
DRAFT ENVIRONMENTAL ASSESSMENT (11-097)

*FRESNO COUNTY WATER WORKS DISTRICT NO. 18 AND LOWER TULE RIVER
IRRIGATION DISTRICT REQUEST FOR APPROVALS PURSUANT TO THE FRIANT
RANCH SPECIFIC PLAN*

Appendix A
Friant Ranch Proposed Community Plan Area

May 2013

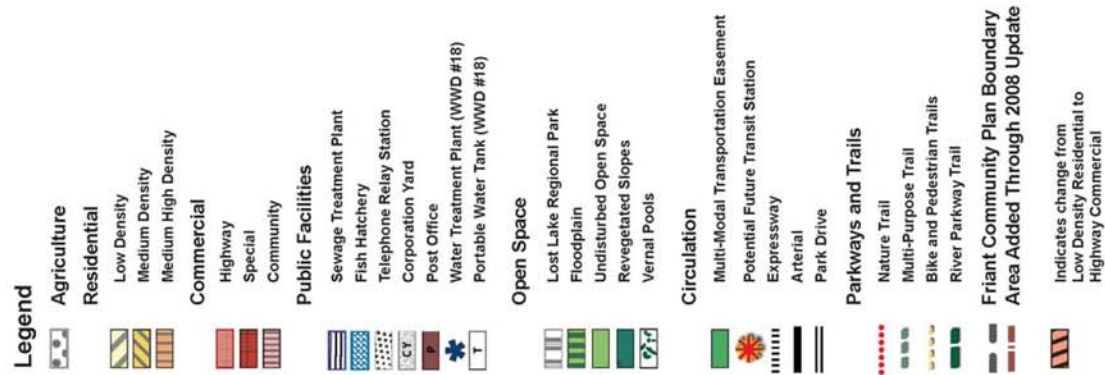
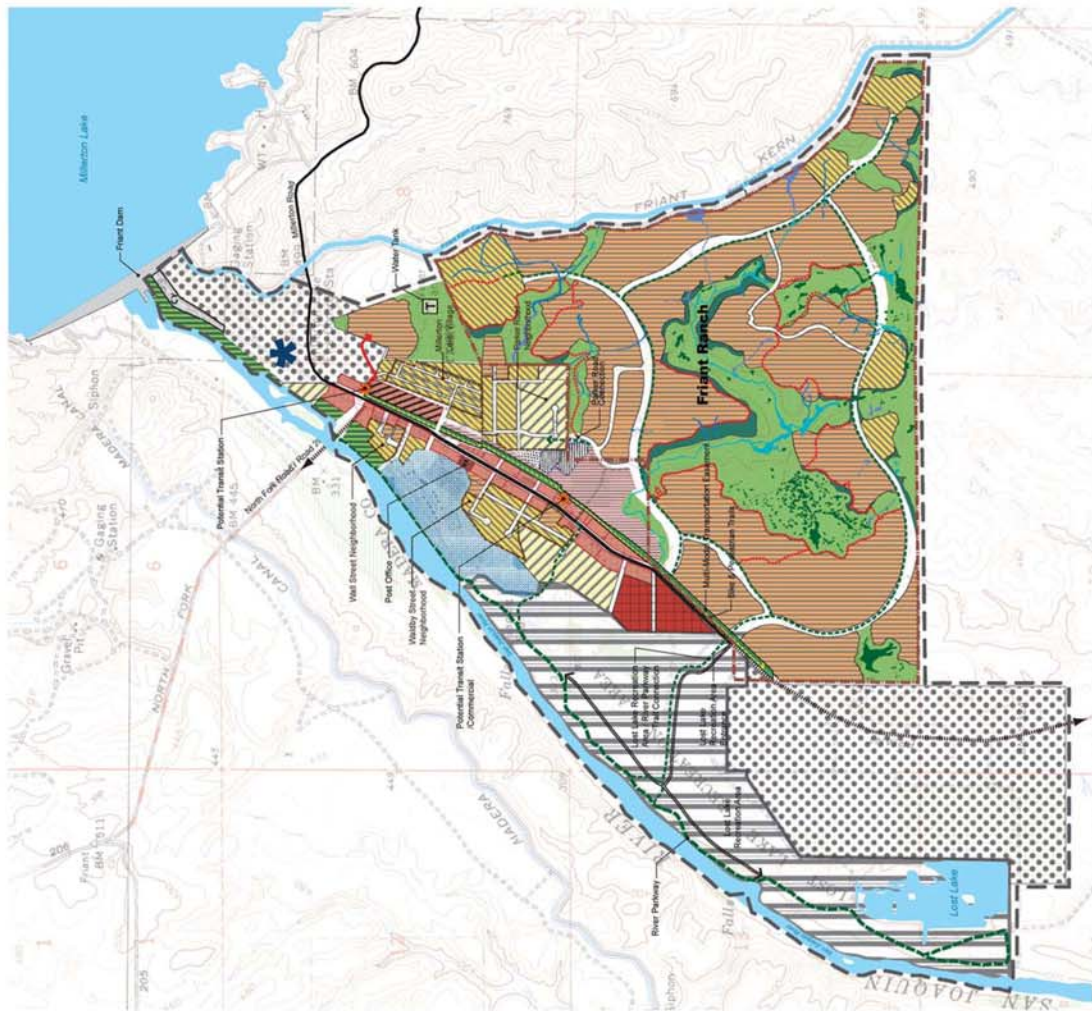


FIGURE
2 – 7

PROPOSED FRIANT COMMUNITY PLAN AREA



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Appendix B
Fresno County LAFCo Approved Annexation Map

May 2013

EXHIBIT "A"



Legend

- District SOI
- District Area
- Affected Territory

Waterworks District No. 18 "Sphere of Influence Revision", "Friant Ranch Annexation", and "Extension of Wastewater Services" (LAFCo File Nos. RSOI-156, AD-11-1, and EP-11-1)



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Appendix C

**U.S. Army Corps of Engineers Friant Ranch Development
Biological Opinion**

May 2013



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:
81420-2008-F-0844-07

APR 07 2010

Zachary M. Simmons, Project Manager
Department of the Army
U.S. Army Engineer District, Sacramento
1325 J Street
Sacramento, California 95814

Subject: Biological Opinion on the Proposed Friant Ranch Project, Fresno County,
California (U.S. Army Corps of Engineers File No. SPK-2004-966)

Dear Mr. Simmons:

Thank you for your letter dated March 4, 2009 requesting formal consultation with the U.S. Fish and Wildlife Service (Service) on the proposed Friant Ranch Project (Project) owned by Friant Ranch, a Limited Partnership (L.P.). This document is issued in accordance with section 7(a)(2) of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*) (Act). This Project is located east of North Friant Road, near Millerton Lake, in the unincorporated community of Friant in Fresno County, California (Figure 1). The 942.2-acre Project is an active-adult planned housing community that also incorporates two recreation centers, a Village Center for retail and commercial use, and 460 acres of open space. Your request for formal consultation included the September 23, 2008 *Section 7 Initiation Document* (Initiation Document) on the proposed Project and was received in our office on March 9, 2009.

We sent the U.S. Army Corps of Engineers (Corps) an April 28, 2009 letter requesting confirmation to this request to clarify the chosen Project alternative (Alternative #6). We received your electronic mail response in our office on May 7, 2009, confirming that the Project design presented in the Initiation Document is in fact the final Project design (also known as Alternative #6). Also, you confirmed in the same electronic message that the preferred effluent disposal site is the Beck property (formerly the CEMEX gravel extraction facility), which is analyzed in the Initiation Document. This letter represents the Service's biological opinion on the effects of the proposed action on the federally-listed as threatened California tiger salamander (*Ambystoma californiense*) (salamander) within the Southern San Joaquin Region of the Central Valley Distinct Population Segment (DPS), the federally-listed as threatened vernal pool fairy shrimp (*Branchinecta lynchi*) (fairy shrimp), the federally-listed as endangered Hartweg's golden sunburst (*Pseudobahia bahiifolia*) (Hartweg's), and the federally-listed as threatened fleshy

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owl's-clover (*Castilleja campestris* ssp. *succulenta*) (owl's-clover). Based on available information, the proposed Project will remove 482.2 acres of suitable habitat for the salamander, the fairy shrimp, the Hartweg's, and the owl's-clover, and construction is therefore likely to adversely affect these species. The proposed Project is located within the "Fresno Core Area" of the "Southern Sierra Foothills Vernal Pool Region" of the *U.S. Fish and Wildlife Service Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon, 2005 (Recovery Plan)*.

The Service does not concur with the Corps' determination that construction of the proposed Project may affect, but is not likely to adversely affect, the owl's-clover. There will be indirect impacts to the owl's-clover found in two vernal pools on the Project site as the average buffer width is less than 250 feet. The buffer is approximately 123.0 feet (the buffers adjacent to the proposed development range from 109-142 feet). The two vernal pools are 0.483 acre collectively.

This consultation is based on: (1) the *Initiation Document, Friant Ranch* prepared by Live Oak Associates (LOA) dated September 23, 2008; (2) *Mitigation and Monitoring Plan, Friant Ranch Specific Plan* prepared by LOA dated May 1, 2009; (3) *Draft Biological Evaluation, Friant Ranch Specific Plan* prepared by LOA dated December 3, 2007; (4) *90-day Report Non-Protocol Level Branchiopod Survey 246.69-Acre Klein Morgan Parcel* prepared by LOA, dated August 9, 2007; (5) *Klein/Morgan Property Biological Opportunities and Constraints Analysis* prepared by LOA dated September 29, 2006; (6) *Waters of the United States Nohrnberg 582.90-Acre Parcel, Madera County*, dated September 7, 2006; (7) *Biological Constraints Analysis Nohrnberg Parcel*, prepared by LOA dated November 4, 2004; (8) *Friant Ranch Comments on the Proposed Habitat Designation and Related Draft Economic Analysis for the California Tiger Salamander, Central Population*, dated July 30, 2005; and (9) telephone calls, faxes, and electronic messages between the Service, Corps, LOA consultants, Jakki McDonald of Somach, Simmons & Dunn, Clark Morrison of Cox, Castile & Nicholson, Dennis Bacopulos of Friant Ranch L.P., and Tom Skordal of Gibson & Skordal, LLC.

Consultation History

- | | |
|------------------|--|
| October 8, 2004: | A comment letter was sent from Friant Ranch L.P. to the Service on the proposed critical habitat designation for the salamander Central Population. |
| June 16, 2005: | Peter Cross, Susan Jones, and Jeff Jorgenson (Service) met with project representatives on salamander habitat conservation efforts to date. |
| July 30, 2005: | Letter and materials were sent to Wayne White (Service) on the proposed salamander critical habitat designation and related draft economic analysis. |
| July 6, 2006: | Jeff Jorgenson (Service) met with Kathy Norton, Ramon Aberasturi (Corps) and project representatives for a pre-application meeting. |

- October 10, 2006: The Service issued a letter regarding comments on the July 6, 2006 pre-application meeting.
- October 25, 2006: Susan Jones, Ken Sanchez, and Jeff Jorgenson (Service), met with project representatives and Jakki McDonald (Somach, Simmons, & Dunn) regarding the off-site Norhnberg compensation property and the revised Friant Ranch Land Plan.
- November 8, 2006: Jeff Jorgenson (Service), Ramon Aberasturi (Corps), and Ned Gruenhagen (U.S. Bureau of Reclamation) attended site visits at the Friant Ranch and Norhnberg properties.
- February 9, 2007: The Service sent a letter to the Project representatives regarding a site visit, compensation property, and a follow-up to the October 25, 2006 meeting.
- March 14, 2007: Susan Jones, Ken Sanchez, Jeff Jorgenson, and Susan Moore (Service) met with Bill Loudermilk, Jeff Single, and Annee Ferranti (Department of Fish and Game {DFG}) at the Willow Lodge regarding regional planning.
- July 26, 2007: Jeff Jorgenson (Service), Lisa Clay, Kathy Norton, and Ramon Aberasturi (Corps), and representatives from Balance Hydrologics and Somach, Simmons & Dunn attended a meeting on Friant Ranch.
- August 20, 2007: The Service sent a letter to the project representatives regarding comments on the proposed avoidance, minimization and compensation measures.
- February 20, 2008: The Service sent a letter to project representatives regarding additional comments on the proposed avoidance, minimization, and compensation measures.
- April 24, 2008: The Service received a letter from the project representatives submitting the revised development plan, also known as Alternative #6.
- July 10, 2008: An interoffice memorandum was prepared by Jeff Jorgenson to Ken Sanchez (Service) stating that the Alternative #6 is a good compromise between development and habitat preservation.
- March 4, 2009: The Corps initiated formal consultation with the Service.
- April 27, 2009: The Service issued a letter to the Corps requesting additional information in order to initiate consultation.
- April 28, 2009: Kellie Berry (Service), Justin Sloan (DFG), Zachary Simmons (Corps) and project consultants attended a site visit at Friant Ranch, Norhnberg property and the Klein/Morgan property.

- May 6, 2009: Gibson & Skordal submitted *Friant Ranch Mitigation and Monitoring Plan and Long-term Management Plan* to the Service, Environmental Protection Agency, Corps, and DFG.
- May 8, 2009: Kellie Berry (Service) responded to Zachary Simmons' (Corps) electronic mail message confirming that the additional information had been received and formal consultation then commenced on May 7, 2009.
- May 20, 2009: Kellie Berry (Service), Justin Sloan (DFG) met with David Hartesveldt (LOA) at the Beck property, the site of a 25.0 acre percolation pond for effluent discharge from Friant Ranch.
- June-August, 2009: Telephone conversations between Kellie Berry, Ken Sanchez (Service), Tom Skordal (Gibson & Skordal), and Clark Morrison (Cox, Castle & Nicholson) to address indirect effects to the owl's-clover and the status of issuing the biological opinion.

BIOLOGICAL OPINION

Description of the Proposed Action

Friant Ranch L.P. proposes to develop a 942.2-acre active-adult (ages 55+) mixed-use master planned community located in the Friant Ranch Specific Plan. The site is located east of Friant Road, adjacent to the town of Friant, and west of the Friant-Kern Canal in northern Fresno County, California. The proposed Project is located in Sections 7, 8, 17, 18, Township 11 South, Range 21 East (MDB&M: USGS Friant, California 7.5-Minute Quadrangle).

Approximately 460 acres of the 942.2-acre Project site are proposed for permanent open space with the remaining 482.2 acres proposed for development. Due to the topography of the site, 22.4 acres of undeveloped revegetated slopes also are included in the 482.2 acre calculation. These slopes are adjacent to the undisturbed onsite open space areas. Development of the proposed Project will occur in the western, northern and eastern areas of the site. Development will not border the large undeveloped parcel to the south along the common property boundary, except for approximately 1,000 feet immediately west of the Friant-Kern Canal. A majority of the development is east of and contiguous to Friant Road, southwest of the Friant-Kern Canal and the existing developed areas of the Friant community.

The 482.2 acre development area of the proposed Project is comprised of the following:

- 331.8 acres (~2,104 units) for single family;
- 13.3 acres (~166 units) for multi-family;
- 14.3 acres (~230 units) for non-age restricted multi-family;
- 47.7 acres for roads;
- 16.1 acres for two active adult recreation centers;
- 4.0 acres for a waste water treatment plant;

- 32.6 acres for a Village Center (commercial/retail); and
- 22.4 acres of slopes, adjacent to the open space, will be revegetated with native grasses.

Drainage System

The drainage system will be a combination of conventional curb and gutter and a bio-filtration system with other natural landscape features in accordance with Low Impact Development (LID) standards. LID was developed in Maryland in the 1990's under a study grant funded by the EPA. LID works with nature to manage storm water and all on-site runoff as close to its natural state as possible. The goal is to mimic a site's predevelopment runoff rates and volumes. Unlike traditional storm water management, which collects and quickly conveys storm water runoff through a system of drains and pipes into a centralized storm water facility, LID employs principles such as preserving and recreating natural landscape features that treat storm water as a resource rather than a waste product. The LID process forms what is called a "treatment train" of inter-connected natural landscape features lined with plants and other materials to filter and control runoff. On the proposed Project site, all runoff from roads and landscaping will drain to the front of the lots into a standard curb and gutter system. Flows will then drain from this system into the drainage facilities/basins on the property. The "treatment train" will start at each lot with rain gardens and integrate with the curb and gutter system using natural swales and other LID practices. This is to ensure that all runoff from the roads and development will be directed away from direct discharges into the open space preserves and into the LID "treatment train". The only discharges of water to the open space areas would occur when flows would normally discharge into the open space preserve naturally. During dry years and periods of low rainfall, all water will remain in the basins and evaporate or be absorbed into the ground.

Water and On-site Water Distribution System

The water for the proposed Project is subject to the approval of the U.S. Bureau of Reclamation and will be transferred from the Lower Tule River Irrigation District to Water Works District 18. This water transfer will be authorized under a separate Federal action and subject to analyses under the Act. The water distribution system will include a new tank and pump constructed within the proposed development with water mains located primarily in the footprint of the proposed roads. All work will occur within the limits of the construction boundary to avoid impacts to biological resources.

Waste Water Treatment Facility

The proposed waste water treatment facility (facility) will serve the new residents of the proposed Project and it also will function as a replacement of the existing Millerton Lake Village Wastewater Treatment Plant. The facility is located east of Friant Road and north of the proposed commercial/village center. It will have sufficient capacity to serve the needs of 5,765 residents, the size of the Friant Ranch population at build-out plus the planned build-out for the existing community of Friant. The capacity is estimated at 700,000 – 800,000 gallons per day or as much as 900 acre feet per year. The applicant proposes land disposal during the spring, summer and fall for all effluent generated by the wastewater treatment plant. The land disposal

also will include the effluent retained during the winter months. The 150 acre effluent storage and reuse site is known as the Beck property but was formerly referenced as the CEMEX gravel extraction facility in the Initiation Document. The wastewater/effluent will traverse via pipes to and from the proposed Project site under Friant Road and onto the Beck property. The effluent will then discharge into an approximately 25.0 acre effluent storage pond which was originally an open pit created by the extraction of sand and gravel operations. The effluent storage pond will receive discharge year around with the water level fluctuating based on effluent disposal rates. Effluent disposal will be applied at both the Beck property and the Friant Ranch Project. The effluent storage pond is approximately 0.28 miles (1,500 linear feet) from the San Joaquin River (River). The direction of groundwater movement is parallel to the River; therefore, there is no opportunity for effluent to percolate into the River. All effluent will be treated to a tertiary level and will meet Title 22 requirements for unrestricted use.

Construction will commence in spring 2010 and build out will occur by 2016 depending on market conditions.

The Initiation Document for the Project contains three components to maximize the long-term conservation of the federally-listed species which inhabit vernal pools and associated upland areas: 1) establish an on-site avoidance area to be protected under a conservation easement held by a Service-approved entity; 2) establish three off-site preservation properties to be protected under conservation easements held by a Service-approved entity; and 3) restore off-site vernal pools.

The proposed Project activities will be located within and adjacent to habitats suitable for the vernal pool fairy shrimp and salamander. The effects are as follows:

On-Site Wetland Habitat	Existing Acres	Acres of Direct Fill*	Acres of Indirect Impact	On-site Wetland Acres Preserved
Vernal Pools	14.4 acres	0.99 acres	1.09 acres	12.32 acres
Vernal Swales	12.4 acres	4.32 acres	0.60	7.5 acres
Intermittent Channel**	8.2 acres	1.47 acres	0	6.7 acres
TOTAL	35.0 acres	6.78 acres	1.69 acres	26.5 acres

*Of the 6.78 acres of direct impact, all of the 5.31 acres (0.99 acres + 4.32 acres) of the vernal pools/swales are considered suitable fairy shrimp and salamander habitats and will be directly impacted. Indirect impacts will occur to 1.69 acres of suitable fairy shrimp and salamander habitats. Therefore, the combined direct and indirect impacts to suitable fairy shrimp and salamander habitats are 7.0 acres.

**The intermittent channel habitat is not endangered species habitat and is only included in this table since it is a water regulated under the Corps' Section 404 Clean Water Act. This category is included in the table as it is part of the total direct fill acreage calculation provided by the Corps.

The proposed Project will directly affect 0.009 acre (401 sq. ft.) of the Hartweg's subpopulation located in the upland areas on both the eastern edge and the northern portion of the proposed Project.

The proposed Project will indirectly affect 0.483 acre of vernal pools which support the fleshy owl's-clover. These two vernal pools are located in the northern portion of the largest proposed designated open space preserve area.

Proposed Conservation Measures

The conservation measures, as noted below, are considered a part of the proposed Project evaluated by the Service in this biological opinion. Any change in these plans or their implementation that might adversely affect listed species, either directly or indirectly, requires reinitiation of consultation with the Service, as set forth in the final paragraphs of this biological opinion.

General Avoidance and Minimization Measures:

1. No ground disturbing activities shall be allowed outside of the Project construction boundary. Construction fencing shall be placed along the construction boundary to clearly mark the limits of ground disturbing activities.
2. All project-related traffic shall be restricted to designated access roads, routes and construction areas within the construction boundary. No vehicular or pedestrian traffic or staging areas shall be allowed outside of the designated construction boundary.
3. Prior to initiation of any site preparation/construction activities, a Service-approved biologist will conduct an education and training session for essential construction personnel (construction manager, superintendent, and foremen). The training program will instruct the essential construction personnel on the life history, ecology, and legal context of listed and other sensitive species and their habitats. Sign-up sheets identifying attendees and the contractor/company they represent will be provided to the Service. The Service-approved biologist is responsible for training and informing staff on the avoidance and minimization procedures and legal context regarding listed species.
4. To prevent sediment, hazardous materials, and other pollutants from washing or running off into vernal swales and pools outside of the construction boundary, the project applicant shall implement best management practices as identified in a Storm Water Pollution Prevention Plan (SWPPP). A SWPPP shall be prepared for the Project and shall be submitted to the Service when completed.
5. All fueling and maintenance of vehicles and construction equipment shall occur within the construction boundary and at least 250 feet away from any water body.

(i.e., seasonal wetland, vernal swale, or vernal pool). The project applicant and their contractor shall ensure that habitats are not contaminated by fueling and maintenance materials during such operations. Should spills occur the spills shall be cleaned up in accordance with the SWPPP; if a spill occurs within 250 feet of a water body outside of the construction boundary, the Service shall be notified immediately.

6. Friant Ranch L.P. shall protect the vernal pool habitat, which includes the salamander, fairy shrimp, and owl's-clover, and the associated upland grassland area, which includes the Hartweg's, from human impact by restricting access to the open space through appropriate permanent fencing and signage. An informational brochure also will be prepared that educates the Friant Ranch Community about the sensitivity of this habitat to human trampling, and encourages them to stay out of conserved open space except at designated access points.

Specific conservation measures proposed for each species are detailed below:

On-site Conservation Measures

Friant Ranch L.P. proposes to protect 460 acres as permanent open space on the Project site. All conservation measures will be implemented prior to any ground disturbance activities. The amount of habitat present for each species and applicable conservation measures in this biological opinion are addressed in turn.

Salamander

The following conservation measures proposed by the applicant will be implemented as part of the proposed Project to minimize the effects to the salamander:

1. Friant Ranch L.P. shall permanently preserve 460 acres of open space which includes 12.32 acres of suitable salamander breeding habitat and 446.6 acres of upland habitat for the salamander.
2. Friant Ranch L.P. shall record a conservation easement, held by a Service-approved entity, on the dedicated open space.
3. Friant Ranch L.P. shall provide an endowment account, held by a Service-approved entity, on the dedicated open space.
4. Friant Ranch L.P. shall develop a Service-approved long-term management plan that will address exotic weed control, and other land management needs to maintain a healthy ecosystem function.
5. Friant Ranch L.P. shall hire a Service-approved monitoring biologist who will be present on-site during initial ground disturbing activities, including clearing, grubbing/stripping, and mass grading. The biologist will monitor construction

activities daily throughout the initial ground disturbing period to ensure that avoidance and minimization measures are being properly implemented and executed, and the biologist will inspect the construction zone for potential trapped or exposed salamanders. Once initial ground disturbing activities are completed, the monitoring biologist will remain available for site inspection as needed. If a salamander is observed within the Project site by a worker, the worker will immediately inform the monitoring biologist. All work will halt and machinery will be turned off within 100 feet until the monitoring biologist can have a Service-permitted salamander specialist capture and remove the salamander from the work area. They will be relocated to areas pre-approved by the Service no more than one hour after capture.

6. All maintenance and construction excavations greater than one foot deep will be completely covered with boards or other materials, or completely filled in with dirt at the end of each working day, or have earthen escape ramps to prevent entrapment of salamanders. A Service-approved biologist shall examine holes or trenches daily, when they are uncovered for the first time for the day and periodically throughout the day, for the duration of construction. Before such holes or trenches are filled, they will be thoroughly inspected for trapped animals.
7. The proposed Project shall use materials for erosion control, such as filter fabrics, coconut coir matting, or fiber rolls in which the spaces between weaving or netting are small enough so as to not result in potential entrapment of salamanders ($< \frac{1}{4}$ square inch). No plastic netting materials are allowed.
8. The proposed Project shall eliminate attractions to the salamander's predators such as raccoons, crows, and ravens, by ensuring all food-related trash items such as wrappers, cans, bottles, and food scraps are disposed of in closed containers and removed at least once a week from the proposed Project site during the construction period.

Owl's-Clover and Vernal Pool Fairy Shrimp

Conservation measures proposed by the applicant to minimize possible direct and indirect effects to owl's-clover, vernal pool fairy shrimp, and their habitat are as follows:

1. Friant Ranch L.P. shall permanently preserve 26.5 acres of wetlands, of which 19.8 acres are suitable fairy shrimp habitat, in dedicated open space of the Project. For purposes of this Project, "suitable habitat" has been defined to include both vernal pools and vernal swales. Owl's-clover is found within 0.483 acre of the 19.8 acres of preserved vernal pools and swales.
2. Friant Ranch L.P. shall record a conservation easement, held by a Service-approved entity, on the dedicated open space.
3. Friant Ranch L.P. shall provide an endowment account, held by a Service-approved entity, on the dedicated open space.

4. Friant Ranch L.P. shall develop a Service-approved long-term management plan that will address exotic weed control, and land management needs to maintain healthy ecosystem function.
5. Prior to the start of construction, Friant Ranch L.P. shall purchase 0.483 acre of owl's-clover preservation credits from a Service-approved conservation bank. Alternatively, in the event that surveys for the owl's-clover at either of the proposed Klein-Morgan and Nohnberg off-site preserves reveal similar and viable populations of owl's-clover, and the Service concurs that the discovered populations are similar and viable, then the minimization measure to acquire owl's-clover credits will be waived.

Hartweg's Golden Sunburst

Conservation measures proposed by the applicant for preserving 1.45 acres of the Hartweg's golden sunburst are as follows:

1. Friant Ranch L.P. shall permanently preserve 99% of the existing on-site Hartweg's population in dedicated open space.
2. Friant Ranch L.P. shall record a conservation easement, to be held by a Service-approved entity, on dedicated open space in which this species occurs.
3. Friant Ranch L.P. shall establish an endowment account, to be held by a Service-approved entity, on dedicated open space.
4. Friant Ranch L.P. shall develop a Service-approved long-term management plan that will address exotic weed control, and other land management needs to maintain healthy ecosystem function.
5. Relocation of one small subpopulation, approximately 0.009 acre, to suitable soils in the areas to be dedicated as an open space preserve which do not presently support this species. The relocation effort will be completed in consultation and cooperation with the San Joaquin Valley Endangered Species Recovery Program and the DFG. The acquisition of seed will be consistent with the requirements of state law. Since little is known about the ecology of this species, the planting of its seed at the chosen relocation site will be via a number of treatments that could include fire, mechanical removal of vegetation and scarification of the soil, and mowing of vegetation. An untreated control plot would also be utilized. The objective will be to establish in year one of the relocation effort a self-sustaining population of Hartweg's. All of the plots will be monitored for success over a five year period. Success will have been achieved when the relocated population has been self-sustaining at a size equal to or greater than the impacted population for four years following relocation, assuming the occurrence of average precipitation.
6. All seed collection and relocation efforts will be conducted in accordance with the Live Oak Associates Research Proposal and the Take Authorization Conditions outlined in the DFG Research Permit No. 2081(a)-09-07-RP issued to Live Oak Associates in

April 2009. A separate 2081(b) Incidental Take Permit will be obtained by Friant Ranch, L.P. from the DFG prior to ground disturbance due to complete removal of 0.009 acre of Hartweg's.

Off-site Conservation Measures

Off-site conservation measures proposed by the applicant to minimize possible direct and indirect effects to the salamander, vernal pool fairy shrimp, and their habitats include a combination of three parcels: Friant East Preserve; Norhnberg Preserve; and the Klein/Morgan Preserve as shown in Figure 2. Table I below depicts the habitat acreage to be preserved in perpetuity at each of the respective properties.

The Friant Ranch East Preserve is located within the "Fresno Core Area" of the "Southern Sierra Foothills Vernal Pool Region" as defined in the *Recovery Plan* (Service 2005). The Norhnberg and Klein/Morgan Preserves are both located in the "Madera Core Area" of the "Southern Sierra Foothills Vernal Pool Region" as defined in the *Recovery Plan* (Service 2005). The entire upland area of the three properties combined (1,054 acres) is considered suitable salamander upland habitat.

The 2008 CNDDB records indicate that the salamander has been observed on the Friant Ranch East and Norhnberg properties and on lands adjacent to the Klein-Morgan property. Biologists with Live Oak Associates have observed the fairy shrimp on both the Norhnberg and Klein-Morgan properties (2007). These off-site wetland preserves will benefit both the salamander and the fairy shrimp.

The following conservation measures for the three above-referenced preserves will be adhered to prior to any ground disturbance activities on the proposed Project site:

1. Friant Ranch L.P. shall record separate conservation easements on each property with each easement held by the same Service-approved entity.
2. Friant Ranch L.P. shall retain a Service-approved land manager.
3. Friant Ranch L.P. shall develop a Service-approved mitigation and monitoring plan, grazing plan, and long-term management plan for each of the three respective properties.
4. Friant Ranch L.P. shall establish three separate endowment accounts for the long-term management of each site. The endowment accounts will be held by a Service-approved entity on the dedicated open space parcels.

TABLE I

Off-site Preservation Properties				
Property	Vernal Pool (ac)	Vernal Swale (ac)	Channel (ac)	Total (ac) Wetlands
Friant Ranch E. (preservation) (Fresno County) 208.0 acres	<0.1	3.6	1.8	5.5
Norhnberg (preservation) (Madera County) 583.0 acres	15.4	18.2	14.3	47.9
Klein/Morgan (preservation) (Madera County) 263.0 acres	3.7	3.3	0.0	7.0
TOTAL (1,054 acres)	19.2	25.1	16.1	60.4

In summary, 44.3 acres of vernal pools/swales will be preserved off-site to off-set impacts to 7.0 acres of vernal pools/swales, 5.31 acres (direct) plus 1.69 acres (indirect) of vernal pools/swales. On-site, there will be 19.8 acres of vernal pools/swales preserved {21.5 acres - 1.69 acres (indirect)}. Therefore, the total area of preserved vernal pools and swales is 64.11 acres and the preservation ratio of preserved to impacted fairy shrimp habitat is $64.11/7.0 = 9.2:1$.

The Corps, through their 404 regulations, will require 6.78 acres of off-site wetland mitigation, which includes 5.31 acres of fairy shrimp habitat. Prior to the start of any earth-moving activities, confirmation that the 5.31 acres of compensation has been satisfied shall be submitted to the Service. Friant Ranch L.P. is proposing to provide mitigation at a 1:1 ratio on the proposed 1,500 acre Knapp Ranch property. The Knapp Ranch site is located east of State Highway 99 in southern Merced and northern Madera Counties. The Service is reviewing documents to determine its suitability as a conservation bank. However, in the event that Knapp Ranch is not a Service-approved bank at the time the vernal pool creation credits are required, then Friant Ranch L.P. shall seek approval from the Service to utilize the Drayer Ranch site or another appropriate Service-approved location to fulfill their mitigation requirement. The Drayer Ranch site is approximately 158 acres and is within 0.5 mile of the existing Drayer Ranch Preservation Bank in Merced County.

Action Area

The action area is defined in 50 Code of Federal Regulations (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 this proposed Project, the action area encompasses all or portions of the following: 1) Land proposed for development within the Friant Ranch Project boundaries, including all supporting infrastructure and the commercial area; 2) the temporary footprint required to construct a buried pipeline from the property to the 25-acre percolation basin off-site known as the Beck property, currently an existing granite operation facility; and 3) the three off-site preserve properties (Friant Ranch East, Norhnberg, and Klein/Morgan).

Analytical Framework for the Jeopardy Analysis

In accordance with policy and regulation, the jeopardy analysis in this biological opinion relies on four components: (1) The *Status of the Species*, which evaluates the fairy shrimp, salamander, owl's-clover, and the Hartweg's range-wide condition, the factors responsible for that condition, and their survival and recovery needs; (2) the *Environmental Baseline*, which evaluates the condition of the fairy shrimp, salamander, owl's-clover, and the Hartweg's in the action area, the factors responsible for that condition, and the relationship of the action area to the survival and recovery of the fairy shrimp and the salamander; (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 fairy shrimp, salamander, owl's-clover, and the Hartweg's; and (4) the *Cumulative Effects*, which evaluates the effects of future, non-Federal activities in the action area on the fairy shrimp, salamander, owl's-clover and the Hartweg's.

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 vernal pool crustaceans', salamander's, owl's-clover, and Hartweg's current status, taking into account any cumulative effects, to determine if implementation of the proposed action is likely to cause an appreciable reduction in the likelihood of both the survival and recovery of the vernal pool crustaceans, salamander, owl's-clover and Hartweg's in the wild.

The jeopardy analysis in this biological opinion places an emphasis on consideration of the range-wide survival and recovery needs of the fairy shrimp and salamander and the role of the action area in the survival and recovery of the fairy shrimp and salamander 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

California Tiger Salamander

The California tiger salamander was federally-listed as threatened throughout its range on August 4, 2004 (Service 2004a). Critical habitat was proposed for the Central population of the salamander on August 10, 2004 (Service 2004b) and finalized on August 23, 2005

(Service 2005). On July 18, 2005, the Service solicited comments on the draft economic analysis of the proposed critical habitat designation shortly after which the proposed Friant Ranch property was removed from critical habitat.

The proposed Project is within the Southern San Joaquin Region of the Central Population of the California Tiger Salamander. On May 23, 2003, the Service proposed to list the Central California DPS of the salamander as threatened. At this time, the Service also proposed reclassification of the Santa Barbara County DPS and Sonoma County DPS from endangered to threatened (68 Federal Register (FR) 28647). In the same notice, the Service 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, after determining that the listed Central California population of the California DPS of the salamander was threatened (69 FR 47211), the Service determined that the Santa Barbara and Sonoma County populations were threatened as well, and reclassified the 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 this notice, the Service also finalized the special rule to exempt take for routine ranching operations for the 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 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 salamander as threatened with a special rule, vacated the 2004 rule with regard to the Santa Barbara and Sonoma DPSs, and reinstated their prior listing as endangered. The List of Endangered and Threatened Wildlife in part 17, subchapter B of Chapter I, title 50 of the CFR has not been amended to reflect the vacatures contained in this order, and continues to show the range-wide reclassification of the salamander as a threatened species with a special rule. The Service is currently in the process of correcting the CFR to reflect the current status of the species throughout its range.

Species Distribution

The salamander in the Central Valley and Sierra Nevada foothills is patchily distributed from northern Yolo County southward to northwestern Kern County and northern Tulare and Kings Counties. In the Coast Ranges, the salamander is found in southern Sonoma County, San Mateo County south to San Luis Obispo County, and northwestern Santa Barbara County.

The salamander historically inhabited low elevation grassland and oak savanna plant communities of the Central Valley, and adjacent foothills, and the inner Coast Ranges in California (Storer 1925, Shaffer *et al.* 1993, Jennings and Hayes 1994). The species occurs from near sea level up to approximately 3,900 feet in the Coast Ranges and up 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. In the Central Valley and surrounding foothills, the species occurred from northern Yolo County southward to northwestern Kern County and northern Tulare County.

Species Description

The salamander is a large, stocky, terrestrial salamander with a broad, rounded snout. Adults may reach a total length of 8.2 inches (Petranka 1998; Stebbins 2003). The species exhibit sexual dimorphism; males tend to be larger than females. The coloration of the salamander is white or yellowish markings against a black base. As adults, salamanders tend to have the creamy yellow to white spotting on the sides with much less on the dorsal surface of the animal, whereas other salamander species have brighter yellow spotting that is heaviest on the top of the animals. Larvae are yellowish gray in color and have broad fat heads, possess large, feathery external gills, and broad dorsal fins that extend well onto their back.

Life History

The salamander has an obligate biphasic life cycle (Shaffer *et al.* 2004). Although the larvae salamanders develop in the vernal pools and ponds in which they were born, they are otherwise terrestrial salamanders that spend most of their post-metamorphic lives in widely-dispersed, underground retreats (Shaffer *et al.* 2004; Trenham *et al.* 2001). Subadult and adult salamanders spend the dry summer and fall months of the year in the burrows of small mammals, such as California ground squirrels (*Spermophilus beecheyi*) and Botta's pocket gophers (*Thomomys bottae*) (Storer 1925; Loredó and Van Vuren 1996; Petranka 1998; Trenham 1998). Upland burrows inhabited by 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. A recent 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. Recent direct observations have confirmed this (Trenham 2001; Van Hattem 2004). Camel crickets and other invertebrates within these burrows are likely prey for salamanders. Burrows also serve as protection from the sun and wind associated with the dry California climate that can cause desiccation (drying out) of amphibian skin. Thus, "upland habitat" is a more accurate description of the terrestrial areas used by salamanders.

Once the fall or winter rains begin, salamanders emerge from the upland sites on rainy nights (November-May) to feed and to migrate to the breeding ponds (Stebbins 1985, 1989; Shaffer *et al.* 1993). Historically, breeding ponds were likely limited to vernal pools, but now include livestock stock ponds. The breeding period is closely associated with the rainfall patterns in any given year with less adults migrating and breeding in drought years (Loredó and Van Vuren 1996). Male salamander are typically first to arrive and generally remain in the ponds longer than females. Adult salamanders mate in the breeding ponds, after which the females lay their eggs in the water (Twitty 1941; Shaffer *et al.* 1993; Petranka 1998).

Salamander eggs hatch from 10 to 14 days with newly hatched larvae salamanders ranging from 0.45 to 0.56 inch in total length (Petranka 1998). The larvae are aquatic and 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 (Anderson 1968). Salamander larvae

are among the top aquatic predators in seasonal pool ecosystems. The larval stage of the salamander usually lasts from three to six months, and occurs during spring as most seasonal ponds and pools dry up during the summer (Petranka 1998). 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).

Salamanders are known to travel large distances from breeding ponds into upland habitats. Maximum distances moved are generally difficult to establish for any species, but salamanders in Santa Barbara County have been recorded to disperse 1.3 miles from breeding ponds (Sweet 1998). 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 ponds approximately 1,900 and 2,200 feet away (Trenham *et al.* 2001). In addition to traveling long distances during migration to or dispersal from ponds, salamanders may reside in burrows that are far from ponds. At one site in Contra Costa County, hundreds of salamanders have been captured three years in a row in upland habitat approximately 0.75 miles from the nearest breeding pond (Orloff 2003).

Vernal Pool Fairy Shrimp

The fairy shrimp was listed as threatened on September 19, 1994 (Service 1994). Critical habitat was designated for the fairy shrimp and several other vernal pool species in the *Final Designation of Critical Habitat for Four Vernal Pool Crustaceans and Eleven Vernal Pool Plants in California and Southern Oregon; Evaluation of Economic Exclusions From August 2003 Final Designation*; Final Rule (Service 2005). Friant Ranch is not within any vernal pool critical habitat unit; however, the action area is within the Fresno core area of the Southern Sierra Foothills vernal pool region and the fairy shrimp is a covered species within the *Recovery Plan*.

Distribution

The fairy shrimp is currently found in 28 counties across the Central Valley and Coast Ranges of California, and in Jackson County of southern Oregon. The species occupies a variety of vernal pool habitats and occurs in 11 of the 17 vernal pool regions identified in California (Keeler-Wolf *et al.* 1998). Although the vernal pool fairy shrimp is distributed more widely than most other fairy shrimp species, it is generally uncommon throughout its range, and rarely abundant where it does occur (Eng *et al.* 1990, Eriksen and Belk 1999). Helm (1998) found fairy shrimp in only 16 percent of pools sampled across 27 Counties, and Sugnet (1993) found this species in only five percent of 3,092 locations sampled.

In the San Joaquin Valley Vernal Pool Region, the fairy shrimp is found at the Grasslands Ecological Area in Merced County, at the Pixley National Wildlife Refuge in Tulare County, and at isolated locations in Kings and Stanislaus counties. In the Southern Sierra Foothills Vernal Pool Region, the fairy shrimp is known from the Stone Corral Ecological Reserve and the Hogwallow Preserve in Tulare County and from scattered locations on private lands in Stanislaus, San Joaquin, Fresno, Madera, and Merced Counties.

The historical distribution of this species coincides with the historical distribution of vernal pools in California's Central Valley and southern Oregon. Holland (1978) estimated that roughly

4,000,000 acres of vernal pool habitat existed in the Central Valley prior to the widespread agricultural development that began in the mid-1800s. He found that although current and historical distribution of vernal pools are similar, vernal pools are now far more fragmented and isolated from each other during historical times and currently occupy only about 25 percent of their former land area (Holland 1998). The current distribution of the fairy shrimp in the Central Valley may be similar to its historical distribution in extant, but remaining populations are now considerably more fragmented and isolated than in pre-agricultural times.

Species Description

The fairy shrimp has a delicate elongate body, large stalked compound eyes, no carapace and 11 pairs of phyllopods or gill-like structures that also serve as legs. They swim or glide gracefully upside down by means of complex beating movements of the legs that pass in a wave-like anterior to posterior direction. Fairy shrimp are filter feeders, and consume algae, bacteria, protozoa, rotifers, and bits of detritus as they move through the water. The females carry eggs in an oval or elongate ventral sac (brood sac). Once fertilized, the eggs are coated with a protective protein layer that allows them to withstand heat, cold, and prolonged dehydration. The fully developed eggs are either dropped to the pool bottom or remain in the brood sac until the female dies and sinks.

Life History

Fairy shrimp are highly adapted to the conditions of their ephemeral habitats. One adaptation is the ability of the fairy shrimp eggs, or cysts, to remain dormant in the soil when their vernal pool habitats are dry. Another critical adaptation is that the fairy shrimp has a relatively short life span, allowing it to hatch, mature to adulthood, and reproduce during the short time period when vernal pools contain water. The fairy shrimp can reach sexual maturity in as few as 18 days at optimal conditions of 68 degrees Fahrenheit, and can complete its life cycle in as little as nine weeks (Gallagher 1996, Helm 1998). However, maturation and reproduction rates of vernal pool crustaceans are controlled by water temperature and can vary greatly (Eriksen and Brown 1980, Helm 1998). Helm (1998) observed that fairy shrimp did not reach maturity until 41 days at water temperatures of 59 degrees Fahrenheit. Helm (1998) observed six separate hatches of fairy shrimp in a single pool within a single wet season, and Gallagher (1996) observed three separate hatches of fairy shrimp in vernal pools in Butte County. In larger pools that hold water for longer durations, fairy shrimp are capable of hatching multiple times if water temperatures drop to or below 50 degrees Fahrenheit, a necessary environmental cue for fairy shrimp cyst hatching (Gallagher 1996, Helm 1998). Helm (1998) observed fairy shrimp living for as long as 147 days.

Hartweg's Golden Sunburst

Hartweg's was federally-listed as endangered on February 6, 1997 (Service 1997a). The Service completed a five-year review for this species in December 2007. Hartweg's was State-listed as endangered in 1981. The California Native Plant Society (CNPS) has placed it on List 1B (rare or endangered throughout its range).

The species was first collected in 1947 at the current site of Marysville in Yuba County (Stebbins 1991). Hartweg's is now known from 19 extant occurrences, 15 occurrences have had only one or two total surveys performed. This total does not include the extirpated locality in Yuba County or the two unverified occurrences in Tuolumne County. The verified occurrences are found at an elevation of 15 to 140 meters (50 to 460 feet) on Amador soil series in Stanislaus County, Rocklin soil series in Fresno and Madera Counties, and Valley Springs soil formation in Merced County. The known occurrences are concentrated in the eastern San Joaquin Valley in Stanislaus, Madera, Merced, and Fresno Counties. The species has been reported from two locations in Tuolumne County in 1937 and 1963; however, no field work has been done at these sites to verify the presence or location of the species. The species has been apparently extirpated by levee construction and residential and industrial development from the type locality in Yuba County in the lower Sacramento Valley (CNDDDB 2007).

Hartweg's primarily grows in non-native grasslands in the southern part of its range and within the transition zone between grasslands and blue oak woodland in the northern part of its range (Stebbins 1991, CNDDDB 2007). It occurs primarily on shallow, well-drained, and fine-textured soils. The highest plant densities are on the upper slopes where grass cover is minimal. The optimum habitat is the north to northeast-facing small hills or Mima mound topography associated with the upland portion of vernal pool habitat (E. Cypher pers. comm. 2007). Mima mounds are small hillocks a few feet in height that have formed in dense concentrations.

Species Description

Hartweg's is a member of the sunflower family (Asteraceae). The genus *Pseudobahia* has only three species, and all three species are small annual plants that are covered with woolly hairs and have alternate leaves. They have yellow, daisy-like flower heads that are borne singly at the tip of each branch. Each flower head is approximately one inch across.

Life History

Historically, the range of the species may have extended from Yuba County south to Fresno County, a range of 200 miles. Within this range, the species was only locally abundant. Population numbers can fluctuate widely from one year to the next. This fluctuation is believed to depend on annual climatic conditions, specifically the amount of seasonal rainfall, and also on competition from non-native plants (Stebbins 1989, 1991; E. Cypher, CDFG, pers. comm. 2007).

Fleshy Owl's-Clover

Fleshy owl's-clover is a subspecies of field owl's-clover (*Castilleja campestris*) thus the scientific name currently assigned to fleshy owl's-clover is *Castilleja campestris* ssp. *succulenta*. Another common name for fleshy owl's-clover is succulent owl's-clover (Skinner and Pavlik 1994).

Owl's-clover was federally-listed as threatened on March 26, 1997. It was State-listed as endangered in 1979 under the name succulent owl's-clover. The CNPS has placed it on List 1B (rare or endangered throughout its range). The owl's-clover is addressed in the *Recovery Plan*.

The recovery priority is a 9 according to the Service's 2005 Recovery Data Call for the Sacramento Field Office. The priority number is based on a ranking system where 1 is the highest-ranked recovery priority and 18 is the lowest. This number indicates that the taxon is a subspecies that faces a moderate degree of threat and has a high potential for recovery.

Species Description

Owl's-clover is a member of the snapdragon family (Scrophulariaceae). It has intricate flowers, with the corolla consisting of two lips. The flower has four sepals that are fused at the base, creating the calyx tube. Together, all the flowers plus the bracts comprise the inflorescence. The plant has erect stems up to 30 centimeters (11.8 inches) long. The stems are usually unbranched and without hairs. The brittle leaves are a characteristic for identification. They are at the base of the stem and are small and scale-like, whereas those on the upper stem are 1.5 to 4 centimeters (0.6-1.6 inches) long, lance-shaped, not lobed, thick, fleshy, and easily broken. The bracts are green, similar to but shorter than the upper leaves, and no longer than the flowers.

Life History

Between 1937 and 1986, owl's-clover was reported from 33 localities (Hoover 1937, Hoover 1968, CNDDDB 2005) all in the Southern Sierra Foothills Vernal Pool Region (Keeler-Wolf *et al.* 1998). Sixteen of those occurrences were in eastern Merced County. Six occurrences each were in Fresno and Madera Counties and five others were in Stanislaus County (CNDDDB 2003).

Owl's-clover is an annual plant and it is a hemiparasite which means that it obtains water and nutrients by forming root grafts with other host plants but manufactures its own food through photosynthesis (Chuang and Heckard 1991). Many different plants can serve as hosts for a single species or even a single individual of *Castilleja*. Seeds of owl's-clover do not require the presence of a host to germinate, and form root connections only after reaching the seedling stage. Some seedlings can survive to maturity without attaching a host's roots, but in general, reproduction is enhanced by root connections (Atsatt and Strong 1970). The importance of pollinating insects is not known for certain. Some aspects of owl's-clover biology suggest that it may be self-pollinating (Hackard 1977), but many related taxa are pollinated by generalist bees (Chuang and Heckard 1991).

Little is known about the demography, although population size can fluctuate greatly from year to year. In the few populations where population size was reported for more than one year, fluctuations up to two orders of magnitude were noted (CNDDDB 2003).

Owl's-clover is found within five core areas of the Southeast Sacramento Valley and Southern Sierra Foothill Vernal Pool Regions. The core areas are: Southeast Sacramento Valley; Fresno; Madera; Merced; and Table Mountain.

Environmental Baseline

California Tiger Salamander

The action area is located within the historic range of the salamanders inhabiting the Central Valley grassland communities. Suitable upland and breeding habitat for the salamander exist within the action area. Field surveys conducted by Live Oak Associates in 2008 found salamanders in two vernal pools on-site. Additionally, the California Natural Diversity Database (CNDDB 2008) referenced salamander occurrences on-site.

A primary cause of the salamander decline is the conversion of natural habitats to modified habitats for urban uses (Services 2003b, 2004a, 2004b; Shaffer et al., 1993). Ongoing human activities such as vehicle traffic kill a significant number of migrating salamanders and contaminated runoff from roads may also adversely affect them. Land disturbance to salamander habitat appears to have previously occurred in the action area due to human activity. These development features include roads, residential and commercial structures, a sewage treatment facility, and a water delivery canal. Wetland features within the proposed Project boundaries abut the existing developed area. Therefore, runoff from the existing road and/or development areas drain into these features which are considered suitable salamander breeding and upland habitat.

Vernal Pool Fairy Shrimp

Vernal pool crustaceans, such as fairy shrimp, suffer from a loss and degradation of habitat and continue to be impacted by a variety of human activities that render existing vernal pools/swales unsuitable for the species. The loss and degradation are as a result of changes to natural hydrology due to roads and urbanization. Fairy shrimp occurrences have been noted in the 2008 CNDDB for the proposed Project site and neighboring properties. The aerial photographs provided in the Initiation Document also depict vernal pools within 200 feet of the adjacent off-site development boundary.

Hartweg's Golden Sunburst

Hartweg's has few CNDDB occurrences and grows in limited habitat which is under pressure from agriculture and urban development. Little is known about this plant as quantitative and qualitative data for nearly all the occurrences are outdated and incomplete. The proposed Friant Ranch Project is listed in the *Pseudobahia bahiifolia* 5-year Review as a factor which may convert the natural habitat for the Hartweg's. The species is vulnerable as it is found only in small populations and the majority of the populations are geographically isolated. Cattle currently graze the proposed Project site but do not preferentially target the Hartweg's while grazing (E. Cypher pers. comm. 2007).

Fleshy Owl's-Clover

There are two vernal pools in the action area which support owl's-clover that are grazed by cattle. Livestock grazing and associated trampling may or may not adversely affect these plants

depending on many unknown factors. The pools which support owl's-clover are located on a hillside some distance away from the off-site adjacent residential/commercial area; therefore, there are no previously known human intrusion factors which affect the owl's-clover.

Effects of the Proposed Action

Vernal Pool Fairy Shrimp and Salamander

The proposed Project, with its associated infrastructure, is likely to adversely affect the salamander and the fairy shrimp. Implementation of the proposed action will result in the permanent loss of 5.31 acres of suitable fairy shrimp and salamander wetland habitats, thus directly adversely affecting these species. Further, a total of 1.69 acres of vernal pools and vernal swales will be indirectly impacted. A total of 482.2 acres of suitable upland habitat for the salamander will be permanently lost. Effects to the salamander and the fairy shrimp may include loss of habitat, direct mortality, injury, or harassment of individuals resulting from construction activities and human intrusion.

Mortality, injury, or harassment of the salamander will occur as a result of being crushed by Project related equipment or vehicles within the action area. Individual salamanders also could fall into trenches, pits, or other excavations, and be directly killed, or unable to escape, and be killed due to desiccation or starvation. Work activities, including vibration, may cause salamanders to leave the work site and surrounding areas. This disturbance and displacement may increase the potential for predation, desiccation, competition for food and shelter, or strike by vehicles on access roads.

The limited effects of the proposed action on both the fairy shrimp and the salamander will not affect the recovery of these species. The Project will aid in the permanent preservation of 44.3 acres of vernal pools/swales off-site at the Friant Ranch East, Norhnberg, and Klein/Morgan properties. These preserved habitats will minimize the effects of the incidental take for both the fairy shrimp and salamander. The upland areas of the three off-site properties combined, 1,054 acres, are considered suitable salamander upland habitat. The on-site conservation measures will result in the permanent preservation of 19.8 acres of suitable fairy shrimp habitat, of which 12.32 acres are also suitable salamander breeding habitat. The on-site conservation measures also will preserve 446.6 acres of upland habitat for the salamander.

Hartweg's Golden Sunburst

There will be direct impacts to 0.009 acre (400 sq. ft.) of Hartweg's which will be destroyed by grading. The seeds will be collected from a portion of the population to be impacted by grading and a portion of the preserved population. The reason the seed source will be gathered from two areas is that the impacted population is so small there are not enough seeds to adequately harvest from only one population source. The seeds will be planted in an area where suitable soils exist within the proposed open space preserve to ensure that this effort establishes a new self-sustaining population. The remaining Hartweg's population of 1.45 acres will be preserved and permanently protected.

Fleshy Owl's-Clover

There will be no direct effects to the two pools with owl's-clover. The two pools are 0.483 acre collectively and are located in the northernmost portion of an area designated as permanent open space. Indirect effects are likely to occur to two vernal pools with populations of owl's-clover which are within 250 feet of the proposed Project's development area. The buffer width is approximately 123 feet (the buffers of these two vernal pools adjacent to the proposed development range from 109-142 feet). Indirect effects are a result of potential human and/or animal intrusion in this vernal pool area due to its close proximity to the edge of the proposed development. Little is known about this plant due to its rarity and the limited number of CNDDDB occurrences throughout its range.

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 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. There are no known cumulative effects that are reasonably certain to occur within the action area under consideration.

Conclusion

The amount of take of the salamander, as well as effects to the species and its habitat relative to the range-wide status of the salamander within the Central Valley DPS, are expected to be minimal. The amount of take, as well as effects, is also expected to be minimal for the fairy shrimp, owl's-clover and the Hartweg's. After reviewing the current status of the salamander, fairy shrimp, owl's-clover and the Hartweg's, the environmental baseline for the action area, the effects of the proposed Friant Ranch Project (including the off-site pipeline to the percolation basin and the three off-site preservation properties), and the cumulative effects, it is the Service's biological opinion that the Friant Ranch Project, as proposed, is not likely to jeopardize the continued existence of the salamander, fairy shrimp, owl's-clover or Hartweg's.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulations pursuant to section 4(d) of the Act, prohibit 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 attempt to engage in any such conduct. The Service defines harassment as an intentional or negligent act or omission that creates the likelihood of injury to listed species 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. The Service defines harm to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as 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), take that is incidental to and not intended as part of

the agency action is not considered to be prohibited, provided such taking is in compliance with the terms and conditions of this Incidental Take Statement.

The measures described below are nondiscretionary, and must be implemented by the Corps so that they become binding conditions of any grant or permit issued to the applicant, as appropriate, for the exemption under section 7(o)(2) to apply. The Corps has a continuing duty to regulate the activity that is covered by this incidental take statement. If the Corps: (1) Fails to require the applicant or any of its contractors to adhere to the terms and conditions of the incidental take statement through enforceable terms; and/or (2) fails to retain oversight to ensure compliance with these terms and conditions, the protective coverage of section 7(o)(2) may lapse.

Sections (7)(b)(4) and 7(o)(2) of the Act, which refer to terms and conditions and exemptions on taking listed fish and wildlife species, do not apply to listed plant species. However, section 9(a)(2) of the Act prohibits removal, reduction to possession, and malicious damage or destruction of listed plant species on lands under Federal jurisdiction and the removal, cutting, digging up, or damaging or destroying such species in a knowing violation of any State law or regulation, including State criminal trespass law. Actions funded, authorized or implemented by a Federal agency that could incidentally result in the damage or destruction of such species on Federal lands are not a violation of the Act, provided the Service determines in a biological opinion that the actions are unlikely to jeopardize the continued existence of the species.

Amount or Extent of Take

Upon implementation of the following reasonable and prudent measures the following levels of incidental take of the fairy shrimp and the salamander will be exempted from prohibitions of take under section 9 of the Act.

The Service anticipates incidental take of the listed fairy shrimp and salamander will be difficult to detect for the following reasons: (1) These species have small body size, therefore finding a dead or injured specimen is unlikely; (2) these species occur in habitats that makes detection difficult; and (3) losses may be masked by seasonal and annual fluctuations in numbers, chance events, changes in water regime, or additional environmental disturbance. Due to the difficulties in quantifying the number of individuals that will be taken as a result of the proposed action, the Service is quantifying take incidental to this Project as the number of acres of suitable habitat for the listed crustacean species and salamanders that will be lost or become unsuitable as a result of the action. The Service estimates that all 5.31 acres of suitable vernal pool fairy shrimp and salamander habitats will be directly impacted, with additional indirect impacts to 1.69 acres of fairy shrimp and salamander habitats. All of which will result in the proposed action harming, injuring, or killing the fairy shrimp and salamander.

The Service anticipates that additional incidental take of the salamander in upland habitat will be difficult to detect or quantify. The relatively small body size makes the finding of a dead specimen unlikely. The species occur in burrows and other locations that make them difficult to detect. Due to the difficulty in quantifying the number of individuals that will be taken as a result of the proposed action, the Service is quantifying take incidental to the Project as the

acreage amount of upland habitat that will be lost or become unsuitable as a result of the action. Therefore, the Service anticipates a permanent loss of 482.2 acres of upland habitat as a result of the proposed Project.

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 vernal pool fairy shrimp and the salamander.

Reasonable and Prudent Measures

The following reasonable and prudent measure is necessary and appropriate to minimize the adverse effects of the Project on the salamander and fairy shrimp:

Adhere to all conservation measures in the Initiation Document and the additional measures provided by the Applicant's consultant as noted in this biological opinion and under the additional Terms and Conditions noted below under items b-c.

Terms and Conditions

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

The following terms and conditions implement reasonable and prudent measures referenced above.

- a) The Corps shall require that the project applicant fully implement and adhere to all conservation measures as described in the Initiation Document and all other conditions, reporting requirements, and the conservation measures of this biological opinion.
- b) A superintendent, or other designee, will be responsible for implementing the conservation measures and terms and conditions of this biological opinion and shall be the point of contact in the field for the Project. The superintendent shall maintain a copy of this biological opinion on-site whenever construction is taking place. Their name and telephone number shall be provided to the Service at least thirty (30) calendar days prior to groundbreaking on the Project site. Prior to ground disturbance, the superintendent must submit a letter to the Service verifying that they possess a copy of this biological opinion and have read and understand the terms and conditions.
- c) If requested, before, during, or upon completion of ground breaking and/or construction activities, the project applicant shall allow access by the Service and/or California Department of Fish and Game personnel to the Project site to inspect Project effects to the salamander and associated habitats.

The reasonable and prudent measure, with their implementing terms and conditions, are designed to minimize the impact of incidental take on a species that might result from the proposed action. If, during the course of the action, the level of incidental take is exceeded, such incidental take would represent new information requiring reinitiation of consultation. The Corps must immediately provide an explanation of the causes of the taking and also review with the Service the need for possible modification of the reasonable and prudent measures.

Reporting Requirements

The Corps must require that Friant Ranch L.P. provide the Service with an annual report to describe the progress of implementation of all the commitments in the conservation measures and terms and conditions sections of this biological opinion.

The Corps must require that Friant Ranch L.P. immediately report any information to the Service about take or suspected take of federally-listed species not authorized in this biological opinion. The Sacramento Fish and Wildlife Office is to be notified within 24 hours of the finding of any dead federally-listed species or any unanticipated harm to the species addressed in this biological opinion. The Service contact person for this is the Division Chief, Endangered Species Program at (916) 414-6600 and Daniel Crum, the Resident Agent-in-Charge of the Service's Law Enforcement Division at (916) 414-6660. Any contractor or employee who during routine operations and maintenance activities inadvertently kills or injures a State-listed wildlife species must immediately report the incident to their representative superintendent or biologist. This representative superintendent or biologist must then contact the California Department of Fish and Game immediately in the case of a dead or injured listed species. The California Department of Fish and Game contact for immediate assistance is Paul Hoffman, Wildlife Biologist, at (530) 934-9309.

CONSERVATION RECOMMENDATIONS

Conservation recommendations are suggestions from the Service regarding discretionary measures to minimize or avoid adverse effects of a proposed action on listed species or critical habitat or regarding the development of new information. These measures may serve to further minimize or avoid the adverse effects of a proposed action on listed, proposed, or candidate species, or on designated critical habitat. They may also serve as suggestions on how action agencies can assist species conservation in furtherance of their responsibilities under section 7(a)(1) of the Act, or recommend studies improving an understanding of a species' biology or ecology. Wherever possible, conservation recommendations should be tied to tasks identified in recovery plans. The Service is providing you with the following conservation recommendations.

- a. The Corps should continue to work with the Service to address significant, unavoidable environmental impacts to federally-listed species.
- b. The Corps should assist the Service in the implementation of the Service's 2005 *Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon*.


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

REINITIATION – CLOSING STATEMENT

This concludes formal consultation on the proposed Friant Ranch Project in Fresno County, California. As provided in 50 CFR Section 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. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation.

We appreciate your efforts to conserve the species on the Friant Ranch Project. Please contact either Ms. Kellie Berry or Ms. Susan P. Jones (Chief, San Joaquin Valley Branch) at (916) 414-6630 should you have any questions.

Sincerely,


for Susan K. Moore
Field Supervisor

Enclosures:

Figure 1 - Friant Ranch Vicinity Map

Figure 2 - Proposed Off-Site Habitat Preserves

"Selected Review Criteria for Section 7 Off-Site Compensation"

cc:

Mr. Dennis Bacopulos, Friant Ranch L.P., Fresno

Mr. Dave Hartesveldt, Live Oak Associates, Inc., Oakhurst

Mr. Clark Morrison, Cox, Castle & Nicholson, LLP, San Francisco

Ms. Briza Sholars, Fresno County Planning Department, Fresno

Mr. Justin Sloan, Department of Fish and Game, Fresno

Mr. Tom Skordal, Gibson & Skordal, Sacramento

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