Appendix B

The U.S. Fish and Wildlife Service (Service) consulted on the Federal Emergency Management Agency's (FEMA) Disaster, Mitigation, and Preparedness Programs in California within the jurisdiction of the Ventura Fish and Wildlife Office (VFWO) and its effects on federally listed species and critical habitat, in accordance with section 7 of the Endangered Species Act of 1973, as amended (Act) (16 U.S.C. 1531 et seq.). FEMA provided these conservation measures as part of the programmatic biological assessment[1] (PBA) for the programmatic consultation. Implementation of the following conservation measures is required in order for any specific project activity to be considered under the programmatic concurrence provided in the accompanying document. For any actions where FEMA or its Subapplicants are unable to implement the following measures, FEMA must submit the project for separate section 7 consultation as the effects to listed species or their designated critical habitat outside the scope of these conservation measures have not been assessed or analyzed.

Conservation Measures for California Least Tern (*Sterna antillarum browni*) and Light-Footed Ridgway's Rail (*Rallus longirostris levipes*)

1. To avoid the nesting season of the California least tern, project activity in occupied habitat will be allowed from September 30 - March 31. Occupied habitat for this species is well documented online. 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 decibels hourly Leq.
2. A habitat assessment will be conducted by a biologist to determine whether suitable habitat (including foraging, nesting, and dispersal) for the light-footed Ridway'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 Ridway's rail, the VFWO will be contacted regarding the need for additional surveys and those surveys will be conducted, as appropriate. Otherwise, if the VFWO agrees, the species will be assumed to be present in areas with suitable habitat.
3. To avoid the nesting season of the light-footed Ridway'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 decibels hourly Leq.
4. A Service-approved biologist will monitor all construction activities within occupied habitat to ensure that no take 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.
5. 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

[1] The measures in the PBA are part of a state-wide consultation. The measures were created by different Service offices in collaboration with FEMA. For consistency with the state-wide programmatic, we have kept the numbering system reflective of the PBA even though it is not consistent within this appendix.

augers. Tools will be washed prior to use in these habitats to reduce the potential for spread of non-native and invasive plant species and their seeds. No heavy equipment will be allowed within suitable nesting habitats.

6. 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 would be allowed within occupied habitat either.
7. 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.
8. 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.
9. 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.
10. 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.
11. At the conclusion of the project, areas temporarily affected by project activity will be restored to their pre-project condition (e.g. footpaths will be raked to their original ground contour and native vegetation will be reestablished, if necessary).
12. 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.
13. 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.

Conservation Measures for Contra Costa goldfields (*Lasthenia conjugens*)

To avoid and minimize potential adverse effects to the vernal pool plants, the measures listed below will be implemented in the project footprint where suitable listed branchiopod habitat (e.g., vernal pools, seasonal wetlands) occurs and the species have potential to occur.

Vernal Pools

1. If possible, prior to construction activities, the Service-approved biologist will conduct protocol-level bloom-season plant surveys in seasonally inundated habitats (seasonal wetland, non-inundated wetlands) within the project footprint. If any listed vernal pool plant species are found during the surveys, the Service-approved biologist will submit a

report to the Service within 1 month of completing the field work. The report will provide results of all surveys, a summary of all the data collected, and the habitat assessment. Information regarding the location of listed plant populations will be provided to CDFW's California Natural Diversity Database (CNNDB) according to their reporting protocols. If surveys are not possible, then listed vernal pool species presence will be assumed on all suitable habitats within the Action Area.

2. Flagging or other field markers identifying the plants, or in the event protocol-level surveys were not conducted – the suitable habitat, will be placed prior to each work event and removed after that work event is completed for all phases of the proposed project.
3. A Service-approved biologist will monitor all construction activities within 250 feet of suitable habitat for listed vernal pool plants to ensure that no unnecessary loss or destruction of habitat occurs.
4. A Service-approved biologist will delineate a 50-foot avoidance buffer around all listed plants or their suitable habitat. The non-disturbance exclusion zones will be established, maintained and monitored by a Service approved biological monitor to ensure that loss of listed vernal pool plants or destruction of their habitat does not occur outside of the project footprint where suitable habitat (e.g., vernal pools, seasonal wetlands) occurs and the species have potential to occur.
5. Work within 250 feet of suitable listed vernal pool plant habitat (e.g., vernal pools, seasonal wetlands) will be performed between June 1 and October 15 under dry site conditions to the maximum extent possible to minimize potential adverse impacts to aquatic habitats.
6. A Service-approved project biologist will flag or monitor all operations and maintenance work during the *dry season* (generally June 1 to October 15) within 250 feet of a vernal pool, vernal pool grassland, or seasonal wetland. The following buffers will be enforced:
    a. Hand-held herbicide application is prohibited within the pool or at the edge of the pool;
    b. Power spray herbicide application is prohibited within 100 feet of the edge of the pool;
    c. Broadcast herbicide application is prohibited within 150 feet of the edge of the pool; and
    d. Ground-disturbing activities are prohibited within 25 feet of the edge of the pool.
7. If any construction activities remain and must occur during the October 15 - June 1 *wet period*, exclusion fencing and erosion control materials will be placed around the vernal pools and other seasonal wetlands as determined by the Service-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 Service approved biologist will erect and maintain the exclusion fencing.
8. Any vernal pool, vernal pool grassland, or seasonal wetland will be protected from siltation and contaminant runoff by use of erosion control.
9. Erosion-control materials will be of a tightly woven natural fiber netting or similar material that will not entrap reptiles and amphibians (e.g., coconut coir matting). No micro-filament netting will be used.
10. 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.

11. Dust control measures will be implemented 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.
12. A Service-approved biologist will flag or monitor all operations and maintenance work during the *wet season* (generally October 1 to June 1) within 150 feet of a vernal pool, vernal pool grassland, or seasonal wetland. The following buffers will be enforced:
    a. Hand-held herbicide application is prohibited within 25 feet of the edge of the pool;
    b. Power spray herbicide application is prohibited within 100 feet of the edge of the pool;
    c. Broadcast herbicide application is prohibited within 150 feet of the edge of the pool;
    d. Manual clearing of vegetation is prohibited at the pool or beyond the edge;
    e. Mechanical clearing of vegetation is prohibited within 100 feet of the edge of the pool; and
    f. Ground-disturbing activities are prohibited within 50 feet of the edge of the pool.
13. A buffer of at least 300 feet from any vernal pool, vernal pool grassland, or seasonal wetland will be established for the following:
    a. Staging areas of all equipment for storage, fueling, and maintenance with hazardous material absorbent pads available in the event of a spill; and
    b. Mixing of pesticides, herbicides, or other potentially toxic chemicals.
14. Vehicles will be inspected daily for fluid leaks before leaving a staging area.
15. Routine maintenance activities within 250 feet of vernal pool and swale habitat will be avoided to the maximum extent possible.
16. When restoring upland areas to pre-project condition, native plants will be used to the maximum extent practicable.
17. To minimize the introduction of invasive plant species, construction vehicles will be cleaned prior to entering any vernal pool habitat.

Conservation Measures for Marbled murrelet (*Brachyramphus marmoratus*)

(a) Occupied Habitat

If marbled murrelet surveys (using the Service 2003 survey protocol; Evans Mack *et al.* 2003) determine[2] that the Action Area is occupied **or** if FEMA or the Service presumes marbled murrelet occupancy without conducting surveys, the project Subapplicant will adhere to the following Conservation Measures:

i. Vegetation Removal or Alteration of Known or Potential Nest Trees:
    a. No potential marbled murrelet nest trees[3] will be removed during the nesting season (March 24 to September 15).

[2] Surveyors are required to meet or exceed all training recommendations in Evans Mack et al. (2003), and be registered as qualified surveyors on a current Service 10(a)1(b) Recovery Permit.

[3] Potential habitat defined by Nelson et al. (2003) as: (1) mature (with or without an oldgrowth component) and old-growth coniferous forests; and (2) younger coniferous forests that have platforms (relatively flat, at least 4-inch diameter and at least 33 feet above the base of the live crown of a coniferous tree). Platform presence is more important that tree size.

b. Avoid removing or damaging known or potential nest trees, unless they are a confirmed safety hazard. For sites that have not been surveyed according to 2003 survey protocol, potential habitat is defined as (1) mature (with or without an old-growth component) and old growth coniferous forests; **and** (2) younger coniferous forest that have platforms.
c. Avoid removing or damaging trees with potential nesting platforms. A platform is a relatively flat surface at least 10 centimeters (4 inches) in diameter and 10 meters (33 feet) in height in the live crown of a coniferous tree. Platforms can be created by a wide bare branch, moss or lichen covering a branch, mistletoe, witches brooms, or other deformities, or structures such as squirrel nests.
d. Project activities will not remove the function of suitable nesting habitat.
    - While habitat elements may be removed, such as individual large trees if they are a confirmed safety hazard, from nesting habitat, the treatment must not be so extensive as to remove the overall function of the nesting habitat, and will be conducted outside of the nesting season.
e. Non-suitable nest trees or limb trimming or pruning, brush trimming or removal, and hazard tree felling within suitable habitat may occur outside of the nesting season, September 16 to March 23.

ii. Auditory, Visual, or Other Disturbance:

a. Construction equipment must be in good working order, with emphasis on hydraulic and noise abatement systems. Hydraulic leakage and damaged mufflers (or spark arresters) must be promptly addressed and remedied to the degree practicable.
b. No proposed activity generating sound levels 20 or more decibels above ambient sound levels **or** with maximum sound levels (ambient sound levels plus activity-generated sound levels) above 90 decibels (excluding vehicle back-up alarms) may occur within suitable marbled murrelet nesting habitat during the majority of the murrelet nesting season (*i.e.,* March 24 to August 5)
c. Between August 6 (date when most marbled murrelets have fledged in coastal northern California) and September 15 (end of marbled murrelet nesting season) of any year, project activities, with adjacent suitable nesting habitat, that will generate sound levels greater than or equal to 10 decibels above ambient sound levels will observe a daily work window beginning 2 hours post-sunrise and ending 2 hours pre-sunset. However, prep work that does not generate sound levels above ambient sound levels, including street sweeping and manual removal of pavement markers, can occur during all hours. The need for this daily work window depends on the distance between suitable nesting habitat and the above-ambient sound generating activity following the Service guidelines (Service 2006). For example, if above-ambient sound levels generated by proposed activities will become attenuated back down to ambient sound levels prior to reaching suitable nesting habitat, the daily work window would not be necessary.
d. No human activities will occur within visual line-of-sight of 40 meters (131 feet) or less from a known nest or suitable nest tree during the nesting season (March 24 to September 15) (Service 2006).

(b) Unoccupied Habitat

(i) If recent protocol surveys determine that all suitable marbled murrelet nesting habitat within the Action Area is considered unoccupied, the auditory, visual, and other disturbance measures listed above under iii) do not apply for habitat determined to be unoccupied.

(c) Marbled Murrelet Critical Habitat

(i) Ensure that there are no "adverse effects" to designated critical habitat for marbled murre+let within the Action Area. However, the Service has no specific quantitative thresholds, above which there would likely be an adverse effect to critical habitat. If a Subapplicant's proposed project encounters this situation, contact the Service to determine whether proposed habitat removal within designated critical habitat would constitute an adverse effect. Generally, the removal of a few small trees in unoccupied habitat would not result in adverse effect" on designated critical habitat.

(ii) When working in designated critical habitat for marbled murrelet, all measures described in Items (a) Occupied Habitat, or (b) Unoccupied Habitat for reducing impacts in suitable habitat will also be implemented. This will help reduce effects, and may result in some instances in effects that are insignificant and discountable.

Literature Cited

Evans Mack, D., W. P. Ritchie, S. K. Nelson, E. Kuo-Harrison, P. Harrison, and T. E. Hamer 2003. Methods for surveying Marbled Murrelets in forests: a revised protocol for land management and research. Pacific Seabird Group unpublished document available at: http://www.pacificseabirdgroup.org.

Service 2006. Estimating the effects of auditory and visual disturbance to northern spotted owls and marbled murrelets in northwestern California. Available at: http://www.fws.gov/arcata/es/birds/NSO/ns_owl.html.

Conservation Measures for 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.

(a) 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.

(b) 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.

(c) 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:

1. Use spill-resistant fuel and lubricant containers;
2. Consider the use of a portable containment pad for re-fueling in the field;
3. 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
4. Clearly mark the location and/or boundaries of the spill site to enable rapid remedial action.

(d) If project construction activities occur in adjacent to, but not within suitable nesting habitat, then project activities should be conducted during the species non-breeding season, if possible. If nonbreeding 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.

(e) 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.

(f) 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.

(g) 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.

(h) Vehicles used for transport of personnel will be restricted to existing parking lots or roadside parking areas.

(i) 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).

(j) 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.

(k) Pets will be prohibited from all work sites.

Conservation measures for Riverside fairy shrimp

The following conservation measures apply to any suitable Riverside fairy shrimp habitat within the VFWO's jurisdiction. For the purposes of this PBO, suitable fairy shrimp habitat includes the basin/inundation feature where fairy shrimp and/or resting eggs would be found, and the area of the watershed needed to support the feature(s).

1. Prior to any site disturbance (e.g., vegetation removal, soil disturbance) in suitable fairy shrimp habitat or initiation of construction activities, a VFWO-approved biologist with demonstrable experience with the diversity of habitat types in which listed branchiopod species can occur will conduct a habitat assessment survey. The intent of this survey is to provide information regarding the likelihood that potential habitat for one or more of the three listed branchiopod species is present within, or immediately adjacent to, the project footprint. As part of this assessment, if inundated features are present, their quality and

suitability for occupation by one or more of these species will be included. If, based on the results of the habitat assessment, species presence is likely, FEMA or the project applicant will contact the Ventura Fish and Wildlife Office (VFWO) regarding the need for surveys according to current Service guidance. Modification to this guidance may be allowed if pre-approved by the VFWO. If it is not feasible to conduct surveys, the species presence will be assumed for all suitable habitat in the project area.

2. Any projects that have the potential to result in adverse effects to Critical habitat units 1a and 1b designated for Riverside fairy shrimp in Ventura County are not included in this concurrence and will require separate consultation.
3. Impacts to basin/inundation areas known or presumed occupied by one or more of the species and likely to contain resting eggs will be avoided.
4. Impacts to watershed areas that support occupied or presumed occupied basin/inundation features will be avoided to the maximum extent possible. If avoidance is not possible, the following measures will be implemented as applicable.
5. Disturbance exclusion zones will be established, maintained, and monitored by a VFWO-approved biologist to ensure that impacts to basin/inundation features watershed, and/or critical habitat do not extend beyond the identified project footprint.
6. A VFWO-approved biologist will monitor all site preparation (e.g., soil disturbance, vegetation removal) and/or construction activities within 250 feet of fairy shrimp habitat to ensure that there are no impacts to either inundation feature/basin. No permanent impacts to fairy shrimp habitat will occur. Actions that result in permanent alteration of the hydrology that supports inundation/basin features (e.g., construction of culverts, v-ditches, berms, roads, will could divert flows) must be avoided as they have not been analyzed and are not addressed in this programmatic consultation.
7. All equipment storage, fueling, cleaning, maintenance, and mixing of pesticides, herbicides, or other potentially toxic chemicals is restricted to an area at least 300 feet from any basin/inundation features. Hazardous material absorbent pads must be present onsite and made easily accessible in the event of a spill.
8. To the maximum extent possible, site preparation and construction activities will be restricted to the dry season (generally considered to be between June 1 and October 15) and occur only under conditions when soil is dry to the touch at the surface and to a depth of 2.5 cm (1 in.). The Service may approve modifications to this timing on a case-by-case basis. The following measures will be established and enforced:
   (a) There will be no soil disturbing activities or herbicide application in a basin/inundation feature or within 25 feet of such a feature;
   (b) There will be no held herbicide application within 50 feet of a basin/inundation feature;
   (c) There will be no power spray herbicide application within 100 feet of a basin/inundation feature; and
   (d) There will be no broadcast herbicide application within 150 feet of a basin/inundation feature.
9. If it is not possible to restrict site preparation and/or construction activities to the dry season, the following measures will be established and enforced:
   (a) A VFWO-approved biologist will monitor all site preparation, construction, and/or maintenance activities to occur within 150 feet of a basin/inundation feature.

(b) Exclusion fencing and erosion control materials will be installed under the supervision of a VFWO-approved biologist to prevent the discharge of sediment into basin/inundation features
(c) There will be no soil disturbing activities or manual clearing of vegetation in or within 50 feet of a basin/inundation feature;
(d) There will be no mechanical clearing of vegetation within 100 feet of a basin/inundation feature;
(e) There will be no hand-held herbicide application within 25 feet of the edge of a basin/inundation feature; and
(f) There will be no power spray or broadcast herbicide application within 150 feet of a basin/inundation feature.

10. The following practices will be implemented within or immediately adjacent to fairy shrimp habitat:
    (a) Implementation of erosion control measures that will protect basin/inundation features from siltation and contaminant runoff. Erosion-control materials will be composed of a tightly woven natural fiber netting or similar material that will not entrap other wildlife species.
    (b) Erosion control materials cannot be comprised of plastic or microfilament netting and all fiber rolls and hay bales used for erosion control must be certified as free of noxious weed seed.
    (c) There will be no application of water (e.g., for dust suppression) within 100 feet of a basin/inundation feature without the use of additional protective measures (e.g., barriers and/or use of low flow water truck nozzles) to keep this type of water out of these features.
    (d) All refueling, maintenance, and staging of equipment and vehicles is restricted to those areas specifically designed to contain any spills. These activities will not occur in any location where spill materials could drain towards a basin/inundation feature.
    (e) Vehicles will be inspected daily for fluid leaks before leaving a staging area.
11. The VFWO-approved biologist will ensure that the spread or introduction of invasive nonnative plant species, via introduction by arriving vehicles, equipment, imported gravel, and other materials, is avoided to the maximum extent possible. Construction vehicles will be certified clean prior to any work within 150 feet of fairy shrimp habitat to minimize the introduction of invasive nonnative plant species, As practicable, nonnative plant species present within the project area will be removed from the site. Disposal will be in a manner that will not promote their spread to other areas. Invasive nonnative species are those identified in the California Invasive Plant Council's (Cal-IPC) Inventory Database, accessible at: www.cal-ipc.org/ip/inventory/index.php.
12. Restoration of temporary impacts to topography and vegetation will occur in accordance with a restoration plan reviewed and approved by the VFWO prior to the initiation of project activities. Plant species used in revegetation efforts will consist of native species suitable for the area. Locally collected plant materials will be used to the extent practicable.