



United States Department of the Interior



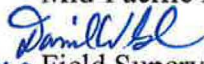
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In Reply Refer to:
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Memorandum

To: Program Manager, San Joaquin River Restoration Program,
Mid-Pacific Regional Office, Bureau of Reclamation, Sacramento, California

From: 
acting Field Supervisor, San Francisco Bay-Delta Fish and Wildlife Office, Sacramento,
California

Subject: Informal Consultation Under Section 7(a)(2) of the Endangered Species Act on
the San Joaquin River Restoration Program's Eastside Bypass Improvements
Project, Merced County, California.

This memorandum is in response to the U.S. Department of the Interior Bureau of Reclamation's (Reclamation) March 15, 2018, request for informal consultation with the U.S. Fish & Wildlife Service (Service) for the San Joaquin River Restoration Program's (SJRRP) Eastside Bypass Improvements Project (proposed project), Merced County, California. This document is issued under the authority of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*) (Act).

Reclamation's request for informal consultation and biological assessment (BA) were received by the Service on March 16, 2018. At issue are the possible effects of the proposed project on the federally-listed as threatened vernal pool fairy shrimp (*Branchinecta lynchi*), Central California Distinct Population Segment (DPS) of California tiger salamander (*Ambystoma californiense*), blunt-nosed leopard lizard (*Gambelia sila*), giant garter snake (*Thamnophis gigas*), and as endangered vernal pool tadpole shrimp (*Lepidurus packardi*) (with vernal pool fairy shrimp jointly referred to as vernal pool crustaceans), San Joaquin kit fox (*Vulpes macrotis mutica*) and Fresno kangaroo rat (*Dipodomys nitratooides exilis*). Critical habitat occurs within the Eastside Bypass Control Structure construction area for the following federally listed species: vernal pool fairy shrimp (critical habitat Unit 23C), vernal pool tadpole shrimp (critical habitat Unit 16C), Conservancy fairy shrimp (*Branchinecta conservatio*) (critical habitat Unit 7C), and Hoover's spurge (*Euphorbia hooveri*) (critical habitat Unit 6B). Reclamation has requested the Service's concurrence with a determination that the proposed project, as described, may affect, but is not likely to adversely affect (NLAA) the above federally-listed species and will not destroy or adversely modify designated critical habitat. Reclamation is the consulting agency and the California Department of Water Resources (DWR) is the applicant.

The Service's response is based on: 1) the memorandum requesting informal consultation and concurrence with the determination of NLAA; 2) the BA for the proposed project, dated March 15, 2018; 3) a January 11, 2018 San Luis National Wildlife Refuge Complex (Refuge) meeting and site visit; and 4) additional information on file and available at the San Francisco Bay-Delta Fish and Wildlife Office and Sacramento Fish and Wildlife Office. As an Implementing Agency in the SJRRP, the Service has been working closely with Reclamation since early 2008 on project planning and the development of avoidance and minimization measures for federally-listed species.

Background

The SJRRP was established in late 2006 to implement the Stipulation of Settlement (Settlement) in *Natural Resources Defense Council, et al., v. Kirk Rodgers, et al.* The San Joaquin River Restoration Settlement Act, included in Public Law 111-11 authorizes and directs the Secretary of the Interior to implement the Settlement. To achieve the goals of the Settlement, Reclamation releases water from Friant Dam to the confluence of the Merced River (referred to as Restoration Flows). Restoration Flows are specific volumes of water to be released from Friant Dam during different water year types, according to Exhibit B of the Settlement. Restoration Flows are released consistent with Reclamation's water rights as reflected in the State Water Resources Control Board's October 21, 2013 Water Rights Order.

Description of the Proposed Action

The proposed project will implement actions that were originally included as early implementation actions of the SJRRP's Reach 4B, Eastside Bypass, and Mariposa Bypass Channel and Structural Improvements Project (Reach 4B Project). Because of budgetary constraints and scheduling requirements, the proposed project has been separated from the Reach 4B Project and will be considered as a stand-alone project that has autonomous need excluding the eventual implementation of the Reach 4B Project.

DWR proposes to design, permit, and implement the following three project elements:

- Reinforce approximately 2 miles of levee along the Eastside Bypass to improve stability and reduce seepage (Reach O Levee Improvements);
- Modify the existing Eastside Bypass Control Structure to improve fish passage; and,
- Replace the existing culvert at the Dan McNamara Road crossing at the Eastside Bypass to allow fish passage.

Reclamation proposes to design, permit, and implement the following single project element:

- Remove two weirs located in the Eastside Bypass, operated by the Service, to allow for fish passage, and replace an existing well with a new, deeper well to provide a replacement water supply for the Merced National Wildlife Refuge (Merced NWR).

Eastside Bypass Levees

The Eastside Bypass includes levees that were constructed as part of the Lower San Joaquin River Flood Control Project or Lower San Joaquin River and Tributaries Project. The design capacities for the Middle Eastside Bypass and Lower Eastside Bypass for flood conveyance within the Action Area are 16,500 cubic feet per second (cfs), and 8,000 cfs, respectively. The levees in the Action Area were constructed in the 1960s.

The Eastside Bypass between Sand Slough and the Mariposa Bypass (Reach O) has been identified by the SJRRP as the most limiting channel reach with regards to levee seepage and stability. Geotechnical analysis has further showed that the uppermost 3 miles of the right bank of the reach is the critical segment of the reach that will limit the release of Restoration Flows within the next 10-20 years. DWR's Division of Flood Management performed geotechnical evaluations in the reach and identified three segments of the approximately 3-mile levee segment that need improvements.

The following existing infrastructure near the levee improvements will also be modified:

- Irrigation canal penetrating the existing levee. This feature will be modified or replaced in kind.
- At least three drains penetrate the existing levee. These drains will be considered in design and be modified or replaced in kind.

The three levee improvement segments are Reach O-1, Reach O-3, and Reach O-4. Levee improvements will include reinforcing approximately 1,500 linear feet of levee in Reach O-1, 5,900 linear feet of levee in Reach O-3, and 2,600 linear feet of levee in Reach O-4 with cutoff walls.

The installation of cutoff walls will include:

- Degrading the top portion of the existing levee;
- Installation of a bentonite cutoff wall up to approximately 35-feet deep in the middle of the levee crown for improved stability; and,
- Reconstructing the top portion of the existing levee using select levee fill material.

The improvement would allow conveyance of Restoration Flows up to 2,500 cfs.

Eastside Bypass Control Structure

The Eastside Bypass Control Structure is at the upstream end of the Lower Eastside Bypass and works with the Mariposa Bypass Control Structure to split flood flows between the two flood facilities.

The Eastside Bypass channel downstream of the control structure was constructed as a flood control facility with a design capacity of 8,000 cfs. Levees within this section of the bypass vary in height from about 10 feet upstream of the control structure to around 7 feet downstream of the structure.

The Eastside Bypass Control Structure currently does not meet fish passage criteria for adult Chinook salmon at flows less than 700 cfs (DWR 2012). The control structure also does not meet passage conditions for many native fish including sturgeon at lower flows and the slower swimming, non-jumping species such as Pacific lamprey, Sacramento pikeminnow, and hitch.

To provide fish passage, the Eastside Bypass Control Structure will be modified by removing the sill, boards, and energy dissipation blocks. In addition, a 380-foot-long rock ramp will be constructed downstream of the structure to provide easy passage from the downstream pool to the structure. The ramp will extend from bank to bank and be constructed by filling the large pool downstream of the structure and then adding a layer of Engineered Streambed Material (ESM).

Currently, the channel downstream of the structure is incised. Fill for the base of the ramp will come from excavating benches in the channel downstream, if the material is suitable. Benches about 100 feet wide with 3:1 side slopes, starting at the end of the ramp to approximately 1,000 feet downstream, will be constructed, inundating at flows around 1,000 cfs. If the existing material is not suitable, the benches will not be excavated, and fill will need to be imported.

The slope of the rock ramp will be about 1 percent. To stabilize the ramp, sheet piles will be driven into the existing ground, so the top of the sheet pile matches the final grade elevation of the ramp. The piles will then be backfilled with ESM.

The design meets passage criteria for Chinook salmon and steelhead at all flows from 45 cfs to 8,000 cfs. For white and green sturgeon, passage criteria are met at flows from 1,000 cfs to 8,000 cfs, and for Pacific lamprey from 45 cfs to 1,500 cfs. The flow ranges meeting passage criteria for native resident species are variable.

Existing infrastructure associated with the structure that will not be modified as part of the proposed project include an underground siphon that conveys water in the Eastside Canal, a gated overflow structure for drainage from Owens and Deadman Creeks approximately 180 feet downstream within the right levee, and a control building on the left bank that houses equipment for the control structure gates and the utilities for the building.

Dan McNamara Road Crossing

Dan McNamara Road is a county-owned, publicly accessible gravel-armored low-flow crossing approximately 12 miles southwest of the City of Merced. The road crown is approximately 30 feet wide and sits on a 60-foot county right-of-way.

There are two culverts under the road crossing, one at the low-flow channel within the center of the road, and another within the floodplain closer to the right levee (looking downstream). The culvert located within the low-flow channel and the center of the road is a single circular

corrugated metal pipe culvert that has a capacity of approximately 20-25 cfs. Flows within the Eastside Bypass that exceed 25 cfs begin to overtop the road. The second culvert within the floodplain is a circular reinforced concrete culvert that is 24 inches in diameter. This culvert is silted-in part way, and does not appear to effectively convey flows.

Restoration Flows in the Eastside Bypass are currently permitted up to about 300 cfs. When Restoration Flows exceed approximately 25 cfs in the Eastside Bypass, Merced County will need to close the road. When the road is closed for Restoration Flows, traffic is required to detour on public roads; the 1.5-mile detour permitted during flood flows through agreement between Lower San Joaquin Levee District (LSJLD) and the County of Merced is not permitted during Restoration Flows.

The Dan McNamara Road crossing is a partial barrier for adult Chinook salmon because of insufficient depths over the road and high velocity in the existing culvert. The crossing is not passable for fish until the road is overtopped and has sufficient flow depth over the road to allow for passage. Hydraulic models indicate that this occurs at flows of more than 600 cfs (DWR 2012). The Dan McNamara Road crossing also does not meet passage conditions for many native fish at lower flows including sturgeon and the slower swimming, non-jumping species such as Pacific lamprey, Sacramento pike minnow, and hitch.

To provide fish passage at Dan McNamara Road, the existing single low-flow culvert will be replaced with a series of up to three pre-cast concrete box culverts, each approximately 12-foot wide and 10-foot tall. Travel lanes and shoulders will be constructed, resulting in a two-lane, about 40-foot-wide road. Up to 200 feet of road on either side of the culverts will be regraded. Riprap will then be placed along the new road embankments for erosion control.

About 2,000 cubic yards (cy) of material will be excavated about 500 feet downstream and 200 feet upstream of the new culverts to establish a low-flow channel that will be approximately 45-foot wide with 2:1 side slopes through the culverts. All culverts will be embedded 6-feet deep with approximately 350 cy of ESM or native material to improve fish passage and for future changes in the channel bed as a result of erosion or deposition and subsidence. The corners of the culverts will be rounded to enhance Pacific lamprey passage.

The new culverts will allow for vehicle access for Restoration Flows less than 200-400 cfs depending on the final design. Higher flows will begin overtopping the road prohibiting vehicle access while continuing to provide unimpeded fish passage. Safety features, such as removable guard railing or a curb, may be added to prevent vehicles from going off the road crossing.

To keep grazing cattle from crossing the road or getting into the culverts, break away fencing (or some other exclusion cattle barrier) could be added upstream and downstream of the culvert openings and at the edge of the right of way. Additional measures to keep cattle out of the culvert include installing metal piping at the openings of the culvert or floating gates, but without adversely affecting fish passage.

Other existing infrastructure near Dan McNamara Road will either be considered for design and construction, or replaced during construction. This infrastructure includes:

- Four culverts along Dan McNamara Road that are outside of the main channel on the right bank of the levee. These features will need protection during construction but would not be replaced or modified.
- Fencing and gates to prevent access to private lands and to ensure segregation of livestock. These features will be replaced in kind.

Merced National Wildlife Refuge Weirs

A section of the Merced NWR lies adjacent to the Eastside Bypass in the Action Area. Just south of Sandy Mush Road, two weirs have been constructed in the Eastside Bypass that facilitates water diversions to support seasonal wetlands and pools for migratory birds. The Lower Merced Weir #1 (lower weir) is less than 1 mile south of West Sandy Mush Road and approximately 1.4 river miles downstream of the Upper Merced Weir #2 (upper weir).

The lower weir is used to divert flows from the bypass into Merced NWR wetlands located within the bypass levees on the left overbank. This area is known as the Mariposa Wetlands (west side of the refuge). Flows are diverted into the wetlands by manually installing wooden boards to raise water surface elevations in the pool upstream of the weir. Boards were inserted during low-flow periods, which typically occur September through March. The upper weir prevents water from flowing upstream, thereby ponding water between the two weirs.

The lower and upper weirs currently impede the upstream migration of adult Chinook salmon at varying flows depending on whether the boards are installed (DWR 2012). Because the weirs work together to create a large pool, the lower weir is the primary barrier and controls the water surface elevation at the upper weir. When the boards were in at both weirs, unimpeded passage was possible when flows exceeded about 3,000 cfs. The weirs also do not meet passage conditions for many native fish at lower flows including sturgeon and the slower swimming, non-jumping species such as Pacific lamprey, Sacramento pike minnow, and hitch.

Project Construction

Proposed construction activities within the flood channel are anticipated to take place primarily between April 1 and November 15, outside of the flood season. Completion of construction of the levee improvements, such as re-grading the levee crown and other activities outside of the flood channel may continue until the end of the year. The construction start date depends on water elevations and permit requirements. Construction of the levee improvements, Eastside Bypass Control Structure modifications, and Dan McNamara Road modifications will likely occur in one construction season in 2019. Construction of the Merced NWR weir removal and well replacement will likely occur in one construction season in 2020.

Construction will take place during daylight hours, typically from 7:00 a.m. to 6:00 p.m., Monday through Friday. These work times may be extended into the evening or weekend during key points of the construction phase, as needed. Adjacent landowners, the LSJLD, Merced County, and the Merced NWR manager will be notified prior to the start of construction activities.

For more information about the Eastside Bypass Levees, Eastside Bypass Control Structure, Dan McNamara Road Crossing, and the Merced National Wildlife Refuge Weirs Removal, including detailed descriptions, construction activities, and operations and maintenance, refer to the BA (USBOR 2018).

Action Area

The Action Area is defined as "...all areas that would be affected directly or indirectly by the Federal action, not strictly the immediate area involved in the action" (USFWS and NMFS 1998). The Action Area includes all areas where listed and proposed species and designated and proposed critical habitat could be affected by the proposed project.

The Action Area consists of approximately 477-acres and includes four components associated with seven separate sites along the Eastside Bypass between West Washington Road in the south and Green House Road in the north. Five of the sites occur within the Merced NWR.

The Action Area consists of 4 facilities within the San Joaquin River Eastside Bypass, including:

1. Eastside Bypass Levees (Reaches O-1, O-3, and O-4) - Approximately 2 miles of existing levee along the Eastside Bypass between Sand Slough and the Mariposa Bypass.
2. Eastside Bypass Control Structure - the Eastside Bypass Control Structure will be modified and construction of a rock ramp will be constructed downstream.
3. Dan McNamara Road - An existing low-flow culvert will be replaced with concrete box culverts to provide fish passage.
4. Removal of Merced NWR Upper and Lower Eastside Bypass weirs and replace an existing well.

The Action Area includes all staging areas and access routes associated with the proposed project.

Conservation Measures

The following conservation measures, which are consistent with the SJRRP *Conservation Strategy* and *U.S. Fish And Wildlife Service Standardized Recommendations for Protection of the Endangered San Joaquin Kit Fox Prior to or During Ground Disturbance* (USFWS 2011), will be implemented to avoid and minimize potential impacts associated with the implementation of the proposed action:

General Conservation Measures

1. Project-related vehicles will observe a daytime speed limit of 15-mph throughout the site in all project areas, except on state and federal highways; after dark, the speed limit will be reduced to 10-mph. Off-road traffic outside of designated project areas will be prohibited.
2. Construction work at night (30 minutes after sunset until 30 minutes before sunrise) will not be allowed.
3. All food-related trash items such as wrappers, cans, bottles, and food scraps will be disposed of in securely closed containers and removed daily from the project site.
4. No firearms will be allowed on the project site.
5. No pets will be permitted on the project site.
6. Use of rodenticides in the project area will not be allowed.
7. Upon completion of the project, all areas subject to temporary ground disturbances, including staging areas, temporary roads, and borrow sites will be re-contoured if necessary, and revegetated with native seed to promote restoration of the area to pre-project conditions.
8. The contractor will be required to keep their equipment in good working condition in order to prevent leaks and spills of petroleum products or other fluids into waters of the U.S.
9. All equipment will be washed prior to arriving at the project site to remove soil and seeds to prevent spread of noxious weed seeds.
10. An employee education program will be conducted. The program will consist of a brief presentation by a Service-approved biologist. The program will include the following: a description of federally-listed vernal pool species, California tiger salamander, blunt-nosed leopard lizard, giant garter snake, San Joaquin kit fox and Fresno kangaroo rat; the habitat needs for each species; a report of each species occurrences in the project area; an explanation of the status of each species and its protection under the Act; any designated critical habitat within the Action Area; and a list of measures being taken to reduce impacts to each species and critical habitat during project construction. A fact sheet conveying this information will be prepared for distribution to construction personnel.
11. Before the start of work each day, the biological monitor, or a designated individual who is Service-approved and under direct supervision of the biological monitor, will check for animals under any equipment to be used that day, such as vehicles or stockpiles of items such as pipes. If any listed species are found they will be allowed to leave on their own before the initiation of construction activities for the day. To prevent inadvertent

entrapment of animals during construction, all excavated, steep-walled holes or trenches more than 1 foot deep shall be covered, by plywood or similar materials, at the close of each working day or provided with one or more escape ramps constructed of earth fill or wooden planks. Before such holes or trenches are filled, they must be thoroughly inspected for trapped animals.

Vernal Pool Crustaceans

1. Facility construction and other ground-disturbing activities will avoid core areas identified in the *Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon* (USFWS 2005), where feasible, because conservation of these areas is a high priority for recovering listed vernal pool species.
2. Where vernal pools are present, a buffer around the micro-watershed or a 250-foot-wide buffer, whichever is greater, will be established if feasible before ground-disturbing activities around the perimeter of vernal pools and seasonal wetlands that provide suitable habitat for vernal pool crustaceans or vernal pool plants. This buffer will remain until ground-disturbing activities in that area are completed. Suitable habitat and buffer areas will be clearly identified in the field by staking, flagging, or fencing. If encroachment within the buffer is required, the Service will be consulted to determine appropriate conservation measures and if any compensation measures for take of vernal pool species are appropriate.
3. High-visibility fencing will be placed and maintained around all preserved vernal pool habitat buffers during ground-disturbing activities to prevent impacts from vehicles and other construction equipment.

Central California DPS California Tiger Salamander

1. Prior to ground-disturbing activities, a Service-approved biologist will survey for and flag the presence of ground squirrel and gopher burrow complexes within the annual grassland within 30 days prior to ground disturbance within the site. Where burrow complexes are present, a 250-foot-wide buffer shall be placed to avoid and minimize disturbance to the species.
2. The Service-approved biologist will be on site each day during any wetland restoration or construction, and during initial site grading or development of sites in suitable habitat for California tiger salamander.
3. Plastic monofilament netting (erosion control matting) or similar material shall not be used at the project site because California tiger salamanders may become entangled or trapped. Acceptable substitutes include coconut coir matting or tackified hydro seeding compounds.
4. All ground-disturbing work will occur during daylight hours. Clearing and grading will be conducted between May 1 and October 1, where feasible, in coordination with the

Service, and depending on the level of rainfall and site conditions. If infeasible, the Service will be consulted to determine appropriate conservation measures for impacts to California tiger salamander habitat.

Blunt-Nosed Leopard Lizard

1. Within one year before the commencement of the proposed project within areas north of the Mariposa Bypass and west of the Eastside Bypass, focused site visits and habitat assessment will be conducted. Based on focused assessment, and discussions with the Service and California Department of Fish and Wildlife (CDFW), reconnaissance-level, pre-construction surveys will be conducted. If blunt-nosed leopard lizards are detected within or adjacent to the project site, consultation with the Service will be reinitiated and conservation measures that will avoid direct take of this species will be developed and implemented before ground disturbing activities.

Giant Garter Snake

1. Where suitable giant garter snake habitat occurs within the Action Area, preconstruction surveys by a Service-approved biologist will be completed within a 24-hour period before any ground disturbance of potential giant garter snake habitat. If construction activities stop on the project site for a period of 2 weeks or more, a new giant garter snake survey will be completed no more than 24 hours before the restart of construction activities. All potentially suitable burrows and crevices will be flagged and avoided by a minimum 5-foot no-disturbance buffer.
2. For projects within potential giant garter snake habitat, all activity involving disturbance of potential giant garter snake habitat will be restricted to the period between May 1 and October 1, the active season for giant garter snakes, if feasible. The construction site will be reinspected if a lapse in construction activity of 2 weeks or greater has occurred. If disturbance of potential giant garter snake habitat during the inactive season cannot be avoided, the Service will be consulted to determine appropriate conservation measures for impacts to giant garter snake habitat.
3. If a giant garter snake is found during construction activities, the Service, CDFW, and the project's biological monitor will immediately be notified. The biological monitor, or his/her assignee, will stop all construction activities in the vicinity of the giant garter snake and allow it to leave on its own accord. The monitor will remain in the area for the remainder of the work day to ensure the giant garter snake is not harmed. Escape routes for giant garter snake should be determined in advance of construction. If a giant garter snake does not leave on its own within one working day, the Service will be consulted prior to resuming construction activity.

San Joaquin Kit Fox

1. A Service-approved biologist will conduct pre-construction surveys for San Joaquin kit fox no fewer than 14 days and no more than 30 days prior to the onset of any ground

disturbing activity. If a San Joaquin kit fox is detected at any time, all construction activities associated with the project will be halted immediately. The project will be placed on hold until consultation with the Service is completed.

2. All construction pipes, culverts, or similar structures with a diameter of four inches or greater that are stored at a construction site for one or more overnight periods will be thoroughly inspected before the pipe is subsequently buried, capped, or otherwise used or moved in any way. If a San Joaquin kit fox is discovered inside a pipe, that section of pipe will not be moved until the Service has been consulted and CDFW contacted. If necessary, and under the direct supervision of the biologist, the pipe may be moved only once to remove it from the path of construction activity, until the fox has escaped.
3. Sightings of San Joaquin kit fox will be reported to the California Natural Diversity Database (CNDDDB).

Fresno Kangaroo Rat

1. Preconstruction surveys will be conducted by a Service-approved biologist per the Service and CDFW survey methodology to determine if potential burrows for Fresno kangaroo rat are present in the project footprint. Surveys will be conducted within 30 days before ground-disturbing activities. The biologist will conduct burrow searches by systematically walking transects, which shall be adjusted based on vegetation height and topography, and in coordination with the Service and CDFW. Transects shall be used to identify the presence of kangaroo rat burrows. When burrows are found within 100 feet of the proposed project footprint, focused live trapping surveys shall be conducted by a qualified and permitted biologist, following a methodology approved in advance by the Service and CDFW. Additional conservation measures may be developed pending the results of surveys, and in consultation with the Service and CDFW.

Potential Effects to Listed Species

Vernal Pool Crustaceans

There are five CNDDDB records for vernal pool fairy shrimp within five miles of the Action Area. The nearest record is from 1994 and is mapped approximately 0.5 miles south of the Merced NWR Lower Weir and New Well site and 0.5 miles north of the Reach O-1 Repair site (CNDDDB occurrence number: 102). The only information identified in the record is that 13 shrimp were collected.

There are eight CNDDDB records for vernal pool tadpole shrimp within five miles of the Action Area. The nearest CNDDDB occurrence is from 1994 and is approximately 2.5 miles north of the Eastside Bypass Control Structure Rock Ramp (occurrence number: 46). The record states that vernal pool tadpole shrimp were observed in vernal pools in grassland interspersed with seasonal marshes, sloughs, and vernal pools.

Vernal pools, farmed wetlands, and seasonal wetlands provide habitat for vernal pool crustaceans within the Eastside Bypass Control Structure Rock Ramp, Dan McNamara Primary Staging and Borrow Area, and Reach O-4 sites of the Action Area. These species are assumed to be present within the Action Area.

Direct effects to vernal pool crustaceans will be avoided through the implementation of the described conservation measures. The proposed project is designed to avoid direct and indirect impacts to the vernal pools and seasonal wetlands within the Eastside Bypass Control Structure Rock Ramp and the Dan McNamara Primary Staging and Borrow Area by establishing a minimum 250-foot buffer around the vernal pool habitats.

Construction activities related to the Levee Improvements will occur within the 250-foot buffer of vernal pool habitat. However, these activities will not indirectly affect vernal pool habitat and will not result in any net loss, function, or value of vernal pool habitat. The hydrology of these wetlands is connected to the agricultural field they are located in, which drains to the northwest corner of the field. Activities associated with the Levee Improvements will not affect the hydrology of these wetlands and will avoid any indirect effects them.

Any future changes to the proposed project description resulting in direct or indirect effects to federally-listed vernal pool species, or their habitat, will require additional consultation with the Service.

Critical Habitat

Critical habitat occurs adjacent to the Eastside Bypass Control Structure for the following federally listed species:

- vernal pool fairy shrimp (critical habitat Unit 23C);
- vernal pool tadpole shrimp (critical habitat Unit 16C);
- Conservancy fairy shrimp (critical habitat Unit 7C); and,
- Hoover's spurge (critical habitat Unit 6B).

Critical habitat occurs to the north of the Dan McNamara Road site for the following federally listed species:

- vernal pool fairy shrimp (critical habitat Unit 23D);
- vernal pool tadpole shrimp (critical habitat Unit 16D);
- Conservancy fairy shrimp (critical habitat Unit 7D);
- Hoover's spurge (critical habitat Unit 6C); and,
- Colusa grass (critical habitat Unit 7C).

Although, critical habitat overlaps the Action Area, vernal pool habitat is only present within the southwestern portion of the Eastside Bypass Control Structure project site. Because of its role as a flood conveyance structure, the area within the Eastside Bypass, in between the levees, does not provide the physical or biological features necessary for vernal pool species.

Central California DPS California Tiger Salamander

Annual grassland habitat within two sites of the Action Area provide habitat for California tiger salamander including the Eastside Bypass Control Structure Rock Ramp site and the Reach O-3 Repair site.

The annual grassland within the Reach O-3 Repair site was inundated from November 2016 through July 2017. The proposed project will avoid impacts to annual grassland habitat within the Reach O-3 Repair site since no work is anticipated within the annual grassland.

California tiger salamander could potentially utilize burrows within the annual grassland within the Eastside Bypass Control Structure site. Construction activities associated with the Eastside Bypass Control Structure Rock Ramp site includes staging, which will be temporary. Upon completion of construction activities, the annual grassland habitat will be returned to existing conditions.

The stock ponds, ponds, and other aquatic features in the vicinity of the Eastside Bypass Control Structure Rock Ramp site appear to provide aquatic breeding habitat for this species based on aerial imagery. The SJRRP PBO identifies this species as potentially occurring along Reaches 4B2 and 5.

Direct and indirect effects to California tiger salamander will be avoided and minimized through the implementation of the described conservation measures. If any California tiger salamander is observed, Reclamation will reinitiate with the Service.

Blunt-Nosed Leopard Lizard

Although the Action Area occurs outside of the known geographic range, a limited amount of potentially suitable habitat for this species occurs within annual grassland habitat at two sites within the Action Area; the Eastside Bypass Control Structure Rock Ramp site and the Reach O-3 Repair site. The annual grassland habitat within the Eastside Bypass Control Structure Rock Ramp site is densely vegetated. Effects to this portion of the Action Area will be temporary given that it is proposed as a staging area. The annual grassland habitat within the Reach O-3 Repair site was inundated from November 2016 through July 2017. Even if the Reach O-3 Repair site was once inhabited by the species, it is unlikely that blunt-nosed leopard lizards would have persisted through the inundation of the bypass during the 2016/2017 rain year.

Giant Garter Snake

The Action Area is outside of the currently known extant range of the giant garter snake and the majority of the Action Area provides marginal habitat. The Merced NWR Lower Weir and Upper Weir sites do provide suitable aquatic habitat in the vicinity of the weirs and small mammal burrows along the banks of the levee walls provide upland habitat. Due to the lack of known extant occurrences within the vicinity of the Action Area, adverse effects to this species are discountable.

San Joaquin Kit Fox

According to the CNDDDB database, there are recorded occurrences of San Joaquin kit fox within a 10-mile radius of the proposed Action Area. There is potential for San Joaquin kit fox to occasionally pass through and possibly forage within the proposed project site during regular dispersal movements. Monitoring-well installation may cause temporary avoidance of the area due to operational noise and increased human presence. Reclamation has determined that with implementation of the conservation measures as described any potential effect to San Joaquin kit fox will be insignificant and discountable and is not likely to adversely affect individual San Joaquin kit fox.

Fresno Kangaroo Rat

Fresno kangaroo rats occupy sandy and saline sandy soils in chenopod scrub and annual grassland communities on the Valley floor. In recent years they have only been found in alkali sink communities between 61 to 91 meters (200 to 300 feet) in elevation. The last confirmed Fresno kangaroo rat occurrence was a single male captured twice in the autumn of 1992 on the Alkali Sink Ecological Reserve, west of Fresno. There are no known Fresno kangaroo rat populations within the circumscribed historical geographic range in Merced, Madera, and Fresno Counties. The Fresno kangaroo rat is believed to be extirpated in Merced, Madera, and Fresno Counties (ESRP 2016).

In March 2016, a Service biologist observed kangaroo rat burrows in the river channel while visiting the Reach 4A of the San Joaquin River. During a kangaroo rat burrow mapping survey on April 4, 2016, burrows, tracks, and tail-draggs were found at a multitude of locations within the vicinity of the Reach 4A. A protocol level trapping survey was completed by Reclamation for 7 trapping areas along Reach 4A of the San Joaquin River and the Eastside Bypass in July 2016. A substantial number of Heermann's kangaroo rats were trapped, but no Fresno kangaroo rats were captured. In addition, the Action Area contains poorly suitable habitat for Fresno kangaroo rats. Based on these results, it is unlikely that Fresno kangaroo rat reside in the Action Area.

Conclusion

Based on our review of the information provided in Reclamation's March 15, 2018, memorandum and BA describing the proposed conservation measures, and discussions between the Service and employees of Reclamation and DWR, the Service concurs with Reclamation's determination that the proposed project, as described, may affect, but is not likely to adversely affect, vernal pool crustaceans, Central California DPS California tiger salamander, blunt-nosed leopard lizard, giant garter snake, San Joaquin kit fox, and Fresno kangaroo rat. In addition, the proposed project is not likely to adversely affect the primary constituent elements of critical habitat for the vernal pool fairy shrimp, vernal pool tadpole shrimp, Conservancy fairy shrimp, Hoover's spurge, or Colusa grass.

Reclamation is acting for the United States Army Corps of Engineers (Corps) as federal lead under the Act for the proposed action. The Corps will issue a 404 permit under the Clean Water Act. The permit does not change the project description or Reclamation's determination that the

proposed action will not likely adversely affect listed species and designated critical habitat. Given that these permits will not change the project description, the Service concurs with Reclamation's determination that the Corps issuance of the 404 permit is not likely to adversely affect vernal pool crustaceans, Central California DPS California tiger salamander, blunt-nosed leopard lizard, giant garter snake, San Joaquin kit fox, and Fresno kangaroo rat, nor is it likely to adversely affect the primary constituent elements of critical habitat for the vernal pool fairy shrimp, vernal pool tadpole shrimp, Conservancy fairy shrimp, Hoover's spurge, or Colusa grass.

This concludes our review of the proposed project, and no further coordination with the Service under the Act is necessary at this time. Please note, however, that this memorandum does not authorize take of listed species. Section 9 of the Act prohibits the "take" (e.g., harm, harass, pursue, injure, kill) of federally-listed wildlife species. Therefore, unless new information reveals effects of the proposed project that may affect listed species in a manner or to an extent not considered, or a new species or critical habitat is designated that may be affected by the proposed project, no further action pursuant to the Act is necessary.

Any questions or comments regarding this memorandum should be directed to Rocky Montgomery, Senior Biologist, Environmental Compliance Coordinator San Joaquin River Restoration Program, Watershed Planning Division, at (916) 978-5463.

cc:

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Literature:

- California Department of Water Resources (DWR). 2012. Task 2 Draft Technical Memorandum. Evaluation of Partial Fish Passage Barriers. South Central Region Office, Sacramento, CA.
- U.S. Bureau of Reclamation (USBOR). 2018. *Eastside Bypass Improvements Project Biological Assessment*, San Joaquin River Restoration Program, March 2018.
- U.S. Fish and Wildlife Service (USFWS). 2005. Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon. Portland, Oregon. xxvi + 600 pages.
- USFWS. 2011. Standardized Recommendations for Protection of the Endangered San Joaquin Kit Fox Prior to or During Ground Disturbance. Sacramento, California. January.

