

# **APPENDIX F**

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**USFWS BIOLOGICAL OPINION**



## United States Department of the Interior



### FISH AND WILDLIFE SERVICE

Sacramento Fish and Wildlife Office  
2800 Cottage Way, Room W-2605  
Sacramento, California 95825-1846

In reply refer to:  
81420-2011-F-0631-1

February 04, 2013

#### Memorandum

To: Chief, Resource Management Division, South-Central Area Office,  
Bureau of Reclamation, Fresno, California

From: *for* *Roberta Kusan* Acting Field Supervisor, Sacramento Fish and Wildlife Office,  
Sacramento, California

Subject: Biological Opinion for the County Service Area 34 Winchell Cove Pipeline  
Project (EA/IS-10-045), Millerton Lake, Fresno County, California

This memorandum is in response to the Bureau of Reclamation's (Reclamation) June 14, 2011, request for formal consultation, pursuant to section 7(a) of the Endangered Species Act, as amended (16 U.S.C. §1531 *et seq.*) (Act), on the proposed County Service Area (CSA) 34 Winchell Cove Pipeline Project (Proposed Project), which was received by the U.S. Fish and Wildlife Service (Service) on June 16, 2011. The consultation concerns the potential effects of the proposed project on the federally-listed as threatened central California distinct population segment of the California tiger salamander (*Ambystoma californiense*) (central California tiger salamander) and the federally-listed as endangered San Joaquin kit fox (*Vulpes macrotis mutica*). The Proposed Project is within designated critical habitat for the central California tiger salamander and the vernal pool fairy shrimp; Unit 2, Northeast Fresno Unit of the Southern San Joaquin Region, and the Southern Sierra Foothills Vernal Pool Region within the Fresno core area of the *Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon* (USFWS 2005). This Biological Opinion is based on the information provided in the *Biological Assessment County Service Area 34 Winchell Cove Pipeline Project, Fresno County, California* (BA), dated April 2011; the revised *Biological Assessment County Service Area 34 Winchell Cove Pipeline Project, Fresno County, California* (revised BA), dated March 2012; the revised final *Biological Assessment County Service Area 34 Winchell Cove Pipeline Project, Fresno County, California* (final BA), dated December 2012; the memorandum (SCC-424 ENV-700 Friant Division) from Reclamation dated September 25, 2012; and other information available to the Service.

Reclamation has determined that the proposed project, as described, including conservation measures, may affect, although is not likely to adversely affect the San Joaquin kit fox. The

Service has reviewed the information provided and concurs that the proposed project as described is not likely to adversely affect the San Joaquin kit fox. This Biological Opinion contains no further analysis regarding the effects of the proposed project to the San Joaquin kit fox; however, conservation measures intended to further avoid any adverse effects to the San Joaquin kit fox are described and included within the *Proposed Conservation Measures*.

The proposed project is within designated critical habitat for the vernal pool fairy shrimp; Unit 2, Northeast Fresno Unit of the Southern San Joaquin Region, and the Southern Sierra Foothills Vernal Pool Region within the Fresno core area of the *Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon* (USFWS 2005), but there are no primary constituent elements (PCE) within the action area of the proposed project, so no analysis of affects or adverse modification will be included in this Biological Opinion.

### Consultation History

- March 6, 2006* The Service sent a letter (1-1-06-TA-0822) to Reclamation responding to Reclamation's request for concurrence that construction of the Brighton Crest Development will not result in take of listed species. Included in the letter is recognition of Reclamation's petition to expand the CVP M&I place of use within CSA 34, and the continued effort to work on Endangered Species Act (Act) compliance for the adjacent Millerton New Town Development.
- February 22, 2007* The Service commented by electronic mail on Reclamation's draft Environmental Assessment; *Water Transfer of 500 Acre-Feet from Fresno Irrigation District and the City of Fresno to the County of Fresno – Friant, CA* (EA-06-144, January 2007).
- October 2008* The Service received the draft Biological Assessment – *Millerton New Town Specific Plan Area Change in the Service Area Under the Water Service Contract Between the United States and the County of Fresno, Service Area No. 34*.
- August 11, 2009* The Service sent a memorandum to Reclamation with comments on the draft Biological Assessment - *Millerton New Town Specific Plan Area Change in the Service Area Under the Water Service Contract Between the United States and the County of Fresno, Service Area No. 34*, which the Service received in February, 2009.
- April 2, 2010* The County of Fresno requested that the Service review a draft Biological Assessment - *Winchell Cove Pipeline Improvement Project – April 2010*. The Service referred the County of Fresno to the memorandum sent to Reclamation with comments on the draft

Biological Assessment - *Millerton New Town Specific Plan Area Change in the Service Area Under the Water Service Contract Between the United States and the County of Fresno, Service Area No. 34*, dated August 11, 2009.

*April 2, 2010* The Service received a copy of the County of Fresno's *Initial Study Application* for the Millerton Lake Pumps and Pipeline Improvement Project – Phase 2 Project Description.

*April 9, 2010* Kellie Berry (Service) sent an electronic mail to Bryan White (County of Fresno) stating in response to the County of Fresno's request that the Service review and comment on the April 2010, BA, that the Service had previously received a draft BA for the CSA 34 which included water deliveries to the Millerton New Town Specific Plan Area and that the April 2010 Biological Assessment appeared to be a part of that larger project, and that the Service had already submitted comments to Reclamation concerning it.

*October 21, 2010* The County of Fresno sent an electronic mail to the Service requesting the Service review the draft Biological Assessment - *Winchell Cove Pipeline Improvement Project – April 2010*. In response, on September 1, 2010, Kellie Berry (Service) referred the County to her April 9, 2010, electronic mail.

*January 2011* Reclamation along with the County of Fresno released a Draft Environmental Assessment/Initial Study – *County Service Area 34 Phase II Winchell Cove Pipeline Improvement Project – EA-10-XXX*.

*June 7, 2011* The Army Corps of Engineers (ACOE) sent a letter to Reclamation designating Reclamation as the lead Federal agency to act on behalf of the ACOE for purposes of compliance with Section 7 of the Act for Phase II of the Millerton Lake Pumps, Winchell Cove Project.

*June 2011* Reclamation along with the County of Fresno released a Draft Environmental Assessment/Initial Study – *County Service Area 34 Phase II Winchell Cove Pipeline Improvement Project – EA-10-045*.

*June 16, 2011* Reclamation initiated formal consultation with the Service on the *County Service Area 34 Winchell Cove Pipeline Project (EA/IS-10-045)*, *Fresno County, California*. The Service received the

initiation letter (dated June 14, 2011) and the Biological Assessment (BA) County Service Area 34 Winchell Cove Pipeline Project (dated March 2011).

*August 8, 2011*

The Service provided Reclamation comments on the draft Environmental Assessment: County Service Area 34 Winchell Cove Pipeline Project

*August 12, 2011*

The Service received a copy of the U.S. Environmental Protection Agency (EPA) comments on the draft Environmental Assessment: County Service Area 34 Winchell Cove Pipeline Project, dated August 10, 2011.

*August 19, 2011*

The Service received a copy of California Department of Fish and Wildlife (CDFW) comments on the draft Environmental Assessment/Initial Study Fresno County Service Area 34 Winchell Cove Pipeline Project, dated August 11, 2011.

*September 8, 2011*

A meeting was held to discuss section 7 issues concerning the County Service Area 34 Winchell Cove Pipeline Project. The meeting was held at Reclamation in Sacramento; in attendance were Rocky Montgomery (Service), Thomas Leeman (Service), Shauna McDonald (Reclamation), Lisa Gymer (CDFW), Ryan Lee (Analytical Environmental Services), Kelly Bayne (Analytical Environmental Services), Willis Robison (Fresno County).

*April 2, 2012*

The Service received a revised Biological Assessment – County Service Area 34 Winchell Cove Pipeline Project, dated March 2012; memorandum dated March 27, 2012.

*September 25, 2012*

The Service received a memorandum from Reclamation containing additional information regarding the County Service Area 34 Winchell Cove Pipeline Project.

*November 27, 2012*

The Service sent an electronic mail to Reclamation requesting additional information.

*December 27, 2012*

Reclamation sent an electronic mail to the Service with a final BA and comments addressing the Service's request for additional information.

## Project Description

The Proposed Project will provide County Service Area 34 water users with a contingency plan in the event of an emergency and system malfunction; system flexibility; improve water supply reliability; and more efficient operations in the delivery of raw water to the existing users within CSA 34. The Surface Water Treatment Plant and the Eagle Springs Golf and Country Club are supplied raw water through a single 12-inch ductile iron pipeline. The EPA estimates a useful life of 35 to 50 years for all transmission mains. As detailed within the January 2012 engineering memorandum (Quad Knopf, Inc., 2012) provided in the revised and final BAs, the existing pipeline is likely at or beyond the mid-point of its useful life. The integrity of the portion of the existing pipeline beneath Millerton Lake is inherently reduced because pipelines under water are more likely to suffer corrosion. The risk of corrosion is exacerbated by the lack of a protective polyethylene wrap, the installation of which is currently standard practice to minimize external corrosion.

Continued use of the existing pipeline could cause damage to newly replaced pumps and result in large energy demands due to inefficient operation of the pumps and motors. Any failure of the CSA 34 water system could compromise the County of Fresno's (County) ability to provide safe and reliable pumping and conveyance capability to customers in accordance with California Department of Public Health requirements. At present, there are no contingencies if the existing pipeline fails. Failure of the existing pipeline would expose the County to potential liability arising from water quality and sanitation issues.

The Proposed Project is the construction of a second water transmission main to extend from the Winchell Cove pump station (pumps) at Millerton Lake for about 1.52 miles and terminate just north of Millerton Road. The new pipeline will branch from where the existing pipeline reduces from 14 inches in diameter to 12 inches in diameter, and will run parallel with the existing County Service Area (CSA) 34 water main. Beginning at the pumps, the pipeline will extend about 0.56 mile through the Millerton Lake bed to the Winchell Cove Marina (marina). From the marina the pipeline will remain within the County's existing CSA 34 pipeline easement, extending for about 0.5 mile south within the Winchell Cove Road paved right-of-way (ROW). The pipeline will then transition through a public utility easement located within privately owned land for about 1,600 feet and will terminate just before reaching Millerton Road.

The pipeline will be constructed of similar welded steel material as used for the existing CSA 34 pipeline. Cross connections will be installed with the existing pipeline to ensure even pressure and travel velocities in both pipelines. A tee valve connection, meter and blind flange will be installed at the terminus north of Millerton Road.

The main construction staging area consists of a gravel parking lot and storage yard located at the marina. This area will be utilized to store pipe and other materials, construction equipment, and other necessary items. Additional staging areas will be located on existing paved and graded roads within the rural/developed disturbed areas near the active construction zones.

Temporary stockpiling of excavated soil will be used onsite or disposed of at a regional landfill or other Service-approved facility.

### Construction

Project components will be designed and constructed in accordance with applicable provisions of the American Water Works Association Standards, California State Building Code, and the International Building Code. Components of the Proposed Action will require general construction activities including grading, excavating, trenching, pipe installation, placement of backfill, and asphalt patching.

Open cut trenching will be used for pipeline installation. Open cut trenching requires clearing of the pipeline alignment, saw cutting pavement where necessary, excavation of the trench, pipeline installation, backfill operations, and surface restoration.

Estimated trench width for a 12-inch-diameter pipeline is about 24 inches and the trench depth will vary as needed with a minimum of 48 inches of cover from finished grade. Depending on site conditions or terms of the encroachment permit for construction with Winchell Cove Road, trenches will be secured at the end of each workday by either covering with steel plates, backfill material, or installing barricades to restrict access.

Surface restoration techniques will be employed after segments of pipeline construction are completed. All surfaces and roadways will be restored to pre-project conditions. This includes restoring unpaved areas by planting grasses and native vegetation, and the repaving of roadways. If required by the encroachment permit for construction with the Winchell Cove ROW, an asphalt overlay, slurry seal, or chip seal may be utilized.

Energy efficient construction equipment will be utilized to the extent feasible. The following equipment may be utilized during construction of the project:

Pavement saw	Flat-back delivery truck
Jack hammers	Concrete trucks
Excavators	Sweepers
Front-end loaders	Road grader
10-wheel dump trucks	Paving equipment: back hoe, asphalt hauling
Crane	trucks, compactors, paving machine, rollers
Bulldozers	Concrete pumper trucks
Water truck	Welding trucks
Trench shields	Side boom pipe handler tractor
Air compressors	Earth mover

Best Management Practices (BMP)

Construction contractors shall comply with the State's National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (General Permit; Order No. 2009-0009-DWQ, NPDES No. CAS000002). The Central Valley Regional Water Quality Control Board (CVRWQCB) requires that all construction sites have adequate control measures to prevent the discharge of sediment and other pollutants into streams. To comply with the permit, the Applicant will file a Notice of Intent with the CVRWQCB and prepare a Storm Water Pollution Prevention Plan (SWPPP) prior to construction. A copy of the SWPPP must be obtained and remain onsite during construction activities. Control measures are required prior to and throughout the rainy season. Water quality BMP identified in the SWPPP may include, but would not be limited to, the following:

1. Temporary erosion control measures (such as silt fences, staked straw bales, and temporary revegetation) shall be employed for disturbed areas. No disturbed surfaces will be left without erosion control measures in place during the winter and spring months.
2. Sediment shall be retained onsite by a system of sediment basins, traps, or other appropriate measures.
3. A spill prevention and countermeasure plan shall be developed which will identify proper storage, collection, and disposal measures for potential pollutants (such as fuel, fertilizers, pesticides, etc.) used onsite. The plan will also require the proper storage, handling, use, and disposal of petroleum products.
4. Construction activities shall be scheduled to minimize land disturbance during peak runoff periods. Soil conservation practices shall be completed during the fall or late winter to reduce erosion during spring runoff. Existing vegetation will be retained where possible. To the extent feasible, grading activities shall be limited to the immediate area required for construction.
5. Surface water runoff shall be controlled by directing flowing water away from critical areas and by reducing runoff velocity. Diversion structures such as terraces, dikes, and ditches shall collect and direct runoff water around vulnerable areas to prepared drainage outlets. Surface roughening, berms, check dams, hay bales, or similar devices shall be used to reduce runoff velocity and erosion.
6. Sediment shall be contained when conditions are too extreme for treatment by surface protection. Temporary sediment traps, filter fabric fences, inlet protectors, vegetative filters and buffers, or settling basins shall be used to detain runoff water long enough for sediment particles to settle out. Store, cover, and isolate construction materials, including topsoil and chemicals, to prevent runoff losses and contamination of groundwater.
7. Topsoil removed during construction shall be carefully stored and treated as an important resource. Berms shall be placed around topsoil stockpiles to prevent runoff during storm events.



8. Establish fuel and vehicle maintenance areas away from all drainage courses and design these areas to control runoff.
9. Disturbed areas will be revegetated after completion of construction activities.
10. All necessary permits and approvals shall be obtained.
11. Provide sanitary facilities for construction workers.

#### Proposed Conservation Measures

1. All travel within the project site will be restricted to established roadbeds. Established roadbeds include all pre-existing and project-constructed unimproved, as well as improved roads. These will be included in the preconstruction surveys. Project-related vehicles will observe a daytime speed limit of 20 miles per hour (mph) in all project areas, except on county roads and state and federal highways. If night-time work is necessary, then all project-related vehicle traffic will be restricted to 10 mph. Off-road traffic outside of designated project areas will be prohibited.
2. Within 14 days prior to commencement of construction activities, a Service-approved biologist will conduct preconstruction surveys for central California tiger salamander within a 75-foot area around the construction site. The biologist will make a thorough search for potential central California tiger salamander occupation and identify all burrows that may be used by central California tiger salamander. A 50-foot buffer shall be clearly delineated around identified burrows using materials that will indicate to construction personnel to avoid the area. If unavoidable, a reduced buffer may be established if it is determined that a burrow is unoccupied using a fiber optic scope or similar device to thoroughly inspect the burrow.
3. Should a burrow be occupied by a central California tiger salamander the Service-approved biological monitor will make the determination whether or not it may be subject to take as a result of the proposed project and construction activities. If the biological monitor determines the central California tiger salamander is subject to take then he/she will hand excavate the burrow in order to safely remove the central California tiger salamander, transfer it into a soft cooler, or similar container that will limit exposure to heat and prevent desiccation, for transportation purposes, and relocate the individual to a suitable burrow within the vicinity of the project site, at least 100 feet outside of the construction footprint. The relocation burrow shall be identified and inspected by a fiber optic scope prior to moving the central California tiger salamander. The central California tiger salamander will be kept within the cooler for no longer than 15 minutes. The biological monitor will inform the Service of the findings via email (including photo documentation) within 24 hours of detecting the species.

4. Directly following the preconstruction surveys, exclusionary fencing (i.e., silt fencing) will be installed and maintained in good condition during the life of the proposed project. The fencing will be installed along the outer footprint of the construction zone boundary in nonnative grassland devoid of burrows in order to prevent California tiger salamanders from entering the construction zone.
5. Within 30 days prior to commencement of construction activities, a Service-approved biologist will conduct a preconstruction survey for San Joaquin kit fox for the action area.
6. Prior to initiation of any on-site preparation/construction activities, a Service-approved biologist will conduct an education and training session for all individuals who will be involved in the site preparation or construction, including the project representative(s) responsible for reporting take to the Service. Training sessions will be required for all new or additional personnel before they are allowed to access the project site. At a minimum, the training will include a description of the central California tiger salamander, San Joaquin kit fox and their habitats. Additional information will include the general measures, as they relate to the project, that are being implemented to conserve these species; the penalties for non-compliance with these measures; travel within the marked project site will be restricted to established roadbeds and the boundaries (work area) within which the project must be accomplished. Training shall be conducted in languages other than English, as appropriate. A fact sheet conveying this information will be prepared for distribution as a reference for workers. Proof of this instruction for all attendees will be kept on file with the County of Fresno (the applicant). The applicant will provide the Service with a copy of the training materials and copies of the signed forms by project staff indicating that training has been complete within 30 days of the completion of the first training session. Copies of signed forms will be submitted monthly as additional training occurs for new employees. The crew foreman will be responsible for ensuring that new personnel receive the training prior to starting work and that construction personnel adhere to the guidelines and restrictions.
7. A Service-approved biologist will be available during all activities that could result in the take of listed species. Only persons permitted by the Service may handle listed species. The qualifications of the biologist(s) will be presented to the Service for review and approval at least 10 working days prior to any groundbreaking at the project site. The biologist will have oversight over implementation of all the measures described in the *Terms and Conditions* of this biological opinion, and he/she will have the authority to stop project activities, through communication with the Project Manager, if any of the requirements associated with these measures are not being fulfilled. If the biologist(s) exercises this authority, the Service will be notified by telephone and electronic mail within one (1) working day. The Service contact is Mr. Thomas Leeman, Chief, San Joaquin Valley Division, Sacramento Fish and Wildlife Office, Sacramento (telephone 916-414-6600).

8. The Service-approved biological monitor will check for animals under all vehicles and equipment such as stored pipes before the start of work each day. He/she will check all excavated steep-walled holes or trenches greater than 3 inches (0.075 meter) deep for central California tiger salamanders. Excavated steep-walled holes or trenches more than 2 feet deep will also be covered at the close of each working day by plywood or similar material, or provided with at least one escape ramp of earth fill or wooden planks. Before such holes or trenches are filled, they will be thoroughly inspected for trapped animals. If at any time a trapped listed animal is discovered, the Service-approved biologist will immediately place escape ramps or other appropriate structures to allow the animal to escape from the opening, or will contact the Service by telephone for guidance. The Service will be notified of any such incident by telephone and electronic mail within one (1) working day.
9. All construction pipes, culverts, or similar structures with a diameter of 4 inches or greater that are stored at a construction site for one or more overnight periods will be thoroughly inspected for animals before the pipe is subsequently buried, capped, or otherwise used or moved in any way. If a listed species is discovered inside a pipe, that section of pipe will not be moved until the animal has exited on its own. Pipes and other den-like structures should be capped at both ends until just before they are used to prevent San Joaquin kit foxes or other species from entering and being trapped.
10. Any construction activities occurring from December 1 to February 28 shall be limited to between 30 minutes after sunrise and 30 minutes before sunset. Construction activities will be finished by 7 pm daily during the remainder of the year.
11. A litter control program shall be instituted at the entire project site. The contractor will provide closed garbage containers for the disposal of all food-related trash items (e.g., wrappers, cans, bottles, food scrapes). All garbage will be removed daily from the project site.
12. No pets of any kind will be permitted on the construction site.
13. No firearms (except for Federal, State, or local law enforcement officers and security personnel) of any kind will be permitted on the construction site.
14. Use of rodenticides and herbicides in the project site is prohibited.
15. The limits of the construction area will be flagged, if not already marked by other high-visibility fencing, and all activity will be confined within the demarcated area. All access to and from the project area will be clearly marked in the field with appropriate flagging and signs. Prior to commencing construction activities, the contractor will determine construction vehicle parking sites and all access routes. All construction activity will be confined within the project site, which may include temporary access roads, haul roads, and staging areas specifically designated and marked for these purposes. At no time will

equipment or personnel be allowed to adversely affect habitat areas outside the project site without authorization from the Service. Equipment staging and vehicle parking will be sited on existing parking areas to avoid any compaction of small mammal burrows or potential burrow sites.

16. Approximately 0.9 acre of central California tiger salamander habitat will be temporarily impacted by the implementation of the proposed project. The project proponent proposes to compensate for the temporary loss of habitat by the purchase of appropriate conservation credits from a Service-approved conservation bank at a 3:1 ratio, or an alternative option of equal mitigation as approved by the Service. The applicant will purchase conservation credits from a Service-approved conservation bank equal to at least 2.7 acres before any ground-breaking construction activities begin on the proposed project.

### **Action Area**

An action area includes all areas to be directly or indirectly affected by the Federal action and not merely the immediate areas involved in the Proposed Action (50 C.F.R. §402.02). The action area includes 25 feet on either side of the proposed pipeline alignment for a total action area of 50 feet along the extent of the proposed project. The actual construction corridor will be limited to only 25 feet and may extend out from one side or the other of the pipeline, and so construction activities will be contained within a 25 foot wide corridor. The pipeline alignment is about 1.52 miles in length. Beginning at Millerton Lake, the pipeline will be located entirely within the paved Winchell Cove Road until it reaches the County easement where the alignment extends about 1,375 feet across private property to just before Millerton Road.

The proposed construction staging area is also considered part of the action area and consists of a 4.65 ac gravel parking lot and storage yard located at the Winchell Cove Marina. This area will be utilized to store pipe and other materials, construction equipment, and other necessary items.

### **Analytical Framework for the Jeopardy and Adverse Modification Determinations**

#### **Jeopardy Determination**

In accordance with policy and regulation, the jeopardy analysis in this Biological Opinion relies on three components: (1) the *Status of the Species*, which evaluates the central California tiger salamander's range-wide condition, the factors responsible for that condition, and its survival and recovery needs; (2) the *Environmental Baseline*, evaluates the condition of this listed species in the action area, the factors responsible for that condition, and the relationship of the action area to the survival and recovery of this species; (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 the central California tiger salamander.

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 species' 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 both the survival and recovery of the species 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 central California tiger salamander and the role of the action area in the survival and recovery of the species as the context for evaluating the significance of the effects on the proposed Federal action, taken together with cumulative effects, for purposes of making the jeopardy determination.

#### Adverse Modification Determination

This Biological Opinion does not rely on the regulatory definition of "destruction or adverse modification" of critical habitat at 50 CFR 402.02. Instead, we have relied upon the statutory provisions of the Act to complete the following analysis with respect to critical habitat.

In accordance with policy and regulation, the adverse modification analysis in this Biological Opinion relies on four components: (1) the *Status of Critical Habitat*, which evaluates the range-wide condition of designated critical habitat for the central California tiger salamander in terms of PCEs, the factors responsible for that condition, and the intended recovery function of the critical habitat overall; (2) the *Environmental Baseline*, which evaluates the condition of the critical habitat in the action area, the factors responsible for that condition, and the recovery role of the critical habitat in the action area; (3) the *Effects of the Action*, which determines the direct and indirect impacts of the proposed Federal action and the effects of any interrelated or interdependent activities on the PCEs and how that will influence the recovery role of affected critical habitat units; and (4) *Cumulative Effects*, which evaluates the effects of future, non-Federal activities in the action area on the PCEs and how that will influence the recovery role of affected critical habitat units.

For purposes of the adverse modification determination, the effects of the proposed Federal action on central California tiger salamander critical habitat are evaluated in the context of the range-wide condition of the critical habitat, taking into account any cumulative effects, to determine if critical habitat range-wide would remain functional (or would retain the current ability for the PCEs to be functionally established in areas of currently unsuitable but capable habitat) to serve its intended recovery role for the species.

The analysis in this Biological Opinion places an emphasis on using the intended range-wide recovery function of central California tiger salamander critical habitat and the role of the action area relative to that intended function 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 adverse modification determination.

## Status of the Species and Critical Habitat

### Central California Tiger Salamander

On May 23, 2003, we proposed to list the Central California Distinct Population Segment (DPS) of the California tiger salamander as threatened. At that time we also proposed reclassification of the Santa Barbara County DPS and Sonoma County DPS from endangered to threatened (68 FR 28647). In the same notice we also proposed a special rule under section 4(d) of the Act to exempt take for routine ranching operations for the Central California DPS and, if reclassified to threatened, for the Santa Barbara and Sonoma County DPSs (68 FR 28668). On August 4, 2004, we determined that the Central California DPS of the California tiger salamander was threatened (69 FR 47211) and that the Santa Barbara and Sonoma County populations were threatened as well, and reclassified the California tiger salamander as threatened throughout its range (69 FR 47211), removing the Santa Barbara and Sonoma County populations as separately listed DPSs (69 FR 47241). In the 2004 final rule, we also finalized the special rule to exempt take for routine ranching operations for the California tiger salamander throughout its range (69 FR 47248).

On August 18, 2005, as a result of litigation of the August 4, 2004, final rule on the reclassification of the California tiger salamander DPSs (*Center for Biological Diversity et al. v. United States Fish and Wildlife Service et al.*, C 04-04324 WHA (N.D. Cal. 2005)), the District Court of Northern California sustained the portion of the 2004 rule pertaining to listing the Central California tiger salamander as threatened with a special rule, but vacated the portion of the 2004 rule that re-classified the Santa Barbara and Sonoma DPSs to threatened status thereby reinstating their status as endangered. On August 31, 2011, the List of Endangered and Threatened Wildlife in part 17, subchapter B of Chapter I, title 50 of the Code of Federal Regulations (CFR) was amended to reflect the vacatures contained in the 2005 court order, classifying the Santa Barbara DPS and the Sonoma DPS of the California tiger salamander as endangered, and the Central DPS of the California tiger salamander as threatened with a special rule to exempt routine ranching operations from take (76 FR 54346).

The California tiger salamander is a large, stocky, terrestrial salamander with a broad, rounded snout. Recorded adult measurements have been as much as 8.2 inches long (Petranka 1998; Stebbins 2003). California tiger salamanders exhibit sexual dimorphism (differences in body appearance based on gender) with males tending to be larger than females. The coloration of the adults generally consists of random white or yellowish markings against a black body. The markings tend to be more concentrated on the lateral sides of the body; whereas other salamander species tend to have brighter yellow spotting that is heaviest on the dorsal surface.

The California tiger salamander is endemic to California and historically inhabited the low-elevation grassland and oak savanna plant communities of the Central Valley, adjacent foothills, and Inner Coast Ranges (Jennings and Hayes 1994; Storer 1925; Shaffer *et al.* 1993). The species has been recorded from near sea level to approximately 3,900 feet in the Coast Ranges and to approximately 1,600 feet in the Sierra Nevada foothills (Shaffer *et al.* 2004). Along the

Coast Ranges, the species occurred from the Santa Rosa area of Sonoma County, south to the vicinity of Buellton in Santa Barbara County. The historic distribution in the Central Valley and surrounding foothills included northern Yolo County southward to northwestern Kern County and northern Tulare County.

The Central California tiger salamander occupies the Bay Area (central and southern Alameda, Santa Clara, western Stanislaus, western Merced, and the majority of San Benito counties), Central Valley (Yolo, Sacramento, Solano, eastern Contra Costa, northeastern Alameda, San Joaquin, Stanislaus, Merced, and northwestern Madera counties), southern San Joaquin Valley (portions of Madera, central Fresno, and northern Tulare and Kings Counties), and the Central Coast Range (southern Santa Cruz, Monterey, northern San Luis Obispo, and portions of western San Benito, Fresno, and Kern counties).

The California tiger salamander has an obligate biphasic life cycle (Shaffer *et al.* 2004). Although the larvae develop in the vernal pools and ponds in which they were born, the species is otherwise terrestrial and spend most of their post-metamorphic lives in widely dispersed underground retreats (Shaffer *et al.* 2004; Trenham *et al.* 2001). Because they spend most of their lives underground, the animals rarely are encountered even in areas where California tiger salamanders are abundant. Subadult and adult California tiger salamanders typically spend the dry summer and fall months in the burrows of small mammals, such as California ground squirrels and Botta's pocket gopher (Storer 1925; Loredó and Van Vuren 1996; Petranksa 1998; Trenham 1998a). Although ground squirrels have been known to eat these amphibians, the relationship with their burrowing hosts is primarily commensal (an association that benefits one member while the other is not affected) (Loredó *et al.* 1996; Semonsen 1998).

California tiger salamanders may also use landscape features such as leaf litter or desiccation cracks in the soil for upland refugia. Burrows often harbor camel crickets and other invertebrates that provide likely prey for the amphibians. Underground refugia also provide protection from the sun and wind associated with the dry California climate that can cause excessive drying of amphibian skin. Although California tiger salamanders are members of a family of "burrowing" salamanders, they are not known to create their own burrows. This may be due to the hardness of soils in the California ecosystems in which they are found. California tiger salamanders depend on persistent small mammal activity to create, maintain, and sustain sufficient underground refugia for the species. Burrows are short lived without continued small mammal activity and typically collapse within approximately 18 months (Loredó *et al.* 1996).

Upland burrows inhabited by California tiger salamanders have often been referred to as aestivation-sites. However, "aestivation" implies a state of inactivity, while most evidence suggests that the animals remain active in their underground dwellings. One study has found that salamanders move, feed, and remain active in their burrows (Van Hattem 2004). Because the adults arrive at breeding ponds in good condition and are heavier when entering the pond than when leaving, researchers have long inferred that they are feeding while underground. A number

of direct observations have confirmed this (Trenham 2001; Van Hattem 2004). Thus, “upland habitat” is a more accurate description of the terrestrial areas used by California tiger salamanders.

California tiger salamanders typically emerge from their underground refugia at night during the fall or winter rainy season (November-May) to migrate to their breeding ponds (Stebbins 1985, 1989; Shaffer *et al.* 1993; Trenham *et al.* 2000). The breeding period is closely associated with the rainfall patterns in any given year with fewer adults migrating and breeding in drought years (Loredo and Van Vuren 1996; Trenham *et al.* 2000). Male California tiger salamanders are typically first to arrive and generally remain in the ponds longer than females. Results from a 7-year study in Monterey County suggested that males remained in the breeding ponds for an average of 44.7 days while females remained for an average of only 11.8 days (Trenham *et al.* 2000). Historically, breeding ponds were likely limited to vernal pools, but now include livestock stock ponds. Ideal breeding ponds are typically fishless, free of non-native predators, and seasonal or semi-permanent (Barry and Shaffer 1994; Petranka 1998).

While in the ponds, adult California tiger salamanders mate and then the females lay their eggs in the water (Twitty 1941; Shaffer *et al.* 1993; Petranka 1998). Egg laying typically reaches a peak in January (Loredo and Van Vuren 1996; Trenham *et al.* 2000). Females attach their eggs singly, or in rare circumstances, in groups of two to four, to twigs, grass stems, vegetation, or debris (Storer 1925; Twitty 1941). Eggs are often attached to objects, such as rocks and boards in ponds with no or limited vegetation (Jennings and Hayes 1994). Clutch sizes from a Monterey County study had an average of 814 eggs (Trenham *et al.* 2000). Seasonal pools may not exhibit sufficient depth, persistence, or other necessary parameters for adult breeding during times of drought (Barry and Shaffer 1994). After breeding and egg laying is complete, adults leave the pool and return to their upland refugia (Loredo *et al.* 1996; Trenham 1998a). Adult California tiger salamanders often continue to emerge nightly for approximately the next two weeks to feed amongst their upland habitat (Shaffer *et al.* 1993).

California tiger salamander larvae typically hatch within 10 to 24 days after eggs are laid (Storer 1925). The peak emergence of these metamorphs is typically between mid-June and mid-July (Loredo and Van Vuren 1996; Trenham *et al.* 2000). The larvae are totally aquatic and range in length from approximately 0.45 to 0.56 inches (Petranka 1998). They have yellowish gray bodies, broad fat heads, large, feathery external gills, and broad dorsal fins that extend well up their back. The larvae feed on zooplankton, small crustaceans, and aquatic insects for about six weeks after hatching, after which they switch to larger prey (J. Anderson 1968). Larger larvae have been known to consume the tadpoles of Pacific tree frogs, western spadefoot toads, and California red-legged frogs (J. Anderson 1968; P. Anderson 1968). California tiger salamander larvae are among the top aquatic predators in seasonal pool ecosystems. When not feeding, they often rest on the bottom in shallow water but are also found throughout the water column in deeper water. Young California tiger salamanders are wary and typically escape into vegetation at the bottom of the pool when approached by potential predators (Storer 1925).



The California tiger salamander larval stage is typically completed in 3 to 6 months with most metamorphs entering upland habitat during the summer (Petranka 1998). In order to be successful, the aquatic phase of this species' life history must correspond with the persistence of its seasonal aquatic habitat. Most seasonal ponds and pools dry up completely during the summer. Amphibian larvae must grow to a critical minimum body size before they can metamorphose (change into a different physical form) to the terrestrial stage (Wilbur and Collins 1973). Larval development and metamorphosis can vary and is often site-dependent. Larvae collected near Stockton in the Central Valley during April varied between 1.88 to 2.32 inches in length (Storer 1925). Feaver (1971) found that larvae metamorphosed and left breeding pools 60 to 94 days after eggs had been laid, with larvae developing faster in smaller, more rapidly drying pools. Longer ponding duration typically results in larger larvae and metamorphosed juveniles that are more likely to survive and reproduce (Pechmann *et al.* 1989; Semlitsch *et al.* 1988; Morey 1998; Trenham 1998b). Larvae will perish if a breeding pond dries before metamorphosis is complete (P. Anderson 1968; Feaver 1971). Pechmann *et al.* (1989) found a strong positive correlation between ponding duration and total number of metamorphosing juveniles in five salamander species. In Madera County, Feaver (1971) found that only 11 of 30 sampled pools supported larval salamanders, and 5 of these dried before metamorphosis could occur. Therefore, out of the original 30 pools, only 6 (20 percent) provided suitable conditions for successful reproduction that year. Size at metamorphosis is positively correlated with stored body fat and survival of juvenile amphibians, and negatively correlated with age at first reproduction (Semlitsch *et al.* 1988; Scott 1994; Morey 1998).

Following metamorphosis, juvenile California tiger salamanders leave their pools and move to upland habitat. This emigration can occur in both wet and dry conditions (Loredo and Van Vuren 1996; Loredo *et al.* 1996). Wet conditions are more favorable for upland travel but summer rain events seldom occur as metamorphosis is completed and ponds begin to dry. As a result, juveniles may be forced to leave their ponds on rainless nights. Under dry conditions, juveniles may be limited to seeking upland refugia in close proximity to their aquatic larval pool. These individuals often wait until the next winter's rains to move further into more suitable upland refugia. Juveniles remain active in their upland habitat, emerging from underground refugia during rainfall events to disperse or forage (Trenham and Shaffer 2005). Depending on location and other development factors, metamorphs will not return as adults to aquatic breeding habitat for 2 to 5 years (Loredo and Van Vuren 1996; Trenham *et al.* 2000).

Lifetime reproductive success for the California tiger salamander is low. Results from one study suggest that the average female bred 1.4 times over their lifespan and produced 8.5 young per reproductive effort that survived to metamorphosis (Trenham *et al.* 2000). This resulted in the output of roughly 11 metamorphic offspring over a breeding female's lifetime. The primary reason for low reproductive success may be that this relatively short-lived species requires two or more years to become sexually mature (Shaffer *et al.* 1993). Some individuals may not breed until they are four to six years old. While California tiger salamanders may survive for more than ten years, many breed only once, and in one study, less than 5 percent of marked juveniles survived to become breeding adults (Trenham 1998b). With such low recruitment, isolated populations are susceptible to unusual, randomly occurring natural events as well human-caused

factors that reduce breeding success and individual survival. Factors that repeatedly lower breeding success in isolated pools can quickly extirpate a population.

Dispersal and migration movements made by California tiger salamanders can be grouped into two main categories: (1) breeding migration; and (2) interpond dispersal. Breeding migration is the movement of salamanders to and from a pond from the surrounding upland habitat. After metamorphosis, juveniles move away from breeding ponds into the surrounding uplands, where they live continuously for several years. At a study in Monterey County, it was found that upon reaching sexual maturity, most individuals returned to their natal/ birth pond to breed, while 20 percent dispersed to other ponds (Trenham *et al.* 2001). After breeding, adult California tiger salamanders return to upland habitats, where they may live for one or more years before attempting to breed again (Trenham *et al.* 2000).

California tiger salamanders are known to travel long distances between breeding ponds and their upland refugia. Generally it is difficult to establish the maximum distances traveled by any species, but salamanders in Santa Barbara County have been recorded dispersing up to 1.3 miles from their breeding ponds (Sweet 1998). As a result of a 5-year capture and relocation study in Contra Costa County, Orloff (2007) estimated that captured California tiger salamanders were traveling a minimum of 0.5 miles to the nearest breeding pond and that some individuals were likely traveling more than 1.3 miles to and from breeding ponds. California tiger salamanders are also known to travel between breeding ponds. One study found that 20 to 25 percent of the individuals captured at one pond were recaptured later at other ponds approximately 1,900 and 2,200 feet away (Trenham *et al.* 2001). In addition to traveling long distances during juvenile dispersal and adult migration, salamanders may reside in burrows far from their associated breeding ponds.

Although previously cited information indicates that California tiger salamanders can travel long distances, they typically remain close to their associated breeding ponds. A trapping study conducted in Solano County during the winter of 2002/2003 suggested that juveniles dispersed and used upland habitats further from breeding ponds than adults (Trenham and Shaffer 2005). More juvenile California tiger salamanders were captured at traps placed at 328, 656, and 1,312 feet from a breeding pond than were trapped at 164 feet from a breeding pond. Approximately 20 percent of the captured juveniles were found at least 1,312 feet from the nearest breeding pond. The associated distribution curve suggested that 95 percent of juvenile California tiger salamanders were within 2,099 feet of the pond, with the remaining 5 percent being found at even greater distances. Preliminary results from the 2003-04 trapping efforts at the same study site detected juvenile California tiger salamanders at even further distances, with a large proportion of the captures at 2,297 feet from the breeding pond (Trenham 1998a). Surprisingly, most juveniles captured, even those at 2,100 feet, were still moving away from ponds. In Santa Barbara County, juvenile Santa Barbara County DPS California tiger salamanders have been trapped approximately 1,200 feet away while dispersing from their natal pond. These data show that many California tiger salamanders travel far while still in the juvenile stage. Post-breeding movements away from breeding ponds by adults appear to be much smaller. During post-breeding emigration from aquatic habitat, radio-equipped adult California

tiger salamanders were tracked to burrows between 62 to 813 feet from their breeding ponds (Trenham 2001). These reduced movements may be due to adult California tiger salamanders exiting the ponds with depleted physical reserves, or drier weather conditions typically associated with the post-breeding upland migration period.

California tiger salamanders are also known to use several successive burrows at increasing distances from an associated breeding pond. Although previously cited studies provide information regarding linear movement from breeding ponds, upland habitat features appear to have some influence on movement. Trenham (2001) found that radio-tracked adults were more abundant in grasslands with scattered large oaks, than in more densely wooded areas. Based on radio-tracked adults, there is no indication that certain habitat types are favored as terrestrial movement corridors (Trenham 2001). In addition, captures of arriving adults and dispersing new metamorphs were evenly distributed around two ponds completely encircled by drift fences and pitfall traps. Thus, it appears that dispersal into the terrestrial habitat occurs randomly with respect to direction and habitat types.

Documented or potential Central California tiger salamanders predators include coyotes, raccoons, striped skunks, opossums, egrets, great blue herons, crows, ravens, garter snakes, bullfrogs, California red-legged frogs, mosquito fish, and crayfish.

The Central California tiger salamander is imperiled throughout its range due to a variety of human activities (Service 2004). Current factors associated with declining Central California tiger salamander populations include continued habitat loss and degradation due to agriculture and urbanization; hybridization with the non-native eastern salamander (Fitzpatrick and Shaffer 2004; Riley *et al.* 2003); and predation by introduced species. Central California tiger salamander populations are likely threatened by multiple factors but continued habitat fragmentation and colonization of non-native salamanders may represent the most significant current threats. Habitat isolation and fragmentation within many watersheds have precluded dispersal between sub-populations. Other threats include predation and competition from introduced exotic species; possible commercial over-utilization; diseases; various chemical contaminants; road kill; and certain mosquito and rodent control operations. Currently, these various primary and secondary threats are largely not being offset by existing Federal, State, or local regulatory mechanisms. The Central California tiger salamander is also prone to chance environmental or demographic events to which small populations are particularly vulnerable.

#### Central California Tiger Salamander Critical Habitat

Critical habitat was proposed for the Central population on August 10, 2004 (Service 2004b); critical habitat was finalized for the Central population of the California tiger salamander on August 23, 2005 (Service 2005). The Service divided the current range of the Central population into four regions: (1) Central Valley; (2) Southern San Joaquin Valley; (3) East Bay; and (4) Central Coast, which represent the unique genetic structure of the subspecies. The action area is located in the Southern San Joaquin Valley region.

The Service determined that conserving the California tiger salamander over the long-term requires a five-tiered approach: (1) Maintaining the current genetic structure across the species range; (2) maintaining the current geographical, elevational and ecological distribution; (3) protecting the hydrology and water quality of breeding pools and ponds; (4) retaining or providing for connectivity between locations for genetic exchange and recolonization; (5) protecting sufficient barrier-free upland habitat around each breeding location to allow for sufficient survival and recruitment to maintain a breeding population over the long-term.

The Service has concluded that areas designated as critical habitat require certain management considerations or protections due to the following threats: (1) Activities that introduce or promote the occurrence of bullfrogs and fish; (2) Activities that could disturb aquatic habitats during the breeding season; (3) Activities that impair the water quality of aquatic breeding habitats; (4) Activities that would reduce small mammal populations to the point that there is insufficient underground Central population refugia used for foraging, protection from predators, and shelter from the elements; (5) Activities that create barriers impassible for salamanders or road crossings that increase mortality in upland habitat between extant occurrences in breeding habitat; (6) Activities on adjacent uplands that disrupt vernal pool complexes' ability to support California tiger salamander breeding function; (7) Activities that introduce non-native tiger salamanders in areas where the California tiger salamander is threatened with hybridization (Service 2004b).

In determining which areas to designate as critical habitat, the Service considers those physical and biological features (PCEs) that are essential to the conservation of the species, and that may require special management considerations and protection (50 CFR § 424.14).

The PCEs for the California tiger salamander are aquatic and upland areas, including vernal pool complexes, where suitable breeding and non-breeding habitats are interspersed throughout the landscape, and are interconnected by continuous dispersal habitat. All areas designated as critical habitat for the Central population contain one or more of the PCEs (Service 2005). These PCEs are:

- Breeding habitat (standing bodies of fresh water, including natural and man-made ponds, vernal pools, and other ephemeral or permanent water bodies that typically become inundated during winter rains and hold water for a sufficient length of time necessary for the species to complete its life cycle).
- Non-breeding habitat (barrier-free upland habitats adjacent to breeding ponds).
- Dispersal and Migration (upland areas adjacent to essential aquatic habitats which are not isolated from other essential aquatic habitats by barriers that central California tiger salamander cannot cross) (Service 2004b).

## **Environmental Baseline**

### **Central California tiger salamanders**

Central California tiger salamanders are known to occur in the vicinity of the action area of the proposed project. The nearest wetland habitat on the National Wetlands Inventory that provides potential breeding habitat is less than 1/3 mile from the proposed project, south of Millerton Road. Rodent burrows occur within the action area and surrounding grassland habitat. A central California tiger salamander was observed and reported to the California Natural Diversity Database (CNDDDB 2011) less than 0.25 mile to the south of the project footprint, along the south side of Millerton Road. Other sightings have been made to the south of Millerton Road; there are no occurrence records for the footprint of the project. There are 14 known occurrences within 2.5 miles of the proposed project (CNDDDB 2011). The action area consists of developed areas including a fenced Park Maintenance Yard with structures, parking and utilities, but around the edges and interspersed within the existing maintenance yard are areas of annual grassland that have small mammal burrows, which is upland habitat for central California tiger salamanders.

### **Central California tiger salamander critical habitat**

The proposed project action area is within Unit 2, Northeast Fresno Unit of the Southern San Joaquin Region of critical habitat. Unit 2 is located northeast of Fresno, southwest of Millerton Lake, east of Friant Road and generally west of the small community of Academy (Service 2004b) and consists of approximately 4,961 acres. Unit 2 is essential for the conservation of the Central population of the California tiger salamander; it is needed to maintain the current geographic and ecological distribution of the species in the Southern San Joaquin Region. This Unit also represents the Southern Sierra Foothills vernal pool region in Fresno County, the northern end of the Southern San Joaquin Region, and the southern portion of the species' distribution in the San Joaquin Valley. It contains six extant occurrences of the salamander (CNDDDB 2011).

The PCEs for the central California tiger salamander include both aquatic and upland areas; the primary constituent elements affected within the action area are entirely upland habitat. The action area is within annual grassland habitat and small mammal burrows are common providing upland non-breeding and dispersal/migration PCE's for central California tiger salamanders.

## **Effects of the Proposed Action**

### **Central California Tiger Salamander**

Construction activities, including trenching and excavation, stockpiling and grading will have direct effects on the central California tiger salamander when they are present within the action area. Injury and/or mortality are reasonably likely to occur from trenching and grading in upland habitat and if occupied burrows extend into the trenching. Construction activities that occur during the rainy season (October 15 through April 15), including fencing and excavation of linear

trenches, will impede and alter the movement of adult salamanders between upland habitat and breeding sites, and also the dispersal of juvenile salamanders from breeding ponds to upland habitat. Dispersing individuals will be vulnerable to mortality from construction vehicles. The scoping of potential burrow refugia will likely harass any salamanders that may be present in the burrows. Individuals that may be relocated from the action area will be harassed, and could potentially suffer injury or death during the excavation procedure. All temporarily affected upland habitat will be allowed to return to preconstruction conditions, eventually providing habitat quality similar to the pre-project conditions.

#### Central California Tiger Salamander Critical Habitat

The proposed project will result in temporary impact of 0.9 acre of Unit 2, Northeast Fresno Unit of the Southern San Joaquin Region. The portion of the Unit that is affected is very small and consists of upland refugia and not any potential breeding habitat. The PCEs affected only reflect the non-breeding portion of the central California tiger salamander's life cycle.

#### **Cumulative Effects**

Cumulative effects include the effects of future State, Tribal, local, or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions 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 unaware of any actions currently planned within the proposed project action area.

#### **Conclusion**

After reviewing the status of the central California tiger salamander, 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 proposed project, as described, is not likely to jeopardize the continued existence of the species, and is not likely to cause an appreciable reduction in the likelihood of both the survival and recovery of the central California tiger salamander in the wild.

The Service determines that the impacts to critical habitat from the proposed project will not destroy or adversely modify critical habitat, nor reduce its ability to contribute to the recovery of the species.

### **INCIDENTAL TAKE STATEMENT**

Section 9(a)(1) 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 harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harm is further defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns including breeding, feeding, or sheltering. Harass is defined by the

Service as intentional or negligent actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, 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)(4) 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 this Incidental Take Statement.

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

### **Amount or Extent of Take**

The Service anticipates that incidental take of individual central California tiger salamanders cannot be quantified because the central California tiger salamander inhabits small mammal burrows, making detection difficult; central California tiger salamanders occupy a large range and are primarily active above ground only at night and during the breeding season. In instances when the Service cannot quantify individuals taken, the Service may estimate take in terms of the number of acres of habitat permanently lost or degraded as a result of the proposed action. Due to the difficulty in quantifying the number of central California tiger salamanders that will be taken as a result of the proposed action, the Service is quantifying take incidental to a project as the amount of acres of habitat that will be affected for the species as a result of the action, this amounts to 0.9 acre of habitat. Upon implementation of the *Best Management Practices*, *Proposed Conservation Measures*, *Reasonable and Prudent Measures* and the *Terms and Conditions* considered herein, incidental take of central California tiger salamander within this acreage in the forms of harm and harassment due to the Proposed Project activities, leading to habitat loss and degradation will become exempt from the prohibitions described in section 9 of the Act.

### **Effect of the Take**

The Service has determined that the level of anticipated take is not likely to result in jeopardy to the central California tiger salamander, or destroy or adversely modify designated critical habitat.

**Reasonable and Prudent Measure**

The Service has determined that the following reasonable and prudent measure is necessary and appropriate to minimize the effects of the proposed project on the central California tiger salamander.

1. Avoid and minimize adverse effects to the central California tiger salamander and its habitat as a result of the proposed action.

**Terms and Conditions**

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

The following Terms and Conditions implement the Reasonable and Prudent Measure (1):

1. All of the BMP and Conservation Measures proposed in the final BA *Project Description*, as restated or summarized in this Biological Opinion, must be fully implemented.
2. Reclamation personnel, and all agents, permitted entities, and contractors representing Reclamation, will implement all the described BMP and conservation measures included in this Biological Opinion.
3. In order to monitor whether the amount or extent of incidental take anticipated from implementation of the project is approached or exceeded, Reclamation shall adhere to the following reporting requirements. Should this anticipated amount or extent of incidental take be exceeded, Reclamation must immediately reinitiate 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, Reclamation will provide weekly 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, Reclamation shall immediately contact the Service's Sacramento Fish and Wildlife Office (SFWO) at (916) 414-6600 to report the encounter. If an encounter occurs after normal



working hours, Reclamation shall contact the SFWO at the earliest possible opportunity the next working day. When injured or killed individuals of the listed species are found, Reclamation shall follow the steps outlined in the Salvage and Disposition of Individuals Taken section below.

### **Salvage and Disposition of Individuals Taken**

In the event of injured and/or dead central California tiger salamander, the Service shall be notified within one day and the animals shall only be handled by a Service-approved, permitted biologist. Any injured central California tiger salamander shall be cared for by a licensed veterinarian or other qualified individual. In the case of a dead central California tiger salamander, the individual shall be preserved as appropriate, and held in a secure location until further instructions are received from the Service regarding the disposition of the specimen, or until the Service, or Service designee, is able to take custody of the specimen. Reclamation must report to the Service within one calendar day any information about take or suspected take of a federally-listed species not exempted in this Biological Opinion. Notification must include date, time, and location of the incident, or of the finding of a dead individual. The Service contacts for such events are Daniel Russell, Deputy Assistant Field Supervisor, Endangered Species Program, SFWO, at (916) 414-6600, and Rebecca Roca, Resident Agent-in-Charge, Law Enforcement Division, at (916) 414-6660.

### **CONSERVATION RECOMMENDATIONS**

Section 7(a)(1) of the Act directs Federal agencies to utilize their authorities to further the purpose 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 and databases.

In order that the Service 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 recommendations. We propose the following conservation recommendations to Reclamation:

1. Assist the Service in implementing recovery actions for the central California tiger salamander, or any other federally listed species, and their critical habitat areas.
2. Encourage or require the use of appropriate California native species in revegetation and habitat enhancement efforts associated with projects authorized or undertaken by Reclamation.
3. Sightings of any listed or sensitive animal species should be reported to the California Natural Diversity Database of the California Department of Fish and Wildlife. A copy of

the reporting form and a topographic map or adequate aerial photograph clearly marked with the location the animals were observed also should be provided to the Service.

4. Contact the California Department of Fish and Wildlife and obtain the necessary State incidental take permit require for species listed under the California Endangered Species Act.

#### **REINITIATION - CLOSING STATEMENT**

This concludes formal consultation on the proposed project. As provided in 50 CFR §402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been maintained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action.

If you have any questions or concerns about this consultation please contact Rocky Montgomery, Senior Fish and Wildlife Biologist, or Thomas Leeman, Chief, San Joaquin Valley Division at (916) 414-6600.

cc:

David E. Hyatt, BOR, Fresno, CA

Shauna McDonald, BOR, Fresno, CA

Steve Hulbert, California Department of Fish and Wildlife, Fresno, CA

Zachary Simmons, USACOE, Sacramento, CA

Willis E. Robinson, Fresno County, Fresno, CA

Ryan Lee, AES, Sacramento, CA

## Literature

- Anderson, J.D. 1968. Comparison of the food habits of *Ambystoma macrodactylum sigillatum*, *Ambystoma macrodactylum croceum*, and *Ambystoma tigrinum californiense*. *Herpetologica* 24(4):273-284.
- Anderson, P.R. 1968. The reproductive and developmental history of the Central California tiger salamander. Master's thesis, Department of Biology, Fresno State College, Fresno, California. 82pp.
- Barry, S.J. and H.B. Shaffer. 1994. The status of the Central California tiger salamander (*Ambystoma californiense*) at Lagunita: A 50-year update. *Journal of Herpetology* 28(2):159-164.
- California Department of Fish and Game (CDFG). 2011. California Natural Diversity Database (CNDDDB). Natural Heritage Division, California Department of Fish and Game. Sacramento, California.
- Feaver, P.E. 1971. Breeding pool selection and larval mortality of three California amphibians: *Ambystoma tigrinum californiense* Gray, *Hyla regilla* Baird and Girard and *Scaphiopus hammondi hammondi* Girard. Master's thesis, Department of Biology, Fresno State College, Fresno, California. 58pp.
- Fitzpatrick, B.M. and H.B. Shaffer. 2004. Environmental-dependent admixture dynamics in a tiger salamander hybrid zone. *Evolution* 58(6):1282-1293.
- Jennings, M.R. and M.P. Hayes. 1994. Amphibian and reptile species of special concern in California. California Department of Fish and Game, Rancho Cordova, California. 255 pp.
- Loredo, I., and D. Van Vuren. 1996. Reproductive ecology of a population of the Central California tiger salamander. *Copeia* 1996(4):895-901.
- Loredo, I., D. Van Vuren and M. L. Morrison. 1996. Habitat use and migration behavior of the Central California tiger salamander. *Journal of Herpetology* 30(2):282-285.
- Morey, S.R. 1998. Pool duration influences age and body mass at metamorphosis in the western spadefoot toad: implications for vernal pool conservation. Pages 86-91 in C.W. Witham, E.T. Bauder, D. Belk, W.R. Ferren Jr., and R. Ornduff (editors). *Ecology, Conservation, and Management of Vernal Pool Ecosystems - Proceedings from a 1996 Conference*. California Native Plant Society. Sacramento, California. 1998.
- Orlaf, S. 2007. Migratory Movements of California Tiger Salamanders in Upland Habitat, A Five Year Study, Pittsburg, California. Prepared for Bailey Estates LLC. May 2007.

- Pechmann, J.H.K., D.E. Scott, J.W. Gibbons, and R.D. Semlitsch. 1989. Influence of wetland hydroperiod on diversity and abundance of metamorphosing juvenile amphibians. *Wetlands Ecology and Management* 1(1):3-11.
- Petranka, J. W. 1998. Salamanders of the United States and Canada. Smithsonian Institution Press, Washington, D.C.
- Riley, S.P.D., H.B. Shaffer, S.R. Voss, and B.M. Fitzpatrick. 2003. Hybridization between a rare, native tiger salamander (*Ambystoma californiense*) and its introduced congener. *Biological Applications* 13(5):1263-1275.
- Scott, D.E. 1994. The effect of larval density on adult demographic traits in *Ambystoma opacum*. *Ecology* 75:1383-1396.
- Semlitsch, R.D., D.E. Scott, and J.H.K. Pechmann. 1988. Time and size at metamorphosis related to adult fitness in *Ambystoma talpoideum*. *Ecology* 69:184-192.
- Semonsen, V.J. 1998. Natural History Notes: *Ambystoma californiense* (Central California tiger salamander). Survey technique. *Herpetological Review* 29:96.
- Shaffer, H.B., G.B. Pauly, J.C. Oliver, and P.C. Trenham. 2004. The molecular phylogenetics of endangerment: cryptic variation and historic phylogeography of the Central California tiger salamander, *Ambystoma californiense*. *Molecular Ecology* 13: 3033-3049.
- Shaffer, H.B., R.N. Fisher, and S.E. Stanley. 1993. Status report: the Central California tiger salamander (*Ambystoma californiense*). Final report for the California Department of Fish and Game.
- Stebbins, R.C. 1985. A field guide to western reptiles and amphibians. Houghton Mifflin Co. Boston, Massachusetts. Pp. 33-37.
- \_\_\_\_\_. 1989. Declaration of R.C. Stebbins in support of petition of writ of mandate. Sierra Club and Richard Pontuis v. Gilroy City Council, Shappell Industries *et al.* Santa Clara County Superior Court. March 16, 1989. 11 pp. plus exhibits.
- \_\_\_\_\_. 2003. A field guide to western reptiles and amphibians. Houghton Mifflin Company Boston, Massachusetts.
- Storer, T.I. 1925. A synopsis of the amphibia of California. University of California Publications in Zoology 27:1-342.
- Sweet, S. 1998. Letter to Dwight Harvey, U.S. Fish and Wildlife Service with an unpublished report titled Vineyard development posing an imminent threat to *Ambystoma californiense* in Santa Barbara County, California. University of California, Santa Barbara, California.

Trenham, P. 1998a. Radiotracking information. University of California, Davis, California.

\_\_\_\_\_. 1998b. Demography, migration, and metapopulation structure of pond breeding salamanders. Ph.D. dissertation. University of California, Davis, California.

\_\_\_\_\_. 2001. Terrestrial habitat use by adult Central California tiger salamanders. *Journal of Herpetology* 35:343-346.

Trenham, P.C., W.D. Koenig, and H.B. Shaffer. 2001. Spatially autocorrelated demography and interpond dispersal in the salamander *Ambystoma californiense*. *Ecology* 82:3519-3530.

Trenham, P.C., and H.B. Shaffer. 2005. Amphibian upland habitat use and its consequences for population viability. *Ecological Applications* 15:1158-1168.

Trenham, P.C., H.B. Shaffer, W.D. Koenig and M.R. Stromberg. 2000. Life History and Demographic variation in the CTS (*Ambystoma californiense*). *Copeia* 2000(2):365-377.

Twitty, V.C. 1941. Data on the life history of *Ambystoma tigrinum californiense* Gray. *Copeia* 1941 (1):1-4.

U.S. Fish and Wildlife Service (Service). 2004. Endangered and threatened wildlife and plants; determination of threatened status for the Central California tiger salamander; and special rule exemption for existing routine ranching activities; final rule. **Federal Register** 69:47212-47248.

\_\_\_\_\_. 2004b. Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the Central California tiger salamander, Central Population; Proposed Rule. **Federal Register** 69:48570.

\_\_\_\_\_. 2005b. Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the Central California tiger salamander, Central Population; Final Rule. **Federal Register** 70:49379.

Van Hatten, M.G. 2004. Underground ecology and natural history of the CTS. Master of Science thesis. San Jose State University, San Jose, California.

Wilbur, H.M. and J.P. Collins. 1973. Ecological aspects of amphibian metamorphosis. *Science* (n.s.) 182(4119):1305-1314.

# APPENDIX G

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## SHPO CONCURRENCE LETTER



**OFFICE OF HISTORIC PRESERVATION  
DEPARTMENT OF PARKS AND RECREATION**

1725 23<sup>rd</sup> Street, Suite 100  
SACRAMENTO, CA 95816-7100  
(916) 445-7000 Fax: (916) 445-7053  
calshpo@parks.ca.gov  
www.ohp.parks.ca.gov

**SCANNED**



BUREAU OF RECLAMATION OFFICIAL FILE COPY RECEIVED		
JUL 11 2011		
CODE	ACTION	SUBNAME & DATE
150	✓	
153	copy	7/12/11

July 07, 2011

Anastasia Leigh - Acting Regional Environmental Officer  
United States Department of the Interior  
Bureau of Reclamation, Mid-Pacific Regional Office  
2800 Cottage Way  
Sacramento, CA 95825-1898

Reply in Reference To: BUR110627A

Re: Section 106 Compliance for the *Winchell Cove Pipeline Improvement Project, Fresno County, California* (Tracking #10-SCAO-289)

Dear Ms. Leigh:

Thank you for consulting pursuant to 36 CFR Part 800 (as amended 8-05-04) regulations implementing Section 106 of the National Historic Preservation Act (NHPA). The Bureau of Reclamation (BUR) is the lead Federal agency for the above referenced undertaking and is seeking concurrence on (1) the delineation of the Area of Potential Effect (APE), (2) resource identification efforts, and (3) concurrence on a finding of "No Historic Properties Affected."

Your report titled *Cultural Resources Study, CSA 34 Winchell Cove Pipeline Project, Fresno County, CA* prepared by Analytical Environmental Services (AES) in 2011 documents Section 106 work completed for the current pipeline undertaking. Spanning approximately 1.36 miles, the current undertaking is located between the existing Winchell Cove pumping station at Millerton Lake and a point due south on Millerton Road east of the intersection with Winchell Cove Road. As described in the report, the APE consists of a 40.0-ft wide buffer that extends 20-ft off each side of the pipeline alignment. The current undertaking involves digging a single 24-in wide trench to depths ranging between 48-in and 60-in and installing one new 12-in diameter pipe immediately adjacent an existing 12-in water pipe. All staging and access will be restricted to existing parking areas and roads.

Resource identification work included historic and prehistoric research, searches of pertinent records on file at the Southern San Joaquin Valley Information Center (for a 0.25-mile study area surrounding the aforementioned APE), a Native American Heritage Commission sacred lands and contacts search, consultation with the nearby Table Mountain Rancheria as well as the Big Sandy and Cold Springs Rancherias, and field-survey. Background research indicated a total of seven prior cultural resource surveys and four previously recorded prehistoric sites (Ca-Lan-357, -759, -762 and -763) had been documented within the 0.25-mile study area; with all of the latter located outside the current APE. Field-survey of the APE identified no new cultural resources and involved work completed by AES in 2011 and Table Mountain Rancheria in 2008.

After reviewing the aforementioned report, I have the following comments:

1. Pursuant to 36 CFR Parts 800.4(a)(1) and 800.16(d), I find the *Area of Potential Effect (APE)* for the current undertaking properly determined and documented.
2. Pursuant to 36 CFR Part 800.4(b)(1), I find the *Level of Effort* discussed above appropriate for identifying historic properties in the APE.
3. Based on the above comments, I **concur** with the finding of "No Historic Properties Affected" pursuant to 36 CFR Part 800.4(d)(1), as resource identification work indicated there are no

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cultural resources in the APE.

4. Please be advised that under certain circumstances, such as an unanticipated discovery or a change in project description, the BUR may have additional future responsibilities for this undertaking under 36 CFR Part 800.

Thank you for considering historic properties as part of your project planning. Please contact Jeff Brooke of my staff at (916) 445-7003 or at [jbrooke@parks.ca.gov](mailto:jbrooke@parks.ca.gov) if you have any questions or concerns.

Sincerely,

*Susan H Stratton for*

Milford Wayne Donaldson, FAIA  
State Historic Preservation Officer