United States Department of the Interior

FISH AND WILDLIFE SERVICE
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In Reply Refer to:
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Mr. William Ness
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California North Branch
U.S. Army Corps of Engineers, Sacramento District
1325 J Street, Room 1350
Sacramento, California 95814-2922

Subject: Programmatic Biological Opinion for the Placer Vineyards Specific Plan Project, Placer County, California (Corps File Number SPK-1999-00737)

Dear Mr. Ness:

This letter is in response to the U.S. Army Corps of Engineers' (Corps), request for a programmatic biological opinion (PBO) with the U.S. Fish and Wildlife Service (Service) on the Placer Vineyards Specific Plan Project (proposed project), in Placer County, California. Your September 28, 2015 request, which included the August 2015, *Placer Vineyards Specific Plan Info to Support Programmatic Section 7 Consultation* (biological assessment) prepared by ICF International (consultant), was received by the Service on October 1, 2015. The biological assessment presents an evaluation of the proposed project's effects on species federally-listed under the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.)(Act).

The federal action we are consulting on is the issuance of individual Clean Water Act, Section 404 permits by the Corps to the applicants of the Placer Vineyards Specific Plan for the fill of wetlands associated with the construction of their development projects as well as the issuance of a Regional General Permit by the Corps for the fill of wetlands resulting from the construction of backbone infrastructure for the Placer Vineyards Specific Plan. This response is provided under the authority of the Act, and in accordance with the implementing regulations pertaining to interagency cooperation (50 CFR 402).

The findings presented in the biological assessment conclude that the proposed project may affect, and is likely to adversely affect the federally-listed as threatened vernal pool fairy shrimp *(Branchinecta lynchi)* (fairy shrimp), the giant garter snake *(Thamnophis gigas)* (snake), the valley elderberry longhorn beetle *(Desmocerus californicus dimoohus)* (beetle), and the endangered vernal pool tadpole shrimp *(Lepidurus packarde)* (tadpole shrimp).

This document is a programmatic biological opinion for the effects of the proposed project on the fairy shrimp, tadpole shrimp, snake, and the beetle.

Consultation History

The Placer Vineyards Specific Plan (PVSP), approved by the Placer County Board of Supervisors (Board) in 2007, is located in southwestern Placer County and contains approximately 5,232 acres. Although this acreage was analyzed in the PVSP Environmental Impact Report (EIR), as described in the biological assessment, this programmatic biological opinion (PBO) only analyzes 4,253 acres outside the 979-acre Special Planning Area (SPA). In addition, this PBO includes off-site and on-site infrastructure. Development includes a mixed-use planned community of 14,132 residential units on approximately 2,293 acres, 340 acres of commercial uses, 293 acres of public and quasi-public uses (such as schools, churches, public buildings and Service areas), 200 acres of parks, 330 acres of major roadways, 47 acres of recreational open space and 751 acres of resource related open space.

Following Placer County's approval of the PVSP, the Sierra Club and Sierra Foothills Audubon Society filed lawsuits challenging the adequacy of the PVSP EIR. On August 7, 2012, the Board authorized the execution of a settlement agreement that included a revised mitigation strategy for biological resources. The revised biological mitigation strategy was approved by the Board as a modification to the 2007 PVSP EIR Mitigation, Monitoring, and Reporting Program. The intent of the revised biological mitigation strategy was to make the PVSP mitigation consistent with the Placer County Conservation Plan (PCCP), and to provide biological mitigation that contributes to a regional reserve system that also meets long-term conservation goals and objectives of the PCCP (Placer County Planning Department 2012).

The revised PVSP biological mitigation strategy was developed by Placer County with the participation and support of the Sierra Club, the Sierra Foothills Audubon Society, the Placer Vineyards Development Group, and the PCCP Biological Working Group (Placer County Planning Department 2012). The modifications made to the 2007 PVSP make the mitigation strategy more consistent with the PCCP, including a shift of focus of the mitigation to conservation of ecosystems and conservation of multiple species, rather than focusing on individual listed species.

Following the settlement, the applicants have worked with the Service and the Corps to refine the mitigation strategy to, among other things, (i) ensure consistency with the PCCP in its present form; (ii) address certain Corps concerns related to the calculation of compensatory mitigation for the fill of jurisdictional waters; and (iii) reflect the Corps' expected Least Environmentally Damaging Practical Alternative (LEDPA) determination (which is described in the Environmental Impact Statement (EIS) as "Combined Alternatives 1 through 5" and has been identified as the Environmentally Preferred Alternative in the Corps' Record of Decision SPK-1999000737).

In May 2014, the Corps submitted a letter to the Service to initiate formal consultation pursuant to the Act regarding PVSP-wide effects on federally threatened and endangered species. A draft biological assessment accompanied the Corps consultation initiation letter for the programmatic consultation. The draft biological assessment provided an analysis of project related effects on federally listed species. (A separate biological assessment addressing effects on fish has been prepared for Section 7 consultation with NMFS). The Service subsequently requested additional information for the PBO describing how PVSP will ensure consistency with the PCCP and transition to the PCCP once it is approved. The August 2015, *Info To Support Programmatic Section 7 Consultation* document provided by the consultant is intended to respond to that request, and to serve as a supplement for the updated biological assessment and a basis for the Corps' consultation.

Between June 2014 and June 4, 2015, a series of meetings were held between the Service and applicants. On June 4, 2015, the applicants submitted to the Service a formal project description. This project description was accepted in writing by the Service on July 21, 2015.

The Service sent the draft programmatic biological opinion to the Corps on January 26, 2016. The Corps requested the Service to finalize the programmatic biological opinion on March, 25, 2016.

BIOLOGICAL OPINION

Introduction

The PBO issued by the Service for the PVSP will describe the mitigation framework that each PVSP project will apply when they are ready to develop their property. The PBO will not exempt take of listed species. Instead, take exemptions will be appended to the PBO for projects or groups of projects that are proposed together. The Corps will append these individual actions to the PBO if they are consistent with the Project Description and the Effects Analysis and provide specific avoidance and minimization measures for these species.

Every PVSP project site is expected to have some impacts to jurisdictional waters or wetlands. Therefore, every PVSP project will need an individual permit from the Corps for impacts to these jurisdictional waters or wetlands. When the project applicants submit their Section 404 permit applications to the Corps, the applicants will also include the information necessary for the Service to evaluate whether the project can use the PBO. The Corps will then initiate consultation with the Service with a request to append the project biological opinion to the PBO.

The Corps' request for consultation will include the following information, provided by the PVSP applicant:

1. Corps permit application including Assessor's Parcel Number(s), Universal Transverse Mercator (UTM) or Latitude and Longitude coordinates, GIS shape files with metadata, and street address of the project;
2. Corps-verified delineation of jurisdictional waters and wetlands;
3. The following biological information:
    a. 1) Detailed maps of the proposed project site and mitigation site with locations of land cover consistent with the categories listed in Table 1; 2) PCCP covered species habitat based on refining the existing mapping to provide project-specific detail; and 3) CNDDB occurrences for PCCP Covered Species (i.e., all species listed in biological assessment);
    b. Construction, avoidance and minimization details;
    c. Mitigation Plan; and
    d. Effects of the project on federally-listed species, including direct and indirect.

A description of the project's conformance to the suitability criteria is described in the *Suitability Criteria for Projects Using the PBO* Section below. Any lands that are used for conservation are subject to Service approval.

The Service will review the proposed project to evaluate whether it is consistent with the suitability criteria provided below. If it is, then an appendage biological opinion, including an incidental take statement, will be added to the PBO and incidental take exemption will be issued to the Corps.

Once the Section 10 takes permit for the PCCP is issued, the biological opinion for the PCCP will replace the PBO for the PVSP. At that point, all remaining PVSP projects would receive their take exemption under the PCCP. The process for PVSP projects receiving take exemption after approval of the PCCP is described below in the *Transition to the PCCP* Section.

Suitability Criteria for Projects Using the PBO

In order for a PVSP project to use and be appended to the PBO, it must: 1) be included in the description of activities that are described in this project description; 2) follow the conservation measures; and adhere to the relevant monitoring and management described in Appendix B; 3) be located within the PVSP, or supporting infrastructure projects must be consistent with the Covered Activities of this project description; and 4) have mitigation occur in Placer County and be consistent with the reserve design criteria described in Appendix A of this project description. The exception is that supporting infrastructure impacts outside Placer County may mitigate outside of Placer County; supporting infrastructure impacts that occur outside Placer County and are not Covered Activities and will not be permitted under the PCCP.

Projects that are not PCCP Covered Activities and are not described in this project description, or otherwise do not meet the suitability criteria described herein, will not be appended to the PBO. Table 1 provides the maximum acres of land cover loss expected to collectively occur under the PBO. This is based on the amount of PCCP land cover that overlaps with the PVSP project footprint and associated off-site infrastructure in Placer County. Out-of-county infrastructure impacts are based on PVSP mapping for this area consistent with PCCP land cover types. The on-site infrastructure is also included within the land cover loss as shown in Table 1.

It is expected that PCCP land cover mapping will be refined at a project-specific level prior to project coverage under the PCCP. Similarly, PVSP project applicants will provide site-specific information when they apply to be covered under the PBO. Actual take and avoidance and minimization measures will be determined based on this site-specific information. Accordingly, the allocation of land cover impacts by type may vary from those shown in Table 1 as more detailed information is provided and reviewed by the Service; however, projects appended to the PBO cannot individually or collectively exceed the total land cover impact limit of 3,492 acres provided in Table 1 unless the Service determines that such additional impacts would not materially affect the findings of this PBO.

Table 1. Land Cover Impact Limits under the PBO.[1]

Land Cover[2]	Within PVSP (acres)	Off-site Area Infrastructure, in County (acres)	Off-site Area Infrastructure, out of County (acres)	TOTAL (acres)
Vernal pool complex	2,805	57	0	2,862
Grassland	572	8	10	590
Aquatic/wetland complex	6	0	0	6
Rice	0	1	1	2
Eucalyptus[3]	3	0	0	3
Riverine/riparian	3	17	0	20
Valley oak woodland	5	0	0	5
Oak woodland	3	0	1	4
Total	**3,3974[4]**	**83**	**12**	**3,492**

Transition to the PCCP

Prior to issuance of the Section 10 take permit for the PCCP, PVSP projects will use the PBO for Section 7 take exemption of federally-listed species. Unless and until the PCCP is approved, the PBO will continue to be used until the last PVSP project or the impact limits established in Table 1 have been met, whichever comes first. After the PCCP Section 10 take permit is issued by Service, all remaining PVSP projects will receive take exemption through the PCCP. At that time, the PVSP PBO will be replaced by the biological opinion for the PCCP. Any projects that have been authorized through the PBO will not have "No Surprises" assurances though Section 10 of the Act.

As described above, the PCCP assumes as part of its covered activities, impacts, and conservation strategy the full implementation of the PVSP. Therefore, once the PCCP is approved, all PVSP biological mitigation for the PCCP Covered Species implemented prior to PCCP approval will be incorporated into the PCCP reserve system. Some of the on-site preserves may not be incorporated into the reserve system but managed and held by an accredited land trust. Certain administrative tasks will also need to be performed to ensure that the accounting of effects under the PVSP is incorporated smoothly into the PCCP accounting. Once the PCCP is approved, an implementing entity will be established to oversee and manage its implementation. As currently envisioned, the implementing entity will be the Placer County Authority, a joint powers authority among the three PCCP permittees: Placer County, City of Lincoln, and the Placer County Water Agency. To smoothly incorporate the PVSP biological mitigation up to that date into PCCP implementation, the PCCP implementing entity will do the following.

Impact limits. Upon issuance of the Section 10 take permit for the PCCP, all take exempted under the PBO will be counted against the applicable impact limits of the PCCP in terms of land cover and

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1 Rounded up to the next highest acre.

2 These limits only include land cover types that provide habitat for PCCP Covered Species.

3 Potential Swainson's hawk nesting habitat.

4 This total does not include orchards, rural residential, and urban land cover, which do not provide habitat value for PCCP covered species and are therefore not included in the land cover loss limits. Including these land cover types, the total area impacted is 3,502.

applicable Covered Species' habitat. The transition of incidental take exemption from the PBO to the PCCP will not increase the amount of take exempted for the PCCP. At this time, the PCCP implementing entity will assume all responsibility for tracking impact limits for the PVSP (and all other PCCP Covered Activities).

Compensatory Mitigation. Upon issuance of the take permit for the PCCP, the implementation of conservation measures, below, will be counted toward applicable PCCP conservation requirements. At this time, the PCCP implementing entity will assume all responsibility for implementing the conservation measures in the PCCP to offset impacts of subsequent PVSP projects, as with all other PCCP Covered Activities.

Mitigation sites. Conservation easements will be recorded on all PVSP mitigation sites. Placer County, or a third party conservation organization, which will be approved by both the County and the Service, will own the conservation easements. Fee title ownership of PVSP mitigation sites may vary from site to site, but will in all cases have a Service-approved conservation easement, long-term management plan, and endowment held by an acceptable entity. Within one year of issuance of the take permit for the PCCP, the County, or third-party organization will transfer all PVSP conservation easements to the PCCP implementing entity. The PVSP conservation easements will include language to provide for this transfer. Some on-site preservation lands may never be included as part of the PCCP. On-site preserves (within the PVSP area) may go to the PCCP implementing entity if they meet PCCP preserve criteria and if they are acceptable to the PCCP implementing entity. On-site preserves that do not meet PCCP preserve criteria will not count toward PCCP land preservation commitments.

Long-term management. All PVSP off-site mitigation sites must have management plans and funding for long-term management. Placer County will establish and manage an account for such management funding and will oversee management of mitigation sites. Upon issuance of the take permit for the PCCP, the PCCP implementing entity will assume responsibility for managing the account and overseeing management of all PVSP mitigation sites.

Funding for long-term management. Funds allocated by the PVSP to provide for long-term management and monitoring of the PVSP mitigation sites will be transferred to the PCCP implementing entity to allow the PCCP implementing entity's management and monitoring of the sites consistent with the requirements of the PCCP. The PCCP implementing entity will deposit a share of the funds allocated by the PVSP to provide for long-term management and monitoring of the PVSP mitigation sites in the PCCP's endowment for post-permit costs. The share of funding deposited in the endowment will be determined by the PCCP implementing entity, with the approval of the Service.

Restoration and Mitigation Plans. The transition of incidental take exemption from the PVSP PBO to the PCCP and its biological opinion will not alter responsibilities under restoration and mitigation plans approved in accordance with the Conservation Measures. Any outstanding obligations under such plans, including, but not limited to, completion of restoration actions or meeting performance criteria for such actions, will be completed as provided in the applicable plan. Once the take permit is issued for the PCCP, restoration and mitigation actions for PVSP projects will be implemented, as required by the PCCP.

Use of Excess Mitigation Assigned from Other Projects in Specific Plan. Some projects within the PVSP may provide mitigation in excess of the amount required by the PVSP conservation strategy if, for example, the mitigation parcel acquired includes more habitat than is needed for project mitigation (for vernal pool complexes, mitigation in excess of 1.36:1 may potentially be needed to meet

occupancy requirements described below in the *Measures if Insufficient Occupancy Rate on Mitigation Lands* Section). Excess mitigation may be freely assigned by private agreement between projects within the PVSP. Placer County will document and track such assignments. Once the take permit for the PCCP is issued, the PCCP implementing entity will assume responsibility for such documentation and tracking.

Measures if Insufficient Occupancy Rate on Mitigation Lands. In the unlikely event that conserved vernal pool complexes acquired do not meet the occupancy requirements described in the *Occupancy Measures* Section, the PVSP will implement additional measures as needed to meet the overall occupancy rate as determined by the PCCP.

Annual Reporting. An annual report will be provided to the Service and Placer County to document the total take limit, mitigation total, and any excess mitigation exchanges.

Covered Activities

Project Location

The PVSP area encompasses approximately 5,232 acres in unincorporated southwestern Placer County, approximately 15 miles north of Sacramento. The PBO only analyzes 4,253 acres of the PVSP (The 5,232-acre PVSP minus the 979-acre SPA). It is bounded on the north by Baseline Road, on the south by the Sacramento/Placer County line, on the west by the Sutter/Placer County line, and Pleasant Grove Road, and on the east by Dry Creek and Walerga Road. East to west, it spans approximately six miles. North to south, at its widest point, it spans approximately two miles. Surrounding land uses include agricultural land with cultivated crops, irrigated pastures, rice fields, and scattered rural residences. Land to the east (city of Roseville) and southwest (Natomas Basin) are currently being developed for residential and commercial uses. Coordinates for the approximate center of the area are 38° 45' 00" N and 121° 24' 30" W. The area coincides with portions of Township 10 North, Range 4 East, Section 1; Township 10 North, Range 5 East, Sections 1-12; and Township 10 North, Range 6 East, Sections 6-10 of the *Citrus Heights, CA, Rio Linda, CA, Pleasant Grove, CA,* and *Roseville, CA* 7.5-minute quadrangles (U.S. Department of the Interior, Geological Survey, photo revised 1992, 1981, 1992, and 1992). The PVSP area includes portions of the Lower American River Watershed and the Lower Sacramento River Watershed (#18020111 and #18020109, U.S. Department of Interior, Geological Survey 1978).

To support the PVSP, infrastructure will be needed outside the PVSP boundaries. This will include sewer trunk lines, water and recycled water transmission lines, and wastewater treatment plant improvements. It is assumed that utility lines will usually be placed within existing roadways and other disturbed areas. The estimated impact of the infrastructure is presented in Table 1.

Proposed Development Projects

The PVSP establishes a coordinated and comprehensive approach towards land use development consisting of residential, employment, commercial, recreational and public/quasi-public land uses, and required infrastructure, as well as open space. The properties with currently active individual Corps permit applications total approximately 3,746 acres within the PVSP area. An estimated 35 additional acres in the PVSP area will be impacted by major roadways constructed to serve the PVSP. It is anticipated that the entire PVSP area will ultimately be developed over a period of many years and that future individual Corps permits will be pursued as required for the remaining properties. The remaining 470 acres consist of those development parcels whose owners are not

pursuing permits at this time, and a 979-acre SPA that is predominated by existing rural residential development.

Additional elements addressed include the off-site infrastructure elements, including two sewer lines, a potable water line/tank, a recycled water line, and road improvements. Other integral elements of the proposed actions include the compensatory and construction-related conservation and minimization measures proposed to reduce potential impacts to biological resources within the PVSP area.

The PVSP does not include detailed development plans. Rather, it accomplishes the following:

- Defines a comprehensive set of rules and policies to govern all future urban development in the PVSP;
- Adopts a Land Use Diagram showing the location and density/intensity of future residential, commercial, office and business park development, parks, schools, open space and other needed facilities;
- Identifies all major infrastructure (roads, water, sewer, drainage, etc.) and public services needed for proposed new development; and
- Imposes standards for phasing and implementation and financing of all requirements set forth in the PVSP.

The PVSP includes a mandatory series of stepped or sequential actions which must be approved by Placer County before any urban construction occurs.

In its National Environmental Policy Act (NEPA) review of the PVSP, the Corps evaluated a range of development densities, from 14,132 dwelling units up to 21,631 dwelling units within the 5,232-acre PVSP area (4,253 acres of which are covered in the PBO). The "bookends" of this range are represented by the lower density "Base Plan" and a higher density version known as the "Blueprint Scenario," due to its consistency with the 2005 Sacramento Area Council of Governments' (SACOG's) "Preferred Blueprint Scenario." Under this higher density scenario, the development footprint will remain essentially the same, but the density of residential and commercial land uses will be increased to accommodate an estimated population of approximately 49,000 people (increased from approximately 33,000 at the lower end of the density range). The higher density scenario will also result in minor land use shifts within the plan to accommodate the higher densities. There is some potential that, during the 20-to 30-year build-out of the PVSP, local policy makers may determine that the PVSP area is suitable for the higher densities. Thus, the Corps' permits and NEPA review will allow local policy makers to adjust the densities of the plan, within these "bookends," without the need for further Corps permitting or environmental review, as long as the development footprint remains unchanged. Regardless, the level of impact to the listed species will be the same.

The EIS supporting the Corps' permits studied a range of alternatives. The proposed action is the combined Alternatives 1 through 5 addressed in the EIS, which was identified as the Environmentally Preferred Alternative in the Corps' Record of Decision SPK-1999000737 and is the Corps' anticipated LEDPA. At full build-out at the lower end of the density range, the PVSP area will support a population of 33,000 persons in 14,132 dwelling units. The number of units that will be built under this alternative will be the same as in the PVSP approved by Placer County. This is because to the extent that the number of units to be built on the property is reduced due to the revised footprint, the same number of units will be built on another property within the PVSP by increasing the density, so that the total number of units for the PVSP as a whole will still remain at 14,132. The proposed development footprint is approximately 3,502 acres, including approximately

2,292 acres of residential uses, 340 acres of commercial uses, 293 acres of quasi-public (public facilities/Services, religious facilities and schools) land uses, 200 acres of park, 330 acres of major roadways and 47 acres of non-resource related open space. In addition, there will be 751 acres of resource related open space land not included in the development footprint. The 751 acres of open space will include corridors with drainage infrastructure elements to be constructed as part of the PVSP. Generally, the on-site open space will not count toward project mitigation, except as described in the *Open Space within the PVSP* Section, and possible in-stream mitigation for waters and fish species (not related to this PBO). The PVSP is expected to develop over a 20- to 30-year time frame. The local entitlement process through Placer County to accommodate the anticipated LEDPA may require minor land use shifts within the plan area, but the development footprint will not change.

Although the project design and land cover impacts may be refined with time, projects covered under the PBO will not exceed the total land cover impact of 3,492 acres provided in Table 1 unless the Service determines that such additional impacts would not materially affect the findings of this PBO. Build-out is anticipated to occur over a 20- to 30-year period.

At full build-out at the higher end of the density range, the development footprint will remain the same, but the density of residential and commercial land uses will increase to accommodate 21,631 dwelling units and an estimated population of 49,000 people. Like at the lower end of the density-range, there will be a development footprint of approximately 3,502 acres at full build out of the PVSP.

Higher density will require minor land use shifts within the plan area, but the development footprint will not change to accommodate the higher density. As with the low end of the density range, the open space will include corridors with drainage infrastructure elements to be constructed as part of the plan.

Open Space within the PVSP

Land cover types within the PVSP will be treated as avoided under this PBO, if: 1) no land cover conversion occurs (e.g., examples of a land cover conversion include engineered detention basin(s) constructed of non-native materials or park and recreational improvements which include hardscape features, such as paved or compacted trails, parking lots, grass/turf areas such as ball fields/soccer fields and other similar amenities,); and 2) if these lands are protected through a permanent conservation easement and managed and enhanced for their biological values consistent with a Service-approved management plan. Any conversion occurring within the open space area affecting vernal pools, seasonal or perennial wetlands, valley oak woodlands, riverine/riparian will be mitigated pursuant to the requirements of the proposed conservation measures identified in this PBO.

Any temporary impacts associated with the construction of drainage features in the open space area (e.g., detention basins using natural systems with natural land cover, drainage canals, and channel improvements), including the modification of existing drainage features and their hydrology, that result in the restoration or enhancement of function, will be considered avoided. Any temporary impacts that do not improve function will be considered an impact subject to the requirements of the proposed conservation measures identified in this PBO.

In order to treat these lands as avoided, the project applicants must also provide an endowment or other secure financial mechanism to fund the management and enhancement and as previously described, subject to review and approval by the Service. The management plan and financial mechanism must be in place within 18 months after Corps 404 permit issuance. Because the

dedication of open space will be phased over time along with the development of the PVSP, funding for the management and enhancement will also be phased.

The following land cover within these open space areas will count toward project mitigation. They will be biologically enhanced through protection and management which will be funded with an endowment.

1. Open Space 1: Riverine/riparian along Dry Creek and Curry Creek (Approximately 40 acres).
2. Open Space 2: The large aquatic/wetland complex in the southern portion of the PVSP area, south of Dyer Lane. (Approximately 22 acres).
3. Open Space 3: Oak woodlands associated with north of the Dry Creek corridor (Approximately 25 acres), and the large patch of valley oak woodland near the middle of the PVSP area (Approximately 18 acres).

Infrastructure

The PBO will cover improvements to existing roadways and intersections, proposed routes for new major roadways, portions of pedestrian/bicycle trails, water transmission lines, and sewer trunk lines, force mains, and lift stations. Although the final infrastructure design may differ somewhat from the project description below, the actual infrastructure impacts exempted under the PBO will not exceed the limits provided in Table 1 or result in impacts that are not otherwise addressed in the PBO, as determined by the Service.

Baseline Road

Placer County requires the existing two-lane Baseline Road (forming the northern boundary of the PVSP area) be improved to provide for two eastbound and two westbound lanes, and ultimately three lanes in each direction. Baseline Road becomes Riego Road near the western end of the project site. Required Baseline/Riego Road improvements also include seven intersections, at the following locations:

1. Riego Road and East Natomas Road (located in Sutter County).
2. Riego Road and Pleasant Grove Road (northbound, located in Sutter County).
3. Baseline Road and Pleasant Grove Road (southbound, located in Placer and Sutter Counties).
4. Baseline Road and Elder Street (southbound, located in Placer County).
5. Baseline Road and Locust Road (located in Placer and Sutter Counties).
6. Baseline Road and Newton Road (southbound, located in Placer County).
7. Baseline Road and Brewer Road (located in Placer County).

Watt Avenue

Placer County requires the existing Watt Avenue (running north-south through the eastern portion of the PVSP area) to be improved to provide for two northbound and two southbound lanes, and ultimately three lanes in each direction. The initial widening is to extend from Baseline Road (at the northern boundary of the Specific Plan area) southward to the Specific Plan area boundary at Dry Creek, then approximately 2,500 feet more, terminating in Sacramento County near the intersection of Watt Avenue and Pepperidge Drive. The ultimate widening will be accomplished on both sides of the existing pavement for approximately 2,100 feet south from Baseline Road. At that point, the

alignment will be shifted westward in order to minimize impacts to existing rural residential housing. South of Dry Creek, the alignment will shift back toward the east so that the required road widening will be accomplished on both sides of the existing road.

The existing crossing of Watt Avenue over Dry Creek will also require improvement. The existing Watt Avenue bridge will be removed and replaced by a new structure (or structures), which will carry three lanes northbound and three lanes southbound. It is anticipated that a bridge (or bridges) utilizing in-stream concrete pilings will be required to effect this improvement.

Dyer Lane

The existing two-lane Dyer Lane will be widened within the PVSP area to four lanes and will extend toward the west from its existing intersection with Watt Avenue. Along that extension, in order to minimize impacts to heritage oak trees lining the existing roadway, the alignment will be shifted at key locations. For the first approximately 1,500 feet, widening will be accomplished on the north side, then the alignment will be shifted to the south (so that widening will occur on the side of the existing roadway). This alignment will be extended due west for approximately 3,150 feet. New pavement will be extended due west from the point where existing Dyer Lane intersects Tanwood Road (approximately 0.9 miles west of the intersection of Dyer Lane with Watt Avenue). At that point, the alignment will be shifted to the north again, and extended for approximately 1.36 miles. Further to the west, where Dyer will enter Ownership Unit No. 19, it will begin a broad-radius curve to eventually run north-south, and terminate at a new intersection with Baseline Road. Dyer Lane (new pavement) will also be extended approximately 500 feet to the east from its intersection with Watt Avenue.

Other Street Improvements

The following additional street improvements will be developed in association with the PVSP:

1. 16th Street will be a four-lane, north-south linkage between Dyer Lane and Baseline Road located between Ownership Unit Nos. 12A and 12B to the east, and Ownership Units 13 and 15 to the west;
2. 18th Avenue will be a new a two-lane wide spur extending west from Dyer Lane, across ownership Unit No. 19 to intersect with the existing Locust Road;
3. The shoulders of existing Locust Road may be improved on both sides; and
4. To provide appropriate access to/from a fire station to be located in the eastern portion of Ownership Unit No. 19, a new road is proposed to be constructed between Palladay Road and West Dyer Lane (east-west, across Ownership Unit No. 19).

Pedestrian/ bicycle Trails

A multi-use trail system will provide pedestrian and bicycle linkage throughout the PVSP area. Typically, these are 8-12 foot wide paved trails. The acres of land cover lost as a result of pedestrian and bicycle trails are included in the total land cover lost, provided in Table 1.

Potable Water Lines/Tanks

Five water storage reservoirs and booster pump stations will be located within the PVSP area, east of Watt Avenue, south of Baseline Road, South of West Dyer Land, and west of Palladay Road. The water storage facilities are expected to be composed of above-ground concrete or steel tanks

with storage capacities of three to five million gallons at each location. The tanks will be either 130 feet in diameter and 30 feet in height, or 150 feet in diameter and 24 feet in height. Four of the planned water storage tanks are adjacent to infrastructure roadways, and the supply lines leading to those tanks will be installed at the same time as the road improvements. Thus, the majority of the impacts accruing to the potable water transmission network will be limited to the footprints of the five storage tank sites and the stub lines necessary to connect them to the transmission lines within the plan area roadways. The supply line leading to one tank will require overland installation from Baseline Road south within the alignment of a future PVSP roadway within the area that will be subject to permitting by the involved individual property owners. This supply line will not be covered under the PBO.

Recycled Water Lines/Tanks

A connection for recycled water will be made from Dry Creek Wastewater Treatment Plant to an existing 24-inch gravity recycled water line which currently terminates south of Dry Creek on the east side of Walerga Road to Baseline Road, where it will turn west (within the pavement and/or landscape corridor) to the PVSP area. From Baseline Road, the line will extend south through the PVSP area within Watt Avenue, then west within Dyer Land to the site of the recycled water storage tank on the south side of Dyer Lane within Ownership Unit 17.

Sanitary Sewer

The PVSP will connect to the Dry Creek Wastewater Treatment Plant. Construction will include a gravity system to deliver wastewater to the western end of the PVSP area, a lift station with adequate emergency storage, and a force main to pump wastewater easterly to the Dry Creek Wastewater Treatment Plant. The sewer connection corridor will extend from the lift station to the west end of the PVSP area (on Ownership Unit 19) northward approximately 200 feet overland, then easterly approximately 3,950 feet overland to the new proposed alignment of West Dyer Lane. At this point the forced main sewer line will be placed within the pavement of West Dyer Lane and proceed eat to Watt Avenue, then south within Watt Avenue. Dry Creek will be crossed using bore and jack technology and the line will then proceed easterly along the alignment of PFW Road and northerly to the plant by way of one of the three following alignment scenarios. The PBO will cover either scenario, provided impacts do not exceed those specified in Table 1 and the other criteria described in the *Suitability Criteria for Projects Using the Programmatic Biological Opinion* Section.

1. The alignment will proceed northerly to the plant at Hilltop Circle, just east of the City of Roseville Corporation Yard.
2. The alignment will proceed approximately 375 feet to the east, at the eastern boundary of the City of Roseville Corporation Yard.
3. The alignment will leave PFW Road northerly at cool Riolo Road, turning easterly to the Dry Creek Wastewater Treatment Plan just north of Dry Creek.

Drainage and Flood Control

The PVSP includes a system for stormwater runoff management, and establishes guidelines for management of urban runoff and control and design of drainage systems. The on-site drainage will be designed to provide water quality treatment of runoff from paved and other developed areas prior to release into the swales and streams. This treatment will consist of the following:

1. Directing some flow to sheet discharge onto grassy areas or open space.
2. Installations of "Fossil Filter" or other equivalent petroleum absorbing insert assemblies in the project drop inlets.
3. Placement of water quality interceptor devices.
4. Placement of water quality sediment basins within detention facilities and channels.
5. Use of rock-lined ditches below pipe outlets.

The PVSP area is within three major drainage sheds: Curry Creek, Dry Creek, and the Upper Natomas East Main Drainage Canal, now known as Steelhead Creek. The drainage system has been designed to accommodate peak flow rates resulting from additional impervious surfaces and proposed drainage modifications. PVSP development will require additional attenuation at several locations, including within the existing floodplain and flood control channels upstream of proposed culvert facilities. Detention basins and water quality treatment basins will be provided to optimize water quality. Pending final design, and where appropriate opportunities are identified within constructed and/or enhanced drainage ways, wetlands may be constructed to increase biological function. Riparian plantings will be used to augment biological function. Additionally, flood control facilities will preserve areas where sensitive resources exist, such as wetlands. The Drainage Study includes provisions to maintain the hydrology of sensitive areas by preserving the mean annual and peak flow rates through them.

To preserve the integrity of the avoidance areas within the PVSP, development will avoid increasing flow rates within unaltered swales in the open space areas. Additionally, where seasonal wetlands are identified, nuisance waters from non-storm discharges will be diverted to the flood control facilities so as to not affect the seasonal nature of the existing features. To accomplish this, special structures will be used in the drainage system to divert excess floodwaters to the flood control channels, or to divert nuisance waters away from the existing swales. Project drainage will be treated for water quality prior to discharge to an existing or proposed flood control channel.

Flood control channels within the PVSP area will consist of newly constructed channel systems and parallel flood control channels where avoidance areas are to be maintained in a natural state. These facilities will generally follow or be placed along the natural drainage courses. Utilizing detention basins for the developed condition, stormwater runoff from the PVSP area will be reduced consistent with the requirements of the Placer County Flood Control and Water Conservation District. The flooding limits will be confined within the channels and existing floodplain areas, generally providing 3 feet of freeboard above the 100-year floodplain to adjacent proposed structures. The channels will be excavated below the existing grades, and daylight at the downstream end to natural grades at the project limits. A meandering, naturalized low flow channel will be constructed throughout to confine the conveyance of year round nuisance waters.

In addition to providing detention storage to mitigate the increased rate of runoff, an additional storage component will be added in the detention areas to provide retention of flow volumes for a period of time to allow downstream volumes to drain from the shed. A combination of detention/retention basins will be used within each drainage-shed, except Dry Creek, to mitigate the impact of the project stormwater runoff. The PVSP includes open space corridors to convey stormwater flows, and all development is planned to occur outside of these corridors to provide 100-year flood protection to all residences. Pending final design of infrastructure elements (and lotting plans where adjacent to infrastructure), some grading within the open space areas may be required (although no additional wetland fill is anticipated). Drainage is described below for each watershed.

Curry Creek

Beginning at the upstream (i.e., eastern) end of the SPA, Curry Creek enters the PVSP area and crosses Baseline Road in the northeast portion of the PVSP area. Curry Creek then parallels Baseline Road, and crosses back to the north. PVSP development will involve excavating overbank areas (i.e., areas where the natural creek can spill floodwaters) at Curry Creek adjacent to Baseline Road, north of the existing channel, and adjacent to the development areas, south of the existing channel. The excavation of these overbank areas will enhance the conveyance capacity of the system for Flood Control, and provided additional 100-year floodplain storage within the creek to mitigate development peak flow impacts. The open space corridor associated with Curry Creek and the drainage improvements in this area measures approximately 4,505 feet long with an approximate average width of approximately 336 feet, containing approximately 35 acres.

Steelhead Creek Tributaries

EMA Tributary

The EMA tributary is the northern most tributary of Steelhead Creek and originates within the project boundaries, south of Curry Creek. The tributary generally conveys runoff in a westerly then northwesterly direction, exiting the project across Baseline Road, near the existing power line corridor. Within this watercourse, the PVSP will reconstruct and enhance sections of the existing swale. Other sections of the swale will have new flood control channels added that parallel the existing channel, which will be kept intact.

Infrastructure drainage elements include an enhanced channel extending west from Ownership Unit 1A, essentially defining the boundary between Ownership Units 4 and 7, and terminating at a large detention pond at the west end of Ownership Unit 12A (at the southeast corner of Baseline Road and 16th Street). The open space corridor associated with this drainage shed will be approximately 2.9 miles long with an approximate average width of approximately 345 feet, containing approximately 123 acres. The existing drainage from the southeastern portion of this watershed, originating near the southeast corner of Ownership Unit 7, will remain in its natural state (although it is currently largely supplied by irrigation runoff). This tributary is approximately 1,636 feet long and supports riparian vegetation at its extreme upstream end. This portion of the system will be left intact and in open space with an average corridor width of approximately 439 feet (thus containing an estimated 16 acres).

EMB Tributary

Headwaters of the EMB tributary of Steelhead Creek also originate in the northwest portion of the PVSP area. This tributary will not be altered by the PVSP.

EMC Tributary

Headwaters of the EMC tributary of Steelhead Creek originate in the eastern and central portions of the PVSP area. The existing EMC tributary seasonal wetland swales will be supplemented for flood control purposes with parallel channels to the western project boundary. The open space associated with this drainage area will be approximately 6,500 feet long with a visually estimated average width of approximately 721 feet (thus containing an estimated 118 acres). At its widest point, this corridor will be approximately 1,100 feet wide.

EMD Tributary

Headwaters of the EMD tributary of Steelhead Creek originate near the southwest boundary of the PVSP area. On-site runoff to this system will be collected and conveyed to the PVSP boundary by a pipe system. The off-site system will not be altered.

EME Tributary

The EME tributary of Steelhead Creek is completely off-site and downstream of the project. The project will not modify any function of this system.

EMF Tributary

Headwaters of the EMF tributary of Steelhead Creek originate in the eastern and central areas of the PVSP area. There are two tributaries to this system which exit the PVSP area at two different points along the southern boundary. The northern tributary exits the PVSP area in the western third of the southern boundary. The northern tributary will include modifications to the existing channels including complete relocation and reconstruction in the upper reaches, and parallel added flood control channel in the lower reaches where the avoidance strategy is planned for the existing creek areas. The southern tributary of EMF exits the southern boundary of the PVSP area at roughly the midpoint of the project. Channel improvements for the southern tributary will include new parallel flood control channels, and some new channels will be created along the southern boundary of the PVSP area. The southern and northern tributaries of EMF join south of the project. The open space associated with the southernmost portion of this system spans a distance of approximately 2.1 miles with an approximate average width of approximately 196 feet (thus containing an estimated 50 acres). It is joined by a tributary system with which the associated open space will be approximately 4,108 feet long by 610 feet wide (thus containing approximately 58 acres). More centrally located within the plan area there will be a relocated and enhanced channel which will span approximately 1.1 miles, terminating at Palladay Road. Average width for this reach will be approximately 188 feet (thus containing approximately 25 acres of open space). Downstream of Palladay Road, with the exception of a road crossing for West Dyer Lane, the existing creek system (which supports scrub riparian vegetation) will be left intact. The open space associated with this reach is estimated at approximately 3,200 feet long by 536 feet wide (thus containing approximately 39 acres).

EMG Tributary

The EMG tributary of Steelhead Creek originates in the southeastern third of the PVSP area. Runoff from the PVSP area will be collected in storm pipes and discharged to a detention basin upstream of the PVSP boundary. Flows exiting the basin will be discharged into the existing drainage swale.

Dry Creek

Dry Creek bounds the southeastern portion of the PVSP area. Water in Dry Creek passes adjacent to the PVSP area in a southwesterly direction. The PVSP will not alter Dry Creek. Stormwater quality basins and treatment measures will be placed at the drainage system outfalls upstream of their discharge into Dry Creek.

Conservation Measures

The PVSP project applicants will implement measures to minimize potential effects to biological resources and compensate for the effects of the proposed action on federally listed species, as described below.

Mitigation Plans

PVSP project applicants will prepare a Mitigation Plan for each project in compliance with the PBO. The Mitigation Plan will be subject to approval by the Service. The Mitigation Plan may cover a development project or group of projects and must include any required off-site infrastructure, unless covered by a separate project level mitigation plan for that infrastructure improvement.

Each Mitigation Plan will include all of the following:

1. Identification and quantification of species' habitat loss (including both indirect and direct effects) and applicable mitigation requirements as described in this chapter, to demonstrate consistency with the PCCP conservation strategy.
2. Identification and quantification of proposed mitigation with sufficient detail to allow for evaluation of the suitability of the mitigation, including a description of how the mitigation meets criteria listed in Appendix A.
3. Conceptual plans for any restoration and/or creation of wetlands, including riparian vegetation restoration.
4. Identification of any conservation or mitigation bank credits, fees (Project applicants may enroll mitigation properties in a fee program for mitigation that is presently under development by Placer County and the Corps. No mitigation credit will be assigned under the in-lieu fee program for purposes of listed-species compliance without those fees having been committed to mitigation in the form of enrolled properties approved by Service at the time of the project specific appendage to this PBO), or assignment of excess mitigation from other project in the Specific Plan (See *Transition to the PCCP* Section, above for description of excess mitigation lands). Any restoration will be implemented (i.e., initiation of restoration construction) prior to or concurrent with grading. In some cases, mitigation may occur in advance of an impact, in which case the project proponent will develop an agreement with Service to ensure that the advance mitigation will count toward the project's mitigation requirements.
5. Conservation easements and draft management and monitoring plans. The management plans will include the components described in Appendix B of this PVSP project description.
6. Proposed funding for long-term management.

Each project (including off-site infrastructure) must demonstrate compliance with the approved Mitigation Plan prior to Placer County's approval of a grading permit that results in loss of land cover. Such compliance will include:

1. Demonstration of ownership and/or recordation of requirement easements for land conservation to an easement holder approved by the Service;
2. Demonstration of ownership of applicable credits and/or assignment of any applicable excess mitigation from other projects in the PVSP;
3. Demonstration of implementing required funding for long-term management.

4. Demonstration of approval by the Service and Corps of construction and monitoring plans for any required restoration, enhancement, or creation of wetlands. Provision of proof of executed contracts and initiation of restoration/creation.
5. Documentation and approval of any excess mitigation eligible for future use or assignment.

PVSP projects covered under the PBO will follow the avoidance and minimization measures described in Appendix C for each species. Habitat protection and restoration for each species' habitat will meet the protection and restoration ratios provided in Table 2 and the siting and design criteria provided in Appendix A. Protected and restored habitat will be managed consistent with provisions in Appendix B.

Protection and Restoration Ratios

The protection and restoration ratios provided in Table 2 for each land cover type are calculated as the amount of land cover type that will be protected by the PCCP divided by the amount of land cover type permanently impacted by all PCCP Covered Activities, including PVSP. All PVSP project applicants will mitigate effects to these land cover types consistent with these ratios. The Corps has determined that the 1.5:1 restoration (i.e., establishment/reestablishment) ratio set forth below for wetted acres of vernal pool/wetland/riverine satisfies federal "no net loss" requirements (subject to a review by the Corps 10 years following issuance of the PBO).

Table 2. Minimum Required Land Cover Protection and Restoration Ratios

Land Cover	Required Protection Ratio	Required Restoration Ratio
Vernal Pool Complex	1.36:1[5]	1.5:1[6]
Grassland	0.55:1	0.2:1
Aquatic/Wetland Complex	2.54:1	1.5:12
Riverine/Riparian	4.68:1	1.5:12
Valley Oak Woodland	1.45:1	1.5:1
Foothill Oak Woodland	2.05:1	0.02:1

The following federally-listed PCCP Covered Species have PCCP modeled habitat in the Action Area. PVSP project applicants will implement avoidance and minimization measures, siting and design criteria, and habitat management and enhancement for these species consistent with Appendices A-C of this project description. The following Sections describe how PVSP will mitigate for each federally-listed species through habitat protection and restoration. The protection and restoration for each species is based on the land cover ratios in Table 2.

5 The protected vernal pool complex will include vernal pool wetland habitat at a ratio of at least 1.36 acres protected for each acre impacted.

6 Ratio applies only to wetted acres within the vernal pool complex, not to the vernal pool complex as a whole. For the purpose of this document, the term "restoration" includes ACOE parlance, both "establishment" and "re-establishment."

Fairy Shrimp and Tadpole Shrimp Measures

Habitat-based Measures

The following are habitat-based measures for mitigating PVSP effects on the federally-listed fairy shrimp and tadpole shrimp.

Mitigation Ratios

Vernal pool grasslands: 1.36 acres of grassland will be preserved for every acre impacted. Vernal pool grassland will be mitigated by any grassland without regard to wetted area density. Actual wetted area is accounted for by the separate requirement for vernal pool wetland habitat to be mitigated at ratios described in 1(b) below. The vernal pool wetland habitat requirements can only be accomplished if much of the grassland acquired to mitigate land conversion does, in fact, have a high density of preserved and restored vernal pool habitat. All lands for restoration, creation, or preservation will be reviewed and approved the Service.

Venial Pool Wetland Habitat

Preservation: For each 1.00 acre of vernal pool wetland habitat impacted, 1.36 acres of vernal pool wetland habitat will be preserved for a total of 138.45 acres of preservation (101.8 acres x 1.36 = 138.45 acres); and Restoration/creation: For each 1.00 acre of vernal pool wetland habitat directly impacted, 1.50 acres of vernal pools and seasonal wetlands will be restored or created.

Restoration/creation Plans: Vernal pool wetland habitat will be restored or created where soils and hydrologic conditions will support long-term viability and where the soils are known to support the fairy shrimp or tadpole shrimp. Restoration/creation plans will use nearby, natural, high-quality pools as well as historical evidence as models. Plans will consider the size and depth of pools to be constructed, hydrologic connections within complexes, depth from soil surface to hardpan, and upland area to pool-area ratios (Service 2005). In general, vernal pool grasslands with wetland densities less than 5% are considered opportunities for vernal pool restoration/creation.

Clearly defined objectives will be identified for all restoration/creation. Success criteria will be established with review and approval by the Service before each restoration/creation plan is implemented. Monitoring of previous vernal pool restoration/creation in Placer County indicates that future restoration/creation in the proposed locations has a high potential for success. Each restoration/creation plan will include an effective monitoring and adaptive management program in order to ensure the success of compensatory vernal pool mitigation.

Minimum Size for Vernal Pool Mitigation Sites: Consistent with the PCCP, the minimum area for a vernal pool mitigation site is 200 acres, if the site is not contiguous with other reserve lands. Placer County, at its discretion, may accept sites of less than 200 acres, if they determine that the proposed site has key strategic value for the PCCP or has especially high resource value that can be reasonably protected from edge effects. The area may consist of one or more properties. There is no minimum size for mitigation sites that are adjacent to other reserve lands or the PCCP Stream System.

Buffers: To minimize edge effects from adjacent urban and suburban land, vernal pools used for mitigation should be no closer than 250 feet from existing or planned urban or suburban development or located such that adequate hydrology can be maintained in the event of future development.

Vernal Pool Occupancy Measures

The PCCP includes a requirement to preserve a certain amount of vernal pools in the plan area that are occupied by covered vernal pool invertebrates. The intent of this "occupancy standard" is to ensure that the amount of occupied vernal pools preserved meets or exceeds the amount of occupied vernal pools lost to Covered Activities.

Placer County is in the process of developing a standard for the PCCP for fairy shrimp and tadpole shrimp occupancy in vernal pools on mitigation sites. The occupancy rate in the PCCP will be based on the results of Service guideline-level surveys to be conducted on vernal pools planned for development in the PCCP plan area, subject to Service approval. This standard is expected to be established in 2017. Prior to adoption of the PCCP, PVSP projects will achieve the occupancy requirement through one of the following two options:

(a) If all vernal pool wetland habitat on an individual project site is surveyed for fairy shrimp and tadpole shrimp consistent with the Service's guidelines, then the project proponent may use the occupancy data from the guideline-level survey to determine the amount of occupied vernal pool habitat to be preserved, provided guideline-level surveys have also been conducted on the mitigation site. That is, the project proponent may preserve 1.36 acres of occupied habitat for each acre of occupied habitat to be lost based on the occupancy estimates from the guideline-level surveys on both the impact and mitigation sites.

(b) If option (a) above is not implemented, then the project proponent will mitigate for vernal pool wetland habitat at a preservation ratio of 1.61:1 (i.e., 0.25:1 more than the current PVSP standard of 1.36:1). After the occupancy standard is set, if the occupancy at established mitigation sites is higher than the established occupancy standard, then the excess mitigation may be credited to future PVSP mitigation through agreements between PVSP landowners. Any "excess" will only be returned when the entire PVSP occupancy rate has been determined or at the completion of the study to determine the occupancy rate, whichever comes first. Any "excess" mitigation determination will be reviewed and approved by the Service. In the unlikely event that conserved vernal pool complexes acquired do not meet the occupancy requirements described in the *Occupancy Measures,* the PVSP will implement additional measures as needed to meet the overall occupancy rate as determined by the PCCP.

Beetle

Applicants of projects to be appended to the PBO will implement the following measures to reduce the effect of take of the beetle.

Impacts to riparian habitat (PCCP modeled habitat for the beetle), if any, will be mitigated at a ratio of 4.68:1 for protection and 1.5:1 for restoration.

Prior to approval of grading/engineering plans for any property within the PVSP area, a focused survey for elderberry shrubs will be conducted to determine the presence/absence of the shrubs. The survey will be completed by a qualified biologist anytime throughout the year. If elderberry shrubs are found, locations of these occurrences will be mapped and avoided consistent with Service 1999 guidelines. If these resources can be avoided, no further studies are required.

If projects within the PVSP area will likely adversely affect elderberry shrubs, then a detailed mitigation/conservation plan will be developed and implemented consistent with Service 1999 guidelines.

Snake

PVSP project applicants will mitigate for the loss of snake aquatic habitat in Placer County through protection of snake aquatic habitat at a ratio of 2.54:1 and restoration of snake habitat at a ratio of 1.5:1 (this is consistent with the mitigation ratios for aquatic/wetland complex in Table 2). Additionally, PVSP project applicants will mitigate for loss of snake upland habitat (grassland within 200 feet of aquatic) through snake upland habitat protection at a ratio of 0.55:1 and restoration at a ratio of 0.2:1 (this is consistent with the mitigation ratios for grasslands in Table 2). Snakes are not known to occur in Placer County, but they have been found in similar habitat in Sutter County to the east. Snake mitigation in Placer County will be sited as described in Appendix A, *Mitigation Site Suitability Criteria.*

For out-of-county infrastructure, to the west of the PCCP where snakes are more likely to be present, PVSP project applicants will mitigate at a 3:1 ratio, with 1 /3 of the mitigation consisting of uplands and 2/3 consisting of restored aquatic habitat. PVSP project applicants may use an approved conservation bank outside Placer County for out-of-county impacts as long as the service area includes the proposed project.

Action Area

The action area is defined in 50 CFR .002.02 as, "all areas to be affected directly or indirectly by the federal action and not merely the immediate area involved in the action." For the proposed project, the Service considers the action area to be the entire 4,253 acres of project development area. This includes the development footprint as well as the infrastructure associated with the project. In addition, the action area includes all areas 250 feet from the edge of all project disturbances, and all areas temporarily impacted by dust and noise during project activities.

Analytical Framework for the Jeopardy Analysis

In accordance with policy and regulation, the jeopardy analysis in this biological opinion relies on four components: (1) the *Status of the Species,* which evaluates the fairy shrimp's, tadpole shrimp's, beetle's and snake's range-wide condition, the factors responsible for that condition, and their survival and recovery needs; (2) the *Environmental Baseline,* which evaluates the condition of the fairy shrimp, tadpole shrimp, beetle, and snake in the action area, the factors responsible for that condition, and the relationship of the action area to the survival and recovery of the fairy shrimp, tadpole shrimp, beetle, and snake; (3) the *Effects of the Action,* which determines the direct and indirect effects of the proposed federal action and the effects of any interrelated or interdependent activities on the fairy shrimp, tadpole shrimp, beetle and snake; and (4) the *Cumulative Effects,* which evaluates the effects of future, non-federal activities in the action area on the fairy shrimp, tadpole shrimp, beetle and snake.

In accordance with policy and regulation, the jeopardy determination is made by evaluating the effects of the proposed federal action in the context of the fairy shrimp's, tadpole shrimp's, beetle's and snake's current status, taking into account any cumulative effects, to determine if implementation of the proposed action is likely to cause an appreciable reduction in the likelihood of recovery of the fairy shrimp, tadpole shrimp, beetle, and snake in the wild.

The jeopardy analysis in this biological opinion places an emphasis on consideration of the range-wide survival and recovery needs of the fairy shrimp, tadpole shrimp, beetle, and snake and the role of the action area in the survival and recovery of these species as the context for evaluating the significance of the effects of the proposed federal action, taken together with cumulative effects, for purposes of making the jeopardy determination.

Status of the Species

Fairy Shrimp

For the most recent comprehensive assessment of the species' range-wide status, please refer to the *Veinal Pool Fairy Shrimp (Branchinecta lynchz) 5-Year Review: Summary and Evaluation* (Service 2007). No change in the species' listing status was recommended in this 5-year review. Threats evaluated during that review and discussed in the final document have continued to act on the species since the 2007 5-year review was finalized, with loss of vernal pool habitat being the most significant effect. While there have been continued losses of vernal pool habitat throughout the various vernal pool regions identified in the *Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon* (Service 2005) (Recovery Plan), including the Western Placer County Core Recovery Area where the proposed project is located, to date no project has proposed a level of effect for which the Service has issued a biological opinion of jeopardy for the species. The Service is in the process of finalizing its most current 5-year review for the species.

The range of the fairy shrimp extends from disjunct locations in Riverside County and the Coast Ranges, north through the Central Valley grasslands to Tehama County, and then to a disjunct area of remnant vernal pool habitat in the Agate Desert of Oregon. Within California, the fairy shrimp occurs within 12 of the 16 vernal pool regions identified in the Recovery Plan. Within these 12 vernal pool regions, the Service has identified 35 Core Recovery Areas. The proposed project occurs within the Southeastern Vernal Pool Region and is located within the Western Placer County Core Area which is one of four core areas located within this vernal pool region. These core areas support high concentrations of vernal pool species, are representative of a given species range, and are where recovery actions are focused. The Recovery Plan further describes these core areas as distinct areas in each vernal pool region that provide the features, populations, and distinct geographic and/or genetic diversity necessary for recovery of the species. The Western Placer County Core Area also contains some of the largest remaining intact vernal pool habitat in western Placer County.

Within western Placer County, the fairy shrimp is in decline due to a number of human-caused activities, primarily urban development and land conversion for agricultural use. Habitat loss occurs when vernal pools are filled, graded, or disked which alters the hydrology of the vernal pool complex. In addition to direct habitat loss, vernal pool habitat within the western Placer County continues to become highly fragmented due to both of these different types of land uses. However, there are currently several large parcels where conservation has occurred from the establishment of six conservation banks. There have also been four parcels of conservation lands established for mitigation as a result of other development projects. These conservation areas contribute to large contiguous blocks of habitat that still occur within western Placer County that help to minimize fragmentation of the vernal pool landscape.

In the most recent analysis of vernal pool loss, Holland found that from 2005 to 2012, 1,321 acres of habitat have been destroyed within western Placer County. This equates to a 5% loss over the last seven years (Witham, Holland, et al. 2014). In addition, the Service is aware of several other large-scale city and county planned development projects that are in some stage of the planning

process that are all generally located adjacent to one another and are also generally all located within the Western Placer County Core Area. Some of the other projects that are located within the Western Placer Core Area include: Sierra Vista; Creekview; Westbrook; Westpark-Federico; Placer Ranch; Amoruso; and the West Roseville Specific Plan. While some of these projects may take up to 50 years to be completed, these projects, as proposed will further reduce the available fairy shrimp habitat by destroying an additional 9,000 acres of vernal pool grasslands.

Tadpole Shrimp

For the most recent comprehensive assessment of the species' range-wide status, please refer to the *Vernal Pool Tadpole Shrimp (Lepidurus packarth) 5-Year Review: Summag and Evaluation* (Service 2007). No change in the species' listing status was recommended in this 5-year review. Threats evaluated during that review and discussed in the final document have continued to act on the species since the 2007 5-year review was finalized, with loss of vernal pool habitat being the most significant effect. While there have been continued losses of vernal pool habitat throughout the various vernal pool regions identified in the Recovery Plan, to date no project has proposed a level of effect for which the Service has issued a biological opinion of jeopardy for the species. The Service is in the process of finalizing its most current 5-year review for the species.

Beetle

For the most recent comprehensive assessment of the range-wide status of the beetle, please refer to the *Withdrawal of the Proposed Ride To Remove the Valley Elderberry Longhorn Beetle From the Federal List of Endangered and Threatened Wildlife* (Service 2014). Threats discussed in the withdrawal continue to act on the beetle, with loss of habitat being the most significant effect. While there continue to be losses of beetle habitat throughout its range, to date no project has proposed a level of effect for which the Service has issued a biological opinion of jeopardy for the beetle.

Snake

For the most recent comprehensive assessment of the species' range-wide status, please refer to the *Giant Garter Snake (Th. amnophisgigas) 5-Year Review: Summag and Evaluation* (Service 2012). No change in the species' listing status was recommended in this 5-year review. Threats evaluated during that review and discussed in the final document have continued to act on the species since the 2012 5-year review was finalized. While there continue to be losses of snake habitat throughout its range, to date no project has proposed a level of effect for which the Service has issued a biological opinion of jeopardy for the beetle.

Environmental Baseline

Fairy Shrimp

Numerous populations of vernal pool fairy shrimp occur in Placer County, which overlaps with the Southeastern Sacramento Valley Vernal Pool Region (Service 2007). Vernal pools occurring in the action area provide suitable habitat for vernal pool fairy shrimp. There are an estimated 3,417 acres of vernal pool complex in the action area. Surveys conducted according to Service guidelines on approximately 2,593 acres of the PVSP indicate that four depressional wetlands out of 461 sampled were occupied by vernal pool fairy shrimp at the time of survey (frequency = 0.9%).

Tadpole Shrimp

The vernal pool tadpole shrimp is known from several scattered locations in Placer County. Vernal pools occurring in the action area provide suitable habitat for vernal pool tadpole shrimp. There are an estimated 3,417 acres of vernal pool complex in the action area. Surveys conducted according to Service guidelines on approximately 2,593 acres of the PVSP and incomplete surveys on another 1,009 acres resulted in the detection of one vernal pool tadpole shrimp cyst at the time of survey (Ecorp Consulting, Inc. 2014).

Beetle

In Placer County, the valley elderberry longhorn beetle is known to occur in the American River watershed in the vicinity of Folsom Lake, in the Dry Creek watershed along Secret Ravine and Miners Ravine, and at the Wildlands Mitigation Bank. The species is also known to occur in the Bear River watershed near Wheatland in Sutter County (Placer County 2010a). This species might be present in elderberry shrubs in the action area. No elderberry shrubs have been observed during surveys of the PVSP area, but they could occur in the off-site infrastructure area.

Snake

There are no recorded occurrences of giant garter snake in Placer County (CNDDB 2015), but there are numerous occurrences in the American Basin west of the Placer County line in Sutter County (Placer County 2010). Suitable giant garter snake habitat is present in the action area, in the form of aquatic wetland complexes and rice fields with adjacent uplands. The species may be present in habitat within off-site infrastructure in Sutter County. It is unlikely that giant garter snakes could disperse into suitable habitat in the PVSP area from Sutter County because the suitable habitat in the PVSP area is surrounded by lands that are unsuitable for this species.

Effects of the Proposed Action

The PVSP will adversely affect approximately 3,500 acres of habitat including 88.1 acres that support listed vernal pool species, and 7 acres of wetland habitat for the giant garter snake. Species specific effects are described below. Development of the PVSP is expected to occur over 50 years and represents 0.08% of all the vernal pool grassland within the PCCP.

The PCCP represents a comprehensive conservation and development strategy for Placer County that will result in more strategic and coordinated species protection that would otherwise occur through project-by-project permitting. This conservation strategy will progressively establish a landscape scale "Reserve System" of interconnected blocks of land mainly in the western and northern Valley and in the northern Foothills, which will be regionally separated from future urban and suburban growth. The PCCP Reserve System will ultimately connect with conservation lands outside Placer County associated with other regional conservation efforts in Yuba and Sutter Counties. This will include protecting stream systems to provide connectivity along major stream corridors of the Bear River, Coon Creek, Auburn Ravine, and Dry Creek. These riverine and associated riparian corridors provide critical connections for aquatic and terrestrial species moving through urban or cultivated agricultural areas.

Reserved lands will be protected by conservation easements, long-term management plans, and endowments. Over the 50-year permit term for the PCCP, approximately 47,300 acres will be acquired for community protection and restoration. Within that land, at least 4,405 acres of natural communities will be protected and 7,093 acres of natural communities will be restored to offset

impacts. These protected and restored lands will augment the approximately 16,000 acres of existing conservation lands. Cumulatively, 38% of the present natural and semi-natural landscape in the plan area would ultimately be subject to conservation management. The PVSP represents 15% of this area and represents a significant initial investment in this larger conservation strategy.

The reserve system will provide a means for protecting, managing, enhancing, and restoring or creating the natural communities and habitats that support the PCCP Covered Species, including listed vernal pool species, the beetle and giant garter snake. The PVSP commits to adhering to these principals, regardless of the PCCP.

Fairy Shrimp and Tadpole Shrimp

With the development of all projects under the PBO, up to 2,805 acres of vernal pool complex will be destroyed. Up to 88.1 wetted acres of vernal pool crustacean habitat will be lost within the PVSP Area, and 5.2 acres will be lost in the Off-Site Area for Infrastructure Elements, for a total of 93.3 acres of direct loss. Indirect effects are caused by or result from the proposed action, are later in time, and are reasonably certain to occur. Up to 8.5 acres of vernal pool type wetlands will be indirectly affected by the Off-Site Area for infrastructure. The grading and ground disturbance associated with the proposed project, in combination with the impervious nature of the roads and associated infrastructure of the development, is reasonably likely to impede the surface and subsurface hydrology of the vernal pool landscape located outside the project footprint, leading to the eventual loss of that vernal pool habitat. Vernal pool type wetlands in the PVSP on-site open space are considered avoided through management to maintain their biological value for the vernal pool crustaceans. PVSP projects will offset direct and indirect loss of 101.8 acres of vernal pool type wetlands through the preservation of 1.36 acres of vernal pool wetland habitat for every acre impacted (101.8 acres x 1.36 = 138.45 acres), and the restoration of 1.50 acres of vernal pool wetland habitat for every acre impacted. The proposed project has proposed some on-site avoidance that mainly includes the creek corridors within the action area. However, the proposed on-site avoidance will provide minimal conservation value to these species.

The proposed development and associated infrastructure will fragment vernal pool habitat. Populations in isolated patches are more likely to suffer from local extinction events (Service 2005), due to environmental or demographic factors. Habitat fragmentation can also indirectly affect vernal pool crustaceans by reducing movement between pools and complexes, and reducing genetic interchange between populations. Fragmentation creates smaller patches of vernal pools, which may be less attractive to foraging waterfowl and shorebirds. These birds transport cysts of vernal pool invertebrates, which may, make fewer visits to isolated or small complexes, and transport fewer cysts to and from such pools.

However, by maintaining consistency with the PCCP, the PVSP contributes to the establishment of a large, interconnected reserve system that will minimize fragmentation of vernal pool complexes in western Placer County.

Beetle

Covered activities that remove valley foothill riparian and oak woodlands, or destroy host elderberry plants that occur within or outside of these natural communities, could affect the beetle by removing and fragmenting habitat. Up to 20 acres of riparian and 9 acres of oak woodland could be removed as a result of projects covered under the PBO. However, beetles require elderberry shrubs to breed, feed, and shelter, and no elderberry shrubs have been observed during surveys of the PVSP area.

Elderberry shrubs could occur in riparian and non-riparian habitat in off-site infrastructure areas. Loss of elderberries in riparian and non-riparian habitat will be offset through: (1) protecting riparian natural community at a ratio of 4.68 acres protected for each acre lost; (2) restoration of riparian natural community at a ratio of 1.5 acres restored for each acre lost; (3) surveying for elderberry shrubs prior to approval of any grading/engineering plans for a project, and implementing avoidance, minimization, and conservation measures consistent with the Service's 1999 guidelines for this species.

Snake

Up to 7 acres of aquatic snake habitat and 23 acres of surrounding uplands will be removed as a result of projects within the PVSP area covered under the PBO. Currently, there are no known occurrences of snake in Placer County. However, as a covered species in the PCCP, projects covered under the PBO will offset loss of snake habitat through protection of snake aquatic habitat at a ratio of 2.54:1 and restoration of snake aquatic habitat at a ratio of 1.5:1. Additionally, consistent with the PCCP, PVSP project applicants will offset the loss of snake upland habitat (grassland within 200 feet of aquatic) through snake upland habitat protection at a ratio of 0.55:1 and restoration at a ratio of 0.2:1.

Off-site infrastructure west of Placer County, will result in the loss of up to 0.02 acre of aquatic habitat and 0.67 acre of upland habitat for this species. This loss will be offset through mitigation at a 3:1 ratio, with 1/3 of the mitigation consisting of uplands and 2/3 consisting of restored aquatic habitat. PVSP project applicants may use an approved conservation bank outside Placer County for out-of-county impacts as long as the service area covers the proposed project.

Cumulative Effects

Cumulative effects include the effects of future state, tribal, county, local or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to Section 7 of the Act. The Service is not aware of any reasonably certain future action that could result in effects in the action area.

Conclusion

After reviewing the current status of the fairy shrimp, tadpole shrimp, beetle, and snake the environmental baseline for the action area covered in this biological opinion, the effects of the proposed project, the cumulative effects, and the proposed conservation measures, it is the Service's biological opinion that the Placer Vineyards Specific Plan Project, as proposed, is not likely to jeopardize the continued existence of these species. The Service reached this conclusion because the project-related effects to these species, when added to the environmental baseline and analyzed in consideration of the cumulative effects, is not likely to rise to the level of precluding recovery of the species or reduce the likelihood of survival of these species. The adverse effects to the fairy shrimp, tadpole shrimp, beetle, and snake will be, in part, offset by the long-term preservation of the habitat and relative to the range of the species (acreage), are not significant.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities that can be implemented

to further the purposes of the Act, such as preservation of endangered species habitat, implementation of recovery actions, or development of information or data bases. The Service is providing the following conservation recommendation:

1. The Corps should work with the Service to assist us in meeting the goals of the Recovery Plans for the fairy shrimp and tadpole shrimp and the snake as outlined in the *December 2005, Recovery Plan for Vernal Pool Ecogstems of California and Southern Oregon* (Service 2005), and the *Revised Draft Recovery Plan for the Giant Garter Snake* (Service 2015).

In order for the Service to be kept informed of actions minimizing or avoiding adverse effects or benefiting listed species or their habitats, the Service requests notification of the implementation of any conservation recommendation.

REINITIATION - CLOSING STATEMENT

This concludes formal consultation on the Placer Vineyards Specific Plan Project in Placer County, California. As provided in 50 CFR 5402.16, reinitiation of formal consultation is required where discretionary federal agency involvement or control over the action has been retained or is authorized by law and: (a) if the amount or extent of taking specified in the incidental take statement is exceeded; (b) if new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered; (c) if the identified action is subsequently modified in a manner that causes an effect to listed species or critical habitat that was not considered in the biological opinion; or (d) if a new species is listed or critical habitat designated that may be affected by the identified action.

If you have questions regarding the Placer Vineyards Specific Plan Project, please contact Kellie Berry by email (kellie_berry@fws.gov)or by phone at (916) 414-6631.

Sincerely,

Jennifer M. Norris
Field Supervisor

Enclosures:

cc:
Clark Morrison, Cox, Castle and Nicholson LLP, San Francisco, California
Nancy A. Haley, U.S. Army Corps of Engineers, Sacramento,
Leanna Rosetti, U.S. Environmental Protection Agency, San Francisco, California

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Appendix A

Mitigation Site Suitability Criteria

A. Prioritization guidelines: Project applicants will use the following guidelines to direct land acquisition and the reserve assembly process:

1. Acquire land adjacent to (or near to) existing reserves to expand and connect protected habitat.
2. When a suitable property adjacent to an existing reserve is not available for acquisition, acquire habitat close to an existing reserve to minimize distance(s) between reserves.
3. Acquire large blocks of habitat occupied by PCCP covered species over small blocks of habitat occupied by covered species.
4. Acquire properties with less edge (i.e., length of boundary) in proportion to total habitat over properties with large amount of edge in proportion to total habitat. For example, given the same type of habitat, a large, square shaped parcel is preferable to a long, narrow parcel of the same total area. Exceptions will be where the proposed property is adjacent to an existing reserve.
5. Focus acquisition on reserves that support populations of covered species.
6. Focus acquisition of property to be used for restoration of natural communities in areas where restoration will reduce habitat fragmentation.

B. Field verification prior to acquisition

Land cover data, species occurrence data, and species habitat distribution models were developed for the PCCP at a regional scale. These data and models were used to develop a sound conservation strategy for western Placer County at this regional scale and are not intended for site-specific planning, because of mapping limitations.
To account for some of the uncertainty inherent in this conservation strategy, land cover in potential reserves will be verified in the field prior to land acquisition. The project proponent will conduct pre-acquisition assessments on potential reserve lands to evaluate whether they are likely to meet PCCP requirements.

Types of information collected during these assessments will include an evaluation of location, quantity, quality, and presence of covered species; covered species' habitat; and natural communities present, as well as other site conditions or infrastructure that will benefit or conflict with the PCCP's biological goals and objectives. The site's restoration and enhancement potential will also be evaluated. This information will help Placer County and PVSP project applicants prioritize acquisition of reserve lands based on their relative contribution toward meeting the biological goals and objectives.

The biological suitability of the site for the mitigation lands will be determined on the basis of the following information:

- The results of past biological surveys, updated land cover mapping, assessments of habitat suitability for covered species, air photograph interpretation, and the biological resources present or expected on the site;
- An evaluation of the site's enhancement and restoration potential;
- An evaluation of how well the site achieves the reserve design and assembly principles listed above;
- An evaluation of the site's existing and potential biological value in the context of the remaining unmet biological goals and objectives and land acquisition requirements; and
- The presence of natural communities and PCCP covered species habitat as needed to meet protection commitments specified in Table 2 of the PBO.

C. Acquisition criteria for the Reserve Acquisition Area and Potential Future Growth Area of the PCCP (Figure A-1)

Mitigation for PVSP projects will be located primarily within the Reserve Acquisition Area (RAA). Mitigation may occur in the Potential Future Growth (PFG) area, however, if it can be suitably managed in perpetuity in a manner consistent with the mitigation land management standards (Appendix B) and it meets one of the following two standards:

1. The parcel is a minimum of 200 acres, unless it is located adjacent to the RAA, an existing reserve (protected in perpetuity), or the Stream System.[1]
2. If vernal pool tadpole shrimp, Conservancy fairy shrimp, or California black rail (which may persist in small wetlands) are present, the size of the site may be smaller than 200 acres, pending review and approval by the Service.

In addition to meeting the above criteria, all mitigation lands in the PFG must provide buffers as described in in Section D, *Buffers.*

D. Buffers

Fuel Buffers

In accordance with state law[2], all applicable covered activities will remove all brush, flammable vegetation, or combustible growth within at least 30 feet and up to 100 feet of occupied dwellings or structures. The project proponent must therefore ensure that an adequate fuel buffer is in place adjacent to dwellings or structures, and that fuel management will not adversely affect land that counts toward the mitigation commitments. When the project proponent acquires land adjacent to the PFG area the project proponent will create an adequate fuel buffer zone on the mitigation lands. The buffer zone, however, may experience a reduction in covered species habitat function due to the indirect effects of urban development. To account for this loss of habitat function, any area adjacent to urban development that is subject to regular (i.e., at least annual) disking, mowing,

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1 The term Stream System is defined in the PCCP as an area along a stream extending to the greater of 1) the outer boundary of the FEMA 100-year floodplain, 2) a variable Stream System boundary ranging from 50-600 feet (specified in PCCP Table 6-1, Stream System Setback Width), or 3) the outermost edge of riparian vegetation.

2 California Government Code Section 51182 and Public Resources Code 4291.

and/or spraying with herbicides for fuel management will not count toward the mitigation requirements.

Aquatic and Wetland Avoidance

The PVSP has been designed to avoid on-site aquatic and wetland habitat within open space areas as required by the U.S. Army Corps of Engineers under Section 404 of the Clean Water Act, to meet the requirement for the least environmentally damaging practicable alternative (LEDPA). The avoided aquatic and wetland habitat will be protected and managed to sustain its function and will not be counted toward project mitigation (except in-stream mitigation subject to Service and Corps review and approval) but will be considered adequately avoided.

E. Acquisition criteria by natural community

9. Vernal pool complexes/grasslands:
   a. The minimum area for acquisition of a vernal pool complexes and grasslands is 200 acres if the area is within the PFG area and is not contiguous with other reserve lands, the RAA, or the Stream System, and not expected to be contiguous during the permit term. The acquired land may consist of one or more properties. Smaller properties may also be acquired upon USFWS approval if they are occupied by a covered species that is rare in western Placer County, such as vernal pool tadpole shrimp.
   b. Properties to be acquired or incorporated will have on-site and off-site hydrological conditions that ensure that vernal pool resources can be maintained, enhanced, and/or restored to function in perpetuity. Off-site hydrological conditions that detrimentally affect vernal pools on the site to be acquired (e.g., irrigation runoff) must be remedied before a site can count toward the protection commitment.
   c. No outfall or similar storm drainage facility can be directed to, or constructed within, areas to be acquired for protection and restoration of vernal pool complexes unless such facilities are directed streams or storm drainage facilities and where such discharges do not affect the hydrology of protected vernal pools and swales. The purpose of this stipulation is to avoid inundation of vernal pools beyond the natural hydro-period.
   d. Lands acquired to protect vernal pool complexes must be able to allow grazing, or other suitable means to reduce thatch and control invasive species and to ensure ecological integrity.
   e. The interface between urban/suburban land uses and reserve lands shall be minimized to decrease edge effects.
10. Aquatic/wetlands Complex:
    The location and type of wetland or pond to be protected will be driven largely by species-level requirements, described in Section F, *Acquisition Criteria by Species.*
11. Riparian
    The PVSP project applicants will focus acquisition of riverine and riparian habitats in the following stream systems, where they occur in the RAA:
    - Bear River in the Valley and Foothills;
    - Coon Creek in the Valley and Foothills;
    - Doty Ravine in the Valley;

- Markham Ravine in the Valley;
- Auburn Ravine in the Valley;
- Pleasant Grove Creek in the Valley; and
- Curry Creek in the Valley.

12. Grasslands

The PVSP project applicants will prioritize protection of grasslands that contribute to establishment of a large, interconnected Reserve System and that support known populations of PCCP covered species.

13. Oak Woodlands

Acquisition of foothill oak woodland will include small-patch ecosystems imbedded within oak woodland landscapes. Woodlands include small patches of foothill chaparral, cliff/rock outcrops seeps and other localized land cover types. Although some land cover types are more widely represented regionally, they are generally interspersed within oak woodlands in Placer County and will be conserved in regional-scale reserves.

F. Acquisition Criteria by Species:

1. Vernal pool crustaceans. In addition to the acquisition criteria described above for vernal pool complexes, PVSP project applicants will focus acquisition in areas known to be occupied by the covered vernal pool crustaceans, to ensure that occupancy of each species (vernal pool fairy shrimp and vernal pool tadpole shrimp) on the mitigation lands is equal or higher in terms of both number of acres and number of pools than occupancy on the impacted lands on a PVSP-wide or PCCP-wide basis (see main document *Vernal Pool Occupancy Measures* section).
2. Giant garter snake. PVSP project applicants mitigating for loss of giant garter snake habitat in Placer County (i.e., excluding out of county impacts related to PVSP infrastructure) will focus mitigation adjacent to the slow moving streams and riparian habitat within Coon Creek, Auburn Ravine, King Slough, Pleasant Grove, or Curry Creek, where the species is known to occur. These stream systems connect habitat in the RAA to a population cluster a few miles west of Placer County in Sutter County, by way of the East Side Canal, Cross Canal, and Pleasant Grove Creek Canal. PVSP project applicants will focus acquisition north of Pleasant Grove Creek.
3. California black rail. If a PVSP project affects habitat potentially supporting California black rail, the mitigation lands will consist of patches at least 2.0 acres in size, meeting the following characteristics:
   a. Water duration: Fresh emergent marshes with permanently or semi-permanently flooded water regimes will be prioritized for conservation. California black rails in the Sierra Nevada Foothills are most often found in wetlands with perennial standing or flowing water, often consisting of irrigation water, although they are occasionally found in seasonally or intermittently flooded or saturated hydrologic regimes. In western Placer County, irrigation water and perennial springs and streams provide persistent water sources during the driest season, from mid-April through mid-October. Wetlands that are fed primarily by rainfall or seasonal springs or streams are more likely to dry out as summer progresses, and are therefore less likely to support California black rails.

b. Water depth: Prioritize sites with shallow water, particularly on gently sloping terrain. California black rails use habitat with shallower water than other North American rails, generally of a depth less than 1.2 inches. These shallow water conditions are typically found on gently slopes rather than in depressions.

c. Vegetation: Prioritize sites with dense emergent wetland vegetation cover. California black rails depend on dense vegetation cover. Appropriate vegetation structure (high stem densities and canopy coverage), is more important than plant species composition.

d. Patch size: Project applicants will acquire sites with California black rail habitat patches that are at least two acres in size, and will prioritize acquisition of sites with larger patches.

e. Landscape factors: Prioritize sites that are no more than 0.6 mile from other occupied sites, to maximize potential dispersal abilities. The probability of black rail occurrences increases significantly where the habitat is within 1 kilometer (0.6 miles) of occupied habitat.

1. Management Plans.

Management plans for PVSP mitigation lands will include language addressing the following:

a. Biological objectives of the reserve mitigation land
b. Identification of areas on the site where recreational use is compatible with the biological objectives of the reserve, if any
c. Identification of areas on the site that contain sensitive land cover types or suitable or occupied habitat for covered species
d. Clear triggers for use restrictions or closure based on sensitive biological indicators (e.g., seasonal closures of some trails on the basis of activity periods of covered species)
e. A framework for enforcement of recreational restrictions and permitting process for restricted recreational uses
f. Natural community and covered species habitat management and enhancement (including identification of wildlife movement barriers to be removed or modified, if present), with performance standards for enhancement
g. Monitoring and adaptive management
h. Fire management
i. Reserve buffer
j. Invasive species

The following sections will be included where relevant:

a. Water and aquatic resources
b. Included agricultural lands
c. Maintenance of infrastructure
d. Mosquito and vector control
e. Identification of acceptable forms of recreation
f. Maps of existing and proposed recreational trails, staging areas and facilities and of habitat types affected
g. Site-specific methods of recreational use controls
h. Trail use and monitoring methods, schedules and responsibilities
i. Trail operation and maintenance guidelines and responsibilities. This includes control of active off-trail recreation activities determined inappropriate by the Service.
j. Locations targeted for restoration actions.

Although specific reserve management plans will identify restoration sites as appropriate, restoration will be implemented consistent with separate, site-specific restoration plans subject to Service approval. The management plans will describe how restored lands will be managed after restoration is complete and success criteria have been met.

1. Vernal Pool Complex and Grassland Management

Reserve managers will implement grazing, disking, controlled burns (where feasible within the land-use context of the landscape), and other grassland management practices on a rotational basis to create a diversity of grassland structural types within the landscape to benefit grassland species with different microhabitat requirements, as informed by monitoring and improved through adaptive management.

Reserve managers will use grazing as the primary means to manage invasive vegetation. Depending on site-specific conditions, and within an adaptive management framework, other techniques may be used including limited controlled burning in combination with grazing, mowing with machinery, or hand-pulling. The approach may vary by site, depending on the potential effect on listed taxa in the area, local concerns such as air quality, costs and potential effects on covered species.

When management measures to control invasive species and manage vegetation could affect nesting birds, techniques will be used to minimize effects to nesting birds consistent with conditions provided in Appendix C (e.g., if controlled burns are used, they will be conducted outside the nesting season).

Reserve managers may need to control nonnative vegetation in restored and created vernal pools, if the land has been used for agricultural production. In such cases, reserve managers may need to remove the agricultural seed-bank, which may include such pasture species as vetch and alfalfa. Although likely rare, the restoration of vernal pools may include the removal of nonnative agricultural species, such as rice, or aggressive invasive native nonvernal pool species that are more typical of riparian and fresh emergent wetland communities. Particularly invasive plants may need to be removed or controlled within vernal pools.

Prescribed Grazing

Grazing will be the primary method used to control invasive vegetation, maintain appropriate hydroperiods in vernal pools, and reduce wildfire fuels in vernal pool complexes and grasslands.

Grazing can be used to help protect remnant native grasslands (should any remaining remnants still occur in Placer County) from invasion by nonnative annual grasses and invasive plants.

Grazing in annual grasslands will also be used to reduce fuel loads. Large amounts of standing dead material can be found in late summer in years of abundant rainfall when grazing pressure has not been intense enough. As in vernal pools, grazing will also be used to increase native forb diversity in annual grasslands by reducing competition from nonnative invasive species.

Over-grazing can affect water quality. Techniques for reducing the effects of grazing on water quality include reducing the number of livestock, removing livestock from vernal pool complexes during late spring (when livestock tend to congregate in pools to cool-off), providing stock ponds and well water pumped into troughs as supplements for vernal pools as drinking sources, and utilizing types of cattle that are less likely than others to congregate in and around vernal pools.

Enhancement of Degraded Vernal Pools

Degraded vernal pools on the mitigation lands will be hydrologically enhanced using the following techniques:

- Mechanical recontouring of vernal pool basins to restore the characteristic depth from the overlying soil surface to the impermeable layer beneath. In some cases, this may also involve removing ditches, raised roads, trails, and other barriers to restore surface flow. Enhancing vernal pool topography within areas that have been degraded by agricultural use may include ceasing tillage and irrigation practices, removing silt accumulated from agricultural use, and repairing damage caused by agricultural vehicles.
- Diverting excess surface runoff (e.g., from agriculture and roads), and removing permanent water sources that adversely affect vernal pool hydroperiod. In some cases, vernal pools may be connected to permanent (or more long-term) sources of water through human-caused alterations to the landscape, which can adversely modify vernal pool hydroperiod. In these cases, the hydrological conditions of vernal pools may need to be restored by isolating pools from permanent water sources to restore seasonal inundation. Before water is diverted from pools, however, a full evaluation of existing conditions will be conducted (e.g., current extent of hydroperiod; ability to maintain suitable hydroperiod after enhancement is complete) to assess which species could benefit from diversion, and which species could be negatively affected.
- Enhancing vernal pool water quality. In some cases, polluted runoff may be affecting vernal pools. The main method for restoring vernal pool water quality is to divert polluted runoff or filter it before it reaches the vernal pools. However, similar to removing permanent water sources (above), altering drainage patterns could have negative consequences for the species in those pools. In some cases, runoff from roads and impediments to drainage can create good habitat for vernal pool species even though they will not have historically been there (Marty, pers. comm. 2011). Therefore, before water is diverted from pools, the PVSP project applicants will conduct a full evaluation of existing conditions (e.g., current extent of hydroperiod; ability to maintain suitable hydroperiod should polluted water be diverted) to assess which species could benefit from diversion, and which species could be negatively affected.

Should polluted water sources be diverted, techniques for restoring vernal pool water quality may include using drainage ditches or retention basins to divert runoff that originates from surfaces such as roads, agriculture, or other urban hardscapes. In addition, outfall or similar storm drainage facilities may be redirected or diverted. In some cases, roads and trails may be removed or converted to boardwalks.

Ground Squirrel Population Enhancement

Ground squirrel populations have been historically controlled through hunting and rodenticide to reduce damage to structures (e.g., levees) and agriculture. However, not all areas in western Placer County may have historically supported ground squirrels, possibly because suitable soil conditions are not available.

Where California ground squirrels occur, they can play a key role in the grassland natural community. For instance, ground squirrels create large burrow systems in grasslands. Such disturbance helps maintain plant species diversity. Ground squirrels also provide a prey base for

raptors and mammals. In addition, their burrows provide nest and food cache sites for burrowing owls and refugia for covered amphibians.

To help restore ground squirrel populations to grassland ecosystems on the mitigation lands, existing rodent control measures (e.g., poisoning[1], hunting, and trapping) will be minimized. Minimizing existing ground squirrel control measures may be sufficient to increase squirrel populations in some areas. The use of rodenticides or other rodent control measures will be prohibited in reserves.

3. Aquatic/Wetlands Complex

The reserve manager will remove and/or control nonnative, invasive vegetation in wetlands and ponds, provide open water areas free of vegetation, and reduce the cover of annual grass and thatch in wetlands.

Techniques

Vegetation management measures include removing and/or controlling invasive plant species and enhancing habitat to facilitate the restoration, establishment, and/or maintenance of appropriate native vegetation and vegetative structure.

Vegetation may need to be removed from ponds where little open water remains to improve open water habitat for northwestern pond turtle. Vegetation can be removed by limited grazing by livestock. Grazing to control vegetation (including invasive species) in wetlands and ponds will be managed and monitored closely to ensure that effects caused by overgrazing (e.g., excessive trampling of native vegetation, soil compaction and erosion, eutrophication caused by excessive deposition of cattle urine, and bank destabilization) are minimized or avoided. Other techniques, where feasible, such as prescribed burns, herbicide application (using products that have been approved for aquatic communities and do not result in take of listed species), and hand and mechanical removal will be used to remove or control invasive plant species.

Fencing Non-Vernal Pool Wetlands and Ponds

The reserve manager will install fencing, where ecologically appropriate, to manage grazing on portions of wetlands and ponds.

While some grazing may be used to manage vegetation in wetlands and ponds, overgrazing by livestock and rooting by feral pigs can degrade aquatic/wetlands complex natural communities. Fencing and rotational grazing are two methods that can be used to manage sustainable grazing in these habitats. The need for, and location of, fencing will be site-specific and determined on a case-by-case basis. Some access to ponds by livestock, however, will be used to help prevent excessive plant growth that can lead to rapid sedimentation of ponds.

Where necessary to protect wetlands and tricolored blackbird colonies from being trampled by livestock, tricolored blackbird nesting habitat and colony sites will be fenced to restrict access by

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1 Use of rodenticides is not a covered activity under the PCCP or the PBO.

livestock. Additionally, wetlands providing habitat for California black rail will be protected from livestock with fences.

Sediment Removal

The reserve manager will periodically remove sediment and improve water retention in wetlands and ponds, as necessary, using methods that minimize effects to covered and other native species.
At the time of acquisition and/or establishment of conservation easements, wetlands and ponds on the mitigation lands may be in disrepair. Repairs may be made to improve water retention to improve habitat for covered species. Sediment removal may be needed to improve habitat for covered species.

Nonnative Predator Control

The reserve manager will eradicate or reduce nonnative predators (e.g., bullfrogs, invasive fish) that threaten covered species populations in wetlands and ponds on the mitigation lands. Bullfrogs and several species of bass are known to prey on northwestern pond turtle hatchlings or juveniles. Hatchlings of wood ducks, mallards, and even Canada geese often fall prey to largemouth bass. Techniques that may be used to control invasive animals generally include trapping programs such as those used to control bullfrogs, manipulating habitat (e.g., periodic draining of ponds), hand capturing, or other methods.

Basking Habitat Enhancement

Where aquatic habitat for western pond turtle is protected and the site provides opportunities for enhancing basking habitat, the reserve manager will employ enhancement techniques applicable to the site conditions.

Techniques

Mowing and focused disking (i.e., disking at specific times and locations that are not harmful to the habitat) are useful to create openings in emergent and other marsh vegetation, which improves wildlife use, provides basking area, and aids in wildlife viewing and disease monitoring. Coarse woody debris or anchored basking platforms will be installed in wetlands and ponds to improve basking habitat for covered species.

Provision of Vegetative Cover

The reserve manager will increase vegetative cover for native wildlife, except in areas that are kept clear as open water. The reserve manager will plant emergent vegetation as needed in existing wetlands to enhance habitat value for covered species.

Maintenance of Water Depths and Hydrological Cycles

The reserve manager will maintain appropriate water depths and hydrological cycles for particular covered species (i.e., northwestern pond turtle, California black rail). In wetlands where the water level is managed by the reserve manager, the reserve manager will avoid raising water levels during

the nesting season (March 1 - August 15) to avoid flooding nests of wetland nesting birds (e.g., California black rail).

Maintenance and Enhancement of Water Quality.

The reserve manager will monitor hydrologic conditions on the mitigation lands and potential sources of pollutants. The reserve manager will remove or reduce point and non-point sources of pollution on mitigation lands and divert point and non-point sources of pollution from outside mitigation lands away from aquatic/wetlands complex natural communities. Techniques for minimizing pollutants that flow into wetlands include use of filter and buffer strips around wetlands, and minimizing the use of herbicides in wetlands.

4. Oak Woodlands

The reserve manager will implement the following management and enhancement actions in oak woodland natural communities on the mitigation lands.

Oak Woodland Vegetation Enhancement and Management

The reserve manager will develop specific management and enhancement guidelines in reserve-unit management plans. Management techniques are detailed below and will be implemented to

- Enhance oak woodland regeneration, especially for stands of valley oak and blue oak;
- Manage invasive plants in the understory; and,
- Reduce fuel loads to reduce the chance of catastrophic wildfires.

Techniques

Various management techniques will be used to manage and enhance oak woodlands on the mitigation lands. *Placer County's Oak Woodland Management Plan and Native Tree Mitigation Policy Report* (2003) contain numerous suggestions for managing oak woodlands. *The Interim County Guidelines for Evaluating Development Impacts on Oak Woodlands* (2008), which apply to CEQA analysis for projects proposed in oak woodlands, also provide guidance for protecting oak woodlands before, during and after development occurs. Those documents are incorporated herein by reference.

Planting and protecting seedlings and saplings

The reserve manager will facilitate and enhance regeneration of oak woodlands by planting acorns and seedlings within existing oak woodlands and protecting seedlings with shelters. Selective protection of stump-sprouts after stands have been thinned for fuel management or wood harvest may also be used to facilitate regeneration. Other methods include controlling nonnative plants that compete with seedlings for resources, controlling nonnative animals that feed on acorns, seedlings, and saplings, implementing progressive livestock management, implementing approaches against sudden oak death, and incorporating fire into management regimes.

Management of grasslands that comprise oak woodland savanna will be similar to that discussed for grasslands above.

Project applicants will implement the following measures to avoid and minimize effects to PCCP covered species.

Swainson's Hawk

A. Survey Requirements

Surveys for Swainson's hawks are required if a project occurs on the following land cover types in the Valley or within 1,000 feet of an active nest:

- Valley oak woodland
- Annual grassland and pasture (if trees are present)
- Valley foothill riparian
- All agricultural land cover types (if trees are present)
- Rural residential (if trees are present)

A nest is assumed active if it has been used within the previous five years.

Swainson's hawk surveys are required to determine if a Swainson's hawk is nesting on the project site. A survey must be conducted no more than one month prior to ground disturbance that is to occur during the nesting season (March 1—August 15). Surveys will be conducted consistent with current guidelines (Swainson's Hawk Technical Advisory Committee [SHTAC] 2000), with the following exceptions:

- Surveys will be required within a 1,000-foot radius around the project site;
- Surveys will be required from March 1—August 15; and
- If a Swainson's hawk nest is located and presence confirmed, only one follow-up visit is required (to avoid disturbance of the nest due to repeated visits).

B. Applicable Measures

If surveys determine that a Swainson's hawk nest is occupied, the project must adopt the minimization measure listed below:

1. During the nesting season (March 1—September 15), ground-disturbing activities within 1,000 feet of occupied nests or nests under construction will be prohibited to prevent nest abandonment. While the nest is occupied, activities outside the buffer can take place. If the active nest site is shielded from view and noise from the project site by other development, topography, or other features, the project applicant can coordinate with California Department of Fish and Wildlife (CDFW) for a reduction in the buffer distance or waiver of this avoidance measure. If a qualified biologist determines nestlings have fledged, covered activities can proceed normally.
2. Known nest trees on a project site will not be removed during the nesting season. If a nest tree must be removed (as determined in coordination with CDFW), tree removal shall occur only between September 15 and February 1. The removal or a known loss of any Swainson's hawk nest tree (active

within the last five years) must also be mitigated by the project proponent by replacing each tree lost as described in the Project Description.

C. Construction Monitoring

If Swainson's hawk is present, construction monitoring will be conducted by a qualified biologist and will focus on ensuring that activities do not occur within the buffer zone. The qualified biologist performing the construction monitoring will ensure that effects on Swainson's hawks are minimized. If monitoring indicates that construction outside of the buffer is affecting nesting, the buffer will be increased if space allows (e.g., move staging areas farther away). If space does not allow, construction will cease until the young have fledged from the nest (as confirmed by a qualified biologist).

The frequency of monitoring will be approved by CDFW and based on the frequency and intensity of construction activities and the likelihood of disturbance of the active nest. In most cases, monitoring will occur at least every other day, but in some cases, daily monitoring may be appropriate to ensure that direct effects on Swainson's hawks are minimized. The qualified biologist will train construction personnel on the avoidance procedures and buffer zones.

California Black Rail

A. Survey Requirements

Take of black rail occurrences are limited by the PCCP (see Chapter 4 of the PCCP) and any take associated with the PVSP will be applied toward these take limits. As such, surveys are required to determine the presence/absence of California black rails if an occurrence is within 300 feet of fresh emergent wetland greater than 0.2 acres in size.

A survey must be conducted within three weeks prior to ground disturbance activities. If the first survey does not detect a black rail, a second survey must be conducted at least seven days after the first survey and prior to ground disturbance activities.

This survey requirement also applies to covered activities that will alter the supply of water feeding potential breeding habitat for California black rails (e.g., fixing a leak in a canal).
Surveys must be conducted using survey guideline based on the methods used in Richmond et al. (2008), with approval from CDFW. If a California black rail is determined to be present, no project activities are permitted within 150 feet of the outside perimeter of the occupied wetland.

B. Applicable Measures

A buffer around occupied wetland will be demarcated 150 feet from the outside perimeter of the wetland with four-foot black mesh exclusion fencing to prevent California black rails from entering the work areas and to identify the occupied wetland and buffer zone as a no-work area.

C. Construction Monitoring

(i) A qualified biologist will monitor on-site during construction to ensure that nocovered activities occur within the buffer zone established around the occupied wetland, or if take allowance is granted, to ensure that adverse effects are minimized.

(ii) The frequency of monitoring will be based on the frequency and intensity of construction activities and the likelihood of disturbance of the active nest. In most cases, monitoring will occur at least every other day, but in some cases daily monitoring may be appropriate to ensure that direct effects on California black rail are minimized.

(iii) Prior to the start of construction, the qualified biologist will train construction personnel on the avoidance procedures and buffer zones.

Burrowing Owl

A. Survey Requirements

B.

Surveys for burrowing owl must be conducted for projects that occur on the following land cover types and features:

- Annual grassland
- Pasture
- Vernal pool complex
- Agricultural types, including alfalfa, irrigated pasture, and row crop (around edges)
- Man-made structures such as underground pipes, irrigation canal banks, ditches.

Two surveys will be conducted within 15 days prior to ground disturbance to establish the presence or absence of burrowing owls. The surveys will be conducted at least seven days apart (if burrowing owls are detected on the first survey, a second survey is not needed) for both breeding and non-breeding season surveys. All burrowing owls observed will be counted and mapped.

During the breeding season (February 1—August 31), surveys will document whether burrowing owls are nesting in or adjacent to disturbance areas.

During the non-breeding season (September 1—January 31), surveys will document whether burrowing owls are using habitat in or directly adjacent to any area to be disturbed. Survey results will be valid only for the season (breeding or non-breeding) during which the survey was conducted.

The qualified raptor biologist will survey the proposed footprint of disturbance and a 250-foot radius from the perimeter of the proposed footprint to determine the presence or absence of burrowing owls. The site will be surveyed by walking line transects, spaced 20 to 60 feet apart, adjusting for vegetation height and density. At the start of each transect and, at least, every 300 feet, the surveyor, with use of binoculars, shall scan the entire visible project area for burrowing owls. During walking surveys, the surveyor will record all potential burrows used by burrowing owls, as determined by the presence of one or more burrowing owls, pellets, prey

remains, whitewash, or decoration. Some burrowing owls may be detected by their calls; therefore, observers will also listen for burrowing owls while conducting the survey.

The presence of burrowing owl or their sign anywhere on the site or within the 250-foot accessible radius around the site will be recorded and mapped. Surveys will map all burrows and occurrence of sign of burrowing owl on the project site. Surveys must begin one hour before sunrise and continue until two hours after sunrise (three hours total) or begin two hours before sunset and continue until one hour after sunset. Additional time may be required for large project sites.

B. Applicable Measures

If a burrowing owl or its sign at or near a burrow entrance is found to occur within 250 feet of the project site, the following measures must be implemented:

(i) If burrowing owls are found during the breeding season (February 1—August 31), the project proponent will:
Avoid all nest sites that could be disturbed by project construction during the remainder of the breeding season or while the nest is occupied by adults or young (occupation includes individuals or family groups foraging on or near the site following fledging).
Establish a 250-foot non-disturbance buffer zone around nests. The buffer zone will be flagged or otherwise clearly marked. Construction may only occur within the 250-foot buffer zone during the breeding season only if a qualified raptor biologist monitors the nest and determines that the birds have not begun egg laying and incubation or that the juveniles from the occupied burrows have fledged and moved off-site.

(ii) If burrowing owls are found during the non-breeding season (September 1—January 31), the project proponent will establish a 160-foot buffer zone around active burrows. The buffer zone will be flagged or otherwise clearly marked.
During the non-breeding season only, if a project cannot avoid occupied burrows after all alternative avoidance and minimization measures are exhausted, as confirmed by CDFW, a qualified biologist may passively exclude birds from those burrows. A burrowing owl exclusion plan must be developed by a qualified biologist consistent with the most recent guidelines from CDFW (e.g., CDFG 2012) and submitted to and approved by CDFW. Burrow exclusion will be conducted for burrows located in the project footprint and within a 160-foot buffer zone.

C. Construction Monitoring

If burrowing owls are present, a biological monitor will be present on-site daily to ensure that no covered activities occur within the buffer zone. The qualified biologist performing the construction monitoring will ensure that effects on burrowing owl are minimized. If monitoring indicates that construction outside of the buffer is affecting nesting, the buffer will be increased if space allows (e.g., move staging areas farther away). If space does not allow, construction will cease until the

young have fledged from all the nests in the colony (as confirmed by a qualified biologist) or until the end of the breeding season, whichever occurs first.

A biological monitor will conduct training of construction personnel on the avoidance procedures, buffer zones, and guidelines in the event that a burrowing owl flies into an active construction zone (i.e., outside the buffer zone).

Tricolored Blackbird

The following measures will be implemented to avoid or minimize effects of covered activities on tricolored blackbird nesting colonies.

A. Survey Requirements

Surveys for nesting tricolored blackbird must be conducted for project sites with the following land cover types if they are within 1,500 feet of open water (e.g., fresh emergent wetland, stock pond, riparian) or if a project occurs within 300 feet of a known nest colony:

- Annual grassland within 1,500 feet of open-water irrigated pasture
- Pasture
- Fresh emergent wetland

No more than two calendar days prior to ground-disturbing activities during the nesting season (March 15—July 31), a qualified biologist will conduct a pre-construction survey of the project site and a 300-foot radius around the project site. The surveys will be based on survey methods in Kelsey (2008) or CDFW—approved protocol.

B. Applicable Measures

If a tricolored blackbird nesting colony is found, the project proponent will abide by the following measures:

Activity will be prohibited during the breeding season within a 250-foot buffer zone around the nest colony.

- If the colony is nesting in a wetland, the buffer must be established from the outer edge of all hydric vegetation associated with the colony.
- If the colony is nesting in non-wetland vegetation (e.g., Himalayan blackberry), the buffer must be established from the edge of the colony substrate.

The buffer must be clearly marked to prevent project-related activities from occurring within the buffer zone. Depending on site characteristics, the sensitivity of the colony, and surrounding land uses, the buffer zone may be increased. Alternatively, the buffer may be reduced in areas with dense vegetation, urban areas, buildings, or other areas with habitat features between the construction activities and the active nest colony.

C. Construction Monitoring

A biological monitor will be present on-site to ensure that no covered activities occur within the buffer zone established around an active tricolored blackbird nest colony.

The biologist performing the construction monitoring will ensure that effects on tricolored blackbird are minimized. If monitoring indicates that construction outside of the buffer is affecting nesting, the buffer will be increased if space allows (e.g., move staging areas farther away). If space does not allow, construction will cease until the young have fledged from all the nests in the colony (as confirmed by a qualified biologist) or until the end of the breeding season, whichever occurs first.

The frequency of monitoring will be approved by CDF\X7 and based on the frequency and intensity of construction activities and the likelihood of disturbance of the active nest. In most cases, monitoring will occur at least every other day, but in some cases, daily monitoring may be appropriate to ensure that direct effects on tricolored blackbird are minimized. The biologist will train construction personnel on the avoidance procedures and buffer zones.

Giant Garter Snake

The following measures will be implemented to avoid or minimize effects of covered activities on giant garter snakes. This condition is based on the Service's Standard Avoidance and Minimization Measures during Construction Activities in Giant Garter Snake Habitat (Service 1999) and measures established for the East Contra Costa County HCP/NCCP (2006).

A. Survey Requirements

If the aquatic habitat types listed below are present in the PVSP area, a qualified biologist will conduct a survey to assess whether the aquatic features provide suitable habitat for giant garter snake.

- Marshes
- Sloughs
- Small lakes
- Rice fields
- Low-gradient streams
- Irrigation and drainage canals
- Ponds

Giant garter snake habitat includes two acres of surrounding upland habitat for every one acre of aquatic habitat. The two acres of upland habitat also may be defined as 218 linear feet of bankside habitat that incorporates adjacent uplands to a width of 200 feet from the edge of each bank.

Avoidance and minimization measures will be applied if the qualified biologist observes a giant garter snake within 200 feet of a project site or if suitable habitat for giant garter snake exists on the site. Suitable habitat is defined as including all of the following:

- Terrestrial natural community types within 200 feet of aquatic habitat with elements for basking, cover, and retreat (including retreat from flooding);

- Adequate water during the snake's active period (early spring through mid-fall); and
- Escape cover and foraging habitat (emergent, herbaceous wetland vegetation such as cattails and bulrush or rice).

  If there is any question about the suitability of the habitat to support giant garter snakes and/or potential for species occurrence, Service and/or CDFW may be consulted. If the surveyor cannot legally access neighboring land within 200 feet of a project site, the qualified biologist may survey the adjacent parcel with binoculars or a spotting scope.

B. Applicable Measures

Avoid construction activities within 200 feet from the banks of giant garter snake aquatic habitat. Confine movement of heavy equipment to existing roadways to minimize habitat disturbance.

A 200-foot buffer around suitable aquatic habitat will be delineated with silt fencing to clearly define the habitat to be avoided; restrict working areas, spoils, and equipment storage and other project activities to areas outside of suitable habitat; and maintain water quality and limit construction runoff into wetland areas through the use of fiber bales, filter fences, vegetation buffer strips, or other appropriate methods. Vegetation disturbance or use of heavy equipment cannot occur within the buffer.

If the project does not fully avoid impacts on suitable habitat and habitat within the 200-foot buffer, the following measures will be implemented:

- Construction activity within habitat should be conducted between May 1 and October 1. This is the active period for giant garter snakes; direct mortality is lessened because snakes are expected to move and avoid danger. Between October 2 and April 30, contact the Service to determine if additional measures are necessary to minimize and avoid take.
- To ensure that construction equipment and personnel do not affect suitable habitat for giant garter snakes outside construction areas, silt fencing will be erected to clearly define the habitat to be avoided; restrict working areas, spoils, and equipment storage and other project activities to areas outside of suitable habitat; and maintain water quality and limit construction runoff into wetland areas through the use of fiber bales, filter fences, vegetation buffer strips, or other appropriate methods. No material that could entrap and/or kill giant garter snakes will be used.
- Where construction is to take place within 200 feet of aquatic habitat, dewater all irrigation ditches, canals, or other aquatic habitat between April 15 and September 30 to remove habitat of garter snakes. Any dewatered habitat should remain dry for at least 15 consecutive days after April 15 and prior to excavating or filling of the dewatered habitat. This is to decrease the likelihood that any individual giant garter snakes will be present in the area and injured by construction activities.
- If a site cannot be completely dewatered, or if snake prey remains, prey items must be removed using netting or other salvage methods.

- After completion of construction activities, remove any temporary fill and construction debris and, wherever feasible, restore disturbed areas to pre-project conditions. Restoration work may include such activities as replanting species removed from banks or replanting emergent vegetation in the active stream channel.

C. Construction Monitoring

A qualified biologist will provide Service—approved worker environmental awareness training to construction personnel. This training will instruct workers to recognize giant garter snakes and their habitat(s) and know what to do if a giant garter snake is encountered during construction activities.

Twenty-four hours prior to construction activities, a qualified biologist will survey the project area for giant garter snakes. Survey of the project area will be repeated if a lapse in construction activity of two weeks or greater has occurred. If a snake is encountered during construction, the construction personnel will cease all activities in the vicinity of the snake and immediately notify the project's qualified biologist. The qualified biologist will then immediately notify the Service.

The giant garter snake will be monitored by the qualified biologist and allowed to leave the area on its own. The qualified biologist shall remain in the area for the remainder of the workday to ensure the giant garter snake is not harmed or, if it leaves the site, does not return. Escape routes for the giant garter snake will be determined in advance of construction, and giant garter snakes will always be allowed to leave on their own. All activities shall continue to cease until appropriate corrective measures have been completed or it has been determined the snake will not be harmed.

If a giant garter snake does not leave within one working day, further consultation with the Service will be conducted. Only personnel with a Service recovery permit, pursuant to Section 10(a)(1)(A) of the Act, will have the authority to capture and/or relocate giant garter snakes that are encountered in the construction area. Report any sightings and any incidental take to Service immediately by telephone at (916) 414-6600. The qualified biologist will ensure no covered activities occur within the buffer zone.

Valley Elderberry Longhorn Beetle

The following measures will be implemented to avoid or minimize effects of covered activities on valley elderberry longhorn beetle.

A. Survey Requirements

Surveys for elderberry (a proxy for the presence of valley elderberry longhorn beetle) are required for lands below 650 feet in elevation.

A survey of the project site will be conducted to determine the presence of elderberry plants rather than surveys for individual valley elderberry longhorn beetle on the project site. The survey must occur at least two months prior to ground disturbance to allow a qualified biologist time to remove and transplant elderberry

plants that will be affected by the project. Transplanting plants will occur when the plants are dormant, approximately November through the first two weeks in February, after they have lost their leaves. Transplanting during the non-growing season will reduce shock to the plant and increase transplantation success. Thus, the survey must be timed such that the plants can be transplanted the winter prior to construction.

B. Applicable Measures

If a project site contains elderberry plants with one or more stems measuring one inch in diameter or greater at ground level and located where they may be directly or indirectly affected by the project, the project must avoid to the maximum extent practicable effects on valley elderberry longhorn beetle habitat. To do so, the project proponent will:

- Establish a minimum 100-foot buffer from the outside perimeter of the elderberry branches that are to be maintained during and after construction. Firebreaks may not be included in the buffer zone. The Service must be consulted before any disturbances within the buffer area considered. The buffer is necessary because construction damage has the potential to reduce recruitment of new elderberry saplings. In addition, both adults and juveniles are vulnerable to being crushed when construction activity damages elderberry plants.
  If the 100-foot buffer areas will be affected, construction-related disturbance will be minimized using appropriate erosion control. Temporarily affected areas will be restored with native vegetation within one year following construction. The project proponent must provide in their package to amend their projects to the PBO a description of how temporarily affected areas will be restored, protected, and maintained after construction is completed.
- If suitable habitat for the beetle occurs on the project site, or in proximity to areas where beetles will be affected by the project, these areas must be designated as avoidance areas and must be protected from disturbance during the construction and operation of the project.
- No insecticides or herbicides (or other chemicals that might harm the beetle or the elderberry plants) will be used.
- If mowing of grasses and ground cover is required for reducing fire hazard, mowing may occur only from July through April. In addition, a project may not mow within five feet of elderberry plant stems, and mowing must be done in a manner that avoids damaging plants (e.g., stripping away bark through careless use of mowing/ trimming equipment).
- To maintain this buffer, the project must fence and flag all areas to be avoided during construction activities. Signs will be erected every 50 feet along the edge of the avoidance area with the following information: "This area is habitat of the valley elderberry longhorn beetle, a threatened species, and must not be disturbed. This species is protected by the Endangered Species Act of 1973, as amended. Violators are subject to prosecution, fines, and imprisonment." The signs will be clearly readable from a distance of 20 feet and must be maintained for the duration of construction.

C. Construction Monitoring

If elderberries are retained on-site, a qualified biologist will be present for any construction activities that occur within 100 feet of elderberry shrubs to ensure compliance with the buffer zone restrictions.

A qualified biologist will brief construction personnel on the need to avoid damaging the elderberry plants and the possible penalties for not complying with these requirements. Work crews must be instructed about the status of the beetle and the need to protect its elderberry host plant.

Fairy Shrimp and Tadpole Shrimp

A. Vernal Pool Avoidance criteria

All projects that will avoid vernal pool-type wetlands will have the vernal pool-type wetlands temporarily staked in the field by a qualified biologist to ensure construction equipment and personnel avoid these features.

If activities associated with covered projects are proposed to occur within the immediate watershed or 250 feet from vernal pools, whichever is less, the activities must comply with *Wetland Site Management Minimkation Criteria* (below) to have project effects count as temporary instead of permanent.

The criteria apply when construction or other ground disturbance, including vehicular travel, will occur within the immediate watershed or 250 feet from vernal pools, whichever is less. This condition applies to vernal pool—type wetlands on the project as well as on adjacent properties, even if the properties are not under the control of the project proponent. If site access to determine the extent of adjacent wetlands—and therefore the extent of the setback—is not allowed, a qualified professional will determine the extent of adjacent wetlands using available resources, including current aerial photos and best efforts to assess the extent of the adjacent wetland visually from areas of allowable site access.

B. Wetland Site Management Minimization Criteria

Impacts to vernal pool-type wetlands on or adjacent to construction sites will be considered temporary if all of the following criteria are met, if applicable:

- Personnel conducting ground-disturbing activities within 250 feet of a vernal pool-type wetland will be trained by a qualified biologist in these minimization measures and the permit obligations of projects approved under the PBO.
- When possible, vehicles and equipment will be parked on pavement, existing roads, and previously disturbed areas. When vehicle parking areas are to be established as a temporary facility, the site will be recovered to pre-project or ecologically improved conditions within one year of start of construction to ensure effects are temporary.
- Trash generated by covered activities will be promptly and properly removed from the site.

- No construction or maintenance vehicles will be refueled within the wetland setback zone unless a bermed and lined refueling area is constructed and hazardous material absorbent pads are available in the event of a spill.
- All organic matter shall be removed from nets, traps, boots, vehicle tires, and all other surfaces that have come into contact with ponds, wetlands, or potentially contaminated sediments. Items shall be rinsed with clean water before leaving each study site (Service 2005).
- Measures to minimize the spread of disease and non-native species shall be implemented based on current Service protocols (e.g., Revised Guidance on Site Assessments and Field Surveys for the California Red-legged Frog: Appendix B, Recommended Equipment Decontamination Procedures [Service 2005]) and other best available science.
- Used cleaning materials (e.g., liquids) shall be disposed of safely and, if necessary, taken off-site for proper disposal. Used disposable gloves shall be retained for safe disposal in sealed bags (Service 2005).
- Appropriate erosion control measures (e.g., fiber rolls, filter fences, vegetative buffer strips) will be used on-site to reduce siltation and runoff of contaminants into wetlands, ponds, streams, or riparian woodland/scrub.
- Erosion control measures will be of material that will not entrap reptiles and amphibians. Erosion control blankets will be used as a last resort because of their tendency to biodegrade slowly and trap reptiles and amphibians.
- Erosion control measures will be placed between the wetland or pond and the outer edge of the project site, within an area identified with highly visible markers (e.g., construction fencing, flagging, silt barriers, etc.) prior to commencement of construction activities. Such identification will be properly maintained until construction is completed and the soils have been stabilized.
- Fiber rolls used for erosion control will be certified by the California Department of Food and Agriculture as weed free.
- Seed mixtures applied for erosion control will not contain California Invasive Plant Council—designated invasive species (http://www.cal-ipc.org/paf/) but will be composed of native species appropriate for the site or sterile non-native species. If sterile non-native species are used for temporary erosion control, native seed mixtures must be used in subsequent treatments to provide long-term erosion control and slow colonization by invasive non-natives.
- If the runoff from the development will flow within 100 feet of a wetland or pond, vegetated stormwater filtration features, such as rain gardens, grass swales, tree box filters, infiltration basins, or similar low-impact development features to capture and treat flows, shall be installed consistent with local programs and ordinances.
- Septic facilities, if used, shall be at least 100 feet from the edge of a wetland or pond.

The project applicant, subject to Service approval, will make a determination if fencing shall be required on a case-by-case basis. If needed, the type of fencing will match the activity and impact types. For example, projects that have the potential to cause erosion will require erosion control barriers, and projects that may bring more

household pets to a site will have permanent fencing to exclude pets. The temporal requirements for fencing also depend on the activity and impact type. For example, fencing to minimize permanent effects will be permanent, and fencing to minimize short-term effects will be removed after the activity is completed. Permanent fencing will be installed after grading or other construction activities in the area have been completed. If installed, a party responsible for maintenance will be identified prior to construction.

Salvage of Vernal Pool-Type Wetlands

If a project cannot avoid effects, vernal pool and other wetland biota may be salvaged through the collection and storage of seeds, cysts, eggs, spores, and similar inocula for vernal pools. The decision regarding whether to salvage, the protocol used to salvage, storage arrangements, and the amount to be collected will be at the discretion of the project applicant, subject to concurrence by the Service.

Collection from vernal pools usually must occur when the pool is dry (typically June 15 to October 15), and the collection of other wetland biota may occur at other times but should occur during the dry season for best possible preservation of seeds and other resources contained in the soil. Prior to collection, the absence of glyceria (commonly called mannagrass) will be determined. If a pool is found to be infested, inoculum will not be taken from that pool or the portion of the pool that is affected.