



# United States Department of the Interior



In Reply Refer to:  
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FISH AND WILDLIFE SERVICE  
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Sacramento, California 95825-1846

JUL 14 2015

Mr. Ryan T. Larson  
Chief, Flood Protection and Navigation Section  
U.S. Army Corps of Engineers, Sacramento District  
1325 J Street  
Sacramento, California 95814

Subject: Formal Consultation on the Western Pacific Interceptor Canal 200-Year Standard Project in Yuba County, California

Dear Mr. Larson:

This letter is in response to the U.S. Army Corps of Engineers' (Corps) April 23, 2015, request to initiate formal consultation with the U.S. Fish and Wildlife Service (Service) on the proposed Western Pacific Interceptor Canal (WPIC) 200-year Standard Project (proposed project) in Yuba County, California. Your request was received by the Service on April 29, 2015. At issue are the proposed project's effects on the federally-threatened giant garter snake (*Thamnophis gigas*), valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*), vernal pool fairy shrimp (*Branchinecta lynchi*), and vernal pool tadpole shrimp (*Lepidurus packardii*). This response is provided under the authority of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*) (Act), and in accordance with the implementing regulations pertaining to interagency cooperation (50CFR 402).

The Federal action we are consulting on is a project which will enable Three Rivers Levee Improvement Authority (TRLIA) to meet recent California Department of Water Resources (DWR) Urban Levee Design Criteria (ULDC). Project work will be along the western levee of the WPIC. Pursuant to 50 CFR 402.12(j), you submitted a biological assessment for our review and requested concurrence with the findings presented therein. These findings conclude that the proposed project may affect, and is likely to adversely affect giant garter snake, vernal pool fairy shrimp, and vernal pool tadpole shrimp; and may affect, not likely to adversely affect the valley elderberry longhorn beetle. The proposed project is not within designated or proposed critical habitat for any federally-listed species.

In considering your request, we based our evaluation on the following: (1) the Corps' April 29, 2015, initiation request; (2) the April 2015 biological assessment prepared by AECOM; (2) e-mail and telephone correspondence between the Service, the Corps, and AECOM; and (3) other information available to the Service.

In the Service's review of the effects and avoidance measures included in the project description on the valley elderberry longhorn beetle the Service concurs with your findings that the proposed project may affect, but is not likely to adversely affect the valley elderberry longhorn beetle. The Corps has proposed the following measures to avoid effects to the valley elderberry longhorn beetle.

- Fencing along the construction area boundary in Reach 1B will be adjusted, if necessary, to ensure a buffer of at least 20 feet from the dripline of elderberry shrub #2 and at least 50 feet from the dripline of elderberry shrub #3 is maintained to prevent accidental damage during construction activities.
- At least two evenly spaced signs (no more than 50 feet apart) will be placed on the fencing in this area, stating: "This area his habitat of the valley elderberry longhorn beetle, a threatened species, and it must not be disturbed. This species is protected by the ESA. Violators are subject to prosecution, fines, and imprisonment." The signs will be clearly readable from a distance of 20 feet and will be maintained throughout the construction period.
- Dust control measures will be implemented for all ground-disturbing activities in Reach 1B construction and staging area. These measures may include application of water to haul routes and other unvegetated areas in which equipment is operating. To avoid attracting Argentine ants, at no time will water be sprayed within the dripline of elderberry shrubs.
- No insecticides, herbicides, fertilizers, or other chemicals that might harm the beetle or its host plant will be used or stored within 100 feet of elderberry shrubs adjacent to the construction area.
- Areas of ground disturbance within 100 feet of elderberry shrubs will be restored to pre-project conditions when construction activities are complete.

Given the above avoidance measures, the Service believes that potential effects from the proposed project are extremely unlikely to occur, and are therefore discountable for purposes of this consultation.

The remainder of this document provides our biological opinion on the effects of the proposed project on the giant garter snake, vernal pool fairy shrimp, and vernal pool tadpole shrimp.

### **Consultation History**

January 22, 2015. The Service attended a meeting with the Corps of Engineers, AECOM, and MBK engineers to discuss the proposed project.

March 16, 2015. AECOM provided a draft biological assessment for the Service to review prior to the Corps' formal initiation.

March 26, 2015. The Service provided AECOM and the Corps with comments on the draft biological assessment via electronic mail.

April 23, 2015. The Corps initiated formal consultation on the proposed project.

June 8, 2015. The Corps provided an electronic mail message which clarified the determination for the giant garter snake, vernal pool fairy shrimp, and vernal pool tadpole shrimp as may affect, likely to adversely affect.

June, 22, 2015. The Corps provided additional information for the project description related to the compensation proposed for vernal pool fairy shrimp and vernal pool tadpole shrimp.

### Description of the Action

The proposed project is going to bring the entire WPIC west levee into compliance with the ULDC. To accomplish this, the project will improve the WPIC west levee to a 200-year level of flood protection by correcting deficiencies related to seepage and slope stability. The WPIC west levee is just over 6 miles long and extends north from its intersection with the Bear River North Levee to its terminus on the east side of State Route 70. The footprint of the proposed levee fixes include 5.9 miles of the levee east of State Route 70. Remediation measures proposed to achieve ULDC compliance include cutoff walls, berms, landside fill, and a landside access road. Description of how these measures will be carried out follows below as well as a table summarizing where the measures will occur.

Table 1. Locations of Remediation and Landside Access Road Construction

Reach	Length (feet)	Area (acres)	Construction Activity
1B	3,050	8.9	70-foot-deep cutoff wall from Station 9+50 to 24+50, constructed using deep-mix method (because of proximity of active railroad tracks immediately landside of the levee)
2B	400	3.7	Landside ditch fill (minimum of 3 feet)
3	3,350	14.3	50-foot-deep cutoff wall from Station 144+50 to 167+50, constructed using open trench method Landside access road from Station 135+00 to 167+50
4A	2,260	5.3	Landside access road
4B	590	2.1	Drained berm Landside access road
4C	1,900	6.3	Landside access road
4D	2,350	4.6	Landside access road
4E	1,000	4.2	50-foot-deep cutoff wall, constructed using open trench method Landside access road
5A	1,050	3.9	Landside access road
5B	1,900	6.9	10-foot-tall/10-foot-wide stability berm Landside access road
5C	800	2.5	Landside access road
5D	2,450	14.0	Landside fill (minimum of 3.5 feet) Landside access road from Station 286+00 to 309+00

### *Cutoff Walls*

Levee remediation measures for the proposed action include constructing cutoff walls. Cutoff walls are vertical walls, measuring about 3 feet wide that consists of low-hydraulic-conductivity materials and are constructed through the levee embankment and foundation to cut off potential through-seepage and underseepage. To be effective for underseepage, cutoff walls usually tie into an impervious sublayer (aquiclude). Walls generally require no additional permanent levee footprint. However, the levee must be temporarily taken out of service and degraded to prevent hydraulic fracturing of the levee and provide a wide enough working surface to accommodate construction of the cutoff wall.

For the proposed project, the levee will be degraded by about one-third to one-half of its overall height. Degraded levee material will be side-cast along the landside and waterside of the levee to establish the working surface. Cutoff walls will be constructed through the center of the levee and will range in depth from about 50 to 70 feet, as measured from the levee degrade elevation. As described below under *Construction Workers and Schedules*, cutoff wall construction could occur 24 hours a day. During nighttime construction, light fixtures will be oriented to the greatest degree practical to direct light downward and away from residences to minimize light spill.

Cutoff walls will be constructed of either soil-bentonite using the open-trench method or soil-cement-bentonite using the deep-mix method. In cutoff-wall construction with soil-bentonite using the open-trench method, a 3-foot-wide trench is excavated through the center of the levee and filled with bentonite slurry to keep the trench sidewalls from caving in during excavation. Material excavated from the trench is mixed, adjacent to the trench, with bentonite slurry in appropriate proportions, then is pushed back into the excavated trench. This process creates a wall through the center of the levee with reduced permeability. In cut-off wall construction using the deep-mix method, augers are used to drill through the center of the levee to the appropriate depth. As the augers are raised, a bentonite and cement mixture is injected through the augers and mixed into the soil to form the wall.

After the cutoff wall has been installed and undergone the appropriate settlement period, the levee embankment will be reconstructed to its original lines and grades. The reconstructed embankment will include an 8-foot-wide clay core. Clay core material will be imported from one or more local commercial borrow sources. Topsoil will then be placed on the levee slopes and aggregate base along the levee crown and access ramps. Disturbed areas will then be hydroseeded with a mix of at least 30 % native grass and forb seeds.

### *Berms*

In addition to constructing cutoff walls, levee remediation measures for the proposed project include constructing a stability berm and a drained berm. A stability berm is a prism of engineered material placed on the landside slope and toe of a levee to act as a buttress to increase stability factors of safety. Typical stability berms are about 10 feet high and 10 to 25 feet wide. If there is also a deficiency related to through-seepage, a filter/drain zone can be incorporated into a typical berm creating a drained berm that captures seepage that otherwise will exist on the unprotected slope, potentially eroding the embankment material.

For the proposed action, the drained berm will be 20 feet wide and 2 feet high and will include a 1-foot-thick drain layer. The stability berm will be 10 feet high and 10 feet wide at the top, with a 2:1 side slope. To facilitate berm construction, the top 6 inches of topsoil will be stripped from the

existing ground, and then the area will be disked to a depth of 6 inches, moisture-conditioned (i.e., wetting and/or drying), and compacted before the placement of fill material. Fill will be keyed and benched into the existing levee as appropriate.

#### *Landside Fill*

In addition to constructing cutoff walls and berms, levee remediation measures for the proposed project include placing fill along the landside of the levee toe. The landside fill will be placed in engineered layers. Fill will be placed landside of the levee to raise low areas. To facilitate the placement of the landside fill, the top 6 inches of topsoil will be stripped from the existing ground, then the area will be disked to a depth of 6 inches, moisture-conditioned (i.e., wetting and/or drying), and compacted before the placement of fill material.

#### *Landside Access Road*

A raised, all-weather access road to be used for flood fighting and operations and maintenance will be constructed along a portion of the landside toe of the levee. The toe access road will be about 20 feet wide and will include a 16-foot wide aggregate base. Elevations and grades for the toe access road have not yet been established. However, the toe access road will follow the existing landside elevations and will have a general 2% cross slope, to drain water away from the levee, and maximum 10% longitudinal slope.

#### *Borrow Material Sources and Needs*

Fill material for the levee (clay core), berms, and fill areas will be obtained either from one or more off-site borrow sources or from excess material obtained from the levee degradation operations. The construction contractor will be required to obtain any off-site borrow material, which may be imported to the project site from existing permitted commercial sources located in the Marysville or Yuba City area. If borrow material is obtained from a site that is not already permitted, the contractor will be responsible for ensuring compliance and permitting for the site.

#### *Staging Areas and Access*

Before and during construction of the proposed action, several staging areas will be developed to allow for efficient use and distribution of materials and equipment. All staging will occur within construction limits established for remediation and access road construction. Construction materials, equipment, the batch plant, spoils, and excess material will be stored in the staging areas during the construction period. The staging areas also will provide a parking location for construction workers. Throughout the project's various construction phases, material deliveries will be made to the project site. Access to the project site for personnel, equipment, and material delivery will be via State Route 70, Feather River Boulevard, and Plumas-Arboga Road (existing paved roadways). Access within the project site will be along either the levee crown or the existing routes along the landside or waterside of the levee (existing unpaved access).

#### *Disposal of Excess Materials*

The proposed action will generate excess materials that will require disposal. Before the start of construction, the levee and work areas will be cleared and grubbed to remove vegetation, debris, rubble, trash, and other items. Material obtained from the clearing and grubbing operations will be removed from the site and taken to commercial waste or recycling facilities in the Marysville or Yuba City area, as appropriate. The top 6 inches of topsoil will then be stripped and stockpiled on-site for later reuse. Excess material resulting from levee remediation that could not be reused on-site will be hauled off-site to permitted and approved disposal areas near Marysville or Yuba City.

### *Construction Schedule*

Crew sizes will vary depending on the construction phase but are estimated to consist of 50-100 people working one shift 6 days a week (Monday through Saturday). Construction activities will typically be limited to 7:00 a.m. to 8:00 p.m. but may be extended to 6:00 a.m. to 10:00 p.m. for equipment maintenance. Equipment maintenance will also occur on Sunday. Cutoff wall construction will be a 24-hour operation using two shifts of workers 6 days a week (Monday through Saturday), as necessary to complete levee reconstruction before the flood season begins. Construction will occur over two construction seasons, beginning as soon as summer 2015 and ending by December 2016. Work will occur in summer 2015 to fall of 2015 and spring 2016 to fall 2016.

### *Giant Garter Snake Habitat*

The WPIC provides aquatic habitat for the giant garter snake. Work along the western levee of the WPIC as part of the proposed project will affect upland giant garter snake habitat where it is within 200 feet of the edge of aquatic habitat. This includes about 35 acres of temporarily affected uplands and 10.10 acres of uplands that will be permanently converted to access road.

### *Vernal Pool Fairy Shrimp and Vernal Pool Tadpole Shrimp Habitat*

Vernal pool crustacean habitat is present on and near the project area on the western side of the WPIC levee. The proposed project will fill 0.70 acre of seasonal wetland habitat that could support the vernal pool fairy shrimp and vernal pool tadpole shrimp. There are 1.67 acres of seasonal wetlands that would not be affected by project activities. A PG&E transmission project in 2013 likely created 0.25 acre of seasonal wetland that will be affected by the project.

### *Conservation Measures*

- Before on-site construction activities begin, a review of all required permits and notifications will be conducted to ensure requirements for environmental compliance are fully understood, specific limits of activities and work are defined and understood, and all natural resource clearances and authorizations have been obtained from the appropriate resource agencies.
- Prior to construction beginning the construction area will be fenced to clearly delineate the work area. Silt fencing will be used along waterside construction boundaries and access routes. Silt fencing will also be used to delineate landside construction area boundaries in the vicinity of wetland habitats. All construction crews will be provided a set of drawings showing construction area boundaries, haul/access routes, and locations of environmentally sensitive areas to be avoided.
- Project-related vehicles will observe a 15-mile-per-hour speed limit within construction areas and haul/access routes, except on county roads and State and Federal highways.
- A biological monitor will conduct inspections of the construction area to ensure best management practices and resource agency protection measures are being implemented. Biological monitors will be notified in advance of all work activities and locations and scheduled to be on-site, as required. A report of monitoring activities and observations will be prepared and provided to the Service upon completion of project activities.
- A worker awareness training program will be conducted for all construction personnel before they start work on the proposed action. The program will summarize relevant laws and regulations that protect biological resources and discuss sensitive habitats and species

addressed in this biological opinion, the role of biological monitors, applicable avoidance measures to protect species and habitats, and the penalties for not complying with such measures. Proof of training will be provided to the Service as part of the monitoring report submitted to the Service upon completion of project activities.

- Work will stop immediately if a listed or protected species is encountered and the appropriate agency or agencies (the Service, National Marine Fisheries Service, or California Department of Fish and Wildlife (CDFW)) will be notified. Work will not resume prior to the agencies' approval, or as agreed to in prior consultation with the agencies.
- All food and food-related trash items will be enclosed in sealed containers and removed daily from the project site; pets will not be allowed on the project site.
- Silt fencing will be used to fence construction area boundaries within 250 feet of suitable vernal pool crustacean habitat to prevent accidental incursion by construction vehicles and personnel and minimize potential for water quality degradation.
- At least 30 days before construction activities begin, the names and curriculum vitae of the biological monitor(s) for the project will be submitted to the Service for review and approval.
- Unless specifically authorized by the Service, construction activities within 200 feet of aquatic habitat within the WPIC will not commence before May 1. Initial ground disturbance in all construction areas will be completed by October 1, and construction activities will be completed as soon after October 1 as possible.
- Construction areas will be surveyed for giant garter snakes by a qualified biologist within 24 hours before on-site project activities begin. Additional surveys will be conducted within 24 hours before initial ground disturbance begins. Surveys will be repeated after any lapse in construction activity of 2 weeks or longer.
- Any snake observed on-site will be allowed to leave the construction area on their own volition. If a possible giant garter snake is observed retreating into an underground burrow or is otherwise stationary within the construction area, construction activities will not begin or will cease immediately in the reach where the snake is present, the biological monitor will be notified immediately, and actions will be taken to ensure the burrow is not disturbed or the stationary snake is allowed to leave the area. If the burrow must be disturbed or the snake does not leave the construction area, the biologist will consult with CDFW and the Service before work resumes.
- The biologist will notify the Service immediately by telephone at (916) 414-6600 if a giant garter snake is found on-site, and will submit a report, including date(s), location(s), habitat description, and any corrective measures taken to protect the snake.
- After completion of construction activities, all disturbed soil surfaces will be revegetated within the same construction season that disturbance occurs. Levee slopes, stability berms, fill areas, and other uplands disturbed during project activities will be hydroseeded with a mix of at least 30 % native grass and forb seeds. Up to 70 % of the mixture may be non-aggressive European annual grasses, but aggressive non-native grasses, including perennial ryegrass (*Lolium perenne*), cheatgrass (*Bromus tectorum*), fescue (*Festuca spp.*), giant reed (*Arundo donax*), medusa-head (*Taeniatherum caputmedusae*), and Pampas grass (*Cortaderia selloana*) are prohibited from being included in the hydroseed mix.
- TRLIA will purchase 0.25 acre of vernal pool crustacean creation habitat and 0.25 acre of vernal pool preservation habitat at a Service approved vernal pool crustacean conservation bank for the seasonal wetlands created during the 2013 PG&E transmission line project.

- For the loss of 10.1 acres of upland habitat that will be converted to unpaved roadway TRLIA has proposed to purchase 30.3 acres of giant garter snake habitat at a giant garter snake conservation bank. TRLIA proposes to use 22.65 acres of excess credit created from a previous flood control project at Tule Basin Giant Garter Snake Preserve and purchase the remaining 7.65 acres of habitat from a Service approved conservation bank.

### **Action Area**

The action area is defined in 50 CFR § 402.02 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 action area encompasses the footprint of the WPIC west levee and adjacent landside and waterside areas where project activities will occur, including access and staging areas.

### **Analytical Framework for the Jeopardy Determination**

The following analysis relies on four components to support the jeopardy determination for the giant garter snake, vernal pool fairy shrimp, and vernal pool tadpole shrimp: (1) the *Status of the Species*, which evaluates the species’ range-wide condition, the factors responsible for that condition, and their survival and recovery needs; (2) the *Environmental Baseline*, which evaluates the condition of these species in the action area, the factors responsible for that condition, and the role of the action area in the species’ survival and recovery; (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 these species; and (4) *Cumulative Effects*, which evaluates the effects of future, non-Federal activities in the action area on these three species.

In accordance with the implementing regulations for Section 7 and Service policy, the jeopardy determination is made in the following manner: the effects of the proposed Federal action are evaluated in the context of the aggregate effects of all factors that have contributed to the current status of the giant garter snake, vernal pool fairy shrimp, and vernal pool tadpole shrimp. Additionally, for non-Federal activities in the action area, we will evaluate those actions likely to affect the species in the future, to determine if implementation of the proposed action is likely to cause an appreciable reduction in the likelihood of both its survival and recovery in the wild.

The following analysis places an emphasis on using the range-wide survival and recovery needs of the giant garter snake, vernal pool fairy shrimp, and vernal pool tadpole shrimp, and the role of the action area in providing for those needs 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**

#### Giant Garter Snake

For the most recent assessment of the species’ range-wide status please refer to the *Giant Garter Snake (Thamnophis gigas) 5-year Review: Summary and Evaluation* (Service 2012) for the current status of the species. Ongoing threats to giant garter snake include habitat loss from water transfers, rice fallowing due to drought conditions, habitat disturbance and loss from irrigation and drainage ditch



maintenance, climate change, and invasive species. While these threats continue to effect the giant garter snake 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 giant garter snake.

### Vernal Pool Fairy Shrimp and Vernal Pool Tadpole Shrimp

The status of the vernal pool fairy shrimp and vernal pool tadpole shrimp have been assessed in the *Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon* (Service 2005) (Recovery Plan) and 5-year reviews. For the most recent comprehensive assessment of the range-wide status of the fairy shrimp, please refer to the *Vernal Pool Fairy Shrimp (*Branchinecta lynchi*) 5-Year Review: Summary and Evaluation* (Service 2007a). For the most recent comprehensive assessment of the range-wide status of the tadpole shrimp, please refer to the *Vernal Pool Tadpole Shrimp (*Lepidurus packardii*) 5-Year Review: Summary and Evaluation* (Service 2007b).

No change in either species' listing status was recommended in the 5-year reviews. Threats such as the loss of vernal pool habitat primarily due to widespread urbanization were evaluated during the reviews and discussed in the final documents and have continued to act on the fairy shrimp and tadpole shrimp since the 2007 5-year reviews were finalized. The construction of infrastructure associated with urbanization also has contributed greatly to the loss and fragmentation of vernal pool species including the construction of roads. Habitat loss exacerbates the highly fragmented distribution of these species. Direct losses of habitat generally represent an irreversible damage to vernal pools. The alteration and destruction of habitat disrupts the physical processes conducive to functional vernal pool ecosystems. Vernal pool hydrology may be altered by further changes to the patterns of surface and subsurface flow due to the increase in runoff associated with infrastructure.

While there have been continued losses of vernal pool habitat throughout the various vernal pool regions identified in the Recovery Plan, including the Southeastern Sacramento Valley Vernal Pool Region 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 either species.

### **Environmental Baseline**

Portions of the action area have undergone previous consultations with the Service for effects on the giant garter snake, vernal pool fairy shrimp, and vernal pool tadpole shrimp. TRLIA has previously done levee repairs to the western levee of the WPIC which temporarily affected giant garter snake habitat and temporarily and permanently affected the vernal pool fairy and tadpole shrimp habitat. Additionally, Pacific Gas and Electric (PG&E) completed a project in 2013 that included some of the area along the WPIC which effected vernal pool fairy shrimp and vernal pool tadpole shrimp.

#### *Giant Garter Snake*

The proposed project is located within the American Basin giant garter snake population as identified in the 5-year review (Service 2012). The closest known occurrence in the California Natural Diversity Database (CNDDDB 2015) is less than a mile away, though this is an older (prior to 1986) observation. This portion of the American Basin population, the area east of the Feather River, has had relatively little to no concentrated giant garter snake surveys; therefore, it is difficult to say how widely distributed giant garter snakes are east of the Feather River.

The WPIC provides suitable aquatic habitat for the snake. Some rice farming occurs outside of the action area which will help support any snake populations in the area. The action area contains about 45 acres of suitable upland habitat for the snake adjacent to the WPIC. Because the overall area has not been surveyed and given the presence of aquatic habitat adjacent to the work and rice farming within the overall area, the Service considers it likely that snakes may be found within the action area.

#### *Vernal Pool Fairy Shrimp and Vernal Pool Tadpole Shrimp*

The action area is located in the Southeastern Sacramento Valley Vernal Pool Region, as described in the Recovery Plan (2005). Core areas within each Vernal Pool Region have been identified. These core areas support high concentrations of vernal pool species, area representative of a given species range, and are where recovery actions are focused. The action area is not within a core area.

Formal surveys for the fairy shrimp and the tadpole shrimp were not conducted within the action area. TRLIA has previously conducted flood control work along the WPIC in 2005 and 2006. Prior to construction, a consultant conducted wet-season sampling for listed branchiopods in 2004. Vernal pool tadpole shrimp were found on March 17, 2004, in wetlands in the project area. Vernal pool fairy shrimp have been identified within 5 miles of the action area. Because tadpole shrimp have previously been found in the action area and fairy shrimp are known to occur in the vicinity of the proposed project, seasonal wetlands are assumed to be occupied by tadpole and fairy shrimp.

The previous WPIC project permanently filled seasonal wetlands and temporarily affected other seasonal wetlands. In the 2005 biological opinion, TRLIA and the Corps chose to mitigate for any effects to seasonal wetlands as permanent impacts. Therefore, some of the seasonal wetlands previously mitigated for remain on-site post-construction of the project. Additionally, PG&E has done transmission line work within the proposed project's action area (81420-F-2011-0007) which was completed in 2013. This work involved some effects to seasonal wetlands and may have created new seasonal wetlands that were found by the AECOM during surveys and had not been documented previously.

### **Effects of the Action**

#### Vernal Pool Fairy Shrimp and Vernal Pool Tadpole Shrimp

The construction of the project will result in direct effects to 0.70 acre of habitat for the tadpole shrimp and the fairy shrimp. The project related activities, such as grading, placement of fill, berm construction, and access road construction will result in the loss of fairy shrimp and tadpole shrimp habitat and the death of an unknown number of individuals and cysts. The earthmoving equipment will be moving dirt and filling tadpole shrimp and fairy shrimp habitat during construction activities and will likely crush or destroy the tadpole shrimp and fairy shrimp individuals and cysts, or otherwise prevent the cysts from hatching.

Of the 0.70 acre of seasonal wetland loss, 0.45 acre has been identified as being affected in the previous TRLIA levee improvement project. These lands were mitigated through the NEPA process at a ratio of 3:1 for preservation and 1:1 for creation. The remaining effected vernal pools will be compensated at a Service approved conservation bank. Because the remaining 0.25 acre of seasonal wetlands has been recently disturbed and lack hydrologic connection to the previously

surveyed habitat, it is not as likely that vernal pool crustaceans are occupying the seasonal wetlands. However, because TRRIA did not do surveys for vernal pool fairy shrimp or vernal pool tadpole shrimp, it cannot be known for certain. They have proposed to compensate at a conservation bank for effects to the species. Conservation banks provide protection and funding in perpetuity for the targeted species on lands that might otherwise be developed. Vernal pool fairy shrimp and vernal pool tadpole shrimp habitat will be protected on lands with a conservation easement and a non-wasting endowment to fund long-term maintenance of the site and monitoring of the species.

The remaining 1.67 acres of seasonal wetlands in the project area will be avoided through the implementation of the conservation measures described in the project description above.

### Giant Garter Snake

Upland habitat will be temporarily affected due to construction of the cutoff wall, fill of the landside berm, fill of low areas adjacent to the levee, and general construction of the access routes, staging, and temporary waterside stockpiling. About 35 acres of uplands will be temporarily unavailable to the snake for one season. Construction of the maintenance road along the landside of the levee will result in permanent loss of 10.1 acres of upland habitat.

Ground disturbing activities can result in displacement, injury, or death of giant garter snakes. Construction is scheduled to occur during the snake's active season (May 1 – October 1) when snakes use underground refugia less often and therefore entombment and injury will occur less often. Snakes use uplands for basking, temperature regulation, and cover. The construction will remove vegetation cover and basking sites, fill or crush burrows or crevices, and may result in direct disturbance, injury, and/or mortality of snakes. Snakes may disperse across or may bask on existing unpaved roads and may be killed or injured by construction equipment or other vehicles accessing the project site.

Conservation measures included in the project description are expected to reduce effects to the giant garter snake. This will include restoring temporarily disturbed areas, installing fencing along the waterside berm to exclude snakes from the work area, and purchasing credits at a conservation bank. The Conservation banks will provide protection and funding in perpetuity for the giant garter snake. Giant garter snake habitat will be protected with a conservation easement and the bank has a non-wasting endowment to fund long-term maintenance of the site and monitoring of the species.

### **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. During this consultation, the Service did not identify any future non-Federal actions that are reasonably certain to occur in the action area of the proposed project.

## Conclusion

After reviewing the current status of the giant garter snake, vernal pool fairy shrimp, and vernal pool tadpole shrimp, the environmental baseline for the action area, the effects of the proposed project, and the cumulative effects, it is the Service's biological opinion that the WPIC 200-Year Standard Project, as proposed, is not likely to jeopardize the continued existence of the giant garter snake, vernal pool fairy shrimp, or vernal pool tadpole shrimp. The Service reached this conclusion because the project-related effects to the species; when added to the environmental baseline and analyzed in consideration of all potential cumulative effects, will not rise to the level of precluding recovery or reducing the likelihood of survival of the species.

## INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. Harass is defined by Service regulations at 50 CFR 17.3 as an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering. Harm is defined by the same regulations as an act which actually kills or injures wildlife. Harm is further defined to include significant habitat modification or degradation that results in death or injury to species by significantly impairing essential behavior patterns, including breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(40 and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this Incidental Take Statement.

The measures described below are non-discretionary, and must be undertaken by the Corps so that they become binding conditions of any permit issued to the applicant for the exemption in section 7(o)(2) to apply. The Corps has a continuing duty to regulate the activity covered by this incidental take statement. If the Corps (1) fails to assume and implement the terms and conditions or (2) fails to require the local sponsor to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit, the protective coverage of section 7(o)(2) may lapse. In order to monitor the impact of incidental take, TRLIA must report the progress of the action and its impact on the species to the Service as specified in the incidental take statement [50 CFR §402.14(i)(3)].

### Amount or Extent of Take

#### *Giant Garter Snake*

The Service anticipates that incidental take of giant garter snake will be difficult to detect due to its life history and ecology. Specifically, giant garter snakes can be difficult to locate due to their cryptic appearance and cryptic behavior and finding a dead or injured individual is unlikely due to their cryptic nature. There is a risk of harm, harassment, injury, and mortality as a result of degrading the levee for cutoff wall construction, fill placement on landside berm, and general construction for a total of 35 acres. Additionally, 10.10 acres of upland habitat for the giant garter snake will be permanently unavailable to giant garter snakes due to the conversion of grassland to access road.

Therefore, the Service is authorizing take incidental to the proposed action as harm, harassment, and injury of all giant garter snakes within 45.10 acres of upland habitat. The Service authorizes take incidental to the proposed action as mortality for one snake within 45.10 acres of upland habitat.

#### *Vernal Pool Fairy Shrimp and Vernal Pool Tadpole Shrimp*

The Service anticipates that incidental take of vernal pool tadpoles shrimp and vernal pool fairy shrimp will be difficult to detect due to its life history and ecology. Specifically, vernal pool tadpole and fairy shrimp can be difficult to locate due to their small size, therefore finding a dead or injured individual is unlikely. There is a risk of harm and mortality as a result of the proposed construction activities; therefore, the Service is authorizing take incidental to the proposed action as harm and mortality of all vernal pool fairy shrimp and vernal pool tadpole shrimp within 0.70 acre of seasonal wetlands as a result of construction.

#### **Effect of the Take**

In the accompanying biological opinion, the Service determined that this level of anticipated take is not likely to result in jeopardy to the species or destruction or adverse modification of critical habitat.

#### **Reasonable and Prudent Measures**

All necessary and appropriate measures to avoid or minimize effects on the giant garter snake, vernal pool fairy shrimp and vernal pool tadpole shrimp resulting from implementation of this project have been incorporated into the project's proposed conservation measures. This Reasonable and Prudent Measure shall be supplemented by the Terms and Conditions below.

#### **Terms and Conditions**

In order to be exempt from the prohibitions of section 9 of the Act, the Corps must ensure compliance with the following terms and conditions, which implement the reasonable and prudent measure described above. These terms and conditions are nondiscretionary.

1. The Corps shall include full implementation and adherence to the conservation measures as a condition of any permit issued for the project.
2. In order to monitor whether the amount or extent of incidental take anticipated from implementation of the project is approached or exceeded, the Corps and TRLIA shall adhere to the following reporting requirements. Should this anticipated amount or extent of incidental take be exceeded, the Corps must immediately reinstate formal consultation as per 50 CFR 402.16.
  - (a) For those components of the action that will result in habitat degradation or modification whereby incidental take in the form of harm is anticipated, TRLIA will provide monthly updates to the Service with a precise accounting of the total acreage of habitat impacted. Updates shall also include any information about changes in project implementation that result in habitat disturbance not described in the Project Description and not analyzed in this biological opinion.
  - (b) For those components of the action that may result in direct encounters between listed species and project workers and their equipment whereby incidental take in the form of harassment, harm, injury, or death is anticipated, TRLIA shall immediately contact the

Service's Sacramento Fish and Wildlife Office (SFWO) at (916) 414-6600 to report the encounter. If the encounter occurs after normal working hours, TRLIA shall contact the SFWO at the earliest possible opportunity the next working day. When injured or killed individuals of the listed species are found, TRLIA shall follow the steps outlined in the Salvage and Disposition of Individuals section below.

- (c) Post-construction, TRLIA will provide the Service a report which describes the final restoration plantings as well as the as-built. During the 3-year post restoration operation and maintenance TRLIA shall provide the Service with a yearly report which describes how the restoration plantings are performing, what the mortality of the plants is, and if any problems with the restoration site have been identified.

### 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 to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information. The Service recommends the following actions:

1. The Corps and TRLIA should work with the Service to assist us in meeting the goals of the recovery plan for vernal pool fairy shrimp and vernal pool tadpole shrimp as outlined in the December 2005, *Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon* (Service 2005).
2. The Corps and TRLIA should work with the Service to assist us in meeting the goals of the forthcoming recovery plan for the giant garter snake.

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

### REINITIATION—CLOSING STATEMENT

This concludes formal consultation on the Western Pacific Interceptor Canal 200-Year Standard Project. As provided in 50 CFR § 402.16, reinitiation of formal consultation is required and shall be requested by the Federal agency or by the Service 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 the 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 any questions regarding this biological opinion, please contact Jennifer Hobbs ([Jennifer\\_hobbs@fws.gov](mailto:Jennifer_hobbs@fws.gov)) or Doug Weinrich ([Douglas\\_Weinrich@fws.gov](mailto:Douglas_Weinrich@fws.gov)), at the letterhead address, (916) 414-6600, or by e-mail.

Sincerely,



Jennifer M. Norris  
Field Supervisor

### Literature Cited

- California Natural Diversity Database (CNDDB). 2015. Biogeographic Data Branch, Department of Fish and Wildlife. Sacramento, California. Accessed 20 April 2015.
- U.S. Fish and Wildlife Service (Service). 2005. Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon. Portland, Oregon. xxii + 574 pp.
- \_\_\_\_\_. 2007a. Vernal Pool Fairy Shrimp (*Branchinecta lynchi*) 5-year Review: Summary and Evaluation. September 2007.
- \_\_\_\_\_. 2007b. Vernal Pool Tadpole Shrimp (*Lepidurus packardii*) 5-year Review: Summary and Evaluation. September 2007.
- \_\_\_\_\_. 2012. Giant Garter Snake (*Thamnophis gigas*) 5-year Review: Summary and Evaluation. June 2012.