWS critical habitat. Land ownership within this unit is entirely private (70 FR 49380) and therefore restricted. Another historical, but extirpated occurrence in the Dunnigan Creek Unit, is recorded from a site adjacent to the designated critical habitat. A fifth recorded occurrence, from 1993, represents an individual found in the Willows apartment complex in Davis, adjacent to a stormwater detention basin managed by the City of Davis (CNDDB 2007).

The Plan Area supports 86,505 acres of modeled upland habitat and 1,004 acres of modeled aquatic. The Yolo HCP/NCCP will protect 4,430 acres of grassland natural community, at least 2,000 acres of

which will be sited in California tiger salamander modeled upland habitat in the Dunnigan Hills planning unit. The Yolo HCP/NCCP will also protect at least 36 acres of modeled aquatic California tiger salamander habitat in association with the 2,000 acres of protected upland habitat. Additionally, the Yolo HCP/NCCP will restore (or create, if restoration opportunities are limited) at least one acre of aquatic habitat for each acre lost, and an additional 24 acres of aquatic habitat independent of effect, for a total of 36 acres of aquatic restoration if all loss occurs. If a Covered Activity will result in the loss of an occupied or presumed to be occupied aquatic habitat, the Covered Activity would not remove the occupied aquatic habitat until at least four new occupied breeding pools have been protected in the Dunnigan Hills area along with sufficient surrounding uplands to support the individuals using the protected aquatic habitat. The Yolo HCP/NCCP will conserve at least five breeding pools supporting California tiger salamander throughout all water year types (i.e. drought year, wet year, moderate rainfall year). In addition, the Yolo HCP/NCCP will enroll 27 acres of aquatic habitat and 340 acres of upland habitat into the Pre-Permit Reserve Lands.

Reserve System Lands must include both breeding pools and adjacent, suitable upland grassland habitat and should be contiguous with other protected lands to allow for dispersal and other possible movement corridors.

Covered Activities will permanently remove up to 12 acres of modeled California tiger salamander aquatic breeding habitat and up to 398 acres of modeled California tiger salamander upland habitat in the Plan Area. Covered Activities will temporarily remove one acre of both aquatic and upland habitat. Take includes individuals and breeding and upland habitat.

The greatest loss of habitat is expected to occur in the Dunnigan Hills area where the majority of California tiger salamander documented occurrences are located in the Plan Area (five out of six). While Covered Activities will not remove any of these current occurrences, rural development within the Dunnigan growth boundary will occur in the location of an extirpated occurrence. Unincorporated community development in the Dunnigan Hills and Colusa Basin Plains planning units within the Dunnigan growth boundary will result in an estimated 11 acres of aquatic habitat loss and 336 acres of upland habitat loss. Near the Capay Hills planning unit, there is also a known occurrence where an estimated 10 acres of the upland habitat loss will occur. Conservation actions could result in the conversion of up to 10 acres of California tiger salamander upland habitat (e.g., grassland) to aquatic habitat to meet a no net loss of aquatic California tiger salamander habitat.

Fragmentation could also potentially result from California tiger salamander breeding habitat removal from surrounding upland habitat. Covered Activities will remove approximately 55 acres of upland habitat within 1.2 miles of the 12 acres of aquatic habitat.

The Yolo HCP/NCCP will benefit California tiger salamander by the protection and restoration of breeding and upland habitat as well as protect five occupied breeding pools. Therefore, coverage is warranted for California tiger salamander.

Western Pond Turtle

The western pond turtle (*Actinemys marmorata marmorata*) is a medium-sized aquatic turtle primarily found in natural aquatic habitats, but also inhabits impoundments, irrigation ditches, and other artificial and natural water bodies (Ernst et al. 1994) and is found at elevations ranging from sea level to 2,041 meters (6,696 feet) (Stebbins 2003). The species is usually found in fresh water, but brackish habitats are also utilized (Ernst et al. 1994; personal communication, pg. A-24, Yolo HCP/NCCP, 2017). The aquatic habitat may be comprised of either mud or rocky substrates and usually contains some vegetation (Ernst et al. 1994).

Habitat quality often seems to be positively correlated with the number of available basking sites (Jennings and Hayes 1994). Turtles seem to avoid areas lacking in significant refugia (Holland 1994). Basking sites may be rocks, logs, vegetation, terrestrial islands within the aquatic habitat, and human-made debris (Holland 1994). Per Holland, hatchlings use shallow, slow-moving waters with emergent vegetation, such as that found alongside channels of stream or pond margins, while juveniles one year old or older tend to utilize the same aquatic habitats as adults (personal communication, pg. A-24, Yolo HCP/NCCP, 2017).

Western pond turtles may overwinter in aquatic or upland habitats (Holland 1994). Per Hanson, western pond turtles inhabit the irrigation ditches servicing rice agriculture in the Central Valley (unpublished notes, pg. A-24, Yolo HCP/NCCP, 2017). While rice fields probably confer little advantage for adult western pond turtles, mature rice probably provides valuable cover and foraging habitat for hatchlings.

When overwintering in aquatic habitats, turtles enter a state of torpor and rest quietly on the pond or stream bottom, often in mud or under some type of refugium such as a log or undercut bank (Holland 1994). Overwintering western pond turtles may move between several sites during winter and have been observed swimming under ice in water temperatures as low as 1 degree Celsius (°C) (34 degrees Fahrenheit [Holland 1994). Per Holland, individuals may occasionally emerge to bask on warm, sunny days during winter, even in northern Oregon (personal communication, pg. A-24, Yolo HCP/NCCP, 2017).

Upland habitats are also important to western pond turtles for nesting, overwintering, and overland dispersal (Holland 1994). Nesting sites may be as far as 400 meters (1,312 feet) or more from the aquatic habitat, although usually the distance is much less and generally around 100 meters (328 feet) (Jennings and Hayes 1994; Slavens 1995; Holland personal communication, pg. A-24, Yolo HCP/NCCP, 2017). Nesting sites typically have a southern or western aspect, with slopes of 0 to 46 percent and compact, dry soils (Holland 1994; Bury et al 2001). When turtles choose to overwinter in upland habitats, individuals typically leave the aquatic habitat in late fall, moving as much as 500 meters (1,640 feet) from the aquatic habitat (Holland 1994). Turtles typically burrow into duff (leaf litter) and/or soil, where they remain during the winter months (Holland 1994). For reasons not entirely clear, western pond turtles may move into upland habitats for variable intervals at other times of the year, during which times they may be found burrowed into duff or under shrubs (Rathbun et al. 1993).

The range of the western pond turtle in North America extends primarily from Pacific slopes of western Washington State (where it may now be extinct) south to the San Francisco Bay area, where it intergrades with the southwestern pond turtle (*C. m. pallida*) (Stebbins 2003). In California, the western pond turtle ranges primarily from Pacific slopes along the Oregon-California state boundary south to the San Francisco Bay area (Stebbins 2003). Occurrences east of the crest of the Sierra Nevada Mountain Range include Susanville in Lassen County (Stebbins 2003).

The Plan Area supports 191,092 acres of modeled habitat, 53,907 acres of aquatic and 137,185 acres of upland habitat. With implementation of the Yolo HCP/NCCP, the western pond turtle will benefit from the protection of 2,400 acres of modeled aquatic habitat, 3,475 acres of modeled upland habitat, and restoration of up to 369 acres of modeled aquatic habitat. Additionally, 2,098 acres of modeled aquatic habitat and 978 acres of modeled upland habitat will be protected on Pre-Permit Reserve Lands.

Reserve System Lands along stream courses should have sustainable permanent water flows and be free of significant upstream disturbances including toxins, streamside development, and other sources of potential upstream habitat degradation. Pond or lake Reserve System Lands should be contiguous with open grassland or other natural land habitats to facilitate dispersal.

The Yolo HCP/NCCP will also enhance riverine natural communities with the addition of logs, rocks, and/or emergent vegetation for basking sites and other western pond turtle habitat features.

Covered Activities will result in loss of up to 3,502 acres of modeled western pond turtle habitat, including up to 369 acres of aquatic habitat and 3,133 acres of nesting and overwintering habitat in the Plan Area. An estimated 1,118 acres of the upland habitat loss will result from habitat restoration, as these uplands will be converted to aquatic habitat for western pond turtle. Additionally, up to 143 acres of western pond turtle habitat (31 acres of aquatic and 112 acres of nesting and overwintering) will be temporarily disturbed as a result of construction for bridge replacements and Cache Creek Resources Management Plan operations and maintenance. Take includes individuals as well as aquatic and nesting and overwintering habitat.

Covered Activities could result in fragmentation of western pond turtle habitat. In particular, ponds and other aquatic habitat could become isolated in urban development areas, affecting the ability for western pond turtles to travel between ponds. This would adversely affect dispersal and genetic exchange for the species. Ascent Environmental assessed the effects of fragmentation that would potentially result from western pond turtle aquatic habitat being removed from surrounding upland habitat. They identified upland habitat within 1,640 feet of the aquatic habitat that will be removed and deducted the upland habitat acreage that would be directly removed by Covered Activities. Of the habitat that would remain after loss resulting from Covered Activities, they identified areas that would remain within 1,640 feet of another source of aquatic habitat. They estimated that with the expected aquatic habitat loss, an estimated 569 acres of upland habitat would no longer be adjacent to suitable aquatic habitat.

The Yolo HCP/NCCP will benefit the western pond turtle in the form of protection, enhancement, and restoration of their modeled aquatic and upland habitat. Therefore, coverage is warranted for western pond turtle.

Giant Garter Snake

The giant garter snake (*Thamnophis gigas*) is an aquatic snake endemic to the Central Valley of California and is one of the largest snakes in the genus *Thamnophis*. A sexually dimorphic species, females can reach sizes in excess of 1 meter (3.3 feet) and 850 grams (1.87 pounds), while proportionally smaller males seldom exceed 250 grams (0.55 pound).

Giant garter snakes are strongly associated with aquatic habitats, typically overwintering in burrows and crevices near active season foraging habitat (Hansen 2004a; Hansen 2004b). Individuals have been noted using burrows as far as 50 meters (164 feet) from marsh edges during the active season, and retreating as far as 250 meters (820 feet) from the edge of wetland habitats while overwintering, presumably to reach hibernacula above the annual high water mark (Hansen 1986; Wylie et al. 1997; USFWS 1999).

Habitats occupied by giant garter snakes typically contain permanent or seasonal water, mud bottoms, and vegetated dirt banks (Fitch 1940; Hansen and Brode 1980). Abundances and densities of giant garter snakes vary with context of habitat, they are lowest in seasonal/managed marshes (dry in summer, flooded in winter for waterfowl habitat), greatest in natural marshes, and intermediate in rice fields (Wylie et al. 2012). Prior to reclamation, these wetlands consisted of freshwater marshes and low-gradient streams. In some rice-growing areas, giant garter snakes have adapted to vegetated, artificial waterways and associated rice fields (Hansen and Brode 1993) where velocities fall within tolerable limits (E. Hansen in litt. 2009).

Changing agricultural regimes, development, and other shifts in land use create an ever-changing mosaic of available habitat. Giant garter snakes disperse in response to these changes in order to find suitable sources of food, cover, and prey. Connectivity between regions is therefore extremely important for providing access to available habitat and for genetic interchange. In an agricultural setting, giant garter snakes rely largely upon the interconnected network of canals and ditches that provide irrigation and drainage to provide this connectivity.

Giant garter snakes are documented in two distinct subpopulations along the western edge of Yolo County, the Colusa Basin and Willow Slough/Yolo Bypass subpopulations. (CNDDB 2007 Hansen 2006, 2007, 2008; Wylie et al. 2004; Wylie and Martin 2005; Wylie and Amarello 2006). The Colusa Basin subpopulation is located in the northeastern portion of the Plan Area, in the Colusa Basin and Colusa Basin Plains planning units. The Willow Slough/Yolo Bypass subpopulation is located in the southeastern portion of the Plan Area, primarily in the Willow Slough Basin and South Yolo Bypass planning units but extending into the Woodland planning unit.

Evidence that giant garter snakes may once have been distributed throughout the easterly reaches of Yolo County is illustrated by reported sightings in portions of Solano County adjacent to Yolo County, in

South Fork Putah Creek near Davis, and in the Liberty Farms region of the Yolo Basin. Repeated attempts to assess local distribution suggest that both the Liberty Farms and Putah Creek populations are probably extirpated (Hansen 1986; Wylie and Martin 2005; Kelly personal communications, pg, A-35, Yolo HCP/NCCP 2017).

The Plan Area contains 77,056 acres of modeled giant garter snake habitat including 31,168 acres of rice habitat, 6,596 acres of aquatic habitat, 25,897 acres of freshwater emergent habitat, 6,612 acres of active season upland movement, and 6,783 acres of overwintering habitat. The Yolo HCP/NCCP will protect 7,195 acres of giant garter snake habitat, including 2,800 acres of rice habitat, 420 acres of lacustrine/riverine habitat, 500 acres of freshwater emergent wetland habitat, 1,160 acres of active season upland movement habitat, and 2,315 acres of overwintering habitat. Additionally, the Yolo HCP/NCCP will restore 76 acres of freshwater emergent wetland and 109 acres of aquatic habitat for giant garter snake to result in no net loss of aquatic habitat. In addition to the newly protected and restored giant garter snake habitat, the Yolo HCP/NCCP will enroll 2,910 acres of Pre-Permit Reserve Lands supporting giant garter snake into the Reserve System, and will monitor, and adaptively manage these lands consistent with the Yolo HCP/NCCP Conservation Strategy.

Suitable upland over-wintering habitat is required immediately adjacent to aquatic habitat (banks, levees, edges, or open uncultivated lands). Adjacency with rice lands or wetlands is needed.

Implementation of the Covered Activities will result in the permanent removal of up to 87 acres of modeled giant garter snake rice habitat, 109 acres of aquatic habitat, 76 acres of fresh emergent wetland habitat, 441 acres of active season upland movement habitat, and 1,235 acres of overwintering habitat. Covered Activities will also temporarily remove one acre of aquatic habitat, three acres of active season upland habitat, and five acres of overwintering habitat. Take includes aquatic and upland habitat and up to 815 individuals.

The Yolo HCP/NCCP will benefit the giant garter snake in the form of protection, enhancement, and restoration of their modeled aquatic and upland habitat. Therefore, coverage is warranted for giant garter snake.

White-tailed kite

The white-tailed kite (*Elanus leucurus*) is a medium-sized (32- to 38-centimeter) raptor that inhabits low elevation, open grasslands, savannah-like habitats, agricultural areas, wetlands, and oak woodlands (Dunk 1995). Kites often nest in close association with other nesting kites and with several other raptors. These include the Swainson's hawk (*Buteo swainsoni*), red-tailed hawk (*Buteo jamaicensis*), and red-shouldered hawk (*Buteo lineatus*) (particularly in riparian habitats of the Sacramento Valley).

The white-tailed kite was threatened with extinction in North America during the early twentieth century (Eisenmann 1971). Until the 1960s, the species was considered declining throughout its North American range, but since then has recovered in some areas. Currently, the distribution of the species includes the East Coast and southeast United States, the southwest United States from Texas to

California, and north to Washington State, and from Mexico to South America (Dunk 1995). Relatively stable resident populations occur in California, portions of coastal Oregon and Washington, southern Florida, southern Texas, and portions of northern Mexico. The species is considered rare in remaining portions of its North American range. Range expansion has also been noted in some Central American locales (Eisenmann 1971).

White-tailed kite has been reported from most of the open, lowland habitats within the Plan Area. The California Natural Diversity Database (CNDDB 2009) reports six nest sites, all in the vicinity of Davis. A total of 13 nest sites was reported during a survey of the lowland portion of the Plan Area conducted in 2007 (Estep 2008). Most were found in riparian areas, including three along Putah Creek, three along Willow Slough, two along Dry Slough, one along the Sacramento River, one along the Willow Slough Bypass, and one along the Knights Landing Ridge Cut. Two nonriparian sites included one in West Sacramento and one near Dunnigan. Whisler (personal communication, pg. A-59, Yolo HCP/NCCP, 2017) reported several suburban nests in east and north Davis and the Willowbank area, El Macero Golf Course, and UC Davis during 2001 and 2002. No trend information for the Plan Area is available.

The Plan Area contains 31,732 acres of modeled nesting habitat and 236,498 acres of modeled foraging habitat. The Yolo HCP/NCCP will protect 4,430 acres of grassland natural community and 14,362 acres of non-rice cultivated lands seminatural community to provide 18,792 acres of modeled foraging habitat for the white-tailed kite as well as 1,600 acres of modeled nesting habitat and two nesting trees within the Plan Area. Additionally, the Yolo HCP/NCCP will enroll a total of 3,545 acres including 215 acres of nesting habitat and 3,300 acres of foraging white-tailed kite habitat into the Pre-Permit Reserve Lands and 965 acres of nesting habitat will be restored.

Additional management and enhancement activities will further increase habitat functions for white-tailed kite by improving habitat diversity in the Plan Area; these activities include enhancing grassland natural community and cultivated lands seminatural community to improve prey base, protecting existing nest trees on protected cultivated lands, and planting new trees within the cultivated landscape as well as within riparian and valley grassland communities.

Preservation of foraging habitat will be prioritized to include or adjacent to riparian nesting habitat, followed by areas located within 0.5 miles of nesting habitat. Reserve System Lands should be contiguous with other suitable agricultural land, grassland, or seasonal wetland habitats at a minimum of 300 acres to correspond with larger territory sizes and to accommodate multiple pairs.

Covered Activities will permanently remove up to 11,239 acres of modeled white-tailed kite habitat, including 661 acres of nesting habitat (with up to one nest tree), 2,609 acres of primary foraging habitat, and 7,969 acres of secondary foraging habitat. Additionally, Covered Activities will temporarily remove up to 234 acres of foraging habitat. Take is limited to only nesting and foraging habitat and not individuals. Each temporary disturbance is expected to be small, likely no greater than approximately ten acres (and often much less). Disturbance of small areas of cultivated lands during the 50-year Permit term, with each disturbance to last for no more than one year, will remove minor amounts of foraging habitat but is unlikely to adversely affect white-tailed kite foraging behavior. Cultivated lands regularly

experience temporary disturbances and continue to provide habitat for white-tailed kite when the disturbance is completed.

Ascent Environmental assessed the effects of fragmentation that would potentially result from white-tailed kite nesting habitat being removed from the vicinity of surrounding foraging habitat. They identified foraging habitat within 0.8 miles of the nesting habitat that will be removed (based on the distance the species typically forages from the nest). They deducted the upland habitat acreage that would be directly removed by Covered Activities. Of the habitat that would remain after loss resulting from Covered Activities, they identified areas that would remain within 0.8 mile of nesting habitat. Ascent estimated the expected nesting habitat loss and determined the amount of all foraging habitat would still be within 0.8 mile of nesting habitat.

The Yolo HCP/NCCP will benefit white-tailed kite in the form of protection, enhancement, and restoration of their modeled nesting and foraging habitat as well as protection of two nesting trees. Therefore, coverage is warranted for white-tailed kite.

Western Burrowing Owl

Western burrowing owls (*Athene cunicularia hypugaea*) inhabit much of the western United States and southern interior of western Canada (Haug et al. 1993). They are unique among the North American owls in that they nest and roost in burrows. This small owl stands about 22.86 centimeters (9 inches) tall. The sexes are similar (although females are often slightly darker than males) with distinct oval facial ruff, white eyebrows, yellow eyes, and long stilt-like legs.

Western burrowing owls are found in open, dry grasslands, agricultural and range lands, and desert habitats often associated with burrowing animals (Klute et al. 2003). They also occupy golf courses, airports, road and levee embankments, and other disturbed sites where there is sufficient friable soil for burrows (Haug et al. 1993). Because they typically use the burrows created by other species, particularly the California ground squirrel (*Spermophilus beecheyi*), presence of these species is usually a key indicator of potential occurrence of western burrowing owl (Gervais et al. 2008). Western burrowing owls in cismontane California were likely historically associated with herbaceous vegetation suppressed by tule elk herds.

The breeding range of the western burrowing owl extends south from southern Canada throughout most of the western half of the United States and south to central Mexico. The winter range is similar to the breeding range except that most owls from the northern areas of the Great Plains and Great Basin migrate south and southern populations are resident year-round (Haug et al. 1993).

Western burrowing owls were once widespread and generally common over western North America, in treeless, well-drained grasslands, steppes, deserts, prairies, and agricultural lands (Haug et al. 1993). The owl's range has contracted in recent decades, and populations have been generally diminished in some areas.

In California, western burrowing owls are widely distributed in suitable habitat throughout the lowland portions of the state; however, occupied sites have ranged from 200 feet below sea level at Death Valley to above 12,000 feet at Dana Plateau in Yosemite National Park (California Department of Fish and Game [DFG] 2000; Gervais et al. 2008). In southern California, the species is fairly common along the Colorado River Valley (Rosenberg et al. 1991) and in the agricultural region of the Imperial Valley. Only small, scattered populations are thought to occur in the Great Basin and the desert regions of southern California (DeSante et al. 1997). Western burrowing owl breeding populations have greatly declined along the California coast, including the southern coast to Los Angeles, where these owls have been eliminated from virtually all private land, and occur only in small populations on some federal lands (Trulio 1997; Garrett and Dunn 1981). Breeding populations in Central California include the southern San Francisco Bay south of Alameda and Redwood City, the interior valleys and hills in the Livermore area, and the Central Valley (DeSante et al. 1997; Gervais et al. 2008).

The current distribution of western burrowing owls in Yolo County is localized primarily in remaining low elevation uncultivated areas, such as the grasslands along the western edge of the Central Valley, the pasturelands in the southern panhandle, and the Yolo Bypass Wildlife Area. Other sites include some urban and semi-urban areas, particularly in and around the City of Davis, and other scattered locations associated with edges of cultivated lands.

While comprehensive surveys of the Plan Area have not been conducted, coordinated surveys have been undertaken in portions of the Plan Area. Per McNerney, the majority of recent information is a result of these efforts, including monitoring surveys in and around the City of Davis (personal communication, pg. A-76, Yolo HCP/NCCP, 2017), surveys conducted by the California Department of Fish and Game at the Yolo Bypass Wildlife Area, and surveys coordinated by the Burrowing Owl Preservation Society in coordination with the Institute of Bird Populations on 12 selected 5-square-mile survey blocks in Yolo County in 2007 and 2014 (Wilkerson and Portman personal communication, pg. A-76, Yolo HCP/NCCP, 2017). Additional data is gathered and reported incidentally by knowledgeable individuals from other areas of the County.

The results of these surveys and incidental reports indicate that the majority of known western burrowing owl breeding locations are in the southern portion of Yolo County, centered in and around the City of Davis, the Yolo Bypass Wildlife Area, and the southern panhandle. A total of 50 breeding pairs were reported in Yolo County in 2007, and surveys of these same sites in 2014 indicated that only 15 breeding pairs were present in these locations. These data represent only reported sightings from several locations in Yolo County where surveys were conducted and data were recorded and made available. This summary does not represent the total number of western burrowing owl breeding pairs in the county. However, it does represent the most significant known breeding areas for western burrowing owl in Yolo County.

During 2010 and 2011, there were 6 documented western burrowing owl nests northeast of Davis along the north side of CR 28H between CR 102 and 104 (personal communication, pg. A-76, Yolo HCP/NCCP, 2017). During 2015, Whisler observed only one pair of western burrowing owl north of CR 28H, just west of CR 104. This pair was in the former ConAgra (Hunt-Wesson) property nesting on a dirt mound.

The Plan Area contains 37,964 acres of modeled primary habitat and 66,160 acres of modeled other habitat. The Yolo HCP/NCCP will protect 3,000 acres of unprotected modeled primary habitat, at least 2,500 acres of unprotected modeled other habitat, and enroll 1,100 acres of modeled western burrowing owl habitat into the Pre-Permit Reserve Lands. The Yolo HCP/NCCP will prioritize acquisition of occupied habitat in the Yolo Bypass and adjacent lands, the area with the greatest potential for long-term sustainability of the species, and acquisition of lands adjacent to protected occupied sites that have enhancement potential. Additional western burrowing owl habitat is likely to be protected to meet the Swainson's hawk habitat protection commitment because much of the Swainson's hawk modeled cultivated lands foraging habitat is also modeled other habitat for western burrowing owl. Within the protected western burrowing owl habitat, the Yolo HCP/NCCP will maintain two active nesting sites for each nesting pair displaced by Covered Activities and one active nesting site or single owl site for each non-breeding owl displaced by Covered Activities.

Protected western burrowing owl habitat will be managed and enhanced to improve habitat value. The Yolo HCP/NCCP will enhance and maintain the functions of protected grassland (primary habitat) by installing artificial burrows, creating conditions for increasing the abundance of native rodents and reducing the relative cover of nonnative grasses and forbs that reduces habitat value for covered and native species. The Yolo HCP/NCCP will also maintain and enhance the cultivated lands seminatural community (other habitat).

The Yolo HCP/NCCP will give priority to occupied habitats and grassland habitats that support healthy ground squirrel populations and protect western burrowing owl habitats adjacent to existing habitat areas.

Covered Activities will remove up to 861 acres of western burrowing owl primary habitat and 2,311 acres of other habitat not considered western burrowing owls primary habitat such as cultivated lands, which are typically less suitable habitat. In addition, 1 acre of primary habitat and 218 acres of other habitat may also be temporarily lost due to Covered Activities. Take is limited to primary and other habitat and the harassment of up to eight individuals associated with up to four occupied sites in the form of relocation.

The Yolo HCP/NCCP will benefit western burrowing owl in the form of protection, enhancement, and restoration of their modeled nesting and foraging habitat as well as maintaining occupied burrows, increasing prey abundance, and vegetation maintenance. Therefore, coverage is warranted for western burrowing owl.

Tricolored blackbird

Tricolored blackbirds (*Agelaius tricolor*) form the largest colonies of any North American passerine bird, and these may consist of tens of thousands of breeding pairs (Beedy and Hamilton 1999). Tricolored blackbirds are largely endemic to California and the state is home to more than 95 percent of the global population.

This species closely resembles red-winged blackbird (*Agelaius phoeniceus*), with subtle differences in coloration, bill shape, and overall morphology (Beedy and Hamilton 1999). The adult male is black, with shades of glossy blue, and has a bright red patch on the wing (an epaulet), similar to that of a red-winged blackbird. However, the epaulet of tricolored blackbirds is deeper red with a white lower border, as opposed to an orange-red patch with a yellowish border or no border at all. The adult females are brownish and black, streaked with gray, with small reddish epaulets (rarely visible in the field) and pale gray or whitish chin and throat. Tricolored blackbirds have longer, slightly narrower wingtips and thinner bills than the red-winged blackbirds (Beedy and Hamilton 1999).

Tricolored blackbird colonies require access to water, suitable nesting substrates (including marsh vegetation or thorny or spinous vegetation to protect them from mammalian predators), and foraging habitat with significant populations of insect prey within a few miles (Beedy and Hamilton 1999; Hamilton 2004). Breeding habitat includes diverse wetland and upland and agricultural areas, including those with dense cattails (*Typha* spp.), bulrushes (*Scirpus* spp.), willows (*Salix* spp.), blackberry (*Rubus* spp.), thistles (*Cirsium* and *Centaurea* spp.), and nettles (*Urtica* sp.) (Neff 1937; Hamilton 1998; Beedy and Hamilton 1999). Some of the largest colonies are in silage and grain fields in the San Joaquin Valley, and many are in the vicinity of dairies and feedlots (Hamilton 1998, Beedy and Hamilton 1999).

Tricolored blackbirds forage in areas that provide abundant insects, including pastures, dry seasonal pools, agricultural fields such as alfalfa and rice, feedlots, and dairies. Tomatoes may occasionally be used as foraging habitat. With the loss of the natural flooding cycle and most native wetland and upland habitats in the Central Valley, breeding tricolored blackbirds now forage primarily in anthropogenic habitats. Tricolored blackbirds have been able to exploit foraging conditions created when shallow flood-irrigation, mowing, or grazing keeps the vegetation at an optimal height (less than 15 centimeters). Preferred foraging habitats include crops such as rice, alfalfa, safflower, irrigated pastures, and ripening or cut grain fields (e.g., oats wheat, silage) as well as annual grasslands and shrublands (Beedy and Hamilton 1999; Beedy 2008).

Tricolored blackbirds are endemic to the western edge of North America; however, about 95 percent of the global population resides in California where breeding has occurred in 46 counties (Beedy and Hamilton 1999). Except for a few peripheral sites, the geographic distribution has not declined; breeding colonies in northeastern California, southern Oregon, Washington, western Nevada, and central and western Baja California have been documented (Beedy and Hamilton 1999).

Per Meese, recent surveys revealed very few nesting colonies in Yolo County (personal communication, pg. A-98, Yolo HCP/NCCP, 2017). Fourteen colonies were documented in the county from 1994 to 2004, with populations estimated from 15 to 1,500 adults. Surveys in 2007 revealed a highly successful colony of more than 30,000 breeding adults in milk thistle on the Conaway Ranch in the Yolo Bypass. This was one of only three documented colonies statewide that were large and successful, and this colony was estimated to have produced about 30,000 young (Meese 2007). Other recent colony sites in the county included: “Bill’s Grasslands,” a newly-discovered colony located within a patch of Himalayan blackberry approximately one km south of the intersection of County Roads 92B and 15B, that was active in 2006 and again in 2007. This colony was active again in 2012 in a slightly different location off Road 92B.

Another colony in milk thistle on County Road 88B, about two km north of State Route 16 that was active in 2005 and 2007, but not in 2006. Four small colonies were also found in the Yolo Bypass in 2005 that have not been occupied since. Per Meese, a historical colony at the Sunsweet Drying facility, just south of County Road 27 and about 1 km west of I-505, has not been active in the past three years (personal communication, pg. A-98, Yolo HCP/NCCP, 2017). A total of 1,900 adults were observed at two colonies in the Yolo Bypass during the 2008 statewide survey (Kelsey 2008).

The Plan Area contains 4,680 acres of modeled nesting habitat and 261,133 acres of modeled foraging habitat. The protection of grassland and cultivated lands seminatural community is expected to contribute an estimated 16,610 acres of tricolored blackbird foraging habitat to the Reserve System. The Yolo HCP/NCCP will also protect 500 acres of fresh emergent wetland natural community, at least 200 acres of which will be sited in modeled tricolored blackbird nesting habitat. The Yolo HCP/NCCP will restore 86 acres of fresh emergent wetland to achieve no net loss of this natural community, potentially providing nesting opportunities for tricolored blackbird. Additionally, at least 4,150 acres of existing protected tricolored blackbird modeled habitat on Pre-Permit Reserve Lands will be enrolled into the Reserve System, including 4,000 acres of modeled foraging habitat and 150 acres of nesting habitat. The Reserve System will include at least two tricolored blackbird colony, which will be managed to maintain the colony.

The Yolo HCP/NCCP will protect habitat areas within 75 feet of a water source and 0.5 miles of wetland, irrigated pasture, alfalfa, or other land cover types that produce large numbers of insects. Covered Activities will permanently remove up to 9,028 acres of modeled tricolored blackbird habitat, including 86 acres of nesting habitat and 8,942 acres of foraging habitat. Additionally, Covered Activities will temporarily remove up to 230 acres of foraging habitat. Each temporary disturbance is expected to be small, likely no greater than approximately ten acres and the disturbance will not last no more than one year. Take is limited to nesting and foraging habitat and not to individuals.

An estimated forty-three percent of the tricolored blackbird habitat loss will result from urban development in the urban planning units: Woodland, Davis, West Sacramento, and Winters. Roughly half of the nesting habitat losses (48 acres) in the Plan Area are modeled in the West Sacramento planning unit and likely to result from levee improvements. The remainder of the habitat loss will be distributed throughout modeled habitat in the Plan Area, and will result from various activities such as unincorporated community development in Dunnigan Hills, Monument Hills, and Madison.

The Yolo HCP/NCCP will benefit tricolored blackbird in the form of protection, enhancement, and restoration of their modeled nesting and foraging habitat as well as protecting at least two tricolored blackbird colonies. Therefore, coverage is warranted for tricolored blackbird.

Finding 4.7.3 **CDFW finds that the following species are authorized for take under the Yolo HCP/NCCP and coverage is warranted based on site-specific considerations and the identification of specific conservation and management conditions for species within a narrowly defined habitat or limited geographic area within the Plan Area (2821(a)(3)).**

Adequate landscape level considerations and species-specific conservation measures, within narrowly defined areas will be implemented for the following species: palmate-bracted bird's-beak, western yellow-billed cuckoo, least Bell's vireo, and bank swallow.

Palmate-bracted bird's-beak

Palmate-bracted bird's-beak is a winter germinating, highly branched, herbaceous annual plant in the snapdragon family (Scrophulariaceae) that grows from 10 to 30 centimeters (cm) (4 to 12 inches) tall (Calflora 2008; Chuang and Heckard 1973; Hickman 1993) and is restricted to seasonally flooded, saline-alkali soils in lowland plains and basins at elevations of less than 155 meters (500 feet) (USFWS 1998). Small differences in soil topography are critical for seedling establishment, as seedlings establish on banks and sides of raised irrigation ditches and on small berms in areas subject to overland flows (Showers 1988).

Palmate-bracted bird's-beak is endemic to the west side of the Sacramento Valley, the north side of the Sacramento National Wildlife Refuge (NWR) Complex, the San Joaquin Valley, and the Springtown area of the Livermore Valley. This species is currently known to exist at six locations outside of the Plan Area: Delevan NWR, Sacramento NWR (established from seed collected at the Delevan NWR), Colusa NWR, the Springtown area, western Madera County, and the combined Alkali Sink Ecological Reserve and Mendota Wildlife Management Area (USFWS 1998).

Very little information exists concerning the historical distribution of palmate-bracted bird's-beak in the Plan Area prior to extensive habitat conversion. The documented locations in the Plan Area consist of an extirpated population that was located northeast of the city of Woodland near the Cache Creek Settling Basin and an extant population located southeast of Woodland (CNDDB 2012; Center for Natural Lands Management 2012; Crampton 1979; Dean 2009). Within the last 25 years, the species has been observed in areas adjacent to the Woodland population in an alkali playa/meadow (Crampton 1979) and on Pescadero silty clay, saline-alkali, and Willows clay soil types (Showers 1988, 1996; EIP Associates 1998; Foothill Associates 2002).

Individuals in the existing Woodland population are generally found on small topographic features such as old irrigation checks, banks of shallow ditches, along the shoreline of a pond, and along the upper margin of a vernal pool. The entire population is limited to Pescadero silty clay, saline-alkali, and Willows clay soil types (Andrews 1970; Showers 1988, 1996; EIP Associates 1998). There are two documented occurrences within the Plan Area, which are located in the Woodland and Willow Slough Basin planning units. One occurrence is located on protected land managed by the Center for Natural Lands Management. The second occurrence is located at Woodland Regional Park.

The Yolo HCP/NCCP will protect the second occurrence by placing a conservation easement on 33 acres of occupied habitat on Woodland Regional Park. The site will be monitored and adaptively managed to increase the 10-year average population size of palmate-bracted bird's-beak by at least 10% by managing and enhancing the habitat. The Yolo HCP/NCCP will also protect 141 acres of Pre-Permit Reserve Lands. Habitat where palmate-bracted bird's-beak has been located within any of the last 15 years will be avoided.

Covered Activities could permanently remove four acres of modeled habitat. Implementation of the Yolo HCP/NCCP will avoid populations of palmate-bracted bird's-beak within the four acres of modeled habitat. Take of palmate-bracted bird's-beak is limited to habitat except for the purpose of management and enhancement where needed for the benefit of the population.

The Yolo HCP/NCCP will benefit palmate-bracted bird's-beak in the form of protection and enhancement of occupied habitat and protection of modeled habitat. Therefore, coverage is warranted for palmate-bracted bird's-beak.

Western yellow-billed cuckoo

The western yellow-billed cuckoo (*Coccyzus americanus*), a medium-sized bird about 30 centimeters (11.8 inches) in length, is a riparian obligate species. Its primary habitat association is willow-cottonwood riparian forest, but other species such as alder (*Alnus glutinosa*) and box elder (*Acer negundo*) may be an important habitat element in some areas, including occupied sites along the Sacramento River (Laymon 1998). Nests are primarily in willow trees; however, other species are occasionally used, including cottonwood and alder. Along the Sacramento River, English walnut trees and more rarely prune, plum, and almond trees in adjacent orchards have also been reportedly used for nesting (Laymon 1980). Several nests on the Sacramento River were draped with wild grape (Gaines and Laymon 1984; Laymon 1998).

While western yellow-billed cuckoo nest primarily in willow trees (*Salix* spp.), cottonwood trees (*Populus fremontii*) are important as foraging habitat, particularly as a source of insect prey. All studies indicate a highly significant association with relatively expansive stands of mature cottonwood-willow forests, especially dynamic riverine habitats where the river is allowed to meander and willows and cottonwoods can regenerate on point bars and stream banks (Grecco 2008). However, western yellow-billed cuckoos will occasionally occupy a variety of marginal habitats, particularly at the edges of their range (Laymon 1998). Continuing habitat succession has also been identified as important in sustaining breeding populations (Laymon 1998). Meandering streams that allow for constant erosion and deposition create habitat for new rapidly-growing young stands of willow, which create preferred nesting habitat conditions. Channelized streams or levee systems that do not allow for these natural processes become over-mature and presumably less optimal (Grecco 2008).

The range of western yellow-billed cuckoo historically extended from southern British Columbia to the Rio Grande in northern Mexico, and east to the Rocky Mountains (Bent 1940). Currently the only known populations of breeding western yellow-billed cuckoo are several disjunct locations in California, Arizona, and western New Mexico (Halterman 1991). Western yellow-billed cuckoos winter in South America from Venezuela to Argentina after a southern migration that extends from August to October (Laymon and Halterman 1985). They migrate north in late June and early July (DeSchauensee 1970).

While there are few historical records from Yolo County, presumably the species nested within the county along the west side of the Sacramento River and possibly along smaller tributary drainages, including Putah Creek, Willow Slough, and Cache Creek.

Since 1965, there have been nine records of western yellow-billed cuckoo in Yolo County, including the following:

- Willow Slough in 1965
- Sacramento River in 1977
- Elkhorn Regional Park in 1982
- Gray's Bend in 1997
- City of Davis in 2001
- Putah Creek Sinks in June 2005
- Cache Creek Settling Basin in July 2005
- Fremont Weir in June 2006
- Fremont Weir in July 2006

These records were reported in Gaines (1974), Yolo Audubon Society Checklist Committee (2004), Yolo Audubon Society (2005), and by Steve Hampton[12]. All of these records are presumed to be migrants or nonbreeding individuals. While there are no confirmed breeding records for Yolo County, they are fairly common nesters just across the Sacramento River in Sutter County, especially in riparian forests along the western toe drain of the Sutter Bypass. Per Beedy, up to 15 birds responded to taped vocalizations while canoeing this area in a single day in mid-June 1995 (personal observation, A-68, Yolo HCP/NCCP, 2017).

The Plan Area consists of 3,868 acres of modeled nesting and foraging habitat. The Yolo HCP/NCCP will protect 1,600 acres of unprotected valley foothill riparian natural community, at least 500 acres of which will provide modeled habitat for western yellow-billed cuckoo. Additionally, the Yolo HCP/NCCP will restore valley foothill riparian natural community to result in no net loss of the valley foothill riparian natural community, which will be restored to provide 60 acres of modeled habitat for western yellow-billed cuckoo. The Yolo HCP/NCCP will also provide 135 acres of nesting and foraging habitat within the Pre-Permit Reserve Lands. Protected habitat should be located within drainages that generally provide continuous canopy cover along its length to promote movement. The Yolo HCP/NCCP will prioritize conservation of habitat corridors along Cache Creek, Putah Creek, and Sacramento River/Yolo Bypass, each of which supports a large contiguous patch of modeled western yellow-billed cuckoo habitat, although there are no nesting records of the species in these areas. The Yolo HCP/NCCP will also enhance and maintain the functions of the protected and restored valley foothill riparian natural community by reducing the relative extent of nonnative plants that degrade habitat function, and improving native plant diversity and vegetation structure.

Covered Activities will permanently remove up to 59 acres of modeled western yellow-billed cuckoo habitat. The habitat loss is distributed primarily among the Lower Cache Creek and North and South Yolo planning units. Although Covered Activities will temporarily remove up to one acre of western yellow-billed cuckoo habitat, this acre is considered a permanent loss because restoration of the disturbed area

[12] http://www.tertial.us/yolobirds/yolorare.htm

is unlikely to be completed within one year of its removal. Therefore, this acre is included in the permanent loss acreage. There will be no additional temporary loss of western yellow-billed cuckoo habitat.

The Yolo HCP/NCCP will benefit western yellow-billed cuckoo in the form of protection, enhancement, and restoration of their modeled nesting and foraging habitat. Therefore, coverage is warranted for western yellow-billed cuckoo.

Least Bell's Vireo

The least Bell's vireo is one of four subspecies of Bell's vireo and is the only subspecies that breeds entirely in California and northern Baja California. Least Bell's vireo is the smallest subspecies of the Bell's vireo (*Vireo bellii*).

Least Bell's vireos are migratory and usually arrive to their California breeding grounds in mid-March to early April from their wintering grounds in Mexico. Observations of banded birds suggest that returning adult breeders may arrive earlier than first-year birds by a few weeks (Kus 2002a). Least Bell's vireos begin departing for their wintering grounds by late July but are generally present on their breeding grounds until late September (Garrett and Dunn 1981; Salata 1983).

The least Bell's vireo is an obligate riparian breeder that typically inhabits structurally diverse woodlands, including cottonwood-willow woodlands/forests, oak woodlands, and mule fat scrub (USFWS 1998). Two features appear to be essential for breeding habitat: (1) the presence of dense cover within 3 to 6 feet (1 to 2 meters) of the ground, where nests are typically placed; and (2) a dense stratified canopy for foraging (Goldwasser 1981; Gray and Greaves 1981; Salata 1981, 1983; RECON 1989).

Least Bell's vireos forage primarily within and at all levels of the riparian canopy (Salata 1983); however, they will also use adjacent upland scrub habitat, in many cases coastal sage scrub. In addition to use as foraging habitat, these areas also provide migratory stopover grounds and dispersal corridors for non-breeding adults and juveniles (Kus and Miner 1989; Riparian Habitat Joint Venture [RHJV] 2004).

The historical distribution of the least Bell's vireo extended from coastal southern California through the San Joaquin and Sacramento valleys as far north as Tehama County near Red Bluff. The Sacramento and San Joaquin valleys were considered the center of the species' historical breeding range supporting 60 to 80 percent of the historical population (51 FR 16474). The species also occurred along western Sierra foothill streams and in riparian habitats of the Owens Valley, Death Valley, and Mojave Desert (Cooper 1861 and Belding 1878 in Kus 2002a; Grinnell and Miller 1944). The species was reported in Grinnell and Miller (1944) from elevations ranging from -175 feet in Death Valley to 4,100 feet at Bishop, Inyo County. These and other historical accounts described the species as common to abundant, but no reliable population estimates are available prior to the species' federal listing in 1986.

In April 2010, per Galvan, two male least Bell's vireos were positively identified in the southern portion of the Yolo Bypass Wildlife Area, and the two birds subsequently returned in the spring of 2011 (personal communication, pg. A-85, Yolo HCP/NCCP, 2017). During the 2010 surveys of the Putah Creek Sinks in the Yolo Bypass Wildlife Area, two pairs of least Bell's vireo were observed performing courtship activities and territorial defense against other least Bell's vireos. On April 26, 2010, an adult least Bell's vireo was observed carrying nesting material, though there was no evidence of successful nesting or obvious signs of nesting during the surveys.

In 2011**, t**he two 2010 least Bell's vireo territories in the Putah Creek Sinks were occupied by two least Bell's vireo pairs. The male in each pair was observed singing and defending the territory, signs of breeding behavior. Courtship activities were observed in one of the two pairs. One male was also defending its territory from a third adult. There were no further least Bell's vireo detections in late July or August of 2011. There were no least Bell's vireo detections during 2012. One vireo was detected in 2013 on May 9, but none were detected after that date.

The Plan Area contains 4,719 acres of modeled nesting and foraging habitat. The Yolo HCP/NCCP will protect 1,600 acres of unprotected valley foothill riparian natural community of which is 600 acres of modeled least Bell's vireo habitat. In addition, up to 608 acres valley foothill riparian natural community will be restored and 110 acres of modeled least Bell's vireo habitat will be enrolled into the Pre-Permit Reserve Lands. The Yolo HCP/NCCP will focus conservation within a habitat corridor along Cache Creek, Putah Creek, and Sacramento River, each of which supports a large contiguous patch of modeled least Bell's vireo habitat. The Yolo HCP/NCCP will also enhance and maintain the functions of the protected and restored valley foothill riparian community by reducing the relative extent of nonnative plants that degrade habitat function, and improving native plant diversity and vegetation structure.

The Yolo HCP/NCCP will give priority to riparian habitats with significant willow or low strata dense herbaceous component. Protected sites should be contiguous with other protected riparian habitats and occur within a grassland/wetland or agricultural landscape and not near developed areas.

Covered Activities will permanently remove up to 39 acres of the least Bell's vireo habitat. Three acres of the least Bell's vireo habitat loss will result from operations and maintenance activities, including stream maintenance and enhancement along Cache Creek through the Cache Creek Resources Management Plan. The remainder of the habitat loss is distributed among the Lower Cache Creek, Colusa Basin, North Yolo, and North Yolo Bypass planning units. No least Bell's vireo habitat will be temporarily lost as a result of Covered Activities.

The Yolo HCP/NCCP will benefit least Bell's vireo in the form of protection, enhancement, and restoration of their modeled nesting and foraging habitat. Therefore, coverage is warranted for least Bell's vireo.

<u>Bank Swallow</u>

The bank swallow (*Riparia riparia*) is the smallest of the North American swallows (approximately 13 centimeters [5.12 inches] long) that breeds throughout much of the Northern Hemisphere and migrates to spend the winter months in South America, Africa, and southern Asia. Bank swallows arrive in California from their wintering grounds in the southern Amazon basin from mid-March to May and reestablish breeding colonies shortly after arrival. During spring migration, the first individuals arrive in California in mid-March, with numbers peaking in May. During fall migration, the first individuals leave in late July, with a few birds remaining until mid-September (Humphrey and Garrison 1987; Garrison 1999; Garrison 2002). After breeding, bank swallows join mixed-species flocks of swallows that congregate at wetlands and other areas with high concentrations of aerial insect prey, until they depart California for their southward migration in August and September.

Bank swallow nest in colonies in vertical cliffs, most often in lowland riverbanks, coastal bluffs, open pit mines, and road cuts (DFG 1992). Important breeding habitat characteristics include soil moisture, texture, orientation of bank face, bank height, verticality (slope) of the face, and proximity of the colony to foraging areas (DFG 1992). In California, bank swallows most often nest in steep earthen riverbanks subject to frequent winter erosion events. Nest sites consist of burrows dug into a vertical earthen bank 45 to 90 centimeters (cm) (17.72 to 35.43 inches) deep, 5 cm (1.97 inches) high, and 7.6 cm (2.99 inches) wide (Garrison 1999). Sites with grassland adjacent to vertical banks are considered of highest suitability (Garcia et al. 2008).

During the summer months in the western hemisphere, bank swallow range throughout most of Alaska and Canada, southward from eastern Montana to Nevada, and eastward across the United States to Georgia. They are variably distributed throughout California, Texas, and New Mexico. Within California, regular breeding of the bank swallow occurs in Siskiyou, Shasta, and Lassen Counties, and along the Sacramento River from Shasta County south to Yolo County (DFG 2000).

In the Plan Area, colonies ranging from 10 to 400 burrows were observed along the Sacramento River and Cache Creek in 1987 (CNDDB 2005). Breeding occupancy was estimated as ranging 10 to 70 percent at the various colonies. However, many of the colonies were unoccupied or inactive. During a survey in 2000, four colonies totaling 488 burrows were found along the Sacramento River in Yolo County between Verona and Knight's Landing (R. Schlorff and C. Swolgaard unpublished data, p. A-91, Yolo HCP/NCCP, 2017). Assuming an occupancy rate of 45 percent, as used by California Department of Fish and Game (Wright et al. 2011), this population was estimated at 202 pairs. An active colony persisted along Cache Creek in a gravel quarry until at least 2001 (Yolo Audubon Society 2004).

According to Whisler, on April 10, 2011, bank swallows were observed building a nest in the bank of the cross-channel from the Port of West Sacramento to the Sacramento River (personal communication, pg. A-91, Yolo HCP/NCCP, 2017). The colony failed when the Sacramento River rose from heavy rains that spring. This was likely the southernmost colony along the Sacramento River, and in the most urban area along the Sacramento River. Per Whisler, no colonies have been detected since then (personal communication, pg. A-91, Yolo HCP/NCCP, 2017).

The Yolo HCP/NCCP will conserve land within a habitat corridor along Cache Creek, which supports much of the bank swallow habitat in the Plan Area. In this area, the Yolo HCP/NCCP will protect at least 50

acres of unprotected occupied bank swallow habitat. Additionally, protected floodplain along Cache Creek will be managed to provide high-value foraging habitat for bank swallows by promoting open grass and wildflower vegetation and by controlling invasive plant species. Preservation will focus within channel reaches that currently or historically supported nesting colonies and that continue to support suitable habitat conditions to provide for the ongoing replacement of existing nesting habitat that is lost as channels meander and erode.

Covered Activities may permanently remove up to 37 acres of barren floodplain providing potential bank swallow nesting habitat due to bank stabilization activities along Cache Creek, undertaken through the Cache Creek Resources Management Plan as needed to protect property or valuable resources. It is expected that additional barren floodplain will form during the 50-year Permit term as a result of the natural, dynamic fluvial processes along Cache Creek. No bank swallow habitat will be temporarily lost as a result of Covered Activities.

The Yolo HCP/NCCP will benefit bank swallow in the form of protection and management of their modeled nesting. Therefore, coverage is warranted for bank swallow.

Finding 4.8 **CDFW finds that the mitigation measures specified in the Yolo HCP/NCCP and imposed by the Yolo HCP/NCCP participants are consistent with subdivision (d) of Section 2801 (2821(b)).**

For the reasons set forth in the preceding findings, CDFW has determined that the Yolo HCP/NCCP specifies and imposes mitigation measures that are consistent with the standards of 2801(d) regarding coordination and cooperation among public agencies, landowners, and other private interests, providing a mechanism by which landowners and development proponents can effectively address cumulative impact concerns, promoting conservation and management of unfragmented diverse habitat areas, promoting multispecies and multi-habitat management and conservation, providing an option for identifying and ensuring appropriate mitigation that is roughly proportional to impacts on fish and wildlife, and promoting the conservation of broad-based natural communities and species diversity (Findings 4.1.1, 4.1.3, 4.1.4, 4.2.2, 4.2.9, 4.4, 4.5, 4.6.1 of this NCCP Permit).

NCCP PERMIT

5.0 APPROVAL OF THE PERMIT

Based on the foregoing findings, CDFW concludes that the Yolo HCP/NCCP meets all necessary requirements for approval as an NCCP. CDFW hereby approves the Yolo HCP/NCCP for implementation as an NCCP and authorizes the Permittees to Take the species identified below in Section 5.2 (subject to the limitations in this Permit) incidental to the activities described below in Section 5.1. This Permit is specifically conditioned on the Permittees compliance with requirements of this Permit, the Yolo HCP/NCCP and the IA.

5.1 Covered Activities

This Permit authorizes Take of Covered Species resulting from Covered Activities defined in the IA and listed in Section 3.5, of the Yolo HCP/NCCP. Covered Activities in the Yolo HCP/NCCP are characterized spatially and non-spatially with six categories. Those six categories are further subdivided into eight subcategories and are consistent with local planning processes. The Covered Activities are defined as:

- Spatially defined
    - Urban projects and activities
        - General urban development
        - Urban public services, infrastructures, and utilities
        - Urban projects in rural areas
    - Rural projects and activities
        - General rural development
        - Rural public services, infrastructure, and utilities
        - Parks and open space
        - Agricultural economic development
        - Aggregate mining
- Non-spatially defined
    - Public and private operations and maintenance activities and temporary activities associated with construction activities
    - Conservation Strategy implementation and Covered Activities on Reserve Lands
    - Relocation (passive and/or active) of western burrowing owl
    - Neighboring landowner agreements

Urban Projects and Activities

Urban projects and activities will be implemented by Permittees or by private and public non-Permittee applicants who seek Take coverage through one of the Permittees. Urban development will occur within the city planning units listed below, summarized in Table 3-1, and depicted in Figure 3-2.

- Woodland planning unit including 3,397 acres of urban projects and activities

- Davis planning unit including 1,251 acres of urban projects and activities
- West Sacramento planning unit including 3,559 acres of urban projects and activities
- Winters planning unit including 718 acres of urban projects and activities

General Urban Development

This HCP/NCCP provides coverage to support the implementation of planned residential, industrial, commercial, mixed-use, recreational and open space, and public/quasi-public land uses, including associated infrastructure, consistent with local general plans, including the following:

- Residential uses (single-family homes, multi-family homes [e.g., duplexes, triplexes, apartment buildings, condominiums])
- Commercial uses (retail centers, grocery stores, restaurants, stores and shops, offices)
- Industrial uses (warehouse and distribution centers)
- Public and quasi-public buildings and facilities, including governmental offices, schools, and places of worship
- Recreational and open space facilities such as neighborhood parks, dog parks, soccer fields, golf courses, indoor and outdoor sports centers, and trails

Urban public services, infrastructure, and utilities

Associated urban services, infrastructure, and utilities, including landscaping, sewer connections, streets, driveways, lighting, parking areas, roadways, and bridges; bikeways and pathways; water supply, treatment, storage, and distribution facilities; wastewater collection, treatment, and disposal facilities; energy generation (excluding wind power) and distribution facilities; municipal services and facilities; landfills, collection facilities, and transfer stations; stormwater and drainage collection, treatment, and retention/detention facilities; flood control facilities; levees; airport; and other services, infrastructure, and utilities that serve planned land uses consistent with local general plans. This includes the West Sacramento Levee Improvement Program and Woodland Water Pollution Control Facility expansion. These Covered Activities include:

- Development and operation of new stormwater and drainage collection, treatment, and retention/detention facilities
- Expansion and improvements to, and maintenance of, existing stormwater and drainage collection, treatment, and retention/detention facilities
- Development and operation of new flood control facilities, including levees
- Expansion and improvements to existing flood control facilities, including levees
- Development and operation of new wastewater, water collection, storage treatment, and conveyance structures and facilities including the Woodland Water Pollution Control Facility Expansion
- Development and operation of new water supply treatment, storage, and distribution facilities (e.g., pipelines and pump stations)

- Expansion and improvements to existing water supply treatment, storage, and distribution facilities (e.g., pipelines and pump stations)
- Development and operation of solid waste management facilities, including landfills, collection facilities, recycling plants, and composting facilities
- Expansion and improvements to existing solid waste management facilities, including landfills, collection facilities, recycling plants, and composting facilities
- Development, expansion, and improvements to transportation facilities, including sidewalks, bike paths, paved and unpaved roads, public bridges, culverts, and transit facilities
- Development, expansion, and improvements to public service facilities, including new fire stations, police stations, communications facilities, public administration centers, theatres, museums, community centers, community gardens, and concession buildings
- Development, expansion, improvements, and operation of public and private utilities such as energy generation and distribution facilities (excluding wind farms and solar), including underground and aerial electric transmission and distribution lines, telecommunications lines, and gas pipelines and wells. The Yolo HCP/NCCP does not cover wind farms
- Development, expansion, and operation of parks, open space, and trails
- Construction and replacement of underground and aerial utility infrastructure, including telecommunication lines, cell phone and wireless communication facilities, lighting, cable television lines, electric power transmission lines (bulk transfer of electrical energy, from generating power plants to electrical substations), electric power distribution lines (local electric power distribution lines), natural gas pipelines, aviation and other fuel lines, water supply pipelines, and wastewater pipelines

Urban projects and activities include planned land uses within the four urban planning units that are consistent with Permittee general plans, including specific plans, master plans, parkway plans, bicycle plans, area plans, infrastructure plans, and similar adopted plans that are consistent with and implement local general plans. With the exception of avoided riparian and wetland areas, Covered Activities in the urban planning units are assumed to result in the removal of all remaining natural and agricultural land cover types.

Urban projects in rural areas

Covered Activities include the development of the 223-acre business park named Davis Mace Ranch Innovation Center located in the Willow Slough Basin planning unit and the West Sacramento Levee Improvement Program (Program) located in the South Yolo Basin planning unit. The Program will improve and stabilize levees in Yolo County that protect the city of West Sacramento.

Levee improvement and stabilization activities may include repair or rehabilitation of levees as well as full reconstruction of levees. Flood control design components that may be utilized include those listed below.

- Regrading of bank slopes
- Installation of hardscape

- Temporary stream diversion during construction
- Planting including vegetative slope and soil stabilization
- Reconstruction or improvement of floodwalls and/or levees
- Maintenance road construction
- Installation or repair of culverts or outfall structures
- Structural improvements, including expanding the levee footprint, increasing the height of the levee, or adding new material to support the levee

Rural Projects and Activities

This category of Covered Activities includes planned land uses within the first 18 rural planning units listed in Section 1.2 above, including specific plans, master plans, parkway plans, bicycle plans, area plans, infrastructure plans, and similar adopted plans that are consistent with and implement the *Yolo County General Plan* and other local general plans if applicable. This category also includes roads and bridges, bike lanes and multi-use trails, airports, agricultural economic development and open space, habitat conservation projects, parks and recreation, and aggregate mining. These rural projects and activities may be implemented by Permittees, private applicants under the jurisdiction of one of the Permittees, or by Special Participating Entities covered through a Certificate of Inclusion.

General rural development

This category includes 4,391 acres of planned residential, industrial, commercial, mixed-use, park and open space, and public/quasi-public land uses that are consistent with the *Yolo County General Plan* and other local general plans if applicable. It includes planned growth within the adopted growth boundaries for unincorporated communities/places identified in the *Yolo County General Plan*.

The *Yolo County General Plan* identifies unincorporated (rural) towns and places with land uses other than agriculture. These towns/places are geographically discrete and individually and collectively small in scale. For the purposes of discussing these towns/places in the Yolo HCP/NCCP, these areas are called *unincorporated communities/places*. General rural development Covered Activities could occur within the boundaries of the following unincorporated communities/places (Figure 3-2):

- Capay (seven acres)
- Clarksburg (99 acres)
- Dunnigan (2,720 acres)
- Elkhorn (383 acres)
- El Rio Villa (five acres)
- Esparto (215 acres)
- Guinda (seven acres)
- Interstate 505/County Road 14 (10 acres)
- Knights Landing (249 acres)
- Madison (429 acres)

- Monument Hills (170 acres)
- North Davis Meadows (seven acres)
- Rumsey (less than 0.5 acre)
- Willow Oak (13 acres)
- Yolo (53 acres)
- Yolo Fruit Stand/Interstate 80 (three acres)
- Zamora (22 acres)

The types of future development that could occur in these areas are the same as those described above in Urban Projects and Activities. In general, the unincorporated communities are not expected to experience significant growth beyond existing conditions. Most of the unincorporated community development that is planned to occur will be focused in the following six unincorporated communities: Elkhorn, Madison, Clarksburg, Dunnigan, Esparto, and Knights Landing.

Similar to urban projects and activities, this category of Covered Activities includes, but is not limited to, construction occurring within the unincorporated community boundaries defined above. With the exception of some riparian and wetland avoidance, Covered Activities in the unincorporated communities are assumed to result in the removal of all remaining natural and agricultural land cover types. As such, coverage for operation and maintenance of Covered Activities in the unincorporated communities is included in this subcategory.

This category also includes the following, to the extent that each activity is under the discretionary authority of a Permittee:

- Vegetation management, including fuel reduction (e.g., hand and mechanized removal and controlled burns), tree removal and pruning, grazing activities, invasive vegetation control/removal, hazardous tree removal, weed abatement, algae control in ponds, and revegetation to prevent re-invasion of invasive plants
- Implementation of integrated pest management programs

The Yolo HCP/NCCP provides coverage for construction and replacement of underground and aerial utility infrastructure, including telecommunications lines, cell phone and wireless communication facilities, lighting, cable television lines, electric power transmission lines (bulk transfer of electrical energy, from generating power plants to electrical substations), electric power distribution lines (local electric power distribution lines), natural gas pipelines, aviation and other fuel lines, water supply pipelines, and wastewater pipelines. The Yolo HCP/NCCP assumes that these lines will fall within the urban planning units described in Section 3.5.1, *Urban Projects and Activities*, and general development areas described in Section 3.5.2, *Rural Projects and Activities;* therefore, the acreage of utility development is subsumed within the acreage of the Covered Activities footprints for urban and rural projects.

Rural public services, infrastructure, and utilities

This category includes both public and private roadways and bridges; bikeways and pathways; water supply, treatment, storage, and distribution facilities; wastewater collection, treatment, and disposal facilities; energy generation and distribution facilities; municipal services and facilities; landfills, collection facilities, and transfer stations; stormwater and drainage collection, treatment, and retention/detention facilities; flood control facilities; levees; airport; and other services, infrastructure, and utilities that serve planned land uses that are consistent with local general plans.

The *Yolo County General Plan* identifies several road and bridge projects. The Yolo HCP/NCCP provides coverage for the following future roadway network improvements (Figure 3-4):

- County Road (CR) 21A: Upgrade to a major two-lane county road standard between CR 85B and State Route (SR) 16 (5 acres)
- CR 85B: Upgrade to a major two-lane county road standard between SR 16 and CR 21A (3 acres)
- CR 99W: Widen to a four-lane arterial between CR 2 and CR 8 (7 acres)
- SR 16: Widen to a four-lane arterial between CR 21A and Interstate 505 (34 acres)
- CR 6: This road improvement acreage is included within the 2,720 acres of Covered Activities within the Dunnigan area described in Section 3.5.2.1, *General Rural Development*

The Yolo HCP/NCCP provides coverage for the following roadway improvements, which include, but are not limited to, intersection control and lane configuration improvements, passing lanes, and/or wider travel lanes and shoulders:

- CR 89 between SR 16 and CR 29A (19 acres)
- CR 102 between CR 13 and Woodland city limits and between Woodland city limits and Davis city limits (18 acres)

The Yolo HCP/NCCP will cover the replacement/rehabilitation of up to 26 bridges and construction of three new bridges (total of 3 acres permanent, 18 acres temporary):

- Bridge 22C-0095 on CR 49 over Hamilton Creek
- Bridge 22C-0126 on CR 96 over Union School Slough
- Bridge 22C-0127 on CR 96 over Dry Slough
- Bridge 22C-0085 on CR 32D over a branch of Putah Creek
- Bridge 22C-0102 on CR 25 over Cottonwood Slough
- Bridge 22C-131 on CR 12 over Willow Spring Creek
- Bridge 22C-0144 on CR 19 over Slough S3
- Bridge 22C-0112 on CR 29 over Winters Canal
- Bridge 22C-0082 on CR 85 over Goodnow Slough
- Bridge 22C-0110 on CR 88 over Winters Canal
- Bridge 22C-109 on CR 88 over Union School Slough

- Bridge 22C-0108 on CR 27 over Union School Slough
- Bridge 22C-0133 on CR 12A over Oat Creek.
- Bridge 22C-0138on CR 97 over Slough S7.
- Bridge 22C-0105 on CR 20 over Chickahominy Slough
- Bridge 22C-0055 on CR 26 over Winters Canal
- Bridge 22C-0004 on CR 94B over Cache Creek
- Bridge 22C-0045 on CR 31 over Chickahominy Slough
- Bridge 22C-0075 on CR 25 over Cottonwood Slough
- Bridge 22C-0116 on CR 25 over the north fork of Willow Slough
- Bridge 22C-0111 on CR 28 over Union School Slough
- Bridge 22C-0136 on CR 91B over Oat Creek
- Bridge 22C-0094 on CR 40A over Pine Creek
- Bridge 22C-0096 on CR 82 over Salt Creek
- Bridge 22C-0121 on CR 91A over Dry Slough
- Bridge 22C-0059 on CR 23 over a tributary of Lamb Valley Slough

Several bike lanes and multi-use trails are identified in the general plans for Yolo County and the city of Woodland and are proposed for coverage under the Yolo HCP/NCCP. Projects may be constructed along existing roads, levees, or railways or may require new alignments independent of existing or proposed infrastructure. The addition of bike lanes along existing roads would include expansion of existing roadways to accommodate four- to six-foot-wide bike lanes on either side of the road. Multiuse trails along levees or railways are expected to be between 10 and 40 feet. Bike lanes and multiuse trails identified in the *Yolo County General Plan* will cover an estimated 113 acres, while bike lanes and multi-use trails identified in the Circulation Element for the *City of Woodland General Plan* cover an estimated eight acres in four locations. Trails will also be constructed on the Woodland Regional Park site (Figure 3-3) and within the CCRMP boundaries. The location of trails on the Woodland Regional Park site will be subject to approval of the Wildlife Agencies. Total acreage for bike lanes and trails is identified in Table 3-1.

The Woodland-Davis Alternative Transportation Corridor project (Figure 3-4) includes 19 acres on the Covered Activities layer (Table 3-1) and will provide an off-road path between the cities of Davis and Woodland. The path will be paved and 10 feet wide. It is expected to be used mainly by bicycles, but low-speed electric vehicles and pedestrians could also use the path. The project will tie into the regional bikeway system along the Interstate 80 corridor through connections in Davis, providing bicycle access to Capital Corridor rail service, the cities of Sacramento, West Sacramento, and Winters, and the Bay Area to Lake Tahoe Cross-State Bicycle Route.

The Yolo HCP/NCCP will provide coverage for future development at the Yolo County Airport. This will include construction of new hangars and other airport-related uses, and runaway improvements, over the next twenty years. The expansion will occur on agricultural lands owned by the County and is adjacent to the existing airport runway and hangars. This future development is assumed to affect up to 256 acres of land for the development of detention basins and drainage improvements, new hanger

facilities, other aviation facilities, non-aviation facilities, airfield areas that will be graded and reseeded, new airfield pavement, and pavement to be removed.

Agricultural economic development

This category includes agricultural economic development activities that occur outside of approved growth boundaries for unincorporated communities/places in the first eighteen rural planning units listed in Section 1.2 above. This category is limited to agricultural industrial and agricultural commercial land uses that are consistent with the *Yolo County General Plan*. It does not include general agricultural land uses and activities. General agricultural land uses and activities may be covered under a Certificate of Inclusion if the project proponent qualifies as a Special Participating Entity (Section 4.2.1.3, *Projects Proposed by Special Participating Entities*).

The Yolo HCP/NCCP provides coverage for 332 acres of activities associated with agricultural commercial and agricultural industrial development pursuant to the *Yolo County General Plan* that are under the discretionary authority of Yolo County. The acres for each of these activities are provided in Table 3-1. Agricultural industrial uses include agricultural research, processing, and storage, supply; service; crop dusting, agricultural chemical and equipment sales, and surface mining. Agricultural commercial uses include roadside stands, wineries, farm-based tourism (e.g., upick, dude ranches, lodging), horseshows, rodeos, crop-based seasonal events, and ancillary restaurants and/or stores.

Open space

The Yolo HCP/NCCP provides coverage for the expansion of existing and development of new planned park and open space uses and activities that are consistent with the *Yolo County General Plan* and the *Yolo County Parks and Open Space Master Plan* (Figure 3-6), and recreational activities within the Cache Creek Resource Management Plan (CCRMP) boundaries and consistent with the Yolo County Cache Creek Area Plan. This includes 4,103 acres of parks, as described in the *Yolo County General Plan,* and includes recreational activities associated within the Cache Creek Area Plan. Such facilities include areas for campsites, picnic areas, swimming, water skiing, fishing, rafting, archery, model airplane use, dog park, horseshoes, beach access, inner-tubing, nature study, general natural enjoyment, habitat preservation and educational tours, multi-use trails (horse, bicycle, pedestrian, dog walking with leash, running/jogging), barbeque areas, mooring docks, fishing piers, off-highway vehicle park, nature centers, signs, overlooks/view platforms, restrooms, shade structures, hunting, fishing, birdwatching and other wildlife viewing, photography, gold panning, swimming, historic or archaeological exploration (provided no ground disturbance), camp host facilities, ATVs or other off-road vehicles for management purposes only, drones, model airplanes, and general open space and passive recreational uses. Coverage also includes infrastructure and amenities associated with these facilities, such as access roads, utilities, signage, landscaping, parking lots, launch ramps, trash receptacles, lighting, and drinking fountains. Park facilities and active recreational areas will include 60 acres of parks as described in the *Yolo County General Plan,* and five acres of additional trails (not including Woodland Regional Park trails).

Aggregate mining

The Yolo HCP/NCCP covers aggregate mining within the *Cache Creek Area Plan* (CCAP) boundary (Figure 3-5), consistent with the *Off-Channel Mining Plan* (OCMP) (Yolo County 1996). The OCMP and relevant implementing ordinances (i.e., the Off-Channel Surface Mining Ordinance and the Surface Mining Reclamation Ordinance) currently authorize seven off-channel mining operations (Teichert-Schwarzgruber, Syar, CEMEX, Teichert-Woodland, Teichert-Esparto, Granite-Capay, and Granite-Esparto) along Cache Creek. This includes 968 acres of planned aggregate mining and 1,282 acres of additional future mining.

Development of a mining site typically follows a phased plan, which entails clearing of surface vegetation, removal and stockpiling of topsoil for future use in reclamation activities, mining of sand and gravel (i.e., construction aggregate), processing of mined aggregate at rock processing plants in the mine area, and reclamation of the mined lands to such uses as agricultural, lake, habitat, and open space uses. Facilities that will be constructed in the mine area to support aggregate mining activities include sand and gravel processing plants, asphalt-concrete hot mix plants, concrete batch plants, material stockpiles, settling ponds, water wells, stationary and mobile equipment, and haul roads. Other activities include prospecting and exploration within the OCMP planning area, use of conveyor systems, dust control, equipment maintenance, site maintenance, and paved and unpaved road maintenance.

Site reclamation and restoration activities within approved mine sites are also covered. These activities may include reclamation to agriculture, habitat and open space, and open water lakes with habitat and/or recreational uses. Activities necessary for reclamation may include: (1) backfilled excavation improvements (the construction of habitat, trails, roadways, agricultural fields, or recreational/open space facilities proposed for construction in reclaimed mining areas); (2) bank stabilization maintenance (grading, revegetation, and biotechnical/bioengineered stabilization); (3) fencing; (4) grading for field drainage and releveling; (5) re-soiling; (6) revegetation; (7) soil compaction; (8) seeding, planting, irrigation, and maintenance of revegetated areas until the desired reclaimed condition is established; and, (9) erosion control.

Mining of off-channel aggregate deposits along lower Cache Creek within the OCMP boundary is expected to continue for the life of the Yolo HCP/NCCP and beyond. The Yolo HCP/NCCP assumes 2,250 acres of new mining beyond those approved for the seven authorized operations listed above. In-channel maintenance, stabilization and restoration are addressed in Section 3.5.2.4, *Open Space*.

Public and Private Operations and Maintenance

This category contains activities that are necessary for the ongoing operation and maintenance of existing and planned land uses, facilities, and services in both urban and rural planning units throughout the Plan Area. Many common activities do not typically require Take coverage because the activities occur on existing developed sites and do not have the potential to affect Covered Species.

General urban and rural development operations and maintenance

The Yolo HCP/NCCP provides coverage for operations and maintenance activities related to park and open space facilities, including the management, operations, rehabilitation, replacement, repair, and maintenance of park and open space facilities as described in Section 3.5.2.4, *Open Space*. The following activities are included in this category:

- Repair, maintenance, and replacement of signage
- Landscaping
- Mechanical and manual vegetation management
- Seeding or planting of disturbed areas
- Dust management
- Maintenance of fencing
- Maintenance of lighting
- Fuel management activities, including the maintenance of fire management zones along existing infrastructure (e.g., roads)
- Placement of trash receptacles, lighting, drinking fountains, and associated infrastructure necessary to support these facilities
- Removal of infrastructure (e.g., building structures, roads, trails, stock ponds) for public safety, resource protection, and park management
- Vegetation management, as described in Section 3.5.3.2, *Public Services, Infrastructure, and Utilities Operations and Maintenance*
- Erosion control
- Management of natural resources, such as enhancement of freshwater resources, sensitive species management and monitoring outside of the Reserve System (restoration and enhancement within the Reserve System is described in Section 3.5.4, *Conservation Strategy Implementation and Covered Activities on Reserve Lands*), prescribed burns, invasive vegetation management, bullfrog management, feral pig removal, management of other exotic nuisance species, and managed grazing
- Trail maintenance, including grading, clearing, brushing, erosion control, paving, re-paving, abandonment, and restoration
- Pest abatement to manage rodents, insects, and disease and weed abatement to manage fire hazards outside the Reserve System, including the removal of dead and dying wood, trees, and vegetation in agricultural areas. May include mowing or disking for weed abatement and insect and disease management. Use of pesticides is not covered by the Yolo HCP/NCCP; therefore, the plan does not authorize any pesticide use that would result in Take of Covered Species. Any pesticide use must comply with all existing applicable judicial orders related to use of pesticides
- Surveys and monitoring to support management decisions outside of the Reserve System (monitoring within the Reserve System is described in Section 3.5.4, *Conservation Strategy Implementation and Covered Activities on Reserve Lands*)
- Enhancement and restoration projects outside of the Reserve System

- Maintenance of water delivery systems. This includes maintenance of in-stream structures that have a screened pipe that pulls water from a local stream or channel into the property
- Activities associated with the maintenance of large facilities, including golf courses, large-event facilities, and sports complexes
- Equestrian facilities and uses, including equestrian stables, equestrian centers, trails, manure management, equestrian group camping and horse grazing activities
- Minor remediation projects (less than 1.0 acre) for spills, illegal dumping, fuel/chemical storage, and firing ranges

Public services, infrastructure, and utilities operations and maintenance

There is a variety of different infrastructure that will be constructed or expanded over the Permit term. This is in addition to existing infrastructure. Although this infrastructure may be diverse in nature, it may share common operations and maintenance needs. The Yolo HCP/NCCP covers the operations and maintenance activities listed below. These operations and maintenance activities listed above apply to the following facilities.

- Yolo County Airport and Port of West Sacramento
- Landfills, collection facilities, and transfer stations
- Energy generation and distribution facilities
- Wastewater collection, treatment, and disposal facilities
- Stormwater and drainage collection, treatment, and retention/detention facilities

Subsections to this section are included to specify any operations and maintenance activities that may be required for various infrastructure beyond the list of common operations and maintenance activities.

- General maintenance of existing or future facilities, including repair, replacement, and general upkeep
- Mechanical and manual vegetation management, including mowing, disking, and manual pruning
- Vegetation and wetland management for mosquito control purposes
- Seeding or planting of disturbed areas
- Dust management
- Installation or maintenance of fencing
- Installation and maintenance of lighting
- Fuel management activities, including the maintenance of fire management zones along existing infrastructure (e.g., roads)
- Site inspections of facilities

These operations and maintenance activities also apply to the following types of activities that have special operations and maintenance requirements:

- Roadways and bridges, bikeways, and pathways

- Water supply, treatment, storage, and distribution facilities
- Municipal services and facilities
- Flood control facilities and levees

The Yolo HCP/NCCP provides coverage for 246 acres of operations and maintenance activities at transportation facilities or infrastructure, including rehabilitation of and improvements to existing and future bridges, transit facilities, highways, freeways, interstates, public and private roadways, bicycle lanes, roadside parking and viewing facilities, and ancillary drainage systems. These activities will occur within the rights-of-way of new and existing roadways and facilities.

Covered operations and maintenance activities include: (1) curbing, grading, and resurfacing of roadways; (2) repair, replacement and maintenance of guardrails, lighting fixtures, fences, and signage; (3) installation of safety devices/safety barriers; (4) road sweeping; (5) drainage measures associated with roads; and, (6) other maintenance, repair, and rehabilitation activities, including necessary modification of ditches/conveyance facilities, back-slopes, and shoulders.

Coverage for bridge and culvert repair is also included as Covered Activities. Operation and maintenance of bridges and associated drainage structures includes: (1) in-channel operation of equipment to repair and prevent scour of the streambed beneath and adjacent to bridge structures; (2) dewatering activities to support in-channel work; (3) natural debris and trash removal from bridge piers and pilings or from streambeds; (4) vegetation management beneath and adjacent to bridge structures; (5) erosion/sediment control for bridges and drainage infrastructure beneath and adjacent to bridge structures; (6) patching bike paths and roadways; (7) grading and mowing paths, roadways, and shoulders; and (8) erosion and dust control.

The Yolo HCP/NCCP provides coverage for maintenance of up to 150 acres of flood control structures and associated water conveyance infrastructure, including sediment removal, bank stabilization, vegetation management, and natural and trash debris removal. Covered Activities include the following:

- Repairing previous erosion control work, including failed rock, gunite, sacked concrete, gabions, or bioengineered vegetated sections
- Bank and levee stabilization and repair projects including the use of rock riprap or grouting of holes
- Installation of water measurement devices, scientific measuring devices, and water quality monitoring stations
- Sloping, planting vegetation, placing earthen fill, installing rocks and gabions or using other bank stabilization methods, and taking other necessary measures to control erosion on previously unrevetted areas
- Cleaning, washing, painting, or conducting minor repairs on structures
- Vegetation management, including:

    - Cutting, mowing, disking, tilling, ripping, and burning
    - Grazing (e.g., cattle, goats, or sheep)

- Cutting, trimming, and removing the lower branches of large trees to facilitate site inspections, maintain channel capacity, and maintain native plant communities
- Removing downed trees and dead or live trees that are in clear danger of falling in or across a channel and that would significantly reduce channel capacity, accelerate erosion, or otherwise cause an emergency
- Removing dead trees, dying trees, and new trees less than four inches in diameter at breast height to maintain channel capacity, preventing erosion, and maintaining native plant communities
- Scraping, scouring, and dredging channels to remove vegetation and/or maintain conveyance capacity and stockpiling removed material on channel banks or access roads
- Killing or removing nonnative invasive vegetation by nonchemical means
- Activities to restore native habitats, including adjusting land contours, shaping channel banks, tilling, plowing, disking, or otherwise preparing soils of channel banks and adjacent land for planting of native plants; seeding and planting native plants; and placing habitat features such as nest boxes, resting structures (e.g., bat boxes), or breeding structures
- Planting of channel vegetation using mechanized planters and hand-planting
- Installation of irrigation systems during periods of plant establishment and application of irrigation water

The Yolo HCP/NCCP provides coverage for operations and maintenance activities related to up to 150 acres of public and private utility facilities, including natural gas, electric, water, sewer, communications, and other utility infrastructure. The 150 acres are subsumed within the total acreage of development within the Covered Activities layer. These activities include surveying, excavation, trenching, replacement of above- or below-ground infrastructure, transmission line reconductoring, overburden material storage, and restoration of disturbed ground at maintenance sites. Maintenance of underground utilities often requires trenching around existing pipelines and conducting repairs or replacing segments of pipeline.

Areas that may be affected by water supply operations and maintenance activities include those around water conveyance systems, such as pipelines, pump stations, blow-offs, turnouts, and vaults. The following activities may be conducted as part of routine pipeline maintenance:

- Leak repair including blow-off (i.e., dewatering of pipes; typically includes a point source of high-velocity flow) to local uplands or streams and/or excavation to access pipelines
- Internal inspection including blow-off to local uplands or streams
- Unscheduled releases of water due to a pressure surge in a pipeline that could damage the pipeline
- Rehabilitation and/or replacement of pipeline components, including, but not limited to, air release valves, piping sections or connections, joints, appurtenances, and excavation to access pipelines
- Bank stabilization and erosion control within a creek related to pipeline maintenance

- Replacement/repair of buried service valves (including valves within creek embankments that may require excavation and minor bank stabilization activities)
- Maintenance of pipeline turnouts, including access to pipelines
- Replacement/repair of appurtenances, fittings, manholes, and meters
- Vault maintenance
- Telemetry cable/system inspections and repairs
- Meter inspections and repairs
- Maintenance of pump stations, operation yards, utility yards, and corporation yards

The Yolo HCP/NCCP covers 110 acres of activities associated with the CCRMP and the Cache Creek Improvement Plan (CCIP). Some activities described in the CCRMP/CCIP will be integrated with the Conservation Strategy as described in the Conservation Strategy. However, other activities may occur independent of the Conservation Strategy.

The actions described in the CCRMP/CCIP are undertaken for the sole and/or primary purpose of the five activities listed below.

- Habitat preservation, enhancement, and restoration
- Aquifer recharge and conjunctive water use
- Channel stabilization
- Erosion control and channel maintenance
- Public open space and recreation, including trail construction

Conservation Strategy Implementation and Covered Activities on the Lands within the Reserve System

Habitat management is an integral component of the Yolo HCP/NCCP. All habitat modification, management, and monitoring activities undertaken for the purpose of implementing the Yolo HCP/NCCP are covered. Covered Activities include: (1) habitat assessments and population surveys; (2) habitat management activities to maintain suitable habitat conditions, including cultivation of specified crop types; (3) establishing and maintaining fuel management zones at the wildland/urban interface; (4) restoration, enhancement, and creation of habitats; construction and maintenance of facilities necessary for the management, maintenance, and access control of Yolo HCP/NCCP conservation lands (e.g., fences, access roads, and outbuildings); (5) control of invasive nonnative species by mechanical means or other means; (6) scientific investigation into species' biological characteristics; and, (7) all other management and monitoring activities described in Section 3.5.4.

As described in Section 4.3.4, *Covered Species*, Avoidance and Minimization Measure 17 provides for passive relocation of western burrowing owls from project sites to avoid and minimize adverse effects on this species. It also allows for active relocation upon the Wildlife Agencies approval.

Neighboring Landowner Protection Program

The implementation of conservation measures described in the Conservation Strategy, may increase populations of Covered Species in the Reserve System. As a result, some individuals may disperse to neighboring private lands where the presence of listed species could interfere with routine agricultural activities, other activities, or allowed use of the land. Protections for neighboring landowners are described in Chapter 7, *Plan Implementation*; the methods for establishing and estimating Take associated with this program are described in Chapter 5, *Effects on Covered Species and Natural Communities*. With certain provisions and restrictions described in these chapters, farmlands in the vicinity of the Reserve System boundary are eligible for Take coverage during the course of routine agricultural activities during the Permit term, only for Take beyond the baseline condition that existed prior to the establishment of the neighboring Reserve Lands. Appendix M, *Yolo County Agricultural Practices,* lists the routine agricultural activities that may occur on lands enrolled in the Neighboring Landowner Protection Program.

Take coverage for the Neighboring Landowner Protection Program is limited to four Covered Species: California tiger salamander, valley elderberry longhorn beetle, giant garter snake, and western pond turtle. Take coverage is only available for lands within a certain distance of the Reserve System, and this distance varies by the four eligible Covered Species. Take coverage is voluntary and must be sought by the landowner (i.e., landowners must opt-in) and enacted through a Certificate of Inclusion.

The Yolo HCP/NCCP does not cover pesticide (including herbicide) use. That is, the Permittees are not allowed to cause Take of a state or federally listed species as a result of pesticide use. Permittees will use pesticides in accordance with labeling instructions to avoid Take of listed species. Any pesticide use must comply with all existing applicable judicial order related to the use of pesticides.

Project-specific identification as a Covered Activity, either in Chapter 3 or through a future determination by the Permittee, does not imply or grant entitlement for implementation. Project applicants are required to gain other project approvals from local jurisdictions and other regulatory agencies as necessary.

5.2 Covered Species

Table ES-2 of the Yolo HCP/NCCP lists the twelve Covered Species and are as follows:

List of Twelve Covered Species

Plants
Palmate-bracted bird's-beak, *Chloropyron palmatum* (State Endangered, Federal Endangered)

Invertebrates
Valley elderberry longhorn beetle, *Desmocerus californicus dimorphus* (Federal Threatened)

Amphibians
California tiger salamander, *Ambystoma californiense* (State Threatened, Federal Threatened)

Reptiles
Western pond turtle, *Actinemys marmorata* (California Species of Special Concern)
Giant garter snake, *Thamnophis gigas* (State Threatened, Federal Threatened)

Birds
Swainson's hawk, *Buteo swainsoni* (State Threatened)
White-tailed kite, *Elanus leucurus* (State Fully Protected)
Western burrowing owl, *Athene cunicularia hypugaea* (California Species of Special Concern)
Western yellow-billed cuckoo, *Coccyzus americanus occidentalis* (State Endangered, Federal Threatened)
Least Bell's vireo, *Vireo bellii pusillus* (State Endangered, Federal Endangered)
Bank swallow, *Riparia riparia* (State Threatened)
Tricolored blackbird, *Agelaius tricolor*, (Candidate for State listing[13])

Species by Coverage Categories

Regarding Take authorization, the list of Covered Species is divided into two categories: species that can be taken upon Permit issuance, and species protected by the Migratory Bird Treaty Act (MBTA).

Species that can be taken upon Permit issuance

The Applicants are requesting Take coverage under this Permit for a total of twelve species ("Covered Species"). This Permit allows for continuing incidental Take of the currently unlisted species in the event that they become listed in the future.

Upon issuance, this Permit allows incidental Take, in all forms, of the following three species:

- Valley elderberry longhorn beetle
- California tiger salamander
- Western pond turtle

Upon issuance, this Permit allows incidental Take of habitat and individuals (Tables 5-2[a] and 5-2[b]) with the following limitations of the following species:

- Palmate-bracted bird's-beak coverage is for the Take of habitat and may only be taken for the purpose of enhancement or restoration for the benefit of the species
- Giant garter snake coverage is for the Take of aquatic and upland habitat and up to 815 individuals

[13] At the time of Permit issuance, the California Fish and Game Commission determined tricolored blackbird was warranted for listing as a threatened species under the California Endangered Species Act.

- Western burrowing owl coverage is only for the Take of nesting and foraging habitat and harassment of up to 8 individuals associated with up to four occupied sites through passive and active relocation upon Wildlife Agency approval

Upon issuance, this Permit allows incidental Take of habitat (Table 5-2(a))of the following species:

- Swainson's hawk coverage is only for the Take of nesting and foraging habitat and up to 20 nest trees
- White-tailed kite coverage is only for the Take of nesting and foraging habitat and up to one nest tree
- Western yellow-billed cuckoo coverage is only for the Take of nesting and foraging habitat
- Least Bell's vireo coverage is only for the Take of nesting and foraging habitat
- Bank swallow coverage is only for the Take of nesting habitat
- Tricolored blackbird coverage is only for the Take of nesting and foraging habitat

Species Protected by the Migratory Bird Treaty Act

The MBTA prohibits the taking, killing, or possessing of migratory birds. The MBTA identifies a variety of prohibited actions including the taking of individual birds, young, feathers, eggs, nests, etc. Actions conducted under the Yolo HCP/NCCP and its IA will comply with the provisions of the MBTA and avoid taking, killing, or possessing Covered Species that are protected by the MBTA (Swainson's hawk, white-tailed kite, western yellow-billed cuckoo, least Bell's vireo, bank swallow, and tricolored blackbird) unless the applicant obtains an MBTA Special Purpose Permit consistent with the terms of the Yolo HCP/NCCP. Since the western yellow-billed cuckoo and least Bells' vireo are state and federally endangered species, the Yolo HCP/NCCP will constitute a Special Purpose Permit for those species.

5.3 Limitations

This Take authorization does not constitute or imply compliance with, or entitlement to proceed with, any project under laws and regulations beyond the authority and jurisdiction of CDFW related to the California Natural Community Conservation Planning Act and the programmatic environmental review of the Yolo HCP/NCCP. Permittees have independent responsibility for compliance with any and all applicable federal, state, and local laws and regulations including, but not limited to ongoing compliance with provisions of the Fish and Game Code related to payment of CEQA filing fees. Consistent with Fish and Game Code section 711.4 and California Code of Regulations, Title 14, section 753.5 et seq., permittees are required to collect environmental filing fees for activities covered by the Yolo HCP/NCCP unless the proposed project falls within one of the exceptions provided in Fish and Game code section 711.4.

6.0 AMENDMENTS

This Permit may be amended in a manner consistent with provisions in Section 7.8.3 of the Yolo HCP/NCCP and Section 15 of the IA.

7.0 SUSPENSION AND TERMINATION

This Permit is subject to suspension, revocation, or termination by action of the Director of CDFW in accordance with the terms of Section 16 of the IA.

Under these provisions, should Permittees request early termination of this Permit, Permittees will be required to fulfill the mitigation obligations for all authorized development approved, authorized, or carried out prior to termination. Mitigation obligations will be in accordance with the Yolo HCP/NCCP and the IA for any permitted activities that have been approved, authorized, or carried out.

CDFW may suspend or revoke this Permit as a result of a violation of this Permit and/or pursuant to any applicable State laws or regulations. If this Permit is revoked or suspended, Permittees shall remain obligated to fulfill all of its responsibilities under this Permit for any permitted activity approved, authorized, or carried out by Permittees between the effective date of this Permit and date of Permit suspension or revocation.

8.0 DURATION

This Permit shall remain effective for 50 years from the effective date below, unless suspended, terminated, or extended by earlier action of the Director of CDFW.

Approved by:

_____ **Date:** 1/10/19

Chad Dibble, Deputy Director

California Department of Fish and Wildlife

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