United States Department of the Interior
U.S. FISH AND WILDLIFE SERVICE
Ecological Services
Carlsbad Fish and Wildlife Office
2177 Salk Avenue, Suite 250
Carlsbad, California 92008

In Reply Refer To:
FWS-CFWO-16B0293-18F1358

May 31, 2019
Sent by Email

Federal Emergency Management Agency
Department of Homeland Security
1111 Broadway, Suite 1200
Oakland, California 94607

Subject: Section 7 Consultation on FEMA Disaster, Mitigation and Preparedness Programs in Imperial, Inyo, Kern, Los Angeles, Orange, Riverside, San Bernardino, and San Diego Counties, California

This document transmits the U.S. Fish and Wildlife Service's (Service) biological opinion on the Federal Emergency Management Agency's (FEMA) proposed Disaster, Mitigation and Preparedness programs in California and its effects on the federally endangered Quino checkerspot butterfly (*Euphydryas editha quino*; Quino), arroyo toad (*Anaxyrus californicus*), and least Bell's vireo (*Vireo bellii pusillus*; vireo); the federally threatened Santa Ana sucker (*Catostomus santaanae*; sucker) and coastal California gnatcatcher (*Polioptila californica californica*; gnatcatcher); and associated critical habitats for these species, in accordance with section 7 of the Endangered Species Act of 1973 (Act), as amended (16 U.S.C. 1531 *et seq*.). We received your request for formal consultation and biological assessment on June 21, 2018. This biological opinion is primarily based on that biological assessment. The project file for this consultation is located at the Carlsbad Fish and Wildlife Office (CFWO[1]).

Your agency also determined that the proposed action was not likely to adversely affect the federally endangered southwestern willow flycatcher (*Empidonax traillii extimus*), California least tern (*Sternula antillarum browni*) or light-footed Ridgway's rail (*Rallus obsoletus levipes (R. longirostris levipes*) or the federally threatened western snowy plover (*Charadrius nivosus nivosus*) and requested our concurrence. We have determined that the proposed action is not likely to adversely affect these species as documented in Appendix A. Also, while you requested formal consultation for the federally endangered San Diego fairy shrimp (*Branchinecta sandiegonensis*), Riverside fairy shrimp (*Streptocephalus woottoni*), and tidewater goby (*Eucyclogobius newberryi*), we have determined that the proposed action is not likely to adversely affect these species, and the basis for this determination is also documented in Appendix A. Thus, these species are not addressed further in this document.

[1] CFWO includes the Carlsbad Fish and Wildlife Office and Palm Springs Fish and Wildlife Office

CONSULTATION HISTORY

On June 21, 2018, we received a request for section 7 consultation on the proposed action.

On July 17, 2018, we provided a letter documenting initiation of formal consultation as of June 21, 2018.

On December 20, 2018, we provided a draft biological opinion to FEMA for review and comment. Comments were received on March 6, 2019, and have been addressed or incorporated into this final biological opinion.

Endangered Species Act Compliance Process

This consultation relies on a two-tiered process, which includes this programmatic biological opinion and follow-up documentation to complete the section 7 consultation for each individual project addressed by the programmatic biological opinion. A description of this process is as follows:

1. If FEMA makes a no effect determination for a subapplicant's proposed project, no notification or consultation with the Service is required.

2. If FEMA makes a not likely to adversely affect determination for a subapplicant's proposed project, then FEMA will submit a completed *Act Review Form* and request concurrence from the CFWO.

    a. If the CFWO concurs with the not likely to adversely affect determination, a response to FEMA will be provided in writing within 30 days confirming that the activity is addressed and concluded by this section 7 consultation.

    b. If the CFWO does not concur with the not likely to adversely affect determination, then FEMA may resubmit the project with additional avoidance and minimization measures tailored to the specific project, or they may request formal consultation and resubmit the *Act Review Form*.

3. If FEMA makes a likely to adversely affect determination for a subapplicant's proposed project, then FEMA will submit a completed *Act Review Form* to the CFWO and request confirmation that the project is consistent with this biological opinion. The CFWO will then take one of the following actions:

    a. If the CFWO agrees that the project is consistent with the biological opinion, confirmation to FEMA will be provided in writing, including a specific incidental take statement (if applicable) for the proposed project;

    b. If the CFWO agrees that the project can be addressed by the biological opinion provided the subapplicant implements additional conservation measures tailored to the specific project, confirmation to FEMA will be provided in writing,

including the conservation measures and a specific incidental take statement (if applicable) for the proposed project; or

c. If the CFWO does not agree that the proposed project is consistent with the biological opinion and/or determines that incidental take is likely but is beyond that addressed by the associated incidental take statement and provides this determination to FEMA in writing; FEMA will then prepare a separate consultation request for that subapplicant's proposed project.

4. This biological opinion does not cover emergency consultations or FEMA's implementation of the National Flood Insurance Program.

BIOLOGICAL OPINION

DESCRIPTION OF THE PROPOSED ACTION

FEMA proposes the funding of grant programs related to disaster, mitigation, and preparedness in California over the next 5 years. The following subsections generally describe the actions that FEMA may fund as part of the Proposed Action.

Non-Emergency Debris Removal

For purposes of this document, debris removal performed in non-emergency situations includes:

1. Removing rock, silt, sediment, or woody debris that floodwaters have deposited in harbors and ports, stream channels, bridge and culvert openings, canals, sedimentation basins, sewage treatment ponds, ditches, and other facilities in such a manner as to disrupt normal flows, navigation, recreation, or municipal services;

2. Removing woody debris and other vegetation following events that damage or destroy trees;

3. Removing rock and earth from landslides caused by events such as earthquakes or heavy rains; and

4. Removing rubble after earthquakes.

All removed debris will be disposed of at approved and licensed disposal sites, in compliance with existing laws and regulations. Any hazardous materials or other contaminants will be removed and disposed of in an appropriate manner. Woody debris and construction materials can be recycled if recycling facilities exist.

Constructing, Modifying, or Relocating Facilities

Relevant actions include:

1. Upgrading or otherwise modifying structures;
2. Providing temporary facilities;
3. Acquiring and demolishing existing facilities;
4. Repairing, realigning, or otherwise modifying roads, trails, utilities, and rail lines;
5. Constructing new facilities or relocating existing facilities;
6. Relocating the function of an existing facility; and
7. Developing demonstration projects.

Upgrading or Otherwise Modifying Facilities

FEMA may provide funds to implement changes required by current building codes and standards, or otherwise modify existing structures. Often, these changes make the structure more resistant to damage in future events. Typical activities will include:

1. Making structures more fire-resistant (e.g., by replacing roofs and doors with fire-resistant materials);
2. Installing bracing, shear panels, shear walls, anchors, or other features so that structures are better able to withstand seismic events or high wind or snow loads;
3. Modifying structures to reduce the risk of damage during floods by elevating structures above the expected flood level or by floodproofing; and
4. Modifying structures to meet another need of a subapplicant, such as through an improved project or an alternate project under the Public Assistance Program.

Structures may also be upgraded to meet current codes unrelated to damage from natural hazards, such as upgrades required by changes in capacity or function and upgrades necessary to meet the requirements of the Americans with Disabilities Act.

Providing Temporary Facilities

FEMA may provide temporary housing facilities when a disaster renders homes uninhabitable for long periods. Such facilities typically consist of manufactured housing. Typical activities may involve:

1. Developing the pads for dwellings;

2. Constructing ancillary facilities, such as roads, streets, and parking lots;

3. Installing utilities, such as potable water lines, sewer hookups, electricity (including street lighting), and telephones lines; and

4. Installing manufactured homes.

FEMA may provide temporary facilities if other housing options, such as vacant hotel rooms or available rental units, are not feasible. Sites will not be located in a floodplain, wetlands, or critical habitat; affect historic properties or archaeological sites; or contain hazardous materials. Installation of housing units and utilities is to be accomplished in accordance with current codes and standards. After temporary housing is no longer needed at the disaster site, FEMA will remove the temporary housing units and associated ancillary facilities, and restore the land to its original use. All removed materials are stored for future use or disposed of in accordance with applicable laws and regulations.

Another method that FEMA will use to provide temporary housing involves modifying existing facilities to serve as temporary housing. These facilities could consist of existing residential property or the adaptive reuse of non-residential facilities. Specific activities range from conducting repairs and minor upgrades to complete reconstruction of a building's interior. This action may involve acquisition or leasing of facilities. Modifying existing facilities for temporary housing may be conducted by FEMA directly or by providing funding to a subapplicant.

FEMA may also provide funding for temporary relocation of essential public services, in the event that the structures that house these services are damaged, destroyed, or otherwise rendered inaccessible by a disaster. Funds may also be provided for upgrades necessary to meet current codes and standards and for the installation or modification of appurtenances, such as utilities, that are necessary to operate facilities.

Acquiring and Demolishing Existing Facilities

FEMA may provide funds for the acquisition and demolition of existing facilities, particularly if they are located in high-hazard areas and are subject to repetitive loss. Typically, these facilities are at a high risk because of: (1) damage from flooding; (2) erosion of stream banks, beaches, slopes, or bluffs; (3) landslides; or (4) wildfire. These facilities may consist of private properties, such as houses and commercial buildings, or publicly-owned facilities, such as utilities, roads, and bridges. A local government entity will purchase private properties on a willing-seller basis and, after the property is purchased, the property will be dedicated and maintained in perpetuity for uses compatible with open space, recreation, or wetlands management practices, pursuant to 44 CFR Part 206.434(d).

Existing facilities will be either removed or demolished. All demolition materials will be disposed of at approved and licensed disposal sites, in compliance with applicable laws and regulations. Any hazardous materials or other contaminants will be removed and disposed of in

an appropriate manner. Construction debris and household materials may be recycled if recycling facilities exist. Once structures are removed, lots will be graded to conform to the local topography, and disturbed areas will be revegetated with species approved for the local area. Frequently, the local government will develop the acquired land for recreational or open space uses, such as parks, athletic fields, or walking and biking trails.

Repairing, Realigning, or Otherwise Modifying Roads, Trails, Utilities, and Rail Lines

Roads, trails, utilities[2], and rail lines are typically damaged when floods or heavy rains cause erosion, subsidence, or landslides. Earthquakes may cause similar damage. Repairs are accomplished by replacing earthen material lost during the disaster and replacing the damaged surface, utility line, or, in the case of rail lines, ballast, and track. Stabilizing the replacement fill using rock, grout, timber walls, or steel sheet piling may be necessary. Hazard mitigation measures may be performed to prevent or limit future damage. For example, a pipe may be installed to convey drainage beneath a road to prevent future washouts, or a utility line may be encased in concrete in an area vulnerable to erosion.

If the area of damage is unstable, does not allow for repair, or is subject to repetitive loss, a facility may be realigned so that the area of damage is avoided. Property acquisition or a change in easement may be necessary.

Facilities may also be modified as part of improved projects or alternate projects under the Public Assistance Program to meet additional needs of the subapplicant.

Constructing New Facilities or Relocating Existing Facilities

If a facility is located in a floodplain or other hazardous area[3], is subject to repetitive damage, or has been damaged in such a way that restoration in the current location is not practical or cost-effective, FEMA may fund the construction of a new facility or the physical relocation of the existing facility. Examples of this action include construction of roads, trails, utilities and utility lines, and rail lines in a different area from the existing facility; construction and relocation of buildings; construction of safe rooms; and construction of drainage improvements.

In both new facility construction and physical relocation, FEMA may fund the cost of land acquisition and the construction of appurtenant features, such as access roads and utilities. For properties in the hazard area, FEMA acquires damaged properties, demolishes existing structures (except in cases of physical relocation), and places deed restrictions that will limit future uses to open space in perpetuity. However, FEMA does not acquire land directly nor does it become a land-owning agency as a result of this process.

[2] Utilities refer to water, sewer, natural gas, and power/electrical systems and similar types of infrastructure.
[3] Hazard areas are susceptible to some type of natural hazard, such as flooding, seismic activity, coastal inundation, or mudslide.

Relocating the Function of an Existing Facility

FEMA may fund the relocation of a function of a facility to an existing facility that has adequate capacity to handle the additional load with minor modifications, if necessary. For structures, the occupants and materials will be relocated to alternative structures, traffic will use alternate routes, and utility services will be provided by alternative methods. This action will not entail any major physical construction or addition to the existing facility and, if any work is required, it will consist of only minor modifications. A typical example is transferring students from a damaged or flood-prone school to a suitable existing school nearby, if feasible in terms of capacity and convenience for students, families, and teachers. For properties in the hazard area, FEMA will acquire damaged properties, demolish existing structures, and place deed restrictions that will limit future uses to open space in perpetuity.

Developing Demonstration Projects

Demonstration projects focus on public education and are designed to highlight procedures that the public can use to reduce property damage during flood, earthquake, wildfire, wind, and rainstorm disasters. Demonstration projects may involve the development of a model facility to demonstrate how hazard mitigation technologies can be used to reduce potential damage during a disaster. Flood demonstration projects may involve items such as elevating a structure or waterproofing windows and doors that are below the base flood elevation. A fire demonstration project may include vegetation management around a facility and replacing roofs, doors, and windows with fire-resistant materials. Wind and earthquake demonstration projects may include changes to the structural design of buildings to allow them to withstand higher wind velocity or more movement during an earthquake.

Actions Involving Watercourses and Coastal Features

Many FEMA activities pertain to inland water sources, such as streams, rivers, and lakes, and coastal features, such as harbors and beaches. Inland water sources may be perennial or dry during the summer months. During construction, avoidance and minimization measures are typically used and incorporated as part of the action. Work in a stream channel often includes temporary diversion of the channel using sandbags or a cofferdam constructed of fill. Heavy equipment is typically operated from an adjacent road, bank, or other feature; however, in some cases, operating equipment in a channel area once flow has been diverted may be necessary. A pipe or a temporary secondary channel may be used to convey the diverted water.

If the action involves channel modifications, changes to the capacity of bridges and culverts, or the installation of attenuation structures, then it may be necessary to conduct hydraulic/hydrologic analyses.

Relevant categories of activities include the following:

1. Repairing, stabilizing, or armoring embankments;
2. Creating, widening, clearing, or dredging a waterway;
3. Constructing or modifying a water crossing;
4. Constructing or modifying a water detention, retention, storage, or conveyance facility;
5. Constructing or modifying other flood control structures; and
6. Constructing or modifying a coastal feature.

Repairing, Stabilizing, or Armoring Embankments

Repairing, stabilizing, or armoring embankments will involve the repair of earthen or rock embankments damaged by floodwaters. Examples are natural stream banks (such as those in parks); road, trail, and rail line embankments; embankments for irrigation and navigation canals; and levees used for flood control and reclamation. In addition to repair of damaged features, FEMA may fund measures designed to prevent damage in future flood events.

In addition to replacing fill material, embankments may be stabilized or armored through:

1. Placing of rock riprap;
2. Hardening with concrete or soil cement;
3. Installing retaining walls, gabions, or geotextile fabrics; and/or
4. Using bioengineering techniques, such as planting vegetation, placing root wads, or placing willow bundles.

A combination of these techniques may be employed. For example, rock and geotextiles, when used with root wads and willow bundles, may provide mitigation from erosion while enhancing the natural values of a stream corridor.

Creating, Widening, Clearing, or Dredging a Waterway

Creating, widening, clearing, or dredging a waterway may be used to reduce the flood hazard to adjacent lands, facilities, or populated areas. New channels may be constructed to convey excess flows around flood-prone areas during flood events. Drainage swales, earthen channels, concrete channels, or subsurface concrete pipes can also be used as a means of conveyance. A new channel may be constructed in a dry environment and connected to a stream after completion. This channel may have an inlet weir higher than the elevation of the normal flow so that the

normal flows remain in the natural channel. The outlet may be armored with concrete or rock riprap to prevent excessive erosion of the existing channel.

Existing channels may be widened to allow a channel to convey a larger volume of water. Conveyance may also be increased by replacing earthen banks or channel bottoms with concrete. To the extent possible, construction will be conducted from the top of the bank, but many activities may require construction equipment to work in the stream channel. In perennially flowing streams, work in a stream channel will generally be restricted to the low-flow period, and the flow will be diverted around the construction area. A pipe or a temporary secondary channel will be used to convey the diverted water.

As an alternative to constructing a bypass or modifying an existing channel, the existing channel may be cleared of vegetation or sediment to increase conveyance. This action will often be used in developed areas where modifications are not feasible, as well as in areas where years of inadequate maintenance have allowed trees and brush to grow within the channel or sediment and debris to accumulate in the channel or around culverts and bridges. Vegetation may be removed through mechanical means, by hand, or by application of herbicides. Vegetation may be removed not only from the channel but also from the banks and high-water areas, reducing the risk that floating debris will be trapped by trees or heavy brush. Sediment and debris may be removed by dredging, through use of heavy equipment, or by hand. All removed debris will be disposed of at approved and licensed disposal sites, in compliance with applicable laws and regulations. Woody debris and vegetation can be recycled if recycling facilities exist.

Constructing a Water Crossing

FEMA may fund the repair or replacement of damaged water crossings, the enlargement of openings to allow greater conveyance and reduce the risk that debris will get trapped during floods, or the installation of bank protection or other means to reduce the risk of erosion. Crossings may also be relocated or improved to avoid high-hazard areas, repetitive damage, or areas where reconstruction is not cost-effective or feasible.

Culverts may consist of corrugated metal pipes, reinforced concrete pipes, or reinforced concrete box culverts. The capacity of a culvert crossing may be increased to reduce the risk of flooding to the surrounding area, or the culvert may be modified to prevent overtopping or erosion of the crossing. Typical measures will include:

1. Increasing the size of a culvert or adding culvert barrels;

2. Changing the type of culvert;

3. Changing the location or alignment of a culvert; and

4. Adding features, such as a headwall, discharge apron, or riprap to reduce the risk of erosion or damage to a culvert or the crossing.

Similarly, bridges may be modified to increase capacity to reduce the risk of flooding or to reduce the risk of damage to the crossing. Typical activities will include:

1. Widening existing openings or constructing new openings;

2. Reconfiguring bracing to reduce the risk that debris will be trapped;

3. Installing protective features, such as concrete abutments or riprap, to reduce the risk of damage due to erosion and scour; and

4. Replacing a multi-span structure with a clear-span structure.

A bridge may be installed to replace a culvert to increase the flow capacity of a crossing. Low-water crossings may be installed or improved as an alternative to repairing or replacing a culvert or bridge. Constructing or upgrading a low-water crossing will typically involve hardening the banks and bottom of a water body. A temporary diversion may be necessary during construction activities.

Constructing a Water Detention, Retention, Storage, or Conveyance Facility

Constructing a water detention, retention, storage, or conveyance facility may include the construction, enlargement, or restoration of detention basins, retention basins, sediment ponds, reservoirs, or conveyance facilities, such as irrigation ditches or flumes, to reduce flood flows or to provide a water source for fighting fires in an area of high fire hazard. The creation and/or enlargement of water storage reservoirs will be most frequently associated with flood disasters and to a lesser extent, fire disasters.

Detention basins, retention basins, sediment ponds, and reservoirs will be constructed to temporarily store floodwater to reduce downstream peak flows. The stored water will be released at a slower rate so that the existing drainages can convey water without contributing to downstream flooding. All areas that will be disturbed during the construction of these features will be revegetated with native plant species. This action will also include the repair or restoration of water retention or conveyance structures. All sediment removed from these features will be disposed of in a manner consistent with Federal, State, and local laws and regulations.

Frequently in rural areas, firefighting is heavily constrained by the lack of water that firefighters can use. In response to this need, proposed activities may also include the creation of retention facilities in locations that firefighters can readily access, either as a direct source of water or as a source of water to fill water supply trucks. All areas that will be disturbed during the construction of a retention facility will be revegetated with native plant species.

Constructing Other Flood-Control Structures

A flood-control structure is a facility designed to prevent floodwaters from entering a flood-prone area. Typical examples are levees (also referred to as dikes) and floodwalls. Activities will include:

1. Repairing damaged facilities, usually during emergency situations;
2. Installing embankment protection;
3. Raising the height of existing facilities to prevent overtopping in future floods;
4. Constructing new facilities to protect flood-prone areas from damage during future floods; and
5. Modifying or installing interior drainage systems to reduce the risk of damage behind levees and floodwalls during heavy rains or flooding events on tributary streams.

Levees will be repaired or constructed using compacted fill and, in some cases, riprap protection. Bare earth will be seeded with grasses to prevent erosion. Typically, a gravel road will be installed on the levee's crest to allow for maintenance. Floodwalls, typically built in urban areas, will be constructed using reinforced concrete or grouted, reinforced concrete block. Excavation will be necessary to install footings. Levees and floodwalls will both have interior drainage systems that may include pumps for removing accumulated water.

Constructing a Coastal Feature

Constructing a coastal feature will involve the repair, replacement, or construction of facilities in coastal environments, such as estuaries, inlets, harbors, and beaches. These facilities include:

1. Recreational facilities, such as piers and boat ramps;
2. Facilities for maritime use, such as docks and slips;
3. Shoreline protection devices, such as seawalls, groins, jetties, and revetments; and
4. Coastal flood control structures, such as levees.

Construction activities will be expected to occur in water and involve driving piles, placing rock or soil, or dredging sand, mud, or other sediment.

Wildfire Risk Reduction

Vegetation management is intended to reduce the risk of loss and damage due to wildfire and increase the ability of channels to convey flows; thus, reducing the risk of flood damage. Vegetation management for wildfire risk reduction may be accomplished using mechanical

means, hand-clearing, application of herbicides, or grazing. Some activities may include a combination of these methods.

Relevant categories of activities are:

1. Mechanical or hand clearing of vegetation;

2. Herbicidal treatments; and

3. Biological control.

In biological control, cattle, horses, goats, sheep, or other livestock will be allowed to graze on grasses and other vegetation as a means of control. The area proposed for grazing will be fenced. The type of animals, timing, duration, and stocking rate will be selected based on the targets of the vegetation management plan (i.e., the quantity and quality of residue to remain). However, biological control will not occur in occupied or designated critical habitat for federally listed species.

Mechanical or Hand Clearing of Vegetation

Mechanical or hand clearing of vegetation will be used for the selective removal of vegetation so that a certain proportion of vegetation is left in place. This will be done to reduce the amount of vegetative fuels in an area where mechanical removal of vegetation is impractical or the remaining vegetation needs to be protected. Vegetation may be removed to create defensible space around buildings and structures and to protect life and property beyond defensible space perimeters but proximate to (less than 2 miles from) at-risk structures. The creation and maintenance of firebreaks, access roads, and staging areas is not eligible for FEMA funding.

In mechanical removal, heavy equipment will be used to uproot, crush, pulverize, or cut the trees and brush being removed. Hand removal will involve the use of chainsaws, axes, and hoes to cut and uproot vegetation. Depending on the location of the vegetation removal project and State and local regulations, vegetation downed as a result of mechanical or hand removal will be piled and burned on site, chipped and spread on site, or loaded and hauled away from the site. After the removal of the targeted vegetation, cleared areas may be revegetated with native, fire-resistant species. Vegetation hauled off-site can be recycled, but it must be disposed of in accordance with appropriate requirements.

Herbicidal Treatments

Activities generally associated with herbicidal treatment will include the removal of targeted nonnative species within specific areas and the prevention of growth and re-sprouting of undesirable vegetation once an area has been cleared of excessive vegetation by mechanical removal and/or hand removal. Only U.S. Environmental Protection Agency-approved herbicides will be used to control the growth of undesired vegetation in a manner consistent with labeling instructions and applicable Federal and State regulations. After treatment, some areas may be revegetated with native vegetation that is fire resistant.

Conservation Measures

GEN AMM-1 Erosion and Sedimentation Prevention Measures

The subapplicant will prepare an Erosion Control Plan, as needed. The Erosion Control Plan will detail the erosion and sedimentation prevention measures required. As part of this plan, the subapplicant will ensure that sediment-control devices are installed and maintained correctly. For example, sediment will be removed from engineering controls once the sediment has reached one-third of the exposed height of the control. The devices will be inspected frequently (i.e., daily or weekly, as necessary) to ensure that they are functioning properly. Controls will be immediately repaired or replaced or additional controls will be installed as necessary. Sediment that is captured in these controls may be disposed of on site in an appropriate, safe, approved area or off site at an approved disposal site.

Areas of soil disturbance, including temporarily disturbed areas, will be seeded with a regionally appropriate erosion control seed mixture. On soil slopes with an angle greater than 30 percent, erosion control blankets will be installed or a suitable and approved binding agent will be applied. Runoff will be diverted away from steep or denuded slopes.

Where habitat for federally listed species is identified within, or adjacent to, the project footprint, all disturbed soils at the site will undergo erosion control treatment before the rainy season starts and after construction is terminated. Treatment may include temporary seeding and sterile straw mulch.

GEN AMM-2 Bank Stabilization

If bank stabilization activities are necessary, then such stabilization will be constructed to minimize erosion potential and will contain design elements suitable for supporting riparian vegetation, if feasible.

GEN AMM-3 Dust Control Measures

To reduce dust, all traffic associated with the subapplicant's construction activities will be restricted to a speed limit of 20 miles per hour when traveling off of highways or county roads.

Stockpiles of material that are susceptible to wind-blown dispersal will be covered with plastic sheeting or other suitable material to prevent movement of the material.

During construction, water or other binding materials will be applied to disturbed ground that may become windborne. If binding agents are used, all manufacturers' recommendations for use will be followed.

GEN AMM-4 Spill Control Planning

The subapplicant will prepare a Spill Prevention and Pollution Control Plan to address the storage of hazardous materials and emergency cleanup of any hazardous material and will be available on site, if applicable. The plan will incorporate hazardous waste, stormwater, and other emergency planning requirements.

GEN AMM-5 Spill Prevention and Pollution Control Measures

The subapplicant will exercise every reasonable precaution to protect federally listed species and their habitats from pollution due to fuels, oils, lubricants, construction by-products, and pollutants such as construction chemicals, fresh cement, saw-water, or other harmful materials. Water containing mud, silt, concrete, or other by-products or pollutants from construction activities will be treated by filtration, retention in a settling pond, or similar measures. Fresh cement or concrete will not be allowed to enter the flowing water of streams, and curing concrete will not come into direct contact with waters supporting federally listed species. Construction pollutants will be collected and transported to an authorized disposal area, as appropriate, per all Federal, State, and local laws and regulations.

To reduce bottom substrate disturbance and excessive turbidity, removal of existing piles by cutting at the substrate surface or reverse pile driving with a sand collar at the base to minimize resuspension of any toxic substances is preferable; hydraulic jetting will not be used.

No petroleum product chemicals, silt, fine soils, or any substance or material deleterious to federally listed species will be allowed to pass into or be placed where it can pass into a stream channel. There will be no side-casting of material into any waterway.

All concrete or other similar rubble will be free of trash and reinforcement steel. No petroleum-based products (e.g., asphalt) will be used as a stabilizing material.

The subapplicant will store all hazardous materials in properly designated containers in a storage area with an impermeable membrane between the ground and the hazardous materials. The storage area will be encircled by a berm to prevent the discharge of pollutants to ground water or runoff into the habitats of federally listed species. A plan for the emergency cleanup of any hazardous material will be available on site, and adequate materials for spill cleanup will be maintained on-site.

GEN AMM-6 Equipment Inspection and Maintenance

Well-maintained equipment will be used to perform the work and, except in the case of a failure or breakdown, equipment maintenance will be performed off site. Equipment will be inspected daily by the operator for leaks or spills. If leaks or spills are encountered, the source of the leak will be identified, leaked material will be cleaned up, and the cleaning materials will be collected and disposed of properly. Fueling of land- and marine-based

equipment will be conducted in accordance with procedures to be developed in the Spill Prevention and Pollution Control Plan.

Vehicles and equipment that are used during the course of a project will be fueled and serviced in a "safe" area (i.e., outside of sensitive habitats) in a manner that will not affect federally listed species or their habitats. Spills, leaks, and other problems of a similar nature will be resolved immediately to prevent unnecessary effects on federally listed species and their habitats. A plan for the emergency cleanup of any spills of fuel or other material will be available on site, and adequate materials for spill cleanup will be maintained onsite.

GEN AMM-7 Fueling Activities

Avoidance and minimization measures will be applied to protect federally listed species and their habitats from pollution due to fuels, oils, lubricants, and other harmful materials. Vehicles and equipment that are used during project implementation will be fueled and serviced in a manner that will not affect federally listed species or their habitats. Machinery and equipment used during work will be serviced, fueled, and maintained on uplands to prevent contamination to surface waters. Fueling equipment and vehicles will be kept more than 200 feet away from waters of the State. Exceptions to this distance requirement may be allowed for large cranes, pile drivers, and drill rigs, if they cannot be easily moved.

GEN AMM-8 Equipment Staging

No staging of construction materials, equipment, tools, buildings, trailers, or restroom facilities will occur in a floodplain during flood season at the project location, even if staging is only temporary.

GEN AMM-9 Materials Storage and Disposal

Stockpiled soils will be adequately covered to prevent sedimentation from runoff and wind. All hazardous materials will be stored in upland areas in storage trailers and/or shipping containers designed to provide adequate containment. Short-term laydown of hazardous materials for immediate use will be permitted provided the same containment precautions are taken as described for hazardous materials storage. All construction materials, wastes, debris, sediment, rubbish, trash, and fencing will be removed from the site once project construction is complete and transported to an authorized disposal area, as appropriate, in compliance with applicable Federal, State, and local laws and regulations. No disposal of construction materials or debris will occur in a floodplain. No storage of construction materials or debris will occur in a floodplain during flood season.

GEN AMM-10 Fire Prevention

With the exception of vegetation-clearing equipment, no vehicles or construction equipment will be operated in areas of tall, dry vegetation.

The subapplicant will develop and implement a fire prevention and suppression plan for all maintenance and repair activities that require welding or otherwise have a risk of starting a wildfire. Also, fire extinguishers will be required for all vehicles used within or adjacent to undeveloped open spaces.

GEN AMM-11 Waste Management

The work area will be kept free of loose trash, including small pieces of residual construction material, such as metal cuttings, broken glass, and hardware.

All food waste will be removed from the site on a daily basis.

All construction material, wastes, debris, sediment, rubbish, vegetation, trash, and fencing will be removed from the site once the project is completed and will be transported to an authorized disposal area, as appropriate, per all Federal, State, and local laws and regulations.

GEN AMM-12 Work Involving Boats and Barges

For projects that involve in-water work for which boats and/ or temporary floating work platforms are necessary, buoys will be installed so moored vessels will not beach on the shoreline, anchor lines will not drag, and moored vessels and buoys are not located within 25 feet of vegetated shallow waters. Temporary floating work platforms will not anchor or ground in fish spawning areas in freshwater or in eelgrass, kelp, or macro algae. To reduce the likelihood of introducing aquatic invasive species, vessels will use the State's Marine Invasive Species Program. Drip pans and other spill control measures will be used so that oil or fuel from barge-mounted equipment is properly contained.

GEN AMM-13 Work Area Designation to Minimize Disturbance

The subapplicant will reduce, to the maximum extent practicable, the amount of disturbance at a site to the absolute minimum necessary to accomplish the project. Wherever possible, existing vegetation will be salvaged from the project area and stored for replanting after earthmoving activities are completed. Topsoil will be removed, stockpiled, covered, and encircled with silt fencing to prevent loss or movement of the soil into federally listed species habitats. All topsoil will be replaced in a manner to recreate pre-disturbance conditions as closely as possible.

Project planning must consider not only the effects of the action itself, but also all ancillary activities associated with the actions, such as equipment staging and refueling areas, topsoil or spoils stockpiling areas, material storage areas, disposal sites, routes of ingress and egress to the project site, and all other related activities necessary to complete the project.

GEN AMM-14 Access Routes and Staging Areas

When working on stream banks or floodplains, disturbance to existing grades and vegetation will be limited to the actual site of the project and necessary access routes. Placement of all roads, staging areas, and other facilities will avoid and limit disturbance to sensitive habitats (e.g., stream banks, stream channel, riparian habitat) as much as possible. When possible, existing ingress or egress points will be used and/or work will be performed from the top of the stream banks. After completion of the work, the contours of the streambed, vegetation, and stream flows will be returned to their pre-construction condition or better.

All staging and material storage areas, including the locations where equipment and vehicles are parked overnight, will be placed outside of the flood zone of a watercourse, above areas of tidal inundation, away from riparian habitat or wetland habitat, and away from any other sensitive habitats. When possible, staging and access areas will be situated in areas that are previously disturbed, such as developed areas, paved areas, parking lots, areas with bare ground or gravel, and areas clear of vegetation.

GEN AMM-15 Environmental Awareness Training for Construction Personnel

All construction personnel will be given environmental awareness training by the project's environmental inspector or biological monitor before the start of construction. The training will familiarize all construction personnel with the federally listed species that may occur on site, their habitats, general provisions and protections afforded by the Act, measures to be implemented to protect these species, and the project boundaries. This training will be provided within 3 days of the arrival of any new worker.

As part of the environmental awareness training, construction personnel will be notified that no dogs or any other pets under control of construction personnel will be allowed in the construction area, and that no firearms will be permitted in the construction area, unless carried by authorized security personnel or law enforcement.

GEN AMM-16 Biological Monitor

If a project involves activities that may result in any potential take, as defined by the Act, of a federally listed species, a CFWO-approved biological monitor will be present on site for all construction activities that occur within 100 feet of habitats for those species. If a biological monitor is needed, the subapplicant will submit the biological monitor's qualifications to the CFWO for approval 30 days prior to project construction. The biological monitor will ensure that all applicable avoidance and minimization measures are implemented during project construction. The biological monitor will also ensure that all vehicles entering the site are free of debris that may harbor organisms that could be introduced to the site, such as vegetation or mud from other aquatic areas. The biological monitor will also ensure that turbidity, sedimentation, and the release of materials such as dust or construction runoff are controlled and that spill control measures are enacted properly.

The biological monitor will oversee construction activities to ensure that the project does not result in adverse effects to federally listed species beyond those anticipated/authorized in this biological opinion. The biological monitor will have the authority to stop any work activities that could result in potential adverse effects to federally listed species and/or their habitats.

Approval requests from the subapplicants for Service-approved biologists will include, at minimum:

a. Relevant education;

b. Relevant training concerning the listed species for which approval is requested, including species identification, survey techniques, handling individuals of different age classes, and handling of different life stages by a permitted biologist or recognized species expert authorized by the Service for such activities;

c. A summary of field experience conducting requested activities (to include project/research information);

d. A summary of biological opinions under which they were authorized to work with the requested species and at what level (such as construction monitoring versus handling), this will also include the names and qualification of persons under which the work was supervised as well as the amount of work experience on the actual project;

e. A list of federal recovery permits [10(a)1(A)] held or under which they are authorized to work with the species requested (to include the permit number, authorized activities and name of permit holder); and

f. Any relevant professional references with contact information.

GEN AMM-17 Daily Work Hours

Construction activities that could affect suitable habitat for federally listed species will be limited to daylight hours during weekdays, leaving a nighttime and weekend period for the species. Work will be allowed on weekends if the proposed construction is 14 days or less in length.

GEN AMM-18 Entrapment Prevention

To prevent entrapment of covered species, all vertically-sided holes or trenches will be covered at the end of the workday, or have escape ramps built into the walls of the excavation. If pipes are stored onsite or in associated staging areas, they will be capped when not in use. Construction materials that have the potential to entangle or entrap wildlife will be properly contained so that wildlife cannot interact with the materials. If a

covered species is identified onsite, crews will immediately stop work within 50 feet of the individual, and inform the construction supervisor and the Service-approved biologist. Work will not continue within 50 feet of the individual until it has traveled off the project site of its own volition. For covered species, please refer to the species-specific Conservation Measures section of the programmatic biological opinion.

GEN AMM-19 Water Quality Protection

Contractors will exercise every reasonable precaution to protect federally listed species and their critical habitats from construction byproducts and pollutants, such as construction chemicals, fresh cement, saw-water, or other deleterious materials. Fresh cement or uncured concrete will not be allowed to come into contact with any waterway. Construction waste will be collected and transported to an authorized upland disposal area, as appropriate, and per Federal, State, and local laws and regulations.

The subapplicant will follow the best management practices described in *The Use of Treated Wood Products in Aquatic Environments* guidelines (NOAA Fisheries 2009). Although this guidance focuses on the effects of the contaminants on Pacific salmonids protected under the Act, this guidance may still apply for general water quality protection and other Act-protected species. This guidance will be used in conjunction with site-specific evaluations of other potential impacts. Riprap will be clean and durable, free from dirt, sand, clay, and rock fines and will be installed to withstand the 100-year flood event. If applicable, appropriate measures will be taken to minimize disturbance to potentially contaminated sediments.

GEN AMM-20 Revegetation of Stream Banks

For projects that require revegetation of stream and river banks as a result of riparian vegetation removal during construction activities, the subapplicant will implement revegetation techniques. Where such revegetation is needed, the subapplicant will prepare and implement a revegetation plan that includes information regarding monitoring for success. Revegetation plantings will be replaced at a 3:1 ratio with an 80 percent planting survival within 5 years of the plantings.

GEN AMM-21 Restoration of Upland Areas to Pre-Project Conditions

For projects that require restoration of upland areas to pre-project conditions as a result of ground disturbance during construction activities, the subapplicant will use native plants to the maximum extent practicable. Similarly, when hydroseeding, only native seed mix will be used.

GEN AMM-22 Invasive Aquatic Species

The subapplicant will follow the guidelines in the California Department of Fish and Wildlife's (CDFW's) *California Aquatic Invasive Species Management Plan* to prevent the spread of nonnative aquatic plant and animal species (CDFW 2008).

Construction equipment will be clean of debris or material that may harbor seeds or nonnative pests before entering the work area. This debris or material includes dirt on construction equipment, tools, boots, pieces of vegetation, and water in the bilge of boats. All aquatic sampling equipment will be sterilized using appropriate guidelines before its use in aquatic habitats.

GEN AMM-23 Work below Mean Higher High Water

In freshwater, estuarine, and marine areas that support covered species, disturbance to habitat below mean higher high water will be limited to the maximum extent possible.

GEN AMM-24 Avoidance of Submerged Vegetation

The removal of submerged vegetation (such as eelgrass and kelp estuarine or marine areas, or submerged aquatic vegetation in freshwater areas) will be avoided to the maximum extent possible.

GEN AMM-25 Minimization of Shading by Overwater Structures

To reduce shading effects, new and replacement structures placed over freshwater, estuarine, and marine waters (such as bridges, piers, floating docks, and gangways) will incorporate design elements (such as metal grating or glass paver blocks) that allow light transmission when feasible.

GEN AMM-26 Water Diversion and Dewatering

In-channel work and channel diversion of live flow during project construction will be conducted in a manner to reduce potential impacts to sucker. Dewatering will be used to create a dry work area and will be conducted in a manner that minimizes turbidity into nearby waters. Water diversion and dewatering will include the following measures:

- Heavy equipment will avoid flowing water other than temporary crossing or diverting activities.
- Water pumped or removed from dewatered areas will be treated before its release so that it does not contribute to turbidity in nearby waters.
- Temporary culverts to convey live flow during construction activities will be of an adequate size as to not increase stream velocity and placed at stream grade.
- Silt fences or mechanisms to avoid sediment input to the flowing channel will be erected adjacent to flowing water if sediment input to the stream may occur.

GEN AMM-27 Fish Relocation

Fish relocation will only be conducted by a CFWO-approved fisheries biologist. If a fisheries biologist is needed, the subapplicant will submit the fisheries biologist's qualifications and a detailed description of the specific relocation methodology to the CFWO for approval 30 days prior to project construction. The fisheries biologist will have knowledge and experience in listed fish species biology and ecology, fish/habitat relationships, biological monitoring, and handling, collecting, and relocating listed fish species or other relevant experience. The biologist will relocate any stranded fish to an appropriate place depending on the life stage of the fish and flow conditions in the vicinity. The fish will be relocated to the nearest suitable habitat within the potentially affected watershed and occupied habitat. The biologist will note the number of individuals observed in the affected area, the number of individuals relocated, the approximate size of individuals, and the date and time of the collection and relocation. One or more of the following methods will be used to capture listed fish: electrofishing, dip net, seine, throw net, minnow trap, and hand.

Species-Specific Conservation Measures

Quino

QUINO 1 Habitat Assessment: A habitat assessment will be conducted by a biologist no more than 30 days prior to the onset of ground disturbance to determine whether suitable habitat for the Quino occurs in the action area, in accordance with the Service survey guidelines. The Service guidelines for this species provide a map displaying the areas in southern California where habitat assessments are recommended. During the survey, any locations of Quino or host plants will be clearly marked. Host plants include, but are not limited to, dwarf plantain (*Plantago erecta*), purple owl's clover/Indian paintbrush (*Castilleja exserta* spp. *exerta*), Patagonian plantain (*Plantago patagonica*), white snapdragon (*Anterrhinum coulterianum*), Chinese houses (*Collinsia concolor*), and thread-leaved bird's beak (*Cordylanthus rigidus*). If suitable habitat for this species is identified in the action area and the proposed project may affect suitable habitat that is not known to be occupied by Quino, the CFWO will be contacted regarding the need for surveys according to Service protocol, and those surveys will be conducted, as appropriate. With CFWO concurrence, FEMA may also forgo surveys by making a determination that suitable habitat is occupied for the purposes of section 7 consultation.

QUINO 2 Fencing/Flagging: Any host plants within Quino occupied or designated critical habitat (Quino habitat) and within 150 feet of the project footprint will be clearly marked and avoided to the maximum extent practicable. Fencing/flagging will be placed along the edge of the work area near any host plants to prevent workers and vehicles from entering this area. Fencing/flagging will be installed prior to any ground-disturbing or vegetation removal activities. A CFWO-approved biologist will supervise the installation of flagging or fencing around host plants. The

fencing/flagging will be placed the maximum distance from the plants that is feasible, while still allowing work to occur in the adjacent area. No construction activities will occur in the fenced/flagged area.

QUINO 3 Biological Monitor: Each day that work occurs within 150 feet of Quino habitat, the CFWO-approved biologist will monitor for Quino, inspect the fencing/flagging, and immediately address any necessary fencing/flagging repairs. If the CFWO-approved biologist recommends that work be stopped because Quino or their host plants will be affected to a degree that exceeds the levels anticipated (i.e., impacts to areas flagged for avoidance or project impacts exceeding 2 acres), they will notify the resident engineer (the engineer that is directly overseeing and in command of construction activities) immediately. The resident engineer will either resolve the situation by eliminating the unanticipated effect(s) immediately, or require that all actions causing these effects be halted. If work is stopped, the Service will be notified as soon as is reasonably possible.

QUINO 4 Seasonal Avoidance: If complete avoidance of Quino or its habitat is not possible, then construction will be avoided during the host plant growing season, adult flight season, and larval feeding season (March 1-June 30).

QUINO 5 Dust Control: Dust will be controlled during construction by periodically watering down construction areas within 100 feet of Quino occupied habitat, as necessary.

QUINO 6 Habitat Avoidance and Disturbance Limits: No permanent impacts to Quino habitat will occur under the proposed project and permanent or temporary impacts to core occurrence complexes (Service 2009a, 2003) will be avoided unless the impacts to habitat are determined to be insignificant via project-level consultation with the CFWO (i.e., small impacts that will have a negligible effect on habitat quality for Quino). Temporary impacts will not result in more than 2 acres of ground disturbance of Quino habitat for a given project. In addition, not more than 50 acres of Quino habitat will be impacted in total.

QUINO 7 Restoration of Disturbed Areas: Restoration of temporary impacts to Quino habitat will occur in accordance with a restoration plan that is reviewed and approved by the CFWO prior to implementation of the proposed project. All temporary impacts will be restored with an assemblage of native species consistent the habitat affected and include host plants found in the vicinity of the action area.

QUINO 8 Invasive Non-Native Plant Species Prevention: The spread of nonnative weeds during construction activities and revegetation efforts will be controlled. All vehicles will be cleaned and free of mud and debris prior to entering the action area, and all erosion and other sedimentation controls used during and after construction will be certified weed free, as applicable. Weed free hay, straw bales, or mulch

maybe available through the California Interagency Noxious Weed Free Forage and Mulch Program.

QUINO 9 Site Restrictions: Access routes, staging areas, and total project footprint within Quino habitat will be limited to the minimum necessary to achieve the project goal.

Arroyo Toad

ARTO 1 Habitat Assessment: A habitat assessment will be conducted by a CFWO-approved biologist to determine whether suitable habitat for the arroyo toad occurs in the action area. If suitable habitat for this species is identified in the action area and the proposed project may affect suitable habitat that is not known to be occupied by the arroyo toad, the CFWO will be contacted regarding the need for surveys according to Service protocol, and those surveys will be conducted, as appropriate. With CFWO concurrence, FEMA may also forgo surveys by making a determination that suitable habitat is occupied for the purposes of section 7 consultation.

ARTO 2 Amphibian Protection Guidelines: A capture and relocation plan for arroyo toads will be implemented during activities in occupied habitat using a CFWO-approved biologist(s). Biologists must follow the Declining Amphibian Task Force's Fieldwork Code of Practice to prevent the spread of pathogens.

ARTO 3 Seasonal Avoidance: To minimize direct effects to breeding arroyo toads, all project activities within designated critical habitat and occupied habitat will occur outside the breeding season (i.e., the breeding season is March 15 - July 15 for arroyo toad) to the maximum extent practicable. If the breeding season cannot be avoided, a CFWO-approved biologist will conduct surveys no more than 48 hours prior to project work; if no arroyo toads of any life stages or clutches are found to occur within the action area, project activities may proceed. If the breeding season cannot be avoided and arroyo toads are found to occur within the action area, a CFWO-approved biologist will conduct daily surveys prior to project work within the action area until the beginning of the non-breeding season or project activities have ceased.

ARTO 4 Pre-construction Survey: If a project is located in designated critical habitat or occupied habitat for the arroyo toad, a CFWO-approved biologist must conduct preconstruction surveys no more than 48 hours prior to project work to determine if arroyo toads are present in the action area.

ARTO 5 Heavy Machinery Limitations: If project location is located in an occupied area, use of heavy machinery will be avoided when juvenile arroyo toads are known to occupy the bordering banks of suitable water features (i.e., April 15-October 1).

ARTO 6 Biological Monitor: Project activities in arroyo toad occupied habitat will be monitored using a CFWO-approved biological monitor with the authority to stop work. The biological monitor will search the action area daily for arroyo toads.

ARTO 7 Avoidance of Occupied Habitat: No permanent impacts will occur to arroyo toad occupied habitat, habitat determined to be occupied through surveys or otherwise by FEMA, or designated critical habitat unless the impacts to habitat are determined to be insignificant via project-level consultation with the CFWO (i.e., small permanent impacts that will have a negligible effect on habitat quality for arroyo toad). Temporary impacts to arroyo toad habitat will be restricted to 1 acre per project and 10 acres overall.

Least Bell's Vireo

LBV 1 LBV-1 Habitat Assessment: A habitat assessment will be conducted by a biologist to determine whether suitable habitat (including foraging, nesting, and dispersal) for the vireo occurs in the action area. If suitable habitat for this species is identified in the action area and the proposed project may affect suitable habitat that is not known to be occupied by the vireo, the CFWO will be contacted regarding the need for surveys according to Service protocol, and those surveys will be conducted, as appropriate. With CFWO concurrence, FEMA may also forgo surveys by making a determination that suitable habitat is occupied for the purposes of section 7 consultation

LBV 2 LBV-2 Seasonal Avoidance: To minimize effects to nesting vireos, all clearing of vegetation within occupied habitat will occur outside the breeding season (i.e., March 15-September 15) to the maximum extent practicable. If the breeding season cannot be avoided, a CFWO-approved biologist will conduct preconstruction nesting bird surveys, at least 48 hours before and no more than 1 week prior to vegetation removal. If no active nests are found to occur within 300 feet of the project area, project activities may proceed.

LBV 3 LBV-3 Work Restrictions Near Active Nests: If an active nest is detected during the survey, either work will be suspended until the young have fledged/beginning of the non-breeding season, or the following will apply:

a. An exclusionary buffer will be established around the nest. The buffer distance will be determined by the CFWO-approved biologist considering several factors: presence of natural buffers (vegetation/topography), nest height, location of foraging territory, nature of the proposed activities, and baseline levels of noise and human activity. The buffer may range from 50 feet to over 300 feet in width. AND

b. A biologist will monitor the nest during construction for signs of adverse effects including distress/disturbance. If adverse effects are detected then the

CFWO-approved biologist will have the authority to stop all construction in the vicinity of the nest and will coordinate with the Service to determine whether additional conservation measures will avoid or minimize effects on the nesting birds. Construction may resume only with approval from the Service. AND

c. The biologist will continue to monitor the nest and determine when young have fledged. Once young have left the nest, the buffer and exclusion zone may be removed, and construction activities within these areas may resume.

LBV 4 Habitat Avoidance: Staging and temporary construction areas will be located outside of suitable habitat and will use existing roads and developed areas to the extent possible. All mature riparian vegetation (e.g., willows and cottonwoods) greater than 30 feet in height will be avoided to the maximum extent possible. If mature riparian vegetation cannot be avoided, it will be either transplanted elsewhere within or near the action area or placed horizontally or diagonally outside the project footprint under the direction of a CFWO-approved biologist.

LBV 5 LBV-5 Habitat Restoration Plan: Prior to construction, a Restoration Plan will be prepared that describes the efforts to restore all the areas of suitable habitat for the vireo that were temporarily impacted. The Restoration Plan will be reviewed and approved by the CFWO.

LBV 6 LBV-6 Limits on Habitat Disturbance: For any specific project, temporary impacts on occupied or designated critical habitat by the vireo will be limited to a maximum of 1 acre. Temporary impacts from all the projects will also be limited to a maximum of 20 acres of vireo occupied or designated critical habitat. In addition, impacts will be limited to 10 vireo territories[4].

LBV 7 LBV-7 No Permanent Loss of Habitat: No permanent loss of occupied or designated critical habitat for the least Bell's will occur unless the impacts to habitat are determined to be insignificant via project-level consultation (i.e., small permanent impacts that will have a negligible effect on habitat quality for least Bell's vireo).

Coastal California Gnatcatcher

CAGN 1 Habitat Assessment: A habitat assessment will be conducted by a biologist to determine whether suitable habitat (including foraging, nesting, and dispersal) for the gnatcatcher occurs in the action area. If suitable habitat for this species is identified in the action area and the proposed project may affect suitable habitat that is not known to be occupied by the gnatcatcher, the CFWO will be contacted

[4] Whether the level of impact to habitat in a given territory results in adverse effects will be determined on a case-by-case basis as specific projects are identified and submitted for project-level consultation.

regarding the need for surveys according to the Service protocol and those surveys will be conducted, as appropriate. With CFWO concurrence, FEMA may also forgo surveys by making a determination that suitable habitat is occupied for the purposes of section 7 consultation.

CAGN 2 Seasonal Avoidance: To minimize direct effects to nesting gnatcatchers, all clearing of vegetation within occupied or designated critical habitat (gnatcatcher habitat) will occur outside the breeding season (February 15-August 30) to the maximum extent practicable. If the breeding season cannot be avoided, a CFWO-approved biologist will conduct preconstruction nesting bird surveys prior to vegetation removal. If no active nests are found to occur within 300 feet of the area of disturbance, project activities may proceed.

CAGN 3 Work Restrictions Near Active Nests: If an active nest is detected during the survey, either work will be suspended until the young have fledged/beginning of the non-breeding season or the following will apply:

a. An exclusionary buffer will be established around the nest. The buffer distance will be determined by the CFWO-approved biologist considering several factors: presence of natural buffers (vegetation/topography), nest height, location of foraging territory, nature of the proposed activities, and baseline levels of noise and human activity. The buffer may range from 50 feet to over 300 feet in width. AND

b. If an exclusion zone is established, a CFWO-approved biologist will monitor the nest during construction for signs of adverse effects including distress/disturbance. If adverse effects are detected, then the CFWO-approved biologist will have the authority to stop all construction activating in the vicinity of the nest and coordinate with the CFWO to determine whether additional conservation measures are can avoid or minimize effects on the nesting birds. Construction may resume only with approval from the CFWO. OR

c. The biologist will continue to monitor the nest and will determine when young have fledged. Once young have left the nest the buffer and exclusion zone may be removed and construction activities within these areas may resume.

CAGN 4 Habitat Avoidance: Project impacts will be avoided or minimized in coastal sage scrub, alluvial fan scrub, and other vegetation communities known to be occupied by the gnatcatcher. Staging and temporary construction areas will be located outside of suitable habitat and will use existing roads and developed areas to the maximum extent possible. If impacts to these habitats cannot be avoided, effects to gnatcatcher individuals will be avoided or minimized through implementation of the measures listed above.

CAGN 5 Habitat Restoration Plan: Prior to construction, a Restoration Plan will be prepared that describes the efforts to restore all the areas that had temporary impacts on suitable habitat for the gnatcatcher. Restoration of temporary impacts will occur in accordance with a restoration plan that is reviewed and approved by the CFWO prior to the proposed project.

CAGN 6 CAGN-6 Limits on Habitat Disturbance: For any specific project, temporary impacts on occupied or designated critical habitat for the gnatcatcher will be limited to a maximum of 1 acre. Temporary impacts from all the projects covered under this programmatic consultation will also be limited to a maximum of 20 acres of gnatcatcher occupied or designated critical habitat. In addition, impacts will be limited to 10 gnatcatcher territories[5].

CAGN 7 CAGN-7 No Permanent Loss of Habitat: No permanent loss of occupied or designated critical habitat for the gnatcatcher will occur.

Santa Ana Sucker

SASU 1 Biological Monitor and Seasonal Avoidance: Project activities in or adjacent to[6] sucker occupied habitat will be monitored using a CFWO-approved biologist with the authority to stop work and will occur outside the spawning season (i.e., March through July).

SASU 2 Limits on Habitat Disturbance: Project activities will not adversely affect sucker occupied habitat in the Santa Ana River or result in permanent loss of sucker habitat in any occupied waterway unless the impacts to habitat are determined to be insignificant via project-level consultation (i.e., small permanent impacts that will have a negligible effect on habitat quality for sucker). Temporary impacts will be restricted to a total of 0.5 mile of occupied habitat covered under this programmatic consultation, but not more than 0.1 mile of occupied habitat for a given project.

SASU 3 SASU-3 Fish Passage: If a project includes the creation of an overflow or flood-bypass channel in a river or stream potentially supporting sucker, the design and construction of such a channel must allow fish passage out of the channel before waters dry up as the floodwater recedes.

SASU 4 SASU-4 Dewatering Activities: In-channel work and channel diversion of live flow during project construction within occupied habitat for the sucker will be conducted in a manner to reduce potential impacts to rearing and migrating sucker. Dewatering will be used to create a dry work area and will be conducted in a

[5] Whether the level of impact to habitat in a given territory results in adverse effects will be determined on a case-by-case basis as specific projects are identified and submitted for project-level consultation.
[6] The specific definition of "adjacent to" will be determined on a case-by-case basis.

manner that minimizes turbidity into nearby waters. Water diversion and dewatering will include the following measures:

a. Heavy equipment will avoid flowing water other than temporary crossing or diverting activities.

b. If sucker may be present in the areas to be dewatered, a Service-approved fish rescue will be conducted by a Service-approved fisheries biologist in accordance with measures 75 and 76 below.

c. Water pumped or removed from dewatered areas will be treated before its release so that it does not contribute turbidity to nearby waters.

d. Pump intakes will be provisioned with National Marine Fisheries Service-approved fish screening as outlined in the California Department of Fish and Wildlife Fish Screening Criteria and National Marine Fisheries Service Fish Screening Criteria for Anadromous Salmonids (NMFS 1997).

e. Temporary culverts to convey live flow during construction activities will be of an adequate size as to not increase stream velocity and placed at stream grade.

f. Silt fences or mechanisms to avoid sediment input to the flowing channel will be erected adjacent to flowing water if sediment input to the stream may occur.

SASU 5 Fish Capture and Relocation Plan: For projects that require fish rescue and relocation, a fish relocation plan will be developed and submitted to the CFWO for approval. This plan will incorporate the latest Service guidance relating to the capture and relocation of fish.

SASU 6 Service-Approved Biologist for Fish Relocation: Fish relocation will only be conducted by a Service-approved fisheries biologist. If a fisheries biologist is needed, the subapplicant will submit the fisheries biologist's qualifications to the CFWO for approval 30 days prior to project construction. The fisheries biologist will have knowledge and experience in sucker biology and ecology, fish/habitat relationships, and biological monitoring, and handling, collecting, and relocating sucker or other relevant experience. The biologist will relocate any stranded fish to an appropriate place depending upon the life stage of the fish and flow conditions in the vicinity. The biologist will note the number of individuals observed in the affected area, the number of individuals relocated, the approximate size of individuals, and the date and time of the collection and relocation. One or more of the following methods will be used to capture sucker: electrofishing, dip net, seine, throw net, minnow trap, and hand.

Action Area

According to 50 CFR § 402.02 pursuant to section 7 of the Act, the "action area" means all areas to be affected directly or indirectly by the Federal action. Subsequent analyses of the environmental baseline, effects of the action, and levels of incidental take are based upon the action area. The action area for this consultation encompasses the jurisdiction of the CFWO.

STATUS OF THE SPECIES/CRITICAL HABITAT

Quino Checkerspot Butterfly

The Service federally listed Quino as endangered on January 16, 1997 (Service 1997), and issued a recovery plan on August 11, 2003 (Service 2003). This species is known from western Riverside County and San Diego County. The number of known populations has increased since listing. Based on our current methodology for identifying populations, five populations were known at listing, and more than 20 populations are known post-listing (Service 2009a).

The Quino is a subspecies of the Edith's checkerspot butterfly (*Euphydryas editha*). It differs from other subspecies by size, wing coloration, and larval and pupal phenotype. The Quino life cycle includes four distinct life stages: egg, larva (caterpillar), pupa (chrysalis), and adult. There is usually one generation of adults per year, although larvae may remain in diapause for multiple years prior to maturation. Quino require an external heat source to increase their metabolic rate to levels needed for normal growth and behavior. Larvae seek microclimates with high solar exposure for basking in order to speed their growth rate. Also, like most butterflies, adults frequently bask and remain in sunny areas to increase their body temperature to the level required for normal active behavior (Service 2009a). In addition, larval host plants for Quino are often associated with cryptogamic crusts (a thin organic crust composed of cyanobacteria, lichens, mosses, and fungi). Cryptogamic crusts also inhibit growth of nonnative plants (Service 2003). Cryptogamic crusts have become rare due to past and ongoing ground disturbance, such as grazing (Service 2003).

The status of Quino was described in detail in the 5-year review for this species (Service 2009a). Please refer to this document and the recovery plan for detailed information on life history requirements, threats, and conservation needs of this species The 5-year review of Quino checkerspot butterfly recommends working with partners near the community of Anza to protect habitat; research on herbicides, the Campo core population, and secondary host plants; conducting an experimental reestablishment at Irvine Ranch Preserve; conducting surveys at California Department of Fish and Wildlife preserve lands near Ramona; monitoring core populations, and considering updating the recovery plan.

Subsequent to completion of the 5-year review in 2009, the Service issued a non-jeopardy and no adverse modification biological and conference opinion addressing construction and long-term operations and maintenance of the Sunrise Powerlink (SRPL) Project (Service 2010a). The SRPL Project included construction of a high-voltage 117-mile transmission line and related facilities from south of El Centro in Imperial County to the northeast edge of Marine Corps Air Station Miramar in San Diego County. The biological and conference opinion addressed the

impacts (i.e., loss and/or temporary disturbance) to 6 acres of Quino occupied habitat due to construction and an additional 23 acres due to maintenance and vegetation management activities. Impacts to the Quino as a result of the SRPL Project were fully offset through acquisition and provision of long-term management of Quino occupied habitat at the Long Potrero site in San Diego County, just south of the Descanso Ranger District of the Cleveland National Forest. This site was estimated to have 812 acres of Quino occupied habitat (Service 2010a).

Critical Habitat

On July 17, 2009, the Service designated approximately 62,125 acres of critical habitat for the Quino (Service 2009b). This critical habitat occurs in 9 units including the Skinner/Johnson Unit (5,444 acres), Sage Unit (123 acres), Wilson Valley Unit (463 acres), Vail Lake/Oak Mountain Unit (1,788 acres), Tule Peak Unit (326 acres), Bautista Unit (13,880 acres), Otay Unit (34,941 acres), La Posta/Campo Unit (355 acres) and Jacumba Unit (2,514 acres). The physical and biological features (PBFs[7]) of designated critical habitat for Quino are:

1. Open areas within scrublands at least 21.5 square feet in size that:

    a. contain no woody canopy cover; and

    b. contain one or more of the host plants *Plantago erecta, Plantago patagonica, Antirrhinum coulterianum,* or *Collinsia concolor* used for Quino growth, reproduction, and feeding; or

    c. contain one or more of the host plants *Cordylanthus rigidus* or *Castilleja exserta* that are within 328 feet of the host plants listed in b) above; or

    d. contain flowering plants with a corolla tube less than or equal to 0.43 inch used for Quino feeding;

2. Open scrubland areas and vegetation within 656 feet of the open canopy areas used for movement and basking; and

3. Hilltops or ridges within scrublands that contain an open, woody-canopy area at least 21.5 square feet in size used for Quino mating (hilltopping behavior) and are contiguous with (but not otherwise included in) open areas and natural vegetation described in PBFs 1 and 2 above.

[7] The designation(s) of critical habitat for (species) use(s) the term primary constituent element or essential features. The new critical habitat regulations (81 FR 7214) replace this term with PBFs. This shift in terminology does not change the approach used in conducting our analysis, whether the original designation identified primary constituent elements, PBFs, or essential features. In this consultation, we use the term PBFs to mean primary constituent elements or essential features, as appropriate for the specific critical habitat.

Arroyo Toad

The Service federally listed arroyo toad as endangered on December 16, 1994 (Service 1994a), and on July 24, 1999, issued the Arroyo southwestern toad (*Bufo microscaphus californicus*) recovery plan (arroyo toad recovery plan) (Service 1999). The arroyo toad recovery plan identifies recovery units and number of populations for each unit to allow for delisting. The arroyo toad is a small, light-olive green or gray to tan toad with dark spots and warty skin. Arroyo toads are terrestrial for much of the year and can range widely into upland habitat for foraging and burrowing, but they use aquatic habitat for breeding. Breeding occurs in shallow, slow-moving stream systems and may occur from January to July. Breeding tends to occur earlier in coastal areas than inland areas (Service 1999). Thirty-five populations of arroyo toad are distributed from Monterey County, California in the United States south to Baja California, Mexico (Service 2015). Urbanization, agriculture, and dams are the main reasons for the decline of arroyo toad and are also current threats. Other threats include water management activities and diversions; road construction, maintenance, and use; grazing; mining; recreation; and nonnative plants and animals (Service 1999).

More detailed information on the status of arroyo toad can be found in the arroyo toad recovery plan, 5-year review (http://ecos.fws.gov/docs/five_year_review/doc2592.pdf) (Service 2009) and the latest rule regarding this species (Service 2015). Please refer to these documents for detailed information on life history requirements, threats, and conservation needs of the species rangewide.

Critical Habitat

On February 9, 2011, the Service designated approximately 98,366 acres of critical habitat for the arroyo toad (Service 2011a). This critical habitat occurs in 21 units within Santa Barbara, Ventura, Los Angeles, San Bernardino, Riverside, Orange, and San Diego counties, California. The PBFs of designated critical habitat for the arroyo toad are:

1. Rivers or streams with hydrologic regimes that supply water to provide space, food, and cover needed to sustain eggs, tadpoles, metamorphosing juveniles, and adult breeding arroyo toads. Breeding pools must persist a minimum of 2 months for the completion of larval development. However, due to the dynamic nature of southern California riparian systems and flood regimes, the location of suitable breeding pools may vary from year to year. Specifically, the conditions necessary to allow for successful reproduction of arroyo toads are: (a) breeding pools that are less than 6 inches deep; (b) areas of flowing water with current velocities less than 1.3 feet per second; and (c) surface water that lasts for a minimum of 2 months during the breeding season (a sufficient wet period in the spring months to allow arroyo toad larvae to hatch, mature, and metamorphose).

2. Riparian and adjacent upland habitats, particularly low-gradient (typically less than 6 percent) stream segments and alluvial streamside terraces with sandy or fine gravel substrates that support the formation of shallow pools and sparsely vegetated sand

and gravel bars for breeding and rearing of tadpoles and juveniles; and adjacent valley bottomlands that include areas of loose soil where arroyo toads can burrow underground, to provide foraging and living areas for juvenile and adult arroyo toads.

3. A natural flooding regime, or one sufficiently corresponding to natural, that: (a) is characterized by intermittent or near-perennial flow that contributes to the persistence of shallow pools into at least mid-summer; (b) maintains areas of open, sparsely vegetated, sandy stream channels and terraces by periodically scouring riparian vegetation; and (c) also modifies stream channels and terraces and redistributes sand and sediment, such that breeding pools and terrace habitats with scattered vegetation are maintained.

4. Stream channels and adjacent upland habitats that allow for movement to breeding pools, foraging areas, overwintering sites, upstream and downstream dispersal, and connectivity to areas that contain suitable habitat.

Least Bell's Vireo

With an estimated 2,968 vireo territories as of 2006, the number of vireo territories has increased 10-fold since listing in 1986, when only 291 territories were known. Existing territories occur in San Diego, Riverside, Orange, San Bernardino, Los Angeles, Ventura, Santa Barbara, Inyo, Kern, Monterey, San Benito, and Stanislaus counties. An estimated 898 territories occur in Riverside County, while an estimated 87 territories occur in San Bernardino County (Service 2006). The status of vireo was described in detail in the 5-year review for Least Bell's Vireo (Service 2006). The 5-year review recommended downlisting of the species to threatened status based on a reduction of threats and growth of the population 10-fold since listing. Please refer to this document for information on the status of vireo rangewide and for detailed information on the life history requirements, threats, and conservation needs of the species. A draft recovery plan for vireo was issued in 1998 (Service 1998).

However, a new threat has emerged that has the potential to significantly impact vireo nesting throughout its range. A disease complex involving two species of ambrosia beetles, the polyphagous shot hole borer (*Euwallacea* sp. 1) and Kurushio shot hole borer (*Euwallacea* sp. 5), a mix of associated fungi (Lynch *et al*. 2016), and other pathogens is causing widespread damage to trees in riparian ecosystems throughout southern California (Eskalen *et al*. 2013). These shot hole borers create galleries in trees and inoculate the galleries with fungal spores. *Fusarium* sp. causes significant damage to trees, and the galleries open up trees to attack from other pathogens that may be even more damaging.

The combination of structural damage from the galleries and tissue damage from the pathogens causes limbs to break and trees to die. For example, occupied habitat in the Tijuana River (Recovery Unit 1) has already been infested, and an estimated 140,000 trees or 35 percent of the trees showed extensive damage from the disease complex (Boland 2016). Willow species are particularly susceptible to damage from the infestation. Preliminary reports suggest that the Prado Basin (Recovery Unit 7) and the San Luis Rey River (Recovery Unit 5) also have

substantial infestations. The Sweetwater River (Recovery Unit 3) and San Diego Creek (Recovery Unit 8) are also known to be infested.

No systematic, regional surveys have been conducted, and it is likely that additional vireo habitat is infested. Because vireos require structure associated with willows and similar species, we anticipate that vireo breeding success will decline in infested habitats. It is too early to determine how this significant new threat will affect the overall status of the species. Significant mortality of mature trees related to this threat may alter vireo prey availability, increase exposure to predation (especially for vireo nests), and affect hydrogeomorphic processes (e.g., flooding, alluvial deposition) important for maintaining healthy riparian woodlands that vireos use for feeding, sheltering, and breeding.

Critical Habitat

Critical habitat for the vireo was designated on March 4, 1994 (Service 1994b), encompasses a total of about 36,000 acres in 10 localities in Santa Barbara, Ventura, Los Angeles, San Bernardino, Riverside, and San Diego counties. The PBFs of designated critical habitat include riverine and floodplain habitats (particularly willow-dominated riparian woodland with dense understory vegetation maintained, in part, in a non-climax stage by periodic floods or other agents) and adjacent coastal sage scrub, chaparral, or other upland plant communities (Service 1994b).

Santa Ana Sucker

The sucker was listed as a threatened species in 2000 (Service 2000). The federally listed sucker is restricted to three non-contiguous populations: in lower Big Tujunga Canyon watershed (Los Angeles River drainage); the East, West, and North forks of San Gabriel River; and the lower and middle sections of the Santa Ana River watershed. A small population also occurs in San Dimas Canyon, a tributary to San Gabriel River. Populations in Santa Clara River watershed, including Piru and Sespe creeks (Swift *et al*. 1993), are not considered to be the listed entity. The status of sucker was described in detail in:

1. The 5-year review (Service 2011b),

2. The recovery outline (Service 2012) and;

3. The Santa Ana sucker recovery plan (Service 2017) Please refer to these documents for information on the status of sucker rangewide and for detailed information on life history requirements, threats, and conservation needs of the species.

Critical Habitat

Critical habitat for the sucker was designated on December 14, 2010 (Service 2010b). Sucker designated critical habitat occurs in the Santa Ana River Unit (Unit 1 (7,097 acres)), San Gabriel River Unit (Unit 2 (1,000 acres)), and Big Tujunga Creek Unit (Unit 3 (1,233 acres) (Service 2010b). The PBFs of designated critical habitat for the sucker include:

1. A functioning hydrological system within the historical geographic range of sucker that experiences peaks and ebbs in the water volume (either naturally or regulated) that encompasses areas that provide or contain sources of water and coarse sediment necessary to maintain all life stages of the species, including adults, juveniles, larvae, and eggs, in the riverine environment;

2. Stream channel substrate consisting of a mosaic of loose sand, gravel, cobble, and boulder substrates in a series of riffles, runs, pools, and shallow sandy stream margins necessary to maintain various life stages of the species, including adults, juveniles, larvae, and eggs, in the riverine environment;

3. Water depths greater than 1.2 inches and bottom water velocities greater than 0.01 feet per second;

4. Clear or only occasionally turbid water;

5. Water temperatures less than 86 °F;

6. Instream habitat that includes food sources (such as zooplankton, phytoplankton, and aquatic invertebrates), and associated vegetation such as aquatic emergent vegetation and adjacent riparian vegetation to provide: (a) Shading to reduce water temperature when ambient temperatures are high, (b) shelter during periods of high water velocity, and (c) protective cover from predators; and

7. Areas within perennial stream courses that may be periodically dewatered, but that serve as connective corridors between occupied or seasonally occupied habitat and through which the species may move when the habitat is wetted.

Coastal California Gnatcatcher

The Service listed the gnatcatcher as threatened on March 30, 1993 (Service 1993) and published a revised final rule designating critical habitat on December 19, 2007 (Service 2007). It has no recovery plan. The range of the gnatcatcher is coastal southern California and northwestern Baja California, Mexico. More specifically, this species ranges from southern Ventura and San Bernardino counties, California, south to near El Rosario, Mexico, at about 30 degrees north latitude (Service 2010c). The northern and eastern limits of the coastal scrub communities used by the gnatcatcher are largely bound by mountainous areas, while the southern limit is defined by the transition to the Vizcaíno desert.

Gnatcatchers were considered locally common in the mid-1940s, but they had declined substantially in the United States by the 1960s (Atwood 1980). At the time of listing in 1993, we estimated about 2,562 pairs of gnatcatchers remained in the United States (Service 1993), though this estimate was not statistically valid because it was calculated using methods not supported by probability theory (Winchell & Doherty 2008). Additionally, population sizes are known to fluctuate from year to year (Atwood & Bontrager 2001), which further complicates any trend assessment. Winchell & Doherty (2008) estimated there were 1,324 (95 percent confidence

interval: 976-1,673) gnatcatcher pairs over an 111,006-acre area on some public and quasi-public lands of Orange and San Diego counties.

In September 2010, the Service completed a 5-year review addressing the status of the gnatcatcher (Service 2010c). Please refer to this document for detailed information on the life history requirements, threats, and conservation needs.

Critical Habitat

The 11 designated critical habitat units for the gnatcatcher include 197,303 acres of Federal, State, local, and private land in Ventura, Los Angeles, Orange, Riverside, San Bernardino, and San Diego counties (Service 2007). Designated critical habitat includes habitat throughout the species' range in a variety of climatic zones and vegetation types to preserve the genetic and behavioral diversity that currently exists within the species. The individual units contain essential habitat and help to identify special management considerations.

PBFs of designated critical habitat for the gnatcatcher are those habitat components that are essential for the primary biological needs of foraging, nesting, rearing of young, intra-specific communication, roosting, dispersal, genetic exchange, or sheltering (Service 2007). These include: (1) dynamic and successional sage scrub habitats (i.e., Venturan coastal sage scrub, Diegan coastal sage scrub, Riversidean sage scrub, maritime succulent scrub, Riversidean alluvial fan scrub, southern coastal bluff scrub, and coastal sage-chaparral scrub) that provide space for individual and population growth, normal behavior, breeding, reproduction, nesting, dispersal, and foraging; and (2) non-sage scrub habitats such as chaparral, grassland, and riparian areas, in proximity to sage scrub habitats that provide space for dispersal, foraging, and nesting.

ENVIRONMENTAL BASELINE

Regulations implementing the Act (50 CFR § 402.02) define the environmental baseline as the past and present impacts of all Federal, State, or private actions and other human activities in the action area. Also included in the environmental baseline are the anticipated impacts of all proposed Federal projects in the action area that have undergone section 7 consultation and the impacts of State and private actions which are contemporaneous with the consultation in progress.

Quino Checkerspot Butterfly and Santa Ana Sucker

Since the action area includes the jurisdiction of the CFWO and Quino and the federally listed sucker and their designated critical habitats are entirely within this area, the Environmental Baseline for these species and their designated critical habitats is the same as the Status of the Species.

Arroyo Toad

The Environmental Baseline for the arroyo toad is the same as for the Status of the Species, except that the San Antonio, Sisquoc, Upper Santa Ynez, Sespe, Piru, and Upper Santa Clara populations and units 2-6 of designated critical habitat are outside of CFWO jurisdiction.

Least Bell's Vireo

Of the estimated 2,968 vireo territories as of 2006, about 2,500 are in the jurisdiction of the CFWO, including the Tijuana, Dulzura, Jamul, Otay, Sweetwater, San Diego, San Luis Rey, Santa Margarita, and Santa Ana river/creek populations. The smallest number was found at the Dulzura Creek/Jamul River/Otay River population, which had 36 territories. For vireo designated critical habitat, the Environmental Baseline is the same as for the Status of the Species except it excludes the Santa Ynez River and Santa Clara River. Designated critical habitat in the Santa Ana River, Santa Margarita River, San Luis Rey River, San Diego River, Sweetwater River, Jamul-Dulzura creeks, and Tijuana River are entirely within the action area.

Coastal California Gnatcatcher

The Environmental Baseline for gnatcatcher is the same as for the Status of the Species, except that it excludes gnatcatchers that occur in Ventura and western Los Angeles counties, which center around and include the Moorpark area. Also, units 1-3, 5-10, and 12 of designated critical habitat are entirely within the action area, while unit most of unit 13 is outside the action area (i.e., 55,060 acres of 57,737 acres of designated critical habitat is outside the action area).

EFFECTS OF THE ACTION

Effects of the action refer to the direct and indirect effects of an action on the species or critical habitat that will be added to the environmental baseline, along with the effects of other activities that are interrelated or interdependent with that action. Interrelated actions are those that are part of a larger action and depend on the larger action for their justification. Interdependent actions are those that have no independent utility apart from the action under consideration. Indirect effects are those that are caused by the proposed action and are later in time, but are still reasonably certain to occur. Effects can be analyzed and found to be discountable or insignificant. Discountable effects are extremely unlikely to occur. Insignificant effects relate to the size of the impact and do not result in incidental take of a species.

Discountable and Insignificant Effects

The effect of fugitive dust on Quino and the potential for nonnative plants to increase within the action area and negatively affect Quino, arroyo toad, gnatcatcher, vireo, sucker and their associated critical habitats, where designated, were considered but determined to be reduced to a level of insignificance with the conservation measures committed to by FEMA.

Fugitive dust from project activities can negatively affect photosynthesis and decrease water-use efficiency of plants (Sharifi *et al*. 1997), including Quino host and nectar plants (PBF 1).

However, due to the temporal and small-scale nature of project activities and implementation of best management practices such as speed limits, covering potential wind-blown materials, and use of water or other binding materials during construction, impacts from dust on Quino should be insignificant.

Project activities have the potential to introduce nonnative plants to the action area by carrying seeds on vehicles, people, or equipment, and through ground disturbance. Ground disturbance can promote the establishment and spread of nonnative plants (Merriam *et al*. 2006). Such plants can degrade habitat quality for Quino and its critical habitat by competing with and replacing host and nectar plants (PBF 1), which is the greatest threat to Quino reserves (Service 2003). However, restoration of temporary impacts, in accordance with a plan reviewed and approved by the Service, best management practices, and use of a biological monitor will avoid or minimize the potential for the spread of nonnative species. Further, ground disturbance of Quino occupied habitat for a given project will be limited to 2 acres. Thus, the potential for impacts to Quino and its designated critical habitat due to nonnative plants is discountable.

Likewise, nonnative plants introduced by vehicles and ground disturbance, such as tamarisk (*Tamarix* species) and giant reed (*Arundo donax*), can stabilize stream terraces and deepen channels, affecting all four PBFs of designated critical habitat and making habitat unsuitable for arroyo toads (Service 1999). White sweet clover (*Melilotus alba*) and iceplant (*Mesembryanthemum* species) can result in the loss of arroyo toad upland habitat by covering stream terraces and creating densely vegetated areas that arroyo toads cannot move through, which will impact PBF 2 (riparian and upland habitats) and 4 (connectivity). Again, the conservation measures proposed to restore temporary impacts and to use best management practices and a biological monitor will avoid or minimize the spread of nonnative species. Thus, the potential for impacts to arroyo toads and its designated critical habitat due to nonnative plants is discountable.

Project activities that result in the introduction and/or spread of the nonnative plant species, particularly giant reed, can form dense stands that are unsuitable for vireos (Service 2002). The restoration of temporary impacts in accordance with a plan reviewed and approved by the CFWO, best management practices, and use of a biological monitor should effectively avoid or minimize the potential for the spread of nonnative species. In addition, project activities for a given project will be restricted to a maximum of 1 acre. Thus, the potential for impacts to vireo due to nonnative plants is discountable.

Establishment or spread of nonnative species such as tamarisk and giant reed and the loss of streamside riparian habitat can negatively affect habitat conditions for sucker via reduction in the availability of water (Stephenson & Calcarone 1999) and impact PBF 1 (functioning hydrological system), 3 (water depth and velocity), and 5 (water temperature) of sucker critical habitat. Native riparian vegetation provides cover and protection from predators and provides shade that can reduce water temperatures, which sucker tend to prefer[8]. Increased water

[8] Sucker prefer cooler water temperatures, but have been found in water between 59 degrees and 82 degrees Fahrenheit (Service 2010b).

temperatures could result in increased needs for food quantity and quality to survive and/or maintain growth rates (Lessard & Hayes 2003), leading to sucker death or injury. The conservation measures proposed to restore temporary impacts and to use best management practices and a biological monitor will address these impacts. Thus, the potential for impacts to sucker and its designated critical habitat due to nonnative plants is discountable.

Finally, construction and maintenance activities could result in the introduction and/or spread of nonnative plant species, such as annual grasses, that can alter the fire regime and result in the loss via conversion of suitable nesting habitat for gnatcatchers, As with the other species discussed, the restoration of temporary impacts, best management practices, and use of a biological monitor should effectively avoid or minimize the potential for the spread of nonnative species. Also, the impacts associated with a given project will be small scale (i.e., a maximum of 1 acre). Thus, the potential for impacts to gnatcatchers due to nonnative plants is discountable.

Quino Checkerspot Butterfly

The proposed projects have the potential to kill or injure Quino larvae and eggs via crushing. In addition to loss of individual Quino larvae, the destruction of Quino occupied habitat could harm Quino by reducing the availability of oviposition sites, larval food sources, pupal sheltering sites, and adult nectar sources within the action area.

However, impacts to host and nectar plants will be minimized by the maintenance of protective barriers and fencing. In addition, no permanent impacts to Quino occupied habitat will occur, no temporary or permanent impacts to core occurrences will occur, and temporary impacts will not result in more than 2 acres of ground disturbance of Quino occupied habitat for a given project. Further, not more than 50 acres of Quino occupied habitat will be impacted overall[9]. This represents a small proportion of occupied habitat for the species within the action area. In addition, the most important areas of Quino occupied habitat will be avoided (i.e., core occurrence complexes) unless impacts are determined to be insignificant via project-specific consultation (i.e., small impacts that will have a negligible effect on habitat quality for Quino). Although we do not have an accurate acreage estimate of occupied Quino habitat throughout the species range, the total proposed impacts will affect a small fraction of the available habitat. In addition, the restriction for each project will help ensure that no single population is significantly impacted to the extent that the viability of that population or the species as a whole is at risk. Restoration of temporary impacts to Quino habitat will occur in accordance with a restoration plan that is reviewed and approved by the CFWO prior to implementation of the proposed projects. Thus, the proposed action is not expected to appreciably reduce the numbers, distribution or reproduction of the species.

Critical Habitat

The proposed project could impact PBF 1 (host and nectar plants) via ground disturbance that destroys host and nectar plants. However, impacts to host and nectar plants will be minimized by the maintenance of protective barriers and fencing. In addition, impacts will be temporary, no

[9] Overall in this document means considering all the projects under the consultation combined.

more than 2 acres will be impacted for a given project, and no more than 50 acres of Quino habitat will be impacted overall, which represents a small proportion of the 62,125 acres of designated critical habitat. Further, monitoring, education of project personnel, and restoration of temporary impacts will occur in accordance with a plan reviewed and approved by the CFWO. Thus, no appreciable reduction in the ability of the critical habitat to provide for the survival and recovery of this species will occur.

Impact on Recovery

The proposed project does not conflict with the recovery actions or goals described in the Quino recovery plan (Service 2003). Maintaining as much Quino habitat as possible is considered necessary for the recovery of this species (Service 2003). However, only 50 acres of temporary impacts and no permanent impacts are expected under the proposed action. In addition, individual projects will not impact more than 2 acres. This small, temporary, and intermittent loss of habitat will not affect the long-term viability of the occurrence complexes or fragment Quino habitat within the action area or across recovery units. Thus, the proposed action will not significantly impact the ability of Quino to recover.

Arroyo Toad and its Designated Critical Habitat

Project activities could result in the crushing of individual arroyo toads, larvae, and eggs. In addition, mortality and injury can occur during the handling and relocation of arroyo toads. Also, the stress of relocation has the potential to make arroyo toad more susceptible to disease or predation.

However, staging areas will be kept out of arroyo toad occupied habitat, project personnel will be appropriately trained to minimize impacts, a biological monitor will help ensure measures to minimize impacts are implemented, and relocation of arroyo toads will occur to minimize direct impacts, as necessary. Further, permanent impacts to arroyo toad habitat will be avoided unless such impacts are determined to be insignificant via project-specific consultation (i.e., small impacts that will have a negligible effect on habitat quality for arroyo toads). Temporary impacts will be restricted to a total of 10 acres of occupied habitat, with no more than 1 acre of impact for each project. Given the amount of habitat available to arroyo toads in the action area and across its range, the proposed action will affect a small fraction of the available habitat rangewide or supporting any specific arroyo toad population. Although we do not have site-specific information regarding the distribution of arroyo toads within the project footprint, the proposed conservation measures and project-specific consultation will ensure that project activities do not have a disproportional impact on arroyo toad populations. Thus, only a fraction of arroyo toads within any affected population are anticipated to be injured or killed, and proposed activities will not appreciably reduce the numbers, distribution, or reproduction of the species.

Project activities could also impact water quality (PBF 1[10]) through accidental spills, which may result in mortality or injury to arroyo toads, and the introduction of contaminants into streams, which has the potential to increase nitrogen levels. Streams with enhanced nitrogen levels can

[10] PBF 1 includes water to provide space, food, and cover

cause death and developmental abnormalities in animals and impact prey populations (Rouse *et al*. 1999). In addition, dust and soil erosion from construction and ground disturbing activities near and within stream could impact stream water quality (PBF 1). This sedimentation can lead to the smothering of eggs and tadpoles (Rabeni & Smale 1995), filling of habitat, restriction of water flow, and the consequent reduction of oxygen levels. These effects vary depending on the amount of sediment introduced into the stream, the amount of stream flow, gradient, and several other instream factors.

However, measures are proposed to prevent spills and impacts to water quality via sedimentation, including development of project-specific erosion, spill, and hazardous material control plans; transport of pollutants off site; service and fueling of vehicles in upland areas; staging outside the floodplain during flood season; use of silt fencing and erosion control blankets, as appropriate; and removal of trash. Further, impacts will be restricted to 1 acre of occupied habitat per project and 10 acres of occupied habitat overall. Thus, impacts should be effectively minimized and not appreciably reduce the numbers, distribution, or reproduction of arroyo toads or the function of designated critical habitat in providing for the survival and recovery of arroyo toads.

Impact on Recovery

The proposed activities do not conflict with the recovery actions or goals described in the recovery plan because permanent loss of habitat is not expected. Further, the potential for impacts from the proposed activities are effectively minimized due to the proposed conservation measures. Finally, due to the proposed measures and project limitations, the number of arroyo toad that may be affected is a small proportion of the total and regional populations. Thus, the proposed action will not significantly impact the ability of arroyo toad to recover.

Least Bell's Vireo

Since nests will be protected from direct impacts, eggs and nestlings will not be directly impacted under the proposed action. However, the proposed projects could result in the removal of vegetation including PBF 1 (riparian woodlands), reducing the availability of foraging and nesting resources. Vireos tend to show site fidelity and return to breeding territories in subsequent years (Service 1998). Thus, even destruction of habitat outside the breeding season could impact this species. Vireos could be forced to compete with each other when attempting to expand an existing territory or establish a new territory or miss the opportunity to breed. Also, if displaced birds cannot find suitable habitat to forage and shelter in, they will be more vulnerable to predation and may die or be injured. Vireos that successfully establish territories in adjacent habitat are expected to experience reduced productivity (e.g., delayed initiation or prevention of nest building, fewer nesting attempts per season, and/or overall reduction in reproductive output) due to reduced availability of foraging and breeding habitat and increased territorial interactions.

Project generated noise could also interfere with courtship behavior or cause temporary or permanent abandonment of the nesting territory (Gunn & Livingston 1974). Excessive noise can

mask the song of a male vireo, thereby inhibiting his chance of attracting a mate (Scherzinger 1979). Excessive noise can also mask the presence of predators to the vireo (Shen 1983).

However, the proposed action includes use of an exclusionary buffer around nests during the breeding season, which should help minimize the potential impacts due to noise. In addition, for any specific project, impacts on vireo occupied or designated critical habitat will be limited to a maximum of 1 acre. Further, impacts from all the projects will be limited to a maximum of 20 acres of vireo occupied habitat or designated critical habitat, and no permanent loss of habitat is expected. Finally, impacts will be limited to 10 vireo territories, which is a small portion of the approximately 3,000 territories rangewide. Thus, impacts will be small in scale and impact a relatively small number of vireos. Impacts are also likely to be scattered throughout the range of the vireo and occur intermittent over the life of the project activities. Therefore, the proposed action is not expected to appreciably reduce the numbers, distribution or reproduction of the species or ability of critical habitat to provide for survival and recovery.

Impact on Recovery

The proposed activities do not conflict with the recovery actions or goals described in the draft recovery plan or the 5-year review because permanent loss of habitat is not expected and temporary impacts should be small in scale, spread out over the range of the species, and intermittent over the life of project activities. Further, the potential for impacts from the project activities are effectively minimized due to the proposed conservation measures. Finally, the number of vireos that may be affected is a small proportion of the total and regional populations. Thus, the proposed action will not significantly impact the ability of vireo to recover.

Santa Ana Sucker and its Designated Critical Habitat

Potential direct effects of this project to the sucker include the crushing of individuals. In addition, mortality and injury can occur during the handling and relocation of sucker. Also, the stress of relocation has the potential to make the sucker more susceptible to disease or predation. Finally, impingement on block nets and subsequent predation is a potential source of mortality.

However, staging areas will be kept out of sucker occupied habitat, project personnel will be appropriately trained to minimize impacts, a biological monitor will help ensure measures to minimize impacts are implemented, and relocation of sucker will occur, as necessary. Further, permanent impacts and impacts to sucker in the Santa Ana River will be avoided and temporary impacts will be restricted to a total of 0.5 mile of occupied habitat, but not more than 0.1 mile of occupied habitat for a given project. Thus, given the miles of habitat available to the sucker in Big Tujunga (13 miles) and the West, East, and North forks of the San Gabriel River (26 miles), which will represent a small proportion of the population in either watershed, and the relocation of potentially affected sucker to nearby suitable habitat, the proposed action will not appreciably reduce the numbers, distribution, or reproduction of the species.

Project activities could also impact water quality (PBF 4) through accidental spills, which may result in mortality or injury to Santa Ana sucker and food sources (PBF 6), and the introduction of contaminants into streams, which has the potential to increase nitrogen levels. Streams with

enhanced nitrogen levels can cause death and developmental abnormalities in animals and impact prey populations (Rouse *et al*. 1999). In addition, dust and soil erosion from construction and ground disturbing activities near and within stream could impact stream water quality (PBF 4). This sedimentation can lead to the smothering of eggs (Rabeni & Smale 1995), filling of habitat, restriction of water flow, the consequent reduction of oxygen levels. The filling of habitat and the reduction of access to cobble/gravel substrates preferred by the sucker (Service 2005). These effects vary depending on the amount of sediment introduced into the stream, the amount of stream flow, gradient, and several other instream factors.

However, measures are proposed to prevent spills and impacts to water quality via sedimentation, including development of project-specific erosion, spill, and hazardous material control plans; transport of pollutants off-site; service and fueling of vehicle in upland areas; staging outside the floodplain during flood season; use of silt fencing and erosion control blankets, as appropriate; and removal of trash. Further, impacts will be restricted to 0.1 mile of occupied habitat or designated critical habitat per project and 0.5 mile of occupied or designated critical habitat overall. Thus, impacts should be effectively minimized and will not appreciably reduce the numbers, distribution, or reproduction of the species or ability of designated critical habitat to provide for its survival and reproduction.

Impact on Recovery

The proposed activities do not conflict with the recovery actions or goals described in the recovery plan because permanent loss of habitat is not expected. Further, the potential for impacts from the proposed activities are effectively minimized due to the proposed conservation measures. Finally, due to the proposed measures and project limitations, the number of sucker that may be affected is a small proportion of the total and regional populations. Thus, the proposed action will not significantly impact the ability of sucker to recover.

Coastal California Gnatcatcher

Since nests will be protected from direct impacts, eggs and nestlings will not be directly impacted under the proposed action. However, the proposed project could result in the removal of vegetation, reducing the availability of foraging and nesting resources for gnatcatchers. Thus, gnatcatchers could be forced to compete with each other when attempting to expand an existing territory or establish a new territory or miss the opportunity to breed. If displaced birds cannot find suitable habitat to forage and shelter in, they will be more vulnerable to predation and otherwise may die or be injured. Gnatcatchers that successfully establish territories in adjacent habitat are expected to experience reduced productivity (e.g., delayed initiation or prevention of nest building, fewer nesting attempts per season, and/or overall reduction in reproductive output) due to reduced availability of foraging and breeding habitat and increased territorial interactions.

Effects may also occur due to noise associated with project activities. Noise may interfere with courtship behavior or cause temporary or permanent abandonment of the nesting territory (Gunn & Livingston 1974). Excessive noise can mask the song of a male gnatcatcher, thereby inhibiting

his chance of attracting a mate (Scherzinger 1979). Excessive noise can also mask the presence of predators to the gnatcatcher (Shen 1983).

However, the proposed action includes use of an exclusionary buffer during the breeding season, which should help minimize the potential impacts due to noise. In addition, for any specific project, temporary impacts on occupied habitat for the gnatcatcher will be limited to a maximum of 1 acre. Temporary impacts from all the projects covered under this programmatic consultation will also be limited to a maximum of 20 acres of gnatcatcher occupied habitat and no permanent loss of habitat is expected. Further, impacts will be limited to 10 gnatcatcher territories[11]. Thus, impacts should be small in scale, spread out over the range of the species, and intermittent over the life of the project activities and the proposed action is not anticipated to appreciably reduce the numbers, distribution or reproduction of the species.

Critical Habitat

Effects could occur to PBFs 1 (i.e., sage scrub) and 2 (i.e., non-sage scrub habitat associated with sage scrub, including chaparral, grassland, and riparian habitat) of gnatcatcher critical habitat via removal during construction and maintenance activities. However, temporary impacts from all will be limited to a maximum of one acre of designated critical habitat per project and twenty acres of gnatcatcher designated critical habitat overall and no permanent loss of habitat is expected. Thus, impacts should be small in scale, spread out over the range of the species, and intermittent over the life of the project and impact a small proportion of the approximately 197,303 acres of designated critical habitat for this species. Therefore, no appreciable reduction in the ability of the critical habitat to provide for the survival and recovery of this species is expected.

Impact on Recovery

The proposed project does not conflict with the recovery actions or goals described in the 5-year review because permanent loss of habitat is not expected and temporary impacts should be small in scale, spread out over the range of the species, and intermittent over the life of the project activities. Further, the potential for impacts from the proposed activities are effectively minimized due to the proposed conservation measures. Finally, the number of gnatcatchers that may be affected is a small proportion of the total and regional populations. Thus, the proposed action will not significantly impact the ability of gnatcatcher to recover.

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. We are unaware of

[11] Whether the level of impact to habitat in a given territory results in adverse effects will be determined on a case-by-case basis as specific projects are identified and submitted for project-level consultation.

any non-Federal actions affecting these species that are reasonably certain to occur in the action area considered by this opinion.

CONCLUSION

After reviewing the current status of the species, environmental baseline for the action area, effects of the proposed action, and the cumulative effects, it is our biological opinion that the proposed action is not likely to jeopardize the continued existence of Quino, arroyo toad, vireo, sucker, and gnatcatcher and is not likely to result in the destruction or adverse modification of their designated critical habitats. Our conclusions are based on the following reasons:

1. FEMA proposes measures that should effectively minimize the impacts of project activities on these species and their designated critical habitats.

2. The proposed action affects a small proportion of the populations of these species across their range and of the designated critical habitats. Also, impacts to habitat will be temporary, small in scale, and intermittent over the duration of the project.

INCIDENTAL TAKE STATEMENT

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

The measures described below are non-discretionary, and must be undertaken by FEMA or made binding conditions of any grant issued, as appropriate, for the exemption in section 7(o)(2) to apply. FEMA has a continuing duty to regulate the activity covered by this incidental take statement. If FEMA fails to assume and implement the terms and conditions, the protective coverage of section 7(o)(2) may lapse. To monitor the impact of incidental take, FEMA or the project subapplicant must report the progress of the action and its impact on the species to the Service as specified in the incidental take statement [50 CFR § 402.14(i)(3)].

AMOUNT AND EXTENT OF TAKE

Incidental take will be identified and exempted as individual projects are identified. This will be documented as the individual projects are submitted for consultation in accordance with this

programmatic biological opinion. However, the overall amount of incidental take anticipated and exempted for each federally listed species addressed by this consultation is provided below.

Take of the Quino is anticipated and exempted as follows:

- Harm, death, or injury to individuals within 2 acres of occupied habitat for a given project and 50 acres overall.

Take of the arroyo toad is anticipated and exempted as follows:

- Harm, death, capture or injury to individuals within 1 acre of occupied habitat for a given project and 10 acres overall.

Take of the vireo is anticipated and exempted as follows:

- Harm, death, or injury to individuals within on1 acre of occupied habitat for a given project, 20 acres overall, and 10 territories.

Take of the sucker is anticipated and exempted as follows:

- Harm, death, capture, or injury to individuals within 0.1 mile of occupied habitat for a given project and 0.5 mile overall.

Take of the gnatcatcher is anticipated and exempted as follows:

- Harm, death, or injury to individuals within 1 acre of habitat for a given project, 20 acres overall, and 10 territories.

EFFECT OF TAKE

In the accompanying biological opinion, we determined that this level of anticipated take is not likely to result in jeopardy to Quino, arroyo toad, vireo, sucker, or gnatcatcher.

REASONABLE AND PRUDENT MEASURES

The following reasonable and prudent measures are necessary and appropriate to minimize, monitor, and report the effects of incidental take. The reasonable and prudent measures outlined below are nondiscretionary. Failure to comply may cause the protective coverage of section 7(o)(2) to lapse.

1. FEMA or their subapplicants will provide reports regarding the impacts to federally listed species.

2. FEMA or their subapplicants will ensure that impacts to arroyo toads and Santa Ana sucker are minimized during capture and relocation.

TERMS AND CONDITIONS

To be exempt from the prohibitions of section 9 of the Act, the FEMA must comply with terms and conditions, which implement the reasonable and prudent measures described above and outline reporting and monitoring requirements. Terms and conditions are non-discretionary.

To implement the reasonable and prudent measure 1 above, FEMA will adhere to the following terms and conditions:

1.1. FEMA will prepare and provide to the CFWO an annual report by March 15 summarizing all projects completed during the previous calendar year on implementation of this biological opinion. FEMA will require the subapplicants to provide a project report to the Service and FEMA with the following project-specific details on their respective projects within 45 days of project construction completion:

a. The number of Quino, arroyo toads, vireos, sucker and gnatcatchers found during a subapplicant's project, the date observed, their status when observed, and a map and GIS coordinates indicating their location when observed.

b. The total amount of occupied habitat disturbed and a description of restoration efforts for that occupied habitat.

c. Any observations of impacts to Quino, arroyo toad, vireo, sucker and gnatcatcher and a description of the nature of the impacts.

1.2 Prior to project construction, FEMA will require their subapplicants to submit to the CFWO Geographic Information System (GIS) shapefiles in UTM, Zone 11N (meters), NAD 83 coordinate system that show the following: anticipated permanent impacts, temporary impacts, habitat restoration sites, and habitat conservation sites. Please note that these polygons may overlap. For example, one location could be temporarily impacted and subsequently restored and conserved. Include the following metadata for each shapefile: summary/description of the data, attribute definitions, coordinate system/projection information or any other pertinent information. If there are any changes to the boundaries anticipated impacts, restoration, or conservation sites, such changes must be addressed consistent with the Reinitiation Notice below. In addition updated GIS shapefiles will be submitted to the CFWO.

To implement reasonable and prudent measure 2 above, FEMA or their subapplicants will adhere to the following term and condition:

2.1 At least 2 weeks prior to project activities, FEMA will require their subapplicants to submit the names and credentials of all individuals who are expected to handle arroyo toads or Santa Ana sucker to the CFWO for review and approval.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal agencies to use their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information. We have no conservation recommendations for this project.

REINITIATION NOTICE

This concludes formal consultation on the proposed action. As provided in 50 CFR § 402.16, reinitiation of formal consultation is required where discretionary Federal involvement or control over the action has been retained (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 not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action.

If you have any questions regarding this document, please contact Jesse Bennett of this office at jesse_bennett@fws.gov; or 760-431-9440 extension 305.

Sincerely,

SCOTT SOBIECH Digitally signed by SCOTT SOBIECH
Date: 2019.05.31 10:30:54 -07'00'

Scott A. Sobiech
Acting Field Supervisor

Appendices

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Appendix A

Concurrence with Not Likely to Adversely Affect Determinations

Southwestern Willow Flycatcher and Designated Critical Habitat

Flycatcher could be affected by removal of habitat and direct impacts to nests, nestlings, and eggs. They could also be affected by noise that disrupts breeding, feeding, and predator avoidance. In addition, the removal of flycatcher designated critical habitat could impact PBF 1 (i.e., riparian vegetation). However, no flycatcher occupied or designated critical habitat will be impacted, and appropriate buffers will be used to effectively minimize the potential for impacts due to noise. Thus, the potential for adverse effects is discountable.

California Least Tern and Light-Footed Ridgway's Rail

California least tern and light-footed Ridgway's rail could be affected by removal of habitat and direct impacts to nests, nestlings, and eggs. They could also be affected by noise that disrupts breeding, feeding, and predator avoidance. However, project activities in habitat for these species will occur outside the season of use for this species, and ground disturbance will be restricted to hand tools. Thus, impacts will not occur to nest, nestlings, and eggs, and impacts to habitat will have an insignificant effect on California least tern and light-footed Ridgway's rail. Further, project activities during the season of use will occur 800 feet away from California least tern habitat and 500 feet away from light-footed Ridgway's rail habitat, and only hand tools will be used. Thus, the potential for impacts due to noise and disturbance is discountable.

Tidewater Goby

Tidewater goby and its designated critical habitat could be affected by removal of habitat, changes to hydrology, impacts to water quality, and direct impacts to individuals. However, impacts to individuals and occupied habitat within the CFWO's jurisdiction will be avoided, best management practices will be used to minimize the potential for impacts due to runoff, and all impacts will be temporary and subject to restoration. Thus, impacts will be insignificant.

San Diego and Riverside Fairy Shrimp

San Diego and Riverside fairy shrimp and designated critical habitats could be affected by removal of habitat and direct impacts to individuals. They could also be affected by contaminated runoff that results in impacts to water quality. However, project activities in habitat will occur outside pool basins, best management practices will be used to minimize the potential for impacts due to runoff, and all impacts to areas surrounding pool habitats will be temporary and subject to restoration. Thus, the potential for impacts is discountable.

Western Snowy Plover

Western snowy plover could be affected by removal of habitat and direct impacts to nests, nestlings, and eggs. They could also be affected by noise that disrupts breeding, feeding, and predator avoidance. However, project activities in habitat for these species will be restricted to hand tools, and

temporary impacts will be restored. Thus, impacts due to habitat loss will be insignificant. Also, a biological monitor will be used to ensure that impacts to breeding western snowy plovers are avoided, as appropriate. Human activities and use of hand tools during the non-breeding season are may result in minor disturbance or displacement of overwintering birds, but these activities are not anticipated to substantially impact western snowy plover survival or reproduction. Thus, the potential for impacts to nests, nestlings, and eggs or due to noise and disturbance is discountable.

Appendix B

Southwestern Willow Flycatcher

SWWF 1 Habitat Assessment: A habitat assessment will be conducted by a biologist to determine whether suitable habitat (including foraging, nesting, and dispersal) for the flycatcher occurs in the action area. If suitable habitat for this species is identified in the action area and the proposed project may affect suitable habitat that is not known to be occupied by the flycatcher, the CFWO will be contacted regarding the need for surveys according to Service protocol and those surveys will be conducted, as appropriate. Otherwise, if the CFWO agrees based on other biological data or reasoning, the species will be determined present in areas with suitable habitat.

SWWF 2 Habitat Buffer: If project activities are conducted during the breeding season (i.e., May 1-September 1), a 500-foot disturbance-free buffer will be established and demarcated by fencing or flagging around occupied habitat. This buffer may be adjusted provided noise levels do not exceed 60 dBA at the edge of the nest site. If the noise meets or exceeds the 60 dBA threshold, or if the biologist determines that the construction activities are disturbing nesting activities, the biologist will have the authority to halt the construction and will devise methods to reduce the noise and/or disturbance in the vicinity.

SWWF 3 No Permanent or Temporary Loss of Habitat: No permanent or temporary loss of flycatcher occupied or designated critical habitat will occur (within or outside of the breeding season).

California Least Tern Conservation Measures

CLT 1 Seasonal Avoidance and Habitat Buffer: To avoid the nesting season of the California least tern, project activity in occupied habitat will be limited to the time period from September 30-March 31. If project activities occur during the nesting season, they will occur at least 800 feet away from California least tern occupied habitat, and noise within occupied habitat will be monitored to ensure that it does not exceed 60 dBA.

CLT 2 Biological Monitor: A Service-approved biologist will monitor all construction activities within occupied habitat to ensure that no harm, death, or injury of the species or destruction of occupied habitat occurs. The Service-approved biologist

will have stop work authority if adverse effects of nesting California least terns or light-footed Ridgway's rails are observed or are likely to occur.

CLT 3 Use of Handheld Tools: Non-breeding season project activity in occupied habitat will be limited to the use of handheld tools, including handheld motorized implements such as chain saws and power augers. Tools will be washed prior to use in these habitats to reduce the potential for spread of nonnative plant species and their seeds. No heavy equipment will be allowed within suitable nesting habitats.

CLT 4 Habitat Protection: No soil stabilization materials or off-site materials (e.g., decomposed granite, soil, rocks, etc.) will be added to the surface within occupied habitat. No excavation or grading will occur within occupied habitat either.

CLT 5 Flagging: When necessary to minimize the area affected by the project, work site boundaries will be marked with flagging or other visible materials, which will be removed at the conclusion of the project.

CLT 6 Avoid Creation of Predator Perches: Workers will avoid temporary or permanent placement of structures (e.g., posts, railings, tall equipment, or fence lines) that could provide elevated perches for predatory birds near or within occupied habitat.

CLT 7 Access Restrictions: Access to work sites in occupied habitat will be by foot travel only. Motorized vehicles, including all-terrain vehicles, will not be used in occupied habitat.

CLT 8 Restoration of Disturbed Areas: At the conclusion of the project, areas temporarily affected by project activity will be restored to their pre-project condition (for example, footpaths will be raked to their original ground contour and native vegetation will be reestablished, if necessary).

CLT 9 Waste Management: Trash, food, food containers, and food waste will be secured at all times by individual workers, or placed in animal-proof trash containers placed at the work site. The contents of trash containers will be transferred from the work site at the end of each day.

CLT 10 Guidance on Handheld Equipment: If handheld motorized tools are used, operators will employ best management practices to avoid and minimize soil and water contamination from fuel and lubricants. Measures include: a) use spill-resistant fuel and lubricant containers; b) use a portable containment pad for re-fueling in the field; c) immediately report petroleum spills to the landowner, or land management agency, and notify appropriate local authorities for advice and action on containment and cleanup of spills; and d) clearly mark the location and/or boundaries of the spill site to enable rapid remedial action.

Light-Footed Ridgway's Rail Conservation Measures

LFRR 1 Habitat Assessment: A habitat assessment will be conducted by a biologist to determine whether suitable habitat (including foraging, nesting, and dispersal habitat) for the light-footed Ridgway's rail occurs in the action area. If suitable habitat for this species is identified in the action area and the proposed project may affect suitable habitat that is not known to be occupied by the light-footed Ridgway's rail, the CFWO will be contacted regarding the need for additional surveys, and those surveys will be conducted, as appropriate. Otherwise, if the CFWO agrees based on other biological data or reasoning that the area is likely occupied, measures 1 through 12 will be implemented in areas with suitable habitat.

LFRR 2 Seasonal Avoidance: To avoid the nesting season of the light-footed Ridgway's rail, project activity in occupied habitat will be allowed from September 16-March 14. If project activities occur during the nesting season, they will occur at least 500 feet away from light-footed Ridgway's rail occupied habitat, and noise within occupied habitat will be monitored to ensure that it does not exceed 60 dBA.

LFRR 3 Biological Monitor: A Service-approved biologist will monitor all construction activities within occupied habitat to ensure that no harm, death, or injury of the species or destruction of occupied habitat occurs. The Service-approved biologist will have stop work authority if adverse effects of nesting light-footed Ridgway's rails are observed or are likely to occur.

LFRR 4 Limits on Mechanized Equipment: Non-breeding season project activity in occupied habitat will be limited to the use of handheld tools, including handheld motorized implements such as chain saws and power augers. Tools will be washed prior to use in these habitats to reduce the potential for spread of nonnative plant species and their seeds. No heavy equipment will be allowed within suitable nesting habitats.

LFRR 5 Soil/Surface Protection: No soil stabilization materials or off-site materials (e.g., decomposed granite, soil, rocks, etc.) will be added to the surface within occupied habitat. No excavation or grading will occur within occupied habitat either.

LFRR 6 Guidance on Handheld Equipment: If handheld motorized tools are used, operators will employ best management practices to avoid and minimize soil and water contamination from fuel and lubricants. Measures include: a) use spill-resistant fuel and lubricant containers; b) use a portable containment pad for re-fueling in the field; c) immediately report petroleum spills to the landowner, or land management agency, and notify appropriate local authorities for advice and action on containment and cleanup of spills; and d) clearly mark the location and/or boundaries of the spill site to enable rapid remedial action.

LFRR 7 Site Flagging: When necessary to minimize the area affected by the project, work site boundaries will be marked with flagging or other visible materials, which will be removed at the conclusion of the project.

LFRR 8 Avoid Creation of Predator Perches: Workers will avoid temporary or permanent placement of structures (e.g., posts, railings, tall equipment, or fence lines) that could provide elevated perches for predatory birds near or within occupied habitat.

LFRR 9 Site Restriction: Access to work sites in occupied habitat will be by foot travel only. Motorized vehicles, including all-terrain vehicles, will not be used in occupied habitat.

LFRR 10 Restoration of Disturbed Areas: At the conclusion of the project, areas temporarily affected by project activity will be restored to their pre-project condition (for example, footpaths will be raked to their original ground contour and native vegetation will be reestablished, if necessary).

LFRR 11 Waste Management: Trash, food, food containers, and food waste will be secured at all times by individual workers, or placed in animal-proof trash containers that are located at the work site. The contents of trash containers will be transferred from the work site at the end of each day.

LFRR 12 Hydrology and Topography Protection: Project activities will avoid creation of berms and dykes, steepening of channel slopes, placement of rock slope protection, and other actions that could result in alteration of hydrology, changes to water surface elevation levels, increased flooding, changes to flow velocities, and increased scour within light-footed Ridgway's rail occupied habitat.

Tidewater Goby

TIGO 1 Installation of In-water Nets: Prior to initiation of dewatering or sediment removal work, a Service-approved biologist will install 1/8 inch block nets outside the impact areas and across the stream a minimum of 20 feet above and below the locations proposed for excavation. If widely separated sites are involved, more than one set of block nets will be placed to protect the work area. The nets will be installed on the first day of work and monitored thereafter for the duration of the work.

TIGO 2 Environmental Awareness Training: Prior to initiation of dewatering or sediment removal work, hold an environmental awareness training to inform maintenance and management personnel about tidewater gobies, including tidewater goby protected status, proximity to the project site, avoidance/minimization measures to be implemented during the particular project, and the implications of violating ESA and FEMA funding conditions.

TIGO 3 Capture and Relocation: Once the block nets are secured, a Service-approved biologist(s) will remove all tidewater gobies found between the block nets using a 1/8 inch seine and dip nets, and relocate tidewater gobies to suitable habitat downstream of the Action Area. If excavation of a given extent of a basin cannot be completed in one day, a new set or successive sets of block nets will be deployed each day, and subsequent surveys and capture/relocation performed accordingly. Fish released from one day's work will not be released into areas projected to be excavated on successive days.

TIGO 4 Flagging: Clearly flag the limits of construction areas to avoid or minimize impacts to adjacent riparian and upland habitat. Flagging will be no more than 50 feet apart and will be clearly visible to construction workers on the ground and to operators on heavy equipment.

TIGO 5 Erosion Control: Implement erosion and sedimentation control measures (e.g., silt fences, straw bales or wattles) in all areas where disturbed substrate may potentially wash into waters via rainfall or runoff, particularly around stockpiled material and at the downstream end of each project reach. Such measures will remain in place and be inspected periodically until the project is complete and exposed soils are stabilized. Diversion structures, sediment traps/basins and associated equipment (e.g., pumps, lines) will be maintained in optimal working condition for the entire duration of the preparation and construction periods.

TIGO 6 Biological Monitor: A Service-approved biological monitor will remain onsite and search for tidewater gobies and assess turbidity levels within the work areas during all dewatering activities, and will capture and relocate tidewater gobies to suitable habitat as necessary.

TIGO 7 Reporting: Provide a written summary of work performed (including biological survey and monitoring results), best management practices implemented (i.e., use of biological monitor, flagging of work areas, erosion and sedimentation controls) and supporting photographs of each stage. Furthermore, the documentation describing listed species surveys and re-location efforts (if appropriate) will include name of biologist(s), location and description of area surveyed, time and date of survey, all survey methods used, a list and tally of all sensitive animal species observed during the survey, a description of the instructions/recommendations given to the applicant during the project, and a detailed discussion of capture and relocation efforts (if appropriate).

TIGO 8 Hydrology and Topography Protection: Project activities will avoid creation of berms and dykes, steepening of channel slopes, placement of rock slope protection, and other actions that could result in alteration of hydrology, changes to water surface elevation levels, increased flooding, changes to flow velocities, and increased scour within tidewater goby designated critical habitat. However, the in-kind replacement of existing or damaged rock slope protection may occur.

TIGO 9 Limits on Habitat Disturbance: Project activities will not result in permanent loss of tidewater goby designated critical habitat unless the impacts to habitat are determined to be insignificant via project-level consultation (i.e., small permanent impacts that will have a negligible effect on habitat quality for tidewater goby).

TIGO 10 Limits on Habitat Disturbance: Project activities will not adversely affect tidewater gobies or their occupied habitat on or near Marine Corps Base Camp Pendleton.

TIGO 11 Reinitiation with New Information: If tidewater gobies are located within CFWO's jurisdiction outside Marine Corps Base Camp Pendleton, this consultation will be reinitiated if project activities may affect tidewater gobies at these locations.

San Diego and Riverside Fairy Shrimp Conservation Measures

VPBR 1 Habitat Assessment: For habitat not known to be occupied by the San Diego fairy shrimp and/or Riverside fairy shrimp:

a. A habitat assessment will be conducted by a biologist to determine whether suitable habitat for the San Diego fairy shrimp and Riverside fairy shrimp occurs in the action area. If suitable habitat for these species is identified in the action area and the proposed project may affect suitable habitat that is not known to be occupied by the San Diego fairy shrimp and Riverside fairy shrimp, the CFWO will be contacted regarding the need for surveys according to the Service protocol, and those surveys will be conducted, as appropriate. Otherwise, if the CFWO agrees based on other biological data or reasoning that the area is likely occupied, measures 1 through 10 will be implemented in areas with suitable habitat.

VPBR 2 Biological Monitor: For occupied and designated critical habitat for San Diego fairy shrimp and/or Riverside fairy shrimp (fairy shrimp habitat):

a. A Service-approved biologist will monitor all construction activities within 150 feet of fairy shrimp habitat to ensure that listed fairy shrimp are not harmed, injured, or killed and fairy shrimp habitat is not impacted or destroyed.

VPBR 3 Seasonal Avoidance: Construction within 150 feet of fairy shrimp habitat will be performed from June 1 to October 15 and under dry conditions to the maximum extent feasible.

VPBR 4 Fencing: If any construction activities must occur during October 15-June 1, exclusion fencing and erosion control materials will be used to reduce sedimentation of adjacent vernal pools and other seasonal wetlands as determined by a Service-approved biologist. All fiber rolls and hay bales used for erosion control will be certified as free of noxious weed seed.

VPBR 5 Buffers: Activities within 150 feet of fairy shrimp habitat will be avoided to the maximum extent possible. A Service-approved biologist will flag or monitor all work

activities from October 15 to June 1 within 150 feet of fairy shrimp habitat. The following buffers will be used during this timeframe:

a. Hand-held herbicide application will not occur within 25 feet of habitat;

b. Broadcast or power spray herbicide application will not occur within 150 feet of habitat;

c. Manual clearing of vegetation will not occur within pool basins;

d. Mechanical clearing of vegetation and ground-disturbing activities will not occur within 100 feet of habitat; and

e. A buffer of at least 300 feet from habitat will be established for the staging areas of all equipment for storage, fueling, and maintenance with hazardous material absorbent pads available in the event of a spill; and mixing of pesticides, herbicides, or other potentially toxic chemicals.

VPBR 6 Vehicle Inspections: Vehicles will be inspected daily for fluid leaks before leaving a staging area.

VPBR 7 Vernal Pool Habitat Protection: The following best management practices will be implemented within or near fairy shrimp habitat:

a. Any vernal pool, vernal pool grassland, or seasonal wetland will be protected from siltation and contaminant runoff by use of erosion control.
b. Erosion-control materials will be of a tightly woven natural fiber netting or similar material that will not entrap other wildlife species (e.g., coconut coir matting). No micro-filament netting will be used.
c. Erosion-control measures will be placed between the outer edge of the buffer and the activity area. All fiber rolls and hay bales used for erosion control will be certified as free of noxious weed seed.
d. The subapplicant will implement dust control measures necessary to prevent the transport of soil from exposed surfaces to vernal pool, swale, and rock pool habitat. Sprinkling with water will not be done in excess to minimize the potential for non-storm water discharge.
e. To minimize the introduction of nonnative plant species, construction vehicles will be cleaned prior to any work within 150 feet of fairy shrimp habitat.

VPBR 8 Restoration Plan: Restoration of temporary impacts will occur in accordance with a restoration plan that is reviewed and approved by the CFWO prior to implementation of the proposed project. Specifically, when restoring areas to pre-project condition, native plants will be used to the maximum extent possible.

VPBR 9 No Permanent Loss of Habitat: No permanent impacts to fairy shrimp habitat will occur. Actions that result in permanent alteration of pool hydrology (e.g., construction

of culverts, v-ditches, berms, roads, pipes, etc., that will divert flows from pools basins) will be avoided and are not addressed by this programmatic consultation.

VPBR 10 Habitat Disturbance Limits: No more than 5 percent of habitat within a given complex or unit of designated critical habitat or overall under this consultation will be temporarily impacted by the proposed project. Direct impacts will occur outside of pool basins.

Western Snowy Plover

The following avoidance and minimization measures apply to Action Areas within suitable snowy plover nesting habitat and designated critical habitat regardless of whether snowy plovers have been detected during Service-approved protocol surveys.

WSP 1 Seasonal Avoidance: Project construction activities in suitable nesting habitat will occur during the species non-breeding season: the period beginning October 1 and continuing through February 28 of the following year or through February 29 in a leap year.

WSP 2 Use of Handheld Tools Only: Project construction activities in suitable nesting habitat will be limited to the use of handheld tools, including handheld motorized implements such as chain saws and power augers. No heavy equipment will be allowed within suitable nesting habitat.

WSP 3 Guidelines for Handheld Tools: If handheld motorized implements are used, operators will employ best management practices to avoid and minimize soil and water contamination from fuel and lubricants. Measures include:

a. Use spill-resistant fuel and lubricant containers;
b. Consider the use of a portable containment pad for re-fueling in the field;
c. Immediately report petroleum spills to the landowner, or land management agency, and notify appropriate local authorities for advice and action on containment and cleanup of spills; and
d. Clearly mark the location and/or boundaries of the spill site to enable rapid remedial action.

WSP 4 Biological Monitor: If project construction activities occur in adjacent to, but not within suitable nesting habitat, then project activities will be conducted during the species non-breeding season, if possible. If non-breeding season construction is not possible, then the Subapplicant will employ a Service-approved biologist to conduct weekly western snowy plover surveys. If western snowy plovers are observed, the Service-approved biologist will notify the Service within 1 day of the observation and will monitor all construction activities conducted adjacent to western snowy plovers suitable nesting habitat. The qualified biologist will have the right and responsibility to stop work if adverse effects of nesting western snowy plovers are observed.

WSP 5 Flagging: When necessary to minimize the area affected by the project, the Subapplicant or their contractors will mark the work site boundaries with flagging or other visible materials, and remove those markers at the conclusion of the project.

WSP 6 Avoid Placement of Predator Perches: Workers will avoid temporary or permanent placement of structures (e.g., posts, railings, tall equipment, or fence lines) that could provide elevated perches for predatory birds.

WSP 7 Access Restrictions: Access to work sites will be by foot travel only. Motorized vehicles, including all-terrain vehicles, are not permitted on work sites located within suitable nesting habitat.

WSP 8 Site Restrictions: Vehicles used for transport of personnel will be restricted to existing parking lots or roadside parking areas.

WSP 9 Restore Contours of Temporarily Disturbed Areas: At the conclusion of the project, areas temporarily impacted by project activity will be restored to their pre-project condition (for example, footpaths are to be raked to their original ground contour and cut vegetation is to be removed or piled for future disposal).

WSP 10 Waste Management: Trash, food, food containers, and food waste will be secured at all times by individual workers, or placed in animal-proof trash containers placed at the work site. The contents of trash containers will be transferred from the work site at the end of each day.

WSP 11 Prohibition of Pets Onsite: Pets will be prohibited from all work sites.