

**Draft Appendix F  
Restoration Projects Statewide Order  
PEIR Species Protection Measures**



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# F Species Protection Measures

## F.1 Introduction

The State Water Resources Control Board (State Water Board) proposes a Clean Water Act Section 401 General Water Quality Certification and Waste Discharge Requirements for Implementation of Restoration Projects Statewide (General Order or Order) to improve the efficiency of regulatory reviews for projects throughout the state that would restore aquatic and riparian resource functions and/or services. The proposed Order establishes an authorization process for environmentally beneficial restoration projects.

The purpose of the proposed Order is to expedite consultation, authorization, and permitting of restoration projects intended to help the State of California achieve its habitat restoration, species recovery, and water quality improvement goals.

As described in the proposed Order, all projects must meet the definition of a restoration project as defined below and be consistent with Regional Water Quality Control Board (collectively Regional Water Boards) Basin Plans. A "restoration project" is defined as one that would result in a net increase in aquatic or riparian resource area, functions and/or services through implementation of the eligible project types, relevant general protection measures and design guidelines, as applicable (see PEIR Appendix E). In addition, for purposes of the CEQA analysis, the Program Environmental Impact Report (PEIR) has included a suite of species protection measures that would be implemented by project proponents, where applicable. The species protection measures are described below.

## F.2 Species Protection Measures

Applicable species protection measures are to be implemented in addition to applicable general protection measures, described in PEIR Appendix E, when suitable habitat exists within the currently occupied range of the species and/or a species is determined to be present. Alternative measures to accommodate site-specific conditions or technological constraints or advances may be proposed by project proponents, subject to approval by National Marine Fisheries Service (NMFS), U.S. Fish and Wildlife Service (USFWS), and/or California Department of Fish and Wildlife (CDFW) (agency[ies]), as applicable to their authority and jurisdiction.

Measures for special-status species are listed by guild in the following order:

- ◆ general species protections measures (i.e., measures that generally can apply to all or multiple guilds); and
- ◆ species guild protection measures (i.e., subsets of measures that generally can be applied to all species within a given guild):
  - amphibians,
  - reptiles,
  - birds,
  - mammals,
  - invertebrates (shrimp species, beetles, and butterflies),
  - fish, and
  - vernal pool plants and other special-status plants.
- ◆ All measures, including those for a specific guild, are programmatic. Project-specific measures for single or smaller groups of species would need to be further developed, evaluated, and approved by agency(ies), as applicable to their authority and jurisdiction. Project-specific measures would be based on project-specific conditions and the applicability of those measures to avoid and minimize impacts to a specific species (or group of species) on a project-by-project basis.
- ◆ The protection measures described for species guild are generally listed in chronological order of project implementation activities for ease of implementation (e.g., design, surveys, avoidance, work windows, work restrictions, implementation monitoring, and revegetation monitoring).
- ◆ Protection measures for plants primarily consist of avoidance measures. When complete avoidance of special-status plant species is not possible, additional protection measures have been included.

## F.2.1 General Species Protection Measures

The general species protection measures described in this section are generally applicable to all species and all guilds.

***SPM-1: Preconstruction Surveys.*** If special-status plants are present and/or special-status terrestrial animal species habitat is present (e.g., stationary habitat such as burrows, bird nests, cavities for bats, etc.), where appropriate, based on project-specific requirements, a qualified, agency-approved biologist with experience on the identification of all applicable life stages of the special-status species will conduct reconnaissance-level preconstruction surveys and implement additional measures, as appropriate, to protect the species from construction-related disturbance before work begins. The intent of the survey is to assess current species habitat and use locations in the project area immediately prior to construction. Special-status plant species surveys shall be conducted in the appropriate blooming period, as applicable, prior to the start of construction for proper plant identification. If construction activities cease for more than five consecutive days, and there is potential for special-status species to re-occupy the site, the agency-approved biologist will re-survey the project area and implement

measures, as appropriate. A project proponent can choose to assume animal species presence, forgo preconstruction surveys, and implement additional protection measures, as appropriate, to protect special status species from construction-related disturbance. Additional species guild-specific pre-construction requirements are described below and may supersede this general species protection measure, as applicable.

**SPM-2: Environmentally Sensitive Areas and/or Wildlife Exclusion.** Monitoring, flagging, and/or fencing will be used to minimize disturbance to environmentally sensitive areas (e.g., waters and wetlands). This measure augments GPM-7 (see PEIR Appendix E), which applies to sensitive aquatic resources.

If fencing is used:

- ◆ The agency-approved biologist or resource specialist will determine the location of the fencing prior to the start of construction (e.g., between active work area(s) and sensitive resources).
- ◆ Fencing will remain in place throughout the duration of the construction activities, and will be inspected and maintained regularly by the agency-approved biologist or resource specialist until completion of the project.
- ◆ Repairs to the fencing will be made within 24 hours of discovery.
- ◆ Fencing will be removed when all construction equipment is removed from the site, and the area cleared of debris and trash, and returned to natural conditions.

**SPM-3: Species Protection Construction Work Windows.** Construction work windows may be required, depending on whether or not the project involves in-water construction and/or whether special-status species have potential to occur onsite.

**SPM-4: Species Capture, Handling and Translocation.** Special-status species capture, handling, and translocation will only be conducted by an agency-approved biologist(s). Required permitting will be needed prior to any capture, handling, and relocation. If translocation of special-status species is needed, the project proponent will prepare a special-status species translocation plan to be reviewed and approved by the agency(ies), as appropriate, prior to project implementation. The plan will include capture and translocation methods, translocation site, and post translocation monitoring, if applicable. If capture, handling, and translocation is necessary due to dewatering activities, refer to the protective measures for Dewatering Activities, under general protection measure IWW 6 and follow the agency-approved translocation plan.

**SPM-5: Special-Status Species Entrapment Prevention.** All excavated, steep-walled holes or trenches will be covered with appropriate covers (e.g., thick metal sheets or plywood) at the end of each workday. Covers will be placed so that trench edges are fully sealed with rock bags, sand, or other appropriate material. Alternatively, one or more escape ramps such as fill dirt or wood planking will be installed at an angle no greater than 30 degrees, to allow wildlife to escape. Before holes or trenches are filled, sealed, or collapsed, the holes or trenches will be thoroughly inspected for trapped

animals. Any animals discovered will be allowed to escape voluntarily or will be relocated by an agency-approved biologist.

**SPM-6: Airborne Noise Reduction.** Equipment, including noise abatement systems, will be maintained in good working order. If construction noise has the potential to adversely affect special-status species, the project proponent will include site specific measures for construction activities to minimize impacts. Muffler (or spark arrester) damage must be promptly remedied, to the degree practicable, to meet sound attenuation standards.

## F.2.2 Amphibians – Guild Protection Measures

The general amphibian protection measures described in this section apply to all special-status amphibians, as applicable and appropriate for a project site (i.e., the project site is within the range and has suitable habitat for special-status amphibians and they have been observed).

**AMP-1: Wildlife Passage Design.** For projects that include the installation, repair, or replacement of permanent or temporary fencing (e.g., security, landscape, or privacy fencing) fencing will be designed to allow for permeability; it will incorporate a minimum 6-inch gap with a one-way ramp or door at regular intervals to allow for special-status amphibian species to disperse between upland and breeding habitat. This measure is not applicable to the Environmentally Sensitive and Wildlife Exclusion Area fencing/flagging specified as part of construction activities to protect habitats or exclude wildlife from the work areas (see SPM-2, above). Facilities such as curbs, drainages, culverts, and fence “footers” will be designed with gradually sloped sides or intermittent gaps to facilitate wildlife movement.

**AMP-2: Rain Event Limitations.** To the maximum extent practicable, construction activities will be restricted to periods of low rainfall (less than 1” per 24-hour period) and periods of dry weather (with less than a 50% chance of rain). During these restricted periods, under no circumstances will construction activities occur between 30 minutes prior to sunset and 30 minutes after sunrise (i.e., no night work during rain events). If rain exceeds 0.5 inch during a 24-hour period, work will cease until no further rain is forecast. Construction activities halted due to precipitation may resume when precipitation ceases and the National Weather Service 72-hour weather forecast indicates less than a 50% chance of 0.5 inch of rain or less during a 24-hour period. Prior to construction activities resuming, an agency-approved biologist will inspect the project area and all equipment/materials for the presence of special-status amphibians.

**AMP-3: Pre-Construction Survey.** If covered amphibians are known or assumed to be present, no more than 24 hours prior to the date of initial ground disturbance and vegetation clearing, an agency-approved biologist will walk within the project site to investigate all potential areas that could be used by the special-status amphibians for feeding, breeding, sheltering, movement, and other essential behaviors. If a special-status amphibian species is encountered during the survey the project proponent will refer to and follow procedures described below in AMP-11 and AMP-12 for passively allowing the species to move out of the work area or actively relocating the species out of harm’s way. Proposed projects that may need to actively relocate amphibians out of

harm's way will require the project proponent to submit a project-specific species relocation plan for agency review and approval, as described in AMP-12.

**AMP-4: Disease Prevention and Decontamination.** To prevent disease conveyance among work sites during project implementation, the agency-approved biologist will ensure that the decontamination protocols described in CDFW, Aquatic Invasive Species Disinfection/Decontamination Protocols (CDFW 2016, or latest version) will be implemented prior to gear and equipment arriving at or moving between work sites and will be followed at all times. A copy of the code of practice must be available at the project site.

**AMP-5: Lighting.** In addition to GCM-3, Construction Hours (see general protection measures in Appendix E), artificial lighting at a project site will be prohibited to the maximum extent practicable during the hours of darkness, except when necessary for driver or pedestrian safety.

**AMP-6: Clearing and Grubbing Vegetation.** The agency-approved biologist will be present during all vegetation clearing and grubbing activities in areas within the currently occupied range of special-status amphibians where suitable habitat is present. Prior to vegetation removal, the agency-approved biologist will thoroughly survey the area for these species (see measure AMP-3). Vegetation in sensitive areas will either be cleared with handheld motorized tools (e.g., weed eaters, chainsaws) or by hand pulling, or an agency-approved biologist will walk in front of vegetation clearing equipment. Where dense brush occurs (e.g., blackberry, periwinkle), the biologist may direct an equipment operator to lift and shake dense vegetation with an excavator or backhoe so that the biologist can look underneath and search for amphibians. Tree stumps and roots will be left in place where possible to avoid any ground disturbance and preserve refugia habitat, with the exception of non-native invasive plants that could propagate from remaining vegetative material. Native branches, leaf litter, mulch, woody debris, and other vegetative trimmings may be retained and spread on site to enhance habitat as appropriate.

**AMP-7: Pump Screens.** If a water body is to be temporarily dewatered by pumping, intakes will be completely screened consistent with NMFS (1997) and CDFW (2001) screening guidelines, or latest updates to those guidelines. The intake will be placed in a perforated bucket or other method to attenuate suction to prevent special-status amphibians from entering the pump system. Water will be returned to the water body when diversions or coffer dams are removed and flow is restored. If no diversion or coffer dams were used during dewatering, the water body will be allowed to refill naturally from precipitation, runoff, or hydrological processes refilling the water body naturally.

**AMP-8: Removal of Non-native Invasive Species.** Removal of any individuals of non-native invasive species (e.g., bullfrogs, non-native crayfish, non-native fishes) is encouraged as practicable to facilitate conditions for project success. The project proponent is responsible for ensuring that these activities comply with the California Fish and Game Code. Suspected hybrids will not be removed without specific authorization from appropriate agency(ies).

**AMP-9: Placement of Suitable Erosion Control Material.** To prevent amphibians from becoming entangled, trapped, or injured, erosion control materials with plastic or synthetic monofilament netting will not be used. This includes products that use photodegradable or biodegradable synthetic netting, which can take several months to decompose. Acceptable materials include natural fibers such as jute, coconut, twine, or other similar fibers. Following site restoration, erosion control materials, such as straw wattles, will not block the movement of special-status amphibians.

**AMP-10: Encounters with Species.** Each encounter with a special-status amphibian will be treated on a case-by-case basis. If any life stage of the special-status amphibian species is found and these individuals may potentially be killed or injured by work activities, the following will apply:

- ◆ If a special-status amphibian is detected in the project area, work activities within 50 feet of the individual that may potentially be harmed, injured, or killed will cease immediately and the agency-approved biologist will be notified. Based on the professional judgment of the agency-approved biologist, if project activities can be conducted without harming or injuring the species, it may be left at the location of discovery and monitored by the agency-approved biologist. All project personnel will be notified of the finding and at no time will work occur within 50 feet of a species without agency-approved biologist present.
- ◆ Where practicable, contact with the special-status amphibian will be avoided and it will be allowed to move out of the potentially hazardous situation of its own volition. Allowing a special-status amphibian to move out of the potentially hazardous situation of its own volition may not be appropriate for multi-day projects because they could stay or move back into the project site. If there is an immediate hazard or if there is no suitable, accessible habitat nearby for the amphibian to relocate to, it will be moved following approved handling protocol (see AMP-11).

**AMP-11: Species Observations and Handling Protocol.** If a special-status species does not or cannot leave the work area, the agency-approved biologist will implement the species observation and handling protocols outlined below for the various species' guilds. Separate permits are needed prior to any capture, handling, and relocation of special-status species. Only agency-approved biologists will participate in activities associated with the capture, handling, relocation, and monitoring of a special-status amphibian. In addition to measures described in AMP-5 (which refers to CDFW [2016] decontamination protocols), to prevent the spread of pathogens among sites, special care should be taken to prevent transferring potential pathogens among individual animals.

### F.2.3 Reptiles – Guild Protection Measures

The general reptile protection measures described in this section apply to all special-status reptiles, as applicable and appropriate for a project site (i.e., the project site is within the range and has suitable habitat for special-status reptiles or they have been observed).

**REP-1: Pre-Construction Survey.** An agency-approved biologist will conduct pre-construction surveys for the target reptile species within 72 hours prior to any initial ground disturbance within all suitable habitat within or adjacent to the project site and accessible to the project proponent, to identify locations where special-status reptiles may be present, evaluate current activity status in the project area, and protect the species and its habitat from avoidable construction-related disturbance. The intent of this survey is to assess current special-status reptile habitat and use locations in the project area immediately prior to construction. Preconstruction surveys may be phased across a construction site if construction in different areas will occur at different times; only areas where disturbance is imminent need be surveyed. The project area will be re-inspected by the agency-approved biologist whenever a lapse in construction activity of 5 days or greater has occurred.

**REP-2: Environmentally Sensitive and Wildlife Exclusion Area.** Prior to the start of construction, SPM-2, *Environmentally Sensitive and Wildlife Exclusion* will be implemented. In addition, the following applies:

- ◆ For the giant garter snake, fencing and/or monitoring will be implemented in coordination with the agency-approved biologist prior to the start of ground-disturbing activities.

If fencing is used the fencing will be inspected by the agency-approved biologist before the start of each work day and maintained by the project proponent until completion of the project. The fencing will be removed after all construction equipment is removed from those segments of the project. To prevent reptiles from becoming entangled, trapped, or injured, fencing materials that use plastic or synthetic monofilament netting will not be used. Acceptable materials include natural fibers such as jute, coconut, twine, or other similar fibers.

**REP-3: Clearing and Grubbing Vegetation.** An agency-approved biologist will be present during all vegetation clearing and grubbing activities in areas where the special-status reptiles are confirmed to occur, or where measures are being implemented based on presence of suitable habitat. Prior to vegetation removal, the agency-approved biologist will thoroughly survey the area for these species. Vegetation in sensitive areas will be cleared by handheld motorized tools (e.g., weed eaters, chainsaws) or hand pulling unless alternate methods are proposed by the project proponent and approved by agency(ies). Tree stumps and roots will be left in place where possible to avoid any ground disturbance and preserve refugia habitat, with the exception of non-native invasive plants that could propagate from remaining vegetative material. Native branches, leaf litter, mulch, woody debris, and other vegetative trimmings may be retained and spread on site to enhance habitat as appropriate.

**REP-4: Prohibited Use of Rodenticides.** No rodenticides will be used at the project site during construction in areas that support suitable habitat for special-status reptiles.

**REP-5: Species Observations and Encounters.** Each proposed project with the potential to encounter a special-status reptile species will submit a rescue and relocation plan to agency(ies) for review and approval prior to initiating construction. General guidance to be considered during plan development is as follows: 1) leave the

uninjured animal if it is not in danger, or 2) move the animal to a nearby location if it is in danger as described in *REP-6, Species Handling and Relocation*, below. These options are further described as follows:

- ◆ When a special-status reptile is encountered in the project area, the priority is to stop all activities in the surrounding area that have the potential to result in the harm, injury, or death of the individual. The agency-approved biologist then needs to assess the situation to select the course of project that will minimize adverse effects to the individual.
- ◆ Avoid contact with the animal and allow it to move out of the project footprint and hazardous situation on its own to a safe location. This guidance only applies to situations where an animal is encountered while moving through habitat and under conditions that will allow it to escape. This does not apply to animals that are uncovered or otherwise exposed or in areas where there is not enough adjacent habitat to support the life history of the special-status reptiles if they move outside the construction footprint.
- ◆ Avoidance is the preferred option if the animal is not moving or is within some sort of burrow or other refugia. In this case, the area will be well marked for avoidance by construction and an agency-approved biologist will be assigned to the area when work is taking place nearby. If avoidance is not practicable or safe for the special-status reptile, the project proponent will implement *REP-6*, below.

***REP-6: Species Handling and Relocation.*** A special-status reptile will only be captured and relocated when it is the only option to prevent its death or injury, and after all attempts to avoid interaction of the species have been exhausted as described in *REP-6, Species Observation and Encounters*. Project-specific rescue and relocation plans will be approved by the agency(ies) prior to starting construction. General guidance for handling and relocation is as follows:

- ◆ If appropriate habitat is located immediately adjacent to the capture location, then the preferred option is short distance relocation to that habitat. A snake will not be moved outside of the area where it could have traveled on its own. Captured snakes will be released in appropriate cover as close to their capture location as possible for their continued safety. Under no circumstances will an animal be relocated to another property without the owner's written permission. It is the project proponent's responsibility to arrange for that permission.
- ◆ The release locations must be pre-identified in the project-specific rescue and relocation plan approved by the agency(ies); they will depend on where the individual was found and the opportunities for nearby release. In most situations the release location is likely to be into the mouth of a small burrow, other suitable refugia, or suitable habitat.
- ◆ Only agency-approved biologists for the project can capture special-status reptiles.

## F.2.4 Birds – Guild Protection Measures

The general bird protection measures described in this section apply to all special-status bird species, as applicable and appropriate for a project site (i.e., the project site is within the range and has suitable habitat for special-status birds or they have been observed).

***BIRD-1: Habitat Assessment:*** A habitat assessment will be conducted by a qualified biologist to determine whether suitable habitat (e.g., including foraging, nesting, and dispersal habitat) for the special-status bird(s) occurs in the project area, as applicable. If suitable habitat for special-status species is identified in the project area and the proposed project may affect suitable habitat, the project proponent will implement measures *BIRD-2* through *5* in areas with suitable habitat. Alternatively, the project proponent may propose to conduct surveys and/or monitoring to confirm presence or absence of the species.

***BIRD-2: Nest Protection Work Window:*** Project activity in known or potentially occupied migratory bird habitat will be conducted outside of the nesting season to the maximum extent practicable. If project activities must occur during the nesting season see *BIRD-5*.

***BIRD-3: Work Area Limits:*** Work site boundaries in suitable habitat will be clearly marked with flagging or other visible materials, which will be removed at the conclusion of the project.

***BIRD-4: Site Access Restrictions:*** If the site conditions allow, access to work sites in occupied habitat will be by foot travel, otherwise heavy equipment will be allowed within suitable nesting habitats only with the presence of an agency-approved biologist. Access routes and work areas will be limited to the minimum amount necessary to achieve the project goals.

***BIRD-5: Monitoring.*** If project activities must occur during the nesting season, pre-construction nest surveys will be conducted by an agency-approved biologist, buffers will be established to protect active nests, and disturbance in the vicinity of active nests will be monitored to ensure that it does not disrupt an active nest.

## F.2.5 Mammals – Guild Protection Measures

The general mammal protection measures described in this section apply to all special-status mammals, as applicable and appropriate for a project site (i.e., the project site is within the range and has suitable habitat for special-status mammals or they have been observed).

***MAM-1: Conduct Habitat Assessment.*** Prior to construction, an agency-approved biologist will conduct a habitat assessment in potentially suitable habitat within the project footprint to determine presence of special-status mammals or their sign (e.g., scat, guano, tail drags and tracks, skeletal remains in owl pellets, etc.). The habitat assessment surveys will be conducted within 2 years, and at least 14 days prior to the start of construction or ground disturbing activities. If no burrows or sign of special-status mammals are detected, no further measures will be required.

**MAM-2: Avoidance Areas.** Based on the results of the habitat assessment, in areas where special-status mammals are believed to be present based on observations (e.g., signs of presence, burrows), non-disturbance zones will be established prior to construction or ground disturbing activities.

**MAM-3: Use of Handheld Tools.** If exclusion fencing will be installed, vegetation in active work areas outside of the exclusion areas will be trimmed and cleared to the ground using handheld tools (which can include handheld motorized equipment, such as weed whackers or mowers) to the maximum extent practicable, under the supervision of an agency-approved biologist, to discourage presence of species in the construction area.

**MAM-4: Species Trapping and Relocating.** If the minimum avoidance zone cannot be maintained and the agency-approved biologist believes activities will disturb or destroy habitat (e.g., collapse burrows) or may otherwise adversely affect these special-status mammal species, then an agency-approved biologist may be required to implement a trap and release program at the agency’s discretion. Project-specific guidance on trapping, temporary holding, release location, and release method will be required by the agency prior to the start of trapping.

**MAM-5: Reporting Requirements.** Agencies will be notified within 24 hours if any individual special-status species is captured. The date; time of capture; specific location (GPS coordinates); and approximate size, age, and health of the individual will be recorded and provided in both hard copy and digital format to the agency(ies) within 2 weeks of the conclusion of the protective trap-and-release operation.

The agency(ies) will be notified within 24 hours if any special-status mammal species is found injured or dead. A written notification will also be prepared by the project proponent after verbal notification to the agency(ies). The report will include the date, time, and location of the discovered animal/carcass; cause of injury or death; and any other pertinent information. All dead and preserved specimens will be submitted to the appropriate agency(ies) upon request. Salvaged animals will be kept cooled or frozen until delivered.

## F.2.6 Invertebrates – Guild Protection Measures

The general invertebrate protection measures described in this section apply to all special-status invertebrates, as applicable and appropriate for a project site (i.e., the project site is within the range and has suitable habitat for special-status invertebrate or they have been observed).

**INVERT-1: Implement California Freshwater Shrimp Measures.** Implement the following measures for projects that include suitable habitat that could be occupied by California freshwater shrimp, as applicable.

- ◆ *Work Window.* No work is permitted during wet weather or where saturated ground conditions exist; if a 60 percent chance of a 0.5 inch of rain or more within a 24-hour period is forecast, then operations will cease until 24 hours after rain has ceased.

- ◆ **Site Restrictions.** New access routes requiring tree removal and grading will be limited to the extent practicable. Access routes will not be along the top of the stream bank but relatively perpendicular (45 to 90 degrees is acceptable) to the bank.
- ◆ **Pre-Construction Survey.** Agency-approved biologist will conduct surveys of suitable habitat in the project area for presence of the California freshwater shrimp in the work area 24 hours prior to any vegetative clearing work, dewatering, or ground-disturbing activities.
- ◆ **Capture and Relocation:** If California freshwater shrimp must be temporarily excluded from portions of the project area during in-water work, a project-specific capture and relocation plan must be submitted to the agency(ies) for review and approval.
- ◆ **Habitat Protection:** Design project to achieve no net loss of large woody debris in the active (wetted) channels. Trees may be removed for access routes for construction equipment. If trees need to be removed from other portions of the project site, willows over 3 inches in diameter at breast height will be left in place as is practicable and the canopy cover provided by hardwoods or conifers will not be reduced unless necessary for access or other unforeseen circumstance.
- ◆ **Rehabilitate Disturbed Habitat:** The stream bank will be planted with species which will enhance the year-round habitat value of the stream edge by providing adequate shelter, stability, complexity and food production potential for California freshwater shrimp.
- ◆ **Dewatering:** Minimize the potential for California freshwater shrimp to be entrained during dewatering activities. Pump intakes will be placed away from complex vegetated banks that may contain habitat for California freshwater shrimp. Screens will be used during dewatering in accordance with IWW-6, Dewatering/Diversion, following CDFW (2001) and NMFS (1997) criteria for fry-sized salmonids.

**INVERT-2: Implement Vernal Pool Branchiopods Measures.** Implement the following measures for projects that are within or adjacent to suitable habitat that could be occupied by vernal pool branchiopods, as applicable.

- ◆ **Ground Disturbance Adjacent to Vernal Pools.** Implement the following measures for project sites that include suitable habitat that could be occupied by vernal pool branchiopods, as applicable.
  - **Work Window.** Work within 250 feet of suitable special-status vernal pool branchiopod habitat (e.g., vernal pools, seasonal wetlands) will be performed under dry site conditions, to the extent feasible. If project proponents believe projects must be conducted outside of these work windows due to site specific or other constraints, project proponents may propose alternate work periods for review and approval by the agency(ies).
  - **Work Restrictions During Wet Season.** Work should be planned for the dry season whenever possible. If the proponent determines that construction

- activities must occur outside of the dry season, Environmentally Sensitive Area fencing and erosion control materials will be placed around vernal pools and other seasonal wetlands, as determined by the agency-approved biologist, to avoid sedimentation into vernal pool habitat or altering site hydrology. If project proponents believe projects must be conducted outside of these work windows due to site specific or other constraints, project proponents may propose alternate work periods for review and approval by the agency(ies).
- *Biological Monitor:* Agency-approved biologist will monitor construction activities.
  - *Erosion Control:* Any vernal pool, vernal pool grassland, or seasonal wetland will be protected from siltation and potentially contaminated runoff from construction equipment by use of erosion control measures.
  - *Dust Control.* Dust control measures will be implemented to prevent the transport of soil from exposed surfaces to vernal pool, swale, and rock pool habitat.
- ◆ **Ground Disturbance within Vernal Pools.** If the intent of a proposed project is to improve habitat for special-status vernal pool branchiopods (e.g., enlarge, deepen, repair, or otherwise modify suitable aquatic habitat), and would require ground disturbance within suitable habitat, the project proponent will submit detailed project design information for review and approval by the agency(ies). Any ground disturbing activities within 25 feet of the edge of the pool will be conducted consistent with a plan reviewed and approved by the agency(ies), and will be conducted during the dry season. The following measures may also apply and should be considered during development of the plan that will be submitted to the agency(ies):
- If inoculum from an existing site will be used for restoration/enhancement, the plan will identify any proposed donor pools and include documentation that they are free of versatile fairy shrimp (*Branchinecta lindahli*). No more than 5 percent of the basin area of any donor pool will be used for collection of inoculum.
  - Restoration plans that include grading or re-grading of vernal pools will include all final specifications and topographic-based grading, planting, and watering plans for the vernal pools, watersheds and surrounding uplands (including adjacent mima mounds) at the restoration sites. The grading plans will also show the watersheds of extant vernal pools, and overflow pathways that hydrologically connect the restored pools in a way that mimics natural vernal pool complex topography/hydrology.
  - Restoration plans that include grading or re-grading of vernal pools will include a hydraulic analysis that shows each proposed vernal pool and its watershed, and a calculation showing vernal pool to watershed ratio. The

vernal pool to watershed ratio will be similar to extant pools closest to the restoration area.

- Prior to ground disturbance within suitable habitat, loose substrate, which may include branchiopod cysts, will be collected from the pool area to be disturbed by vacuum and stored in dry conditions until grading is complete.
- Topsoil will be removed and stockpiled separately.
- Disturbance of the less permeable, hardpan or claypan soil layer that often helps form vernal pools will be minimized. If the less permeable layer must be removed it will be stockpiled separately.
- When grading is complete, layers will be replaced in the reverse order, relative to removal, beginning with subsoil, followed by the less permeable layer, then topsoil, and then loose material collected by vacuum. Subsoil and less permeable layers should each be compacted following placement to decrease permeability of restored or modified suitable habitat.

***INVERT-3: Implement Valley Elderberry Longhorn Beetle Protocol.*** Implement the following measures for projects that include suitable habitat that could be occupied by valley elderberry longhorn beetle (VELB), as applicable.

- ◆ For the VELB, the project proponent will be required to follow the Protection Measures presented in the *May 2017 FWS Framework for Assessing Impacts to the Valley Elderberry Longhorn Beetle* or the most updated version of this guideline document (USFWS 2017).

***INVERT-4: Implement Butterfly Protection Measures.*** The following general butterfly protection measures apply to all special-status butterfly species and their habitat, as applicable.

- ◆ *Site Restrictions:* Access routes, staging areas, and total project footprint within butterfly habitat will be limited to the minimum necessary to achieve the project goal.
- ◆ *Biological Monitor:* Biological monitoring will be overseen by an agency-approved biologist. During the adult flight season of special-status butterfly species, an /agency-approved biologist will be present when construction activities occur in or within 150 feet of suitable habitat (dispersal habitat as well as areas containing the larval host plant and adult food plants).
- ◆ *Environmentally Sensitive Areas:* Any larval food or host plants found within 300 feet of the project footprint will be clearly marked and will be avoided to the maximum extent practicable. Prior to any ground-disturbing or vegetation removal activities, the edge of the work area near any larval food or host plants will be clearly marked to prevent workers and vehicles from entering this area.
- ◆ *Dust Control:* The agency-approved biologist will ensure that dust is controlled by construction personnel by periodically watering down areas within 100 feet of special-status butterfly habitat, as necessary. Watering down the construction

area will prevent dirt from becoming air borne and accumulating on larval host plants and adult food source plants for special-status butterflies.

## F.2.7 Fish – Guild Protection Measures

The general fish protection measures described in this section apply to all special-status fish, as applicable and appropriate for a project site (i.e., the project site is within the range and has suitable habitat for special-status fish or they have been observed).

***FISH-1: Habitat Disturbance Avoidance and Minimization.*** Disturbance to aquatic habitat for special-status fish species will be avoided and/or minimized to the maximum extent practicable unless the purpose of the project is to provide overall benefits to the species and the benefits are greater than any temporary impacts to habitat.

***FISH-2: Habitat Assessment and Surveys.*** For projects that may result in impacts to aquatic habitat within the range of special-status fish species, no less than 30 days prior to construction of the project, the project proponent will evaluate the potential for special-status fish species to be present in the project area. The evaluation may be based on existing information if sufficiently available, or the project proponent may conduct a habitat assessment or focused survey for those species, if appropriate. The habitat assessment and/or survey will be conducted in potentially suitable aquatic habitat within 300 feet of the project area. The agency-approved biologist will conduct the habitat assessment and/or fish survey and will adhere to the standards provided in the CDFW *California Salmonid Stream Habitat Restoration Manual 4th Edition Volume I: Section IV* (CDFW 2010) or most current regulatory agency guidance document. If special-status fish species are observed during the survey or the habitat is otherwise potentially occupied, based on the results of the habitat assessment or existing information, the project proponent will implement *FISH-3, Fish Capture and Relocation*, as described below.

***FISH-3: Fish Capture and Relocation.*** For projects that require dewatering or other work in suitable habitat for the special-status fish species, if fish capture and relocation would be the most protective approach to managing fish during construction, then a fish capture and relocation plan will be developed and submitted to NMFS, USFWS, and/or CDFW, as applicable, for approval. The plan will describe the biologist qualifications, capture methods, capture and relocation work areas, and reporting requirements including details in the list below. If capture and relocation is not feasible or would not be the most protective approach to managing fish in the work area (e.g., if dewatering is not needed or appropriate; or if fish are in a large, unconfined water body), other methods to protect covered fish species (e.g., timing restrictions around season and tide, or bubble curtains) should be detailed in a plan and submitted to FWS for approval.

- ◆ This plan will incorporate the latest agency guidance relating to the capture and relocation of fish, as applicable.
- ◆ Procedures for decontamination of any equipment used in the capture and relocation of fish will be identified.

- ◆ Prior to the implementation of capture and relocation activities, relocation (or release) sites will be identified by the agency-approved biologist based on proximity, access, habitat suitability, and potential to be affected by construction-related disturbance. Suitable habitat for relocation site(s) will be within the same watershed/sub-watershed fish were originally captured.
- ◆ Fish relocation will only be conducted (or led) by an agency-approved biologist. If an agency-approved biologist is needed, the project proponent will submit the biologist's qualifications to the appropriate agency office for approval 30 days prior to project construction. The biologist will have knowledge and experience in fish biology and ecology, fish/habitat relationships, and biological monitoring, and handling, collecting, and relocating fish or other relevant experience.
- ◆ Residual surface water associated with the diverted or dewatered habitat will be monitored or sampled for the presence of fish by an agency-approved biologist as soon as the waters are isolated. If a special-status fish is observed in the isolated habitat, they will be immediately captured and relocated to the suitable habitat outside of the construction area, but within the same watershed/sub-watershed, by the agency-approved biologist in accordance with the approved fish capture and relocation plan.
- ◆ The agency-approved biologist will relocate any special-status fish species that may become stranded to an appropriate place depending upon the life stage of the fish, consistent with the approved rescue and relocation plan.
- ◆ The agency-approved biologist will note the number of individuals observed in the affected area, the number of individuals relocated, the approximate size of individuals, the location of capture and release, any instances of injury or mortality, and the date and time of the collection and relocation. The agency-approved biologist will also identify and record the species observed and relocated and the life stage for anadromous species. This information will be reported to the appropriate agency office within 7 days of completion of the fish capture and relocation effort.
- ◆ One or more of the following methods will be used to capture protected fish species: electrofishing, dip net, seine, throw net, minnow trap, and hand capture.

***FISH-4: Reporting.*** An agency-approved biologist will provide a written summary of work performed (including biological survey and monitoring results), protection measures implemented (e.g., use of biological monitor, flagging of work areas, erosion and sedimentation controls) and supporting photographs of each stage to the appropriate agency office. Furthermore, the documentation describing surveys and relocation efforts (if appropriate) will be completed in accordance with the requirements of *FISH-3: Fish Capture and Relocation*.

## F.2.8 Plant Species Protection Measures

The general plant species protection measures described in this section apply to all special-status plant species, as appropriate.

**PLANT-1: Habitat Assessment and Surveys.** If the project area can potentially support special-status plant species, an agency-approved biologist will conduct a survey for special-status plant species within 1 year prior to commencement of ground-disturbing activities. Surveys should follow USFWS’s *General Rare Plant Survey Guidelines* (USFWS 2002); and CDFW’s *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities* (2018) or their most recent equivalents.

**PLANT-2: Seasonal Avoidance of Vernal Pool Plant Species and Other Annual and Perennial Species:**

- ◆ *For Vernal Pool Plant Species:* Work within 250 feet of suitable special-status vernal pool plant habitat (e.g., vernal pools, seasonal wetlands) will be performed under dry site conditions to the maximum extent possible, to minimize potential adverse impacts to aquatic habitats. If any construction activities must occur during the wet period, exclusion fencing and erosion control materials will be placed around vernal pools and other seasonal wetlands as determined by the agency-approved biologist to reduce sedimentation into vernal pool habitat. The fencing will provide a buffer between construction activities and the vernal pools and other seasonal wetlands. The agency-approved biologist will oversee, monitor, inspect and maintain the exclusion fencing.
- ◆ *For Other Annual Plant Species:* To avoid impacts to other annual species, schedule work to occur after plants have set seed and senesced, avoid soil disturbance, and avoid actions that have potential to reduce habitat quality.

**PLANT-3: Exclusion Buffer Establishment.** An agency-approved biologist will clearly delineate with flagging or other field markers a minimum 50-foot avoidance buffer around all special-status plants or their suitable habitat. A larger exclusion buffer may be established if determined by the agency-approved biologist to be necessary for the protection of the special-status plants. No work activity will occur within the exclusion buffer, except as permitted under Measure *PLANT-4, Work Restrictions in the Exclusion Buffer*. Additionally, a buffer of at least 300 feet from any vernal pool, vernal pool grassland, or seasonal wetland will be established for the protection of special status plants.

**PLANT-4: Work Restrictions in the Exclusion Buffer.** If agency-approved biologist determines that some work activities can take place within the exclusion buffer described in Measure PLANT-3 without causing any adverse direct or indirect impacts to special-status plants identified for avoidance, those approved work activities may be conducted within the exclusion buffer. Special-status vernal pool plants will be clearly marked by an agency-approved biologist prior to worker entry into the exclusion buffer. Workers may only enter the exclusion buffer when accompanied by an agency-

approved biologist, and all work within the exclusion buffer will be monitored by an agency-approved biologist.

***PLANT-5: Biological Monitoring.*** An agency-approved biologist will monitor all construction activities, and also within the buffers established under *PLANT-3, Exclusion Buffer Establishment*. Any non-disturbance exclusion zones will be established, maintained and monitored. The biologist will ensure that loss of special-status plants or destruction of their habitat does not occur outside of the project footprint.

***PLANT-6: Herbicide Application, Clearing, and Ground Disturbance.*** If mechanical removal is not effective, or could damage sensitive habitats, limited herbicide application may occur as noted below and in accordance with General Protection Measures VHDR-6 through VHDR-8 (PDEIR Appendix E), wind speed limitations during herbicide application.

- ◆ To avoid impacts to other special-status species (non-vernal pool species), the following protections will be applied:
  - Application of herbicide will occur during dry conditions (no precipitation), to the maximum extent practicable.
  - Backpack and hand-held herbicide application, if applied in dry conditions, is prohibited within 5 feet of any special-status plant. Protect special-status plants from herbicide drift (e.g., cover with plastic when spraying or use a wick applicator).
  - Broadcast and power spray herbicide application is prohibited; and
  - Ground disturbing activities are prohibited within 5 feet of senesced annual and perennial plants and within 10 feet of perennial plants. Ground disturbance should occur outside of the dripline of any woody species identified for avoidance.

## F.3 References

- California Department of Fish and Wildlife (CDFW). 2001. *Fish Screening Criteria*. Available: [http://www.fgc.ca.gov/regulations/2008/749\\_3EXHIBIT%20A.pdf](http://www.fgc.ca.gov/regulations/2008/749_3EXHIBIT%20A.pdf).
- CDFW. 2010. *California Salmonid Stream Habitat Restoration Manual 4th Edition Volume I: Section IV*. Available: <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=22610&inline>.
- CDFW. 2016. California Department of Fish and Wildlife, *Aquatic Invasive Species Disinfection/Decontamination Protocols*. February. Available: <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=92821&inline>. Accessed August 2019.
- CDFW. 2018. Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities. State of California, California Natural Resources Agency, Department of Fish and Wildlife, March 20. Available: <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=18959&inline>.
- National Marine Fisheries Service (NMFS). 1997. *Fish Screening Criteria for Anadromous Salmonids*. Available: National Marine Fisheries Service, Southwest Region.
- U.S. Fish and Wildlife Service (USFWS). 2002. *General Rare Plant Survey Guidelines*. Available: [https://www.fws.gov/sacramento/es/Survey-Protocols-Guidelines/Documents/rare\\_plant\\_protocol.pdf](https://www.fws.gov/sacramento/es/Survey-Protocols-Guidelines/Documents/rare_plant_protocol.pdf).
- USFWS. 2017. *Framework for Assessing Impacts to the Valley Elderberry Longhorn Beetle* (*Desmocerus californicus dimorphus*). U.S. Fish and Wildlife Service; Sacramento, California. 28 pp. Available: [https://www.fws.gov/sacramento/documents/VELB\\_Framework.pdf](https://www.fws.gov/sacramento/documents/VELB_Framework.pdf).