

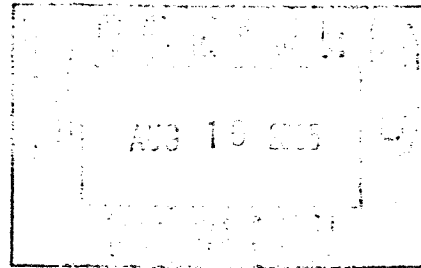
United States Department of the Interior



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

In reply refer to:
1-1-05-F-0106

10 August 2005



Mr. Tom Cavanaugh
Sacramento Valley Office Chief
U.S. Army Corps of Engineers, Sacramento District
1325 J Street
Sacramento, California 95814-2922

Subject: Formal Consultation on the Proposed Feather River, Bear River, and Western Pacific Interceptor Canal Levee Improvements Project (Corps file number 200400685), Yuba County, California

Dear Mr. Cavanaugh:

This letter is in response to the U.S. Army Corps of Engineers (Corps) request for formal consultation with the U.S. Fish and Wildlife Service (Service) on the proposed Feather River, Bear River, and Western Pacific Interceptor Canal (WPIC) Levee Improvements Project (proposed project) in Yuba County, California. Your March 28, 2005, request was received in our office on March 30, 2005. This document represents the Service's biological opinion on the effects of the action on the federally threatened vernal pool fairy shrimp (*Branchinecta lynchi*), the endangered vernal pool tadpole shrimp (*Lepidurus packardii*) (vernal pool crustaceans), the threatened valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*) (beetle), and the threatened giant garter snake (*Thamnophis gigas*) (snake). This document is issued in accordance with section 7 of the Endangered Species Act of 1973, as amended (Act).

The findings and recommendations in this biological opinion are based on: (1) the March 28, 2005, letter from the Corps initiating consultation for the proposed project; (2) the March 2005, *Revised Biological Assessment for the Feather-Bear-WPIC Levee Project* prepared by Jones and Stokes Associates; (3) the June 2005, *Final Biological Assessment for the Feather-Bear-WPIC Levee Project*; and (4) other information available to the Service.

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BIOLOGICAL OPINION
Consultation History

October 7, 2004. The Corps requested initiation of formal consultation on the proposed project.

December 16, 2004. The Service issued a letter requesting additional information on the proposed project (Service file number 1-1-05-I-0056).

March 30, 2005. The Service received the March 28, 2005, revised request for initiation of formal consultation with the Corps and a copy of the updated biological assessment from Jones and Stokes Associates.

May 10, 2005. The Service attended a meeting held by Jones and Stokes Associates regarding environmental effects attributable to the project. The Service provided comments on the draft biological assessment and asked for a revision of the document.

June 22, 2005. The Service received the June 2005, *Final Biological Assessment for the Feather-Bear-WPIC Levee Project* from Jones and Stokes Associates.

June 28, 2005. In a telephone conversation between Jennifer Hobbs of the Service and Harry Oakes of Jones and Stokes Associates, the Service requested acreages for all upland habitats within 200 feet of giant garter snake aquatic habitat.

July 13, 2005. The Service received figures and acreages for upland impacts to giant garter snake habitat.

July 20, 2005. Jennifer Hobbs of the Service and Harry Oakes and Chris Eliot of Jones and Stokes Associates met to discuss the effects to upland habitat for the giant garter snake

July 25, 2005. The Service received final acreage numbers for effects of the project to giant garter snake upland habitat.

Proposed Project Description

The proposed project is located in the southern portion of Yuba County. This project is part of an overall plan to enhance flood protection to properties in the Three Rivers Levee Improvement Authority's (TRLIA) service area. These levee improvements are intended to reduce potential threats to three factors of levee integrity: stability, height, and susceptibility to erosion.

The project is divided into several components. A description of each component follows below.

Fill WPIC Borrow Ditch

A borrow ditch exists along the west side of the WPIC levee. It was likely created during the construction of the railroad berm. Although it is not openly connected to another waterway or

channel, it supports wetland vegetation and associated wildlife. The presence of the borrow ditch compromises the stability of the WPIC levee because hydrostatic pressure from the adjacent canal cannot be fully contained by the available soil material. The borrow ditch would be filled to an elevation equal to the surrounding ground surface. Ground-disturbing activities associated with placing fill in the borrow ditch would occur between station 0+00 (the confluence of the WPIC and the Bear River) and station 130+00.

Filling of the borrow ditch would occur primarily during the dry season (i.e., from June to October, subject to extension) and would include the removal of vegetation using a bulldozer, the tilling of the area to loosen the dirt, and the filling of the trench with borrow material. Approximately 78,000 cubic yards of borrow material would be used to fill the trench to the adjacent ground level. Fill would be imported from a permitted source, which may include the Olivehurst detention basin, a concurrently planned project by Yuba County. Up to 7,800 truck trips, occurring over a period of 116 days would be necessary to import all the material. Two bulldozers would place the materials, and two sheepsfoot compactors would compact the soils into place.

After the fill material has been placed, all disturbed areas will be seeded with a mixture of native and naturalized grass and forb species. Implementation of these improvements is planned to begin in 2005 and culminate in 2006.

Orchard Removal

Removal of a privately owned walnut orchard from the Bear River floodway is expected to take place over a period of 3 months. Approximately 252 acres would be removed and replaced with a native land cover type. The primary native land cover type would consist of grasslands. A portion of this area would also be used to compensate for effects on valley oak and riparian habitats, and other cover types.

Construct Setback Levee

Construction of the setback levee would include clearing and grubbing, construction of a slurry wall, excavation of an inspection trench, preparatory levee foundation work, and the removal or relocation of structures and utilities. The western terminus of the setback levee would tie into the Feather River levee near station 45+00, just south of Pump Station #2. The setback levee would extend northeastward from the Feather River levee for approximately 2 miles to its eastern terminus near station 130+00 on the Bear River levee. Land within the footprint of the setback levee would total approximately 45 acres. The lands between the setback levee and the existing Feather and Bear River levees would range from 0.10 – 0.80 mile and total approximately 300 acres.

Prior to construction of the levee a slurry wall would be constructed below grade. The top of the slurry wall would be equal to the existing soil surface grade. The setback levee would then be constructed on top of the slurry wall alignment. The construction of a slurry cutoff wall along the setback levee alignment would reduce seepage beneath the levee by creating a low-

permeability barrier and dispersing hydrostatic pressure. The maximum depth of the slurry wall is expected to be approximately 80 feet. Slurry wall construction would include trench excavation, backfill preparation, and the placement of fill material.

The soil fill required to construct the setback levee would be obtained from one or more of the following sources: stockpiled material excavated during the implementation of other project elements (e.g., detention basins), an offsite commercial source, and from borrow areas located on the agricultural lands between the setback levee and the existing Feather and Bear River levees. Approximately 1.0 million cubic yards of borrow material would be required to construct the setback levee. The existing Feather and Bear River levees would be left in place. No soil would be removed from these levees to construct the setback levee.

The existing agricultural lands in the levee setback area would be permanently impacted by levee construction. All or portions of this approximately 300 acre area would be excavated to gather borrow material. Following completion of the setback levee, this area would be set aside as a habitat mitigation area. A final mitigation design has not been prepared for this area, but it is expected that target habitats would include wetland, riparian, oak woodland and grassland. Passive and/or active mitigation strategies may be implemented. A detailed mitigation strategy will be developed at a later time.

Construction of the setback levee would include the use of heavy equipment, including scrapers and bull dozers. Approximately 5,800 truck trips will be required to haul in quarry material (e.g., drain rock, aggregate roadway materials) and other materials. An additional 400 truck trips would be needed to remove waste materials. Approximately 50,000 truck trips would be necessary to deliver all the soil material for the setback levee. Most of these trips would occur within the levee setback area if the primary borrow source is located onsite. It is anticipated that the setback levee would be constructed in 150 working days.

Staging areas for the setback levee would be located within the construction corridor along the setback levee alignment. It is anticipated that the staging areas would be located on agricultural lands and that no additional impacts to native land cover types would occur.

Construct Detention Basin

A detention basin would be constructed to compensate for the lost detention storage in the setback levee area. The detention basin would be constructed as a means to offset the need for increased pumping associated with the loss of water storage area. The detention basin would be located on the east side of Clark Slough and north of the setback levee. The 23-acre detention basin would have a capacity of 230 acre-feet and would be excavated to a depth of 10 feet.

Construction of the detention basin would include the use of heavy equipment, including scrapers and bulldozers. Approximately 37,000 cubic yards of material would be excavated and stockpiled for use in the setback levee construction or the construction of other project elements.

Reconstruct Bear River Levee

As a result of both stability and height issues, the Bear River levee requires a levee raise and the construction of an impervious soil layer on the waterside of the levee from station 131+00 to station 140+00 to stabilize the levee. The area would occur between the eastern terminus of the proposed setback levee and the Algodon Canal. This location is the approximate area of the breach that occurred during the 1997 floods. The levee would be dismantled and reconstructed to a height approximately 0.3 foot higher than the existing levee crown.

Construction would begin by removing approximately the top 3 feet of existing soil and excavating a 5 foot deep toe trench on the waterside levee slope. The soil removal would be performed using two bulldozers and an excavator. Approximately 8,400 cubic yards of levee material would be excavated and spoiled on site or used as fill for other project improvements (e.g., WPIC borrow ditch fill).

It is estimated that up to 8,400 cubic yards of material would need to be imported to the project area. Approximately 840 truck trips would be required to import the necessary materials and an equal number of trips would be needed to transport spoils to onsite spoils locations. The levee improvements would be implemented using an excavator, two bulldozers and two compactors. It is anticipated that reconstruction would last up to 30 days.

Relocate Pump Station #6

Pump Station #6 is located just west of SR 70 and north of the Bear River levee. The pump station is located at the southern terminus of the Algodon Canal. The pump station has decreased the levee stability because of its proximity to the levee. Relocating the pump station would involve dismantling the existing pump station and constructing a replacement facility approximately 150 feet north of the existing location. The portion of the Algodon Canal between the new and old pump station locations would be backfilled to increase levee stability.

The existing pump station would be removed using a crane, and waste materials would be disposed of off-site by truck. Approximately four truck trips would be necessary to remove the waste to a permitted disposal or recycling facility. An additional four truck trips would be required to import the new pump station materials. A crane would place the new pump, and hand crews would secure it. The pump relocation/replacement would last approximately 7 days. The area between the new and old pump stations would be filled with approximately 5,300 cubic yards of borrow material. This material could be imported from Reclamation District (RD) 1001, or the remainder of soil excavated during the Bear River levee reconstruction could be used. If the material was imported, it would require 270 truck trips. The material would be placed and compacted by simultaneously using a bulldozer and a compactor. It is anticipated that relocation of the pump station, and the associated backfill, would last up to 30 days.

Raise Bear River Levee

Portions of the Bear River levee between stations 151+00 and 169+00 need to be raised or widened to meet freeboard standards. This levee section would be raised an average of 1.5 feet by adding soil materials to the landside and crown of the levee. To raise the levee, four haul trucks would import 8,500 cubic yards of soil from RD 1001 and would place the material adjacent to the existing levee. Approximately 20 truck trips a day would be necessary to deliver the material. Two bulldozers would position the material, and two compactors compact it into place. In addition, a 10-foot easement would be purchased to allow access for levee maintenance. It is anticipated that raising the levee would last up to 30 days.

Construct WPIC Slurry Cutoff Wall

The construction of a slurry cutoff wall on a portion of the WPIC levee would reduce seepage in the levee by creating a low-permeability barrier and dispersing hydrostatic pressure. A 50-foot-deep slurry cutoff wall would be constructed between stations 251+00 and 270+50.

The construction of a slurry cutoff wall would use conventional slot trench methods: a trench would be excavated through the levee and subsurface materials and would then be backfilled with low-permeability materials. During construction, the trench, which would be 2-3 feet wide and extend to depths of up to 50 feet, would be kept open using a bentonite-water slurry. The soil excavated from the trench would be hauled to a mixing location near station 220+00, where it would be mixed with hydrated bentonite and cement to reduce permeability and increase strength. The soil-cement-bentonite mixture would then be hauled to the levee and backfilled into the trench. This mixture would create a low-permeability barrier in the levee.

During slurry cutoff wall construction, one crew would be able to construct up to 100 linear feet of slurry wall (for depths of to 50 feet) in an 8-hour shift. Equipment needed would include a long-stick excavator (80-foot reach), three or four dump trucks (10-cubic yard capacity each), and tow loaders at the mixing location. Approximately 7,000 dump truck trips would be necessary to haul material between the excavator and the mixing area along the levee. The mixing area would be used to prepare the soil-bentonite mixture and supply the bentonite-water slurry. All of this equipment would operate simultaneously for 8-12 weeks.

Vertical clearance of about 40 feet would be needed for the excavator boom. Horizontal clearance of about 10 feet beyond the levee crest may be required for excavator swing when loading dump trucks.

Materials imported to the site would include bentonite, cement, water (if a domestic supply is not available nearby), and construction support materials.

Although the exact locations of the mixing areas have not been identified at this time, all soil mixing will occur within the areas of temporary or permanent impact identified in this assessment. Excess soils remaining after construction of the slurry wall will be used to construct other project elements (e.g., setback levee).

The only permanent facility associated with the construction of the slurry cutoff wall would be the wall itself, which may be 2-3 feet wide, up to 36 feet deep, and up to 1,700 feet long. The entire wall would be within the levee. The mixing area would be restored to preproject conditions after the slurry cutoff wall was constructed.

Raise WPIC Levee Crown-Unchanged Footprint

To increase freeboard, the WPIC levee crown would be raised between stations 296+00 and 332+50. This reach would be raised an average of 0.5 foot.

Approximately 7,000 cubic yards of soil would be imported using haul trucks. The material would come from RD 1001. A total of 700 truck trips would be required; approximately 16 truck trips would be required each day, using tow trucks, over a period of 45 days. Two bulldozers and tow compactors (one each at each site) would be needed to place, position, and compact material on the levee crown. Disturbance may occur up to 100 feet from the levee in these locations. However, the area would be returned to preproject conditions after construction was completed.

Raise WPIC Levee-Widened Footprint (Waterside of Levee)

Portions along the WPIC between stations 0+00 and 137+50 and stations 210+00 and 25+00 would be raised to accommodate freeboard standards. The crown would be raised an average of 1.2 feet by adding soil to the levee crown as well as the waterside slope of the levee, which would increase the levee footprint.

Raising the levee by extending the footprint into the water would include the construction of a ramp on the landside of the levee to allow access to the levee. The ramp would be 12 feet wide and 60 feet long, made of imported material, and constructed using a bulldozer in a location where it would have the least effect on existing resources. Staging of equipment would be primarily on the levee crown, but some equipment would be kept adjacent to the landside of the levee. Approximately 80,000 cubic yards of material would be imported using haul trucks. Bulldozers would place and position the material on the waterside of the levee and crown, and compactors would compact the material. The levee footprint would be extended by 6 feet. Four bulldozers and four compactors would complete the full levee raise in 30 days. The area disturbed for the construction of the ramp and staging areas would be returned to preproject conditions after construction was completed.

Implement Erosion Control Measures

Portions of the Bear River levee slopes are proposed to be protected with riprap to minimize erosion along the waterside banks. Approximately 4,000 cubic yards of riprap would be placed on the Bear River levee between approximately stations 145+50 and 150+50 and between stations 164+00 and 169+00.

The riprap would be 2-3 feet in diameter and would be placed on the waterside of the levee to protect against erosional forces, such as wind-generated waves and high water velocities. The

riprap would come from a permitted quarry within 25 miles of the project area. Areas disturbed by the equipment or riprap stockpiling would be returned to preproject conditions after construction was completed.

Temporary Staging, Storage, and Work Areas

The specific locations of the temporary staging, storage, soil-mixing and other work areas have not been identified at this time. Although these locations have not been identified, all activities associated with these areas will occur within areas of temporary or permanent impact identified in this assessment.

Proposed Conservation Measures

All Listed Species

1. A Service approved biologist will identify boundaries of sensitive habitats and have the contractor fence the areas with orange construction fencing. Erosion control fencing will be placed at the edges of construction where the construction activities are upslope of wetlands and channels to prevent washing of sediments offsite. All fencing will be installed prior to any construction activities beginning and will be maintained throughout the construction period.
2. An environmental training program will be provided for all construction personnel prior to the start of construction activities. The program will provide workers with information on their responsibilities with regard to the special-status species, an overview of the life-history of the species, information on the protections afforded to these animals under the Act and take prohibitions, and an explanation of the relevant terms and conditions of this biological opinion. All on-site construction personnel shall be notified about the potential presence of special-status species and any special-status species encountered during construction shall be left unharmed. Written documentation of the training must be submitted to the Chief of the Endangered Species Division (Sacramento Valley) at the Sacramento Fish and Wildlife Office within 30 days of the completion of training.
3. All trash and construction debris will be removed following construction. Revegetation will occur on all areas temporarily disturbed during construction.
4. Fugitive dust emissions will be minimized by adhering to the Feather River Air Quality Management Districts requirements for the control of dust emissions.

Vernal Pool Fairy Shrimp and Vernal Pool Tadpole Shrimp

1. Compensation at a ratio of 1:1 for creation and 3:1 for preservation will be done at an approved mitigation bank for direct effects. Indirect effects will be compensated at a ratio of 3:1 preservation at an approved mitigation bank.

2. A Stormwater Pollution Plan will be prepared for the proposed project, with the following objectives: (1) to identify pollutant sources, including sources of sediment, that may affect the quality of storm water discharges from the construction of the proposed project; (2) to identify Best Management Practices (BMPs) to reduce or eliminate pollutants in stormwater discharges and authorized non-stormwater discharges from the proposed project site during construction; (3) to outline and provide guidance for BMPs and stormwater monitoring; (4) to address post-construction BMP implementation and monitoring; and (5) to address sediment, siltation, turbidity, and non-visually detectable pollutant monitoring, and outline a sampling and analysis strategy.
3. Standard BMPs will be incorporated into all construction designs, plans, and specifications, and will be required of contractors during construction. The BMPs for the proposed project will include the following specific measures:

Hydroseeding: All constructed slopes adjacent to the vernal pool preserves will be hydroseeded with a native grassland mix. The hydroseed will be applied with a tackifying agent at a rate of at least 2 tons per acre, and based on manufacture's recommendations. The tackifying agent will be a hydraulic matrix which when applied, and upon drying, adheres to the soil to form a 100 percent cover which is biodegradable, promotes vegetation, and prevents soil erosion. The hydroseed mix will not be applied before, during, or immediately after rainfall so that the matrix will have an opportunity to dry 24 hours after installation.

Sediment and Erosion Control: Certified weed-free straw wattles will be installed at the base of all slopes adjacent to the opens space preserve, along the perimeters of the pond complex, and along of the property lines of the proposed project site. Prior to installation of the straw wattles, a concave key trench 2 to 4 inches deep will be contoured along the proposed installation route. Soil excavated for the trenching will be placed on the uphill or flow side of the straw wattles to prevent water from undercutting the straw wattles. Stakes will be driven in on alternating sides of the straw wattles, to hold them in place. The straw wattles will be maintained for a period of time as least until the native grassland vegetation is fully established and the soil is stabilized.

Excavated Areas: During construction all excavated materials will be deposited or stored such that this material cannot be washed into any water sources, and excess supplies of certified weed-free straw bales and/or sediment fencing will be available at the construction site for periodic site-specific use as needed.

Staging Areas: Staging areas for construction will be located so that spills of oil, grease, or other petroleum by-products will not be discharged into any watercourse or sensitive habitat. No refueling, storage, servicing, or maintenance of equipment will take place within 250 feet of the vernal pools. All machinery will be properly maintained and cleaned to prevent spills and leaks. Any spills or leaks will be

reported and cleaned up in accordance with applicable local, State, and/or Federal regulations.

Construction Fencing: Temporary fencing will be installed prior to construction along the boundaries of the construction zone to clearly mark this zone and to prevent construction equipment, vehicles, or construction personnel from entering into avoided vernal pool areas.

Valley Elderberry Longhorn Beetle

1. Pre-construction and post-construction surveys will be done of the elderberry shrubs in the project area. The post-construction survey will confirm that there was no additional damage to any of the elderberry shrubs than as described in this BO.
2. All areas to be avoided during construction activities will be fenced and flagged. In areas where encroachment on the 100-foot buffer has been approved by the Service, a minimum setback of at least 20 feet from the dripline of each elderberry plant will be provided.
3. Transplant 21 elderberry shrubs with 38 stems between 1 and 3 inches, 4 stems between 3 and 5 inches and 15 stems greater than 5 inches at ground level, and provide additional plantings as described in Service's 1999 *Conservation Guidelines for the Valley Elderberry Longhorn Beetle* (Conservation Guidelines).
4. To minimize for transplanting the elderberry shrubs outside of the transplant window described in the Conservation Guidelines, the number of additional elderberry seedlings and associated native plantings will be increased 2.5 times. TRLIA is planning on planting the elderberry seedlings and associated natives on the existing Bear River levee, planting will not occur until fall or winter of 2006 after the old Bear River levee has been decommissioned and the new setback levee is in place. Due to the delay in planting the elderberry seedlings and associated natives the number of elderberry seedlings and associated natives will be increased 2 times. The final number of elderberry seedlings and associated natives planted in fall of 2006 will be increased by 4.5 times.
5. A qualified biologist (monitor) will be on-site for the duration of the transplanting of the elderberry shrubs to ensure that no unauthorized take of the beetle occurs. If unauthorized take occurs, the monitor will have the authority to stop work until corrective measures have been completed. The monitor must immediately report any unauthorized take of the beetle or its habitat to the Service and to the California Department of Fish and Game.
6. Dust control measures will be employed during all construction activities.

