United States Department of the Interior

FISH AND WILDLIFE SERVICE
Ventura Fish and Wildlife Office
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IN REPLY REFER TO:
81440-2010-F-0317

August 18, 2010

Jane M. Hicks, Chief
Regulatory Division
U.S. Army Corps of Engineers, San Francisco District
1455 Market Street
San Francisco, California 94103-1398

Subject: Renewal of Biological Opinion for the Regional General Permit for River Maintenance and Restoration on the Carmel River, Monterey County, California (File Number 24460S) (8-8-10-F-46)

Dear Ms. Hicks:

This document transmits the U.S. Fish and Wildlife Service's (Service) biological opinion based on our review of the U.S. Army Corps of Engineers' (Corps) proposed Renewal of Regional General Permit (RGP) No. 24460S, Carmel River Maintenance and Restoration Projects, Monterey County, California, pursuant to section 404 of the Federal Clean Water Act. At issue are the effects of the proposed authorization on the federally threatened California red-legged frog (*Rana draytonii*) and its designated critical habitat (75 Federal Register (FR) 12815). This document was prepared in accordance with section 7(a)(2) of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.) (Act). Your request for formal consultation was received on June 1, 2010.

This biological opinion is based on the Project Description for Renewal of Department of the Army Regional General Permit No. 24460S Carmel River Maintenance and Restoration Projects Monterey County, California (MPWMD 2010) which was submitted to the Corps by the Monterey Peninsula Water Management District (MPWMD), and information in our files. A complete administrative record of this consultation is on file in the Service's Ventura Fish and Wildlife Office.

BIOLOGICAL OPINION

DESCRIPTION OF THE PROPOSED ACTION

MPWMD requests renewal of RGP 24460S from the Corps for a 5-year period to facilitate routine maintenance and restoration activities within an 18.6-mile segment of the Carmel River from the Carmel River lagoon at River Mile (RM) 0.0 to the San Clemente Dam at RM 18.6, but not including the dam. The original limits of RGP 24460S were from RM 1.1 (Highway 1) to RM 18.6 and the MPWMD is currently proposing to carry out vegetation management activities downstream of RM 1.1. The area downstream of RM 1.1 is located in the California Coastal Zone and stream-bank maintenance involving grading or alteration of the river channel are not being proposed. MPWMD is also seeking re-authorization from the Corps to act as an administrator for the RGP on behalf of the Corps for projects conducted along the Carmel River by other parties, including private property owners, public and private entities, and non-profit organizations.

The objectives of the proposed activities are to restore and maintain bank stability and channel meanders in unstable areas, prevent resource degradation, and to re-establish or enhance riparian resources. The RGP would continue to simplify and streamline the permitting process for project sponsors that are interested in carrying out the following types of activities:

- Installing limited erosion protection in unstable, degraded areas;
- Channel restoration in unstable areas;
- Reestablishing riparian vegetation along stream banks and adjacent areas;
- Fisheries enhancement projects;
- California red-legged frog enhancement projects:
- Limited removal of vegetation and debris from the active channel;
- Maintenance or repairs of previously authorized restoration projects (prior to issuance of RGP 24460S and projects completed under RGP 24460S); and
- Lowering or removal of levees.

MPWMD would be responsible for the preparation of annual notification/compliance reports. These reports would contain information on all projects constructed under the RGP. Prior to carrying out activities in the channel, MPWMD would prepare project descriptions, schedules, maps, pre-construction photos, and habitat evaluations. During project implementation MPWMD would inspect the project area for compliance with RGP conditions and would provide post construction evaluation for compliance with the RGP.

Three basic types of activities are proposed: 1) restoration projects requiring heavy construction equipment to restore channel geometry and repair stream-banks; 2) vegetation management and project maintenance carried out primarily with hand tools; and, 3) enhancement projects requiring some heavy equipment such as for vegetation planting or spawning gravel injection.

The annual maximum scope of work proposed under this RGP would limit MPWMD-sponsored restoration projects to a total of 0.5 mile of stream length, and other sponsored projects would be limited to a total of 0.2 mile of stream channel per year for a maximum of about 0.7 mile of stream affected annually. California red-legged frog enhancement projects and the lowering and removal of levees were activities not included in the original RGP 24460S request. These activities are currently proposed for this RGP renewal and under this RGP there would be no limit to the dimensions of California red-legged frog enhancement projects.

The proposed maintenance and restoration program would consist of the activities described below. Detailed descriptions of proposed actions are included in the permit application package submitted to the Corps by the MPWMD for Carmel River maintenance and restoration projects (2010). Descriptions of management activities are contained in MPWMD's Guidelines for Vegetation Management and the Removal of Deleterious Materials for the Carmel River Riparian Corridor (2003).

Installing Erosion Protection

Excavation and Backfill

Grading of the river banks may be required to re-contour or reduce the slope of the existing bank to 2:1 or flatter. The original RGP allowed 1.5:1 slopes; however, 2:1 slopes or flatter are less likely to fail. In cases where the river bank is being severely undercut or eroded, the toe of the bank may be stabilized by excavation of a toe trench, up to several feet deep, below the adjacent channel bottom and backfilling the trench with rip-rap and/or incorporating a biotechnical method to prevent scour. Material excavated from such trenches would be placed on the stream-banks. Temporary fill for access may be required to allow equipment into the work area. Excavation and fill may be necessary for a temporary flow diversion structure, if necessary. Excavation activities could include the use of a backhoe to dig planting holes for trees and to trench irrigation lines. Prior to the start of channel grading work, salvageable vegetation along the project reach may be removed with mechanized equipment and relocated within the project area. In areas where the banks have been severely eroded, excess channel or gravel bar material may be excavated, stockpiled and used as backfill material. Only material above the level of frequent flows (i.e., the 1.5- to 3.0-year return flow) would be excavated. Fill material required for bank stabilization projects may include rock slope protection, vegetative material and other material such as boulders and logs. Fill material could also include topsoil that would be placed over rip-rap and along graded banks.

Importation of Fill Material

Areas with property loss could be backfilled to a pre-loss configuration. Imported soil would be free of deleterious material and be coarse grained (i.e., have some gravel in it), sandy loam, loamy sand, or sand. Fill material should match, as nearly as possible, the grain size distribution found within the project area. As with excavation and backfill activities, stream-bank areas could be stabilized with structural and/or biotechnical erosion protection in key areas.

Slope Protection

Slope protection may be installed along unstable, degraded areas of banks which have eroded and are causing sediment input into the river or are threatening structures along the riverbank. All bank stabilization projects conducted under RGP 24460S would incorporate bioengineering techniques as the first choice of construction methods. Where bank erosion occurs within 25 feet of public or private infrastructure (including, but not limited to roads, buildings, bridges, and utilities), the use of rip-rap, gabion baskets, or other traditional slope protection may be used. Slope areas adjacent to structures may also be graded at a 1.5:1 slope, if a 2:1 slope is not possible (e.g., due to floodplain regulations that restrict the amount of fill that can be placed within the 100-year floodway). Gabion baskets would be restricted to slope areas higher than 8 feet above the channel bottom. Where structures are not within 25 feet of an erosion site, no more than 8 vertical feet of rip-rap would be used above the channel bottom. The majority of these sites are located on the outside of meander bends, or in areas where bank vegetation has eroded away. Erosion protection installed on these slopes could include biodegradeable erosion control fabric, live plant material, logs, rootwads, or other flexible types of erosion protection. At the outside of bends and in critical erosion areas, a combination of erosion resistant materials, log deflectors, rip-rap, and vegetation would be installed to provide bank protection in case of high flows. Erosion protection installed along the outside of meander bends may consist of granite rip-rap in the 1/4-to 3-ton class, if it is infeasible to install bioengineered structures. This structural protection will eventually blend into vegetation planted on the bank and along the toe of the riverbank. Filter fabrics that act as a barrier to root development would not be allowed while other filtering materials such as biodegradable filters, gravel filters or "backing rock" would be used. One exception would be for slope protection of public or private infrastructure that is within 25 feet of the active channel.

Temporary Diversion Channel

When necessary, in order to divert flow around a work site in areas of perennial flow, a trench would be excavated, usually in a dry portion of the channel bottom, to pass flow around the site. Material excavated from the trench (primarily sand, gravel, and cobble) would be used to divert flow into the excavated trench for the duration of the project. After construction is completed, the diversion berm would be removed and the excavated trench area filled in to pre-existing contours.

<u>Channel Restoration</u>

Excavation and Backfill

Excavation of sand and gravel bars may be carried out to realign the active channel into a more stable configuration. This is a key component of reestablishing meander geometry and recreating low-lying floodplain areas. A low-flow channel capable of carrying dominant or frequent flows (1.5- to 3.0-year events) would be excavated within the channel bottom. For large restoration projects, this activity is frequently combined with installation of erosion protection at

critical areas, such as at the outside of meander bends. In most cases, large equipment such as a front end loader, dump truck, backhoe, bulldozer, or excavator would be used to restore channel geometry to a more stable alignment. Temporary fill for access may be required to allow equipment into the work area. Prior to the start of channel grading work, salvageable vegetation within the project reach may be removed with mechanized equipment and relocated to bank stabilization project areas. Projects normally include excavation of a narrow stable channel, excavation of a pool and riffle sequence after reestablishment of a stream channel, excavation of gravel bar material, and replacement of cobble and gravel material along the channel bottom. During excavation, substrate material would be stockpiled at the beginning of grading and replaced during final grading operations.

Channel Realignment

Channel realignment would begin by scraping off the "upper" layer of the riverbed, which contains the largest proportion of cobbles and gravel. This material would be stockpiled for later use as a finishing layer to promote steelhead (*Oncorhynchus mykiss*) spawning and to form a restraint to bed mobilization. Deleterious material, such as auto parts, various metal objects, and refuse would be hauled away to an appropriate dump site outside Corps jurisdiction. A channel of appropriate dimensions would be graded in the stream bottom. The finished channel would be designed to carry excess sediment stored in point bars located within and upstream of the project. Material excavated from the channel could be used to buttress eroded slopes and to build an active floodplain for vegetation plantings. After completion of this work, a smaller pilot channel would be excavated within the main channel. This pilot channel provides fish passage for migrating steelhead during periods of low flow. Pools are excavated at appropriate intervals (usually five to seven channel widths) to provide areas for migrating steelhead to rest and feed and to provide habitat for California red-legged frogs. In most areas the finished stream bottom will be at or near the elevation of the existing channel bottom. If existing streamside ponds or pools are filled in during channel and floodplain construction, this action would be offset by the creation of new pools and/or low-lying floodplain areas adjacent to the low flow channel.

Reestablishing Riparian Vegetation

Banks and low floodplain terraces would be revegetated with willow, cottonwood, sycamore, box elder, elderberry, and other native riparian species. Special emphasis would be placed on revegetation with plant species which are appropriate for the restored bank or terrace elevation and moisture condition. The integration of top-soil into the slope would assist in the retention of moisture, and provides a more nutrient-rich medium for root development. All graded slopes, including rip-rapped areas, would be revegetated with cuttings or seedlings on a 4- to 7-foot grid. As a component of reestablishing native riparian cover, an irrigation system would be installed (if needed), operated, and maintained for a minimum of 3 years. If feasible, appropriate low-lying areas may be irrigated to provide refugia for wildlife. Weed removal would continue for a minimum of 3 years. MPWMD standards for the Carmel River include replanting of native riparian vegetation in areas that do not achieve a 70 percent success rate by year 3 after initial planting.

Vegetation and Woody Debris Management

Vegetation growth and sediment deposits trapped by vegetation can decrease hydraulic capacity of the river channel and increase the potential for bank erosion and damage to public infrastructure. MPWMD targets only woody plant material representing an erosion threat to stream-banks and public infrastructure. In addition to erosion hazard reduction for property, channel maintenance objectives include removing trash and inorganic debris from the river channel, and maintaining aquatic habitat. These activities would follow MPWMD's Final Guidelines for Vegetation Management and Removal of Deleterious Materials for the Carmel River Riparian Corridor (2003). Streamside plants growing on adjacent riverbanks would not be affected. Vegetation cutting normally would be done by hand crews using hand tools and hand-held power tools. Some cut vegetation would be chipped on the terraces above the riverbank or utilized in MPWMD bank stabilization projects elsewhere along the river. Large wood (defined here as 4 inches or greater in diameter or 3 feet or longer in length) may be modified under certain circumstances, but would be left in the channel.

Maintenance of Previously Authorized Projects

Projects to restore or enhance streamside habitat and the species that depend on this habitat may require maintenance work either to repair flood damage, stabilize a project after initial construction, or maintain the effectiveness of a project. Maintenance work of stream restoration projects normally includes irrigation operation and repair, weed removal, and installation of supplemental plantings. For MPWMD-sponsored projects, MPWMD normally enters into a 10-year agreement with landowners to perform this type of activity. For privately sponsored projects, MPWMD would require maintenance for a 3-year period, which is a generally accepted period for plant establishment. A combination of methods and techniques previously discussed would normally be used in repair work.

Installation of Engineered Large Wood Structures

Engineered large wood would be used to stabilize stream-banks, enhance aquatic habitat, and would be used in areas where the channel is degraded (incised into the floodplain) to help slow degradation. Because the main channel has limited conveyance capacity and there are strict regulations governing the placement of material that could raise flood elevations, engineered wood structures may have limited use. But in some reaches, these would be an appropriate or a desirable alternative to more traditional structural approaches to bank restoration. Most of the avoidance and minimization measures that apply to channel restoration and channel realignment would also apply to installation of large wood in the stream.

Fisheries Habitat Enhancement

Fish habitat enhancement projects include excavation of a pool and riffle sequence after reestablishment of a stream channel, placement of log and boulder groups at erosion protection locations to provide additional habitat, replacement of gravel material along the channel bottom,

flood plain restoration, and revegetation of riparian habitat along the banks of the river. The live plant material, logs, and rootwads incorporated with slope protection, including boulders, would enhance steelhead habitat by providing shelter and cover for juveniles as well as substrate for macro-invertebrates. Spawning gravels may be injected at various locations between Carmel Valley Village and the upstream limit of the RGP. These gravels would be delivered to the channel by dump trucks unloading gravel along the stream-bank and allowing high flows to distribute the gravels downstream. At restoration sites, contractors would be required to skim the top 4- to 12-inch layer of gravel and stockpile it, replacing it back onto the channel bed once the restoration work is completed. This results in the reestablishment of substrate suitable for spawning and macro-invertebrates.

California Red-Legged Frog Habitat Enhancement

California red-legged frog enhancement activities would consist of invasive animal and plant species removal, canopy modifications, vegetation planting, and stream modification. A combination of methods and techniques previously discussed would normally be used in California red-legged frog habitat enhancement projects.

Minimization Measures

The MPWMD will adopt the following minimization measures, which are based primarily on modified terms and conditions provided in biological opinions previously issued to the Corps for projects along the Carmel River and subsequently revised by the MPWMD through coordination with the Corps:

1. Prior to or during submission of projects proposed to be implemented within the following year, the MPWMD will submit to the Service the qualifications of the biologist(s) who will conduct avoidance and minimization activities. Only approved biologists will be authorized to handle California red-legged frogs.

2. For each proposed project, the MPWMD will conduct an assessment of California red-legged frog habitat within the proposed work site according to habitat assessment forms developed by the MPWMD. This assessment will include documentation of incidental observations of California red-legged frogs and the results submitted to the Service along with other project-related information. The habitat assessment will extend a minimum of one pool and riffle sequence up and downstream of the work site (i.e., through the end of the closest pools up and downstream of the work site). The MPWMD will also provide an assessment of potential impacts to habitat from proposed activities.

3. For all project-related construction activities that occur within the channel and floodplain, a Service-approved biologist will survey the work site twice at night and twice in daylight hours using the Service's *Guidance on Site Assessment and Field Surveys for California Red-legged Frogs,* dated February 18, 1997, within 1 week before the onset of activities. The survey will extend a minimum of one pool-riffle sequence up and downstream of the work site. If California red-legged frogs are found, the approved biologist will identify potential translocation sites and will contact the Service to ensure that translocating adults is

appropriate. If the Service approves moving animals, the approved biologist will be allowed sufficient time to move California red-legged frogs from the work site before work activities begin. Only Service-approved biologists will participate in activities associated with the capture, handling, and monitoring of California red-legged frogs. If feasible, the MPWMD will tag translocated animals to evaluate the success of translocation. Tagging methods will not include permanent removal or disfigurement of any parts of the body.

4. Project activities will be completed primarily between July 1 and October 31, with exceptions noted in measure 5 below. For activities proposed to be conducted between July 1 and October 31, the following measures will be taken:

   a. If any California red-legged frogs are observed during pre-construction surveys within a particular work site and translocation is determined to be inappropriate and/or tadpoles are observed, the area will be inspected by a Service-approved biologist for California red-legged frogs daily prior to the onset of activities. If any California red-legged frogs or tadpoles are detected during daily inspections, the approved biologist will delay work activities until they move from harms way or are removed from the work site.

   b. If translocation of California red-legged frogs is determined to be appropriate prior to the onset of construction, a Service-approved biologist will be present at the work site until such time as all removal of California red-legged frogs, instruction of workers, and habitat disturbance have been completed. After this time, the contractor or permittee will designate a person to monitor on-site compliance with all minimization measures. The Service-approved biologist will ensure that this individual receives training outlined in measure 7 below, and in the identification of California red-legged frogs. The monitor and the Service-approved biologist will have the authority to halt any action that might result in impacts that exceed the levels anticipated by the Corps and Service during review of the proposed action. If work is stopped, the Corps and Service will be notified immediately by the Service-approved biologist or on-site biological monitor.

5. Activities that may be completed outside of the proposed July 1 to October 31 work period consist of those described below:

   a. Revegetation of graded areas using construction equipment will be completed within 1 year following project implementation, provided the following measures are taken: (1) work will not occur within or adjacent to the flowing stream or in standing water; (2) existing native vegetation will not be removed or disturbed; (3) a Service-approved biologist will inspect the restoration site for the presence of California red-legged frogs prior to the onset of revegetation activities; and, (4) if any California red-legged frogs are detected, the approved biologist will stop work activities until they move from harm's way on their own accord or are translocated.

   b. During revegetation activities with construction equipment, additional inspections of a work site for the presence of California red-legged frogs by a Service-approved

biologist may be required if weather conditions change in a manner that may cause individuals to move into or through the site (i.e., during rainy conditions). The Service will be contacted prior to the onset of such activities to determine whether additional inspections (e.g., on a daily basis) by a Service-approved biologist will be required.

c. No work will occur within 25 feet of any area known to be occupied by California red-legged frogs or known to provide breeding habitat, unless otherwise approved by the Service.

d. Revegetation by hand methods can be conducted at any time by MPWMD biologists and/or restoration maintenance staff.

e. Monitoring, including activities such as surveys for topography, water and sediment movement, wildlife, and vegetation can be conducted at any time.

6. Should the proponent or applicant demonstrate a need to conduct activities beyond the July 1 to October 31 work period, in addition to those specified in measure 5, such activities will be conducted only after obtaining Service approval.

7. Prior to implementation of any construction activities, a MPWMD or Service-approved biologist will conduct a training session for all construction personnel. At a minimum, the training will include a description of the California red-legged frog and its habitat, the importance of the California red-legged frog and its habitat, the general measures that are being implemented to conserve the California red-legged frog as they relate to the project, and the boundaries within which the project may be accomplished. Brochures, books, and briefings may be used in the training session, provided that a qualified person is on hand to answer any questions.

8. During project activities, all trash that may attract predators will be properly contained, removed from the work site, and disposed of regularly. Following construction, all trash and construction debris will be removed from work areas.

9. All fueling and maintenance of vehicles and other equipment and staging areas will occur at least 66 feet from any riparian habitat or water body. The permittee will ensure contamination of habitat does not occur during such operations. Prior to the onset of work, the permittee will prepare a plan to allow a prompt and effective response to any accidental spills. All workers will be informed of the importance of preventing spills and of the appropriate measures to take, should a spill occur.

10. Prior to beginning construction activities, final design plans will be reviewed by the MPWMD. Final design plans will incorporate restoration of natural channel morphologic features including, but not limited to shallow floodplains, backwater areas, off-channel ponds, pool-riffle sequences, and meanders, to the extent possible. Structural protection, such as rip-rap or similar hard stream-bank lining, will be minimized. Where structural

protection is necessary, it will include features to enhance aquatic habitat, such as rootwads and live vegetation.

11. To the maximum extent possible, existing vegetation will be preserved during construction activities. Existing vegetation in areas that receive fill material for stream-bank repair or stabilization will not be removed except for trimming to provide equipment access to place fill material. No trees will be removed from these areas for access or during grading or placement of rip-rap. Vegetation trimmings will either be stockpiled for use in revegetation or will be disposed of off-site. In areas where soil is removed, vegetation will be salvaged and placed in areas that receive fill material as near to the surface of the fill as possible.

12. A planting and monitoring plan will be included with the final project design for review and approval by the MPWMD. Such a plan will include the location of the proposed restoration, species to be used, restoration techniques, time of year the work will be done, identifiable success criteria for completion, and remedial actions if the success criteria are not achieved. Project sites will be revegetated with an appropriate assemblage of native riparian and upland vegetation suitable for the area. Plants will be selected from a species list maintained by the MPWMD. The details of a monitoring program will depend on the nature and extent of habitat disturbance.

13. A MPWMD or Service-approved biologist will ensure that the spread or introduction of invasive exotic plant species will be avoided to the maximum extent possible. When practicable, invasive exotic plants within the work sites will be removed.

14. The number of access routes, number and size of staging areas, and the total area of the activity will be limited to the minimum necessary to achieve the project goal. Routes and boundaries will be clearly demarcated and these areas will be outside of riparian and wetland areas. Access routes and staging areas will be located in a way that minimizes impacts to riparian resources. Where impacts occur in these staging areas and access routes, restoration will occur as identified in measures 5. a. and 5. b. above.

15. To control erosion during and after project implementation, the permittee will implement best management practices, as identified by the appropriate Regional Water Quality Control Board or the Monterey County Planning and Building Inspection Department.

16. If a work site is to be temporarily dewatered by pumping, intakes will be completely screened with wire mesh not larger than 0.2 inch to minimize the risk of California red-legged frogs entering the pump system. Water will be released or pumped downstream at an appropriate rate to maintain downstream flows during construction. Upon completion of construction activities, any barriers to flow will be removed in a manner that will allow flow to resume with the least disturbance to the substrate.

17. A MPWMD or Service-approved biologist will permanently remove, from within the project area, any individuals of exotic species, such as bullfrogs *(Rana catesbeiana),* red swamp crayfish (*Procambarus clarkii*), and centrarchid fishes, to the maximum extent possible. The

permittee will have the responsibility to ensure that their activities are in compliance with all local, State, and Federal laws, ordinances, and statutes.

There are three subsets of activities proposed for the RGP that have substantially different environments. One subset of activities is focused on restoration and repair of portions of the river damaged by drought, flood, and water extraction practices. At such locations, habitat for California red-legged frogs are likely to be poor to fair; therefore, California red-legged frog populations in these areas is likely to be low or non-existent. These areas are characterized by lack of cover, lack of emergent vegetation, and may be subject to annual dewatering. Another subset of activities is broadly termed "maintenance," such as vegetation management, revegetation, and irrigation. Areas where these activities are carried out may have higher quality habitat that would likely attract the species. A third subset of activities includes enhancement of California red-legged frog habitat. These enhancement activities could include bullfrog removal, canopy modifications, vegetation planting, and stream modification (e.g., excavation of off-channel pools). Some of the areas that could be affected by these activities likely contain the California red-legged frogs.

No California red-legged frog mortalities have been attributed to previously authorized projects under RGP 24460S. Based on this information and the proposed use of the above minimization and avoidance measures, MPWMD anticipates that up to two California red-legged frogs per year may be killed as a result of repair and restoration activities. The MPWMD also anticipates that up to three California red-legged frogs per year may be killed from maintenance and enhancement activities. Because ground-disturbing project activities in potential California red-legged frog habitat will be restricted to the period between July 1 and October 31, California red-legged frog egg masses should not be encountered.

If projects that qualify for authorization under the proposed RGP have already undergone individual consultation pursuant to section 7(a)(2) of the Act, the requirements of individual project consultation documents will supersede those outlined in this biological opinion. If a proposed project involves additional species or effects not considered in this consultation, the Corps will reinitiate this consultation or consult on the project individually.

ANALYTICAL FRAMEWORK FOR THE JEOPARDY AND ADVERSE MODIFICATION DETERMINATIONS

Jeopardy Determination

The jeopardy analysis in this biological opinion relies on four components: (1) the Status of the Species, which evaluates the range-wide condition of the California red-legged frog, the factors responsible for that condition, and its survival and recovery needs; (2) the Environmental Baseline, which evaluates the condition of the California red-legged frog in the action area, the factors responsible for that condition, and the relationship of the action area to the survival and recovery of the California red-legged frog; (3) the Effects of the Action, which determines the direct and indirect impacts of the proposed Federal action and the effects of any interrelated or interdependent activities on the California red-legged frog; and (4) the Cumulative Effects,

which evaluates the effects of future, non-Federal activities in the action area on the California red-legged frog.

In accordance with policy and regulation, the jeopardy determination is made by evaluating the effects of the proposed Federal action in the context of the current status of the California red-legged frog, taking into account any cumulative effects, to determine if implementation of the proposed action is likely to cause an appreciable reduction in the likelihood of both the survival and recovery of the California red-legged frog in the wild.

The jeopardy analysis in this biological opinion places an emphasis on consideration of the range-wide survival and recovery needs of the California red-legged frog and the role of the action area in the survival and recovery of the California red-legged frog as the context for evaluation the significance of the effects of the proposed federal action, taken together with cumulative effects, for purposes of making the jeopardy determination.

Adverse Modification Determination

This biological opinion does not rely on the regulatory definition of "destruction or adverse modification" of critical habitat at 50 CFR 402.02. Instead, we have relied on the statutory provisions of the Act to complete the following analysis with respect to critical habitat.

In accordance with policy and regulation, the adverse modification analysis in this biological opinion relies on four components: (1) the Status of Critical Habitat, which evaluates the range-wide condition of designated critical habitat for the California red-legged frog in terms of primary constituent elements (PCEs), the factors responsible for that condition, and the intended recovery function of the critical habitat overall; (2) the Environmental Baseline, which evaluates the condition of the critical habitat in the action area, the factors responsible for that condition, and the recovery role of the critical habitat in the action area; (3) the Effects of the Action, which determines the direct and indirect impacts of the proposed Federal action and the effects of any interrelated and interdependent activities on the PCEs and how that will influence the recovery role of the affected critical habitat units; and (4) Cumulative Effects, which evaluates the effects of future non-Federal activities in the action area on the PCEs and how that will influence the recovery role of affected critical habitat units.

For purposes of the adverse modification determination, the effects of the proposed Federal action on the critical habitat of the California red-legged frog are evaluated in the context of the range-wide condition of the critical habitat, taking into account any cumulative effects, to determine if the critical habitat range-wide would remain functional (or would retain the current ability for the PCEs to be functionally established in areas of currently unsuitable but capable habitat) to serve its intended recovery role for the California red-legged frog.

The analysis in this biological opinion places an emphasis on using the intended range-wide recovery function of critical habitat for the California red-legged frog and the role of the action area relative to that intended function as the context for evaluating the significance of the effects

of the proposed Federal action, taken together with cumulative effects, for purposes of making the adverse modification determination.

STATUS OF THE SPECIES/CRITICAL HABITAT

The California red-legged frog was federally listed as threatened on May 23, 1996 (61 FR 25813). The Service completed a recovery plan for the species in 2002 (Service 2002).

The historical range of the California red-legged frog extended coastally from southern Mendocino County and inland from the vicinity of Redding, California, southward to northwestern Baja California, Mexico (Jennings and Hayes 1985, Storer 1925). The California red-legged frog has been extirpated or nearly extirpated from 70 percent of its former range. Historically, this species was found throughout the Central Valley and Sierra Nevada foothills. California red-legged frogs have been documented in 46 counties in California, but now remain in only 238 streams or drainages in 31 counties in California and one region in Baja California, Mexico (Grismer 2002, Fidenci 2004, Smith and Krofta 2005, Service 2009).

The California red-legged frog uses a variety of habitat types, including various aquatic systems, riparian, and upland habitats. The diet of California red-legged frogs is highly variable. Tadpoles probably eat algae (Jennings et al. 1992). Hayes and Tennant (1985) found invertebrates to be the most common food item of adults. Vertebrates, such as Pacific chorus frogs (*Pseudacris regilla*) and California mice (*Peromyscus californicus*), represented over half of the prey mass eaten by larger frogs (Hayes and Tennant 1985). Feeding activity probably occurs along the shoreline and on the surface of the water. Hayes and Tennant (1985) found juveniles to be active diurnally and nocturnally, whereas adults were largely nocturnal.

California red-legged frogs breed from November through March; earlier breeding has been recorded in southern localities (Storer 1925). Males appear at breeding sites from 2 to 4 weeks before females (Storer 1925). Female California red-legged frogs deposit egg masses on emergent vegetation so that the masses float on the surface of the water (Hayes and Miyamoto 1984). Egg masses contain about 2,000 to 5,000 moderately-sized, dark reddish brown eggs (Storer 1925, Jennings and Hayes 1985). Eggs hatch in 6 to 14 days (Storer 1925). Larvae undergo metamorphosis for 3.5 to 7 months after hatching (Storer 1925). Sexual maturity can be attained at 2 years of age by males and 3 years of age by females (Jennings and Hayes 1985); adults may live 8 to 10 years (Jennings et al. 1992) although the average life span is considered to be much lower. The California red-legged frog is a relatively large aquatic frog ranging from 1.5 to 5 inches from the tip of the snout to the vent (Stebbins 2003).

California red-legged frogs breed in aquatic habitats. Larvae, juveniles, and adults have been collected from streams, creeks, ponds, marshes, plunge pools and backwaters of streams, dune ponds, lagoons, and estuaries. California red-legged frogs frequently breed in artificial impoundments such as stock ponds, if conditions are appropriate. Although California red-legged frogs successfully breed in streams and riparian systems, high seasonal flows and cold temperatures in streams often make these sites risky environments for eggs and tadpoles.

The importance of riparian vegetation for this species is not well understood. When riparian vegetation is present, California red-legged frogs spend considerable time resting and feeding in it; the moisture and camouflage provided by the riparian plant community likely provide good foraging habitat and may facilitate dispersal in addition to providing pools and backwater aquatic areas for breeding.

Juvenile and adult California red-legged frogs may disperse long distances from breeding sites throughout the year. They can be encountered living within streams at distances exceeding 1.8 miles from the nearest breeding site, and have been found up to 400 feet from water in adjacent dense riparian vegetation (Bulger et. al 2003). During periods of wet weather, starting with the first rains of fall, some individuals may make overland excursions through upland habitats. Most of these overland movements occur at night. Bulger et al. (2003) found marked California red-legged frogs in Santa Cruz County making overland movements of up to 2 miles over the course of a wet season. These individual frogs were observed to make long-distance movements that are straight-line, point to point migrations over variable upland terrain rather than using riparian corridors for movement between habitats. For the California red-legged frog, suitable habitat is considered to include all aquatic and riparian areas within the range of the species and includes any landscape features that provide cover and moisture (Service 1996).

Habitat loss and degradation, combined with over-exploitation and introduction of exotic predators, were important factors in the decline of the California red-legged frog in the early to mid-1900s. Continuing threats to the California red-legged frog include direct habitat loss due to stream alteration and loss of aquatic habitat, indirect effects of expanding urbanization, competition or predation from non-native species including the bullfrog, catfish (*Ictalurus* spp.), bass (*Micropterus* spp.), mosquitofish (*Gambusia affinis*), red swamp crayfish, and signal crayfish (*Pacifasticus leniusculus*). Chytrid fungus (*Batrachochytrium dendrobatidis*) is a waterborne fungus that can decimate amphibian populations, and is considered a threat to California red-legged frog populations.

CRITICAL HABITAT

The Service designated revised critical habitat for the California red-legged frog on March 17, 2010 (75 FR 12816). The revised critical habitat encompasses 1,636,609 acres in 27 California counties.

In accordance with section 3(5)(A)(i) of the Act and Federal regulations at 50 CFR 424.12, in determining which areas to designate as critical habitat, we consider those physical and biological features (primary constituent elements) that are essential to the conservation of the species, and within areas occupied by the species at the time of listing, that may require special management considerations and protection. These include, but are not limited to: space for individual and population growth and for normal behavior; food, water, air, light, minerals, or other nutritional or physiological requirements; cover or shelter; sites for breeding, reproduction, and rearing (or development) of offspring; and, habitats that are protected from disturbance or are representative of the historic geographical and ecological distributions of a species.

For critical habitat of the California red-legged frog, we identified the following features essential to the conservation of the species: aquatic breeding habitat, aquatic non-breeding habitat, upland habitat, and dispersal habitat. Aquatic breeding habitat consists of standing bodies of fresh water (with salinities less than 4.5 parts per thousand), including natural and manmade (e.g., stock) ponds, slow-moving streams or pools within streams, and other ephemeral or permanent water bodies that typically become inundated during winter rains and hold water for a minimum of 20 weeks in all but the driest of years. The aquatic non-breeding habitat consists of freshwater pond and stream habitats, as described above, that may not hold water long enough for the species to complete its aquatic life cycle but which provide for shelter, foraging, predator avoidance, and aquatic dispersal of juvenile and adult California red-legged frogs. Other wetland habitats considered to meet these criteria include, but are not limited to: plunge pools within intermittent creeks, seeps, quiet water refugia within streams during high water flows, and springs of sufficient flow to withstand short-term dry periods.

For the purposes of the critical habitat designation, upland habitat was defined as upland areas adjacent to or surrounding breeding and non-breeding aquatic and riparian habitat up to a distance of 1 mile in most cases (i.e., depending on surrounding landscape and dispersal barriers) including various vegetational types such as grassland, woodland, forest, wetland, or riparian areas that provide shelter, forage, and predator avoidance for the California red-legged frog. Upland features are also essential in that they are needed to maintain the hydrologic, geographic, topographic, ecological, and edaphic features that support and surround the aquatic, wetland, or riparian habitat. These upland features contribute to: (1) filling of aquatic, wetland, or riparian habitats; (2) maintaining suitable periods of pool inundation for larval frogs and their food sources; and (3) providing non-breeding, feeding, and sheltering habitat for juvenile and adult frogs (e.g., shelter, shade, moisture, cooler temperatures, a prey base, foraging opportunities, and areas for predator avoidance). Upland habitat should include structural features such as boulders, rocks and organic debris (e.g., downed trees, logs), small mammal burrows, or moist leaf litter. Dispersal habitat was defined as accessible upland or riparian habitat within and between occupied or previously occupied sites that are located within 1 mile of each other, and that support movement between such sites. Dispersal habitat includes various natural habitats, and altered habitats such as agricultural fields, that do not contain barriers (e.g., heavily traveled roads without bridges or culverts) to dispersal. Dispersal habitat does not include moderate- to high-density urban or industrial developments with large expanses of asphalt or concrete, nor does it include large lakes or reservoirs over 50 acres in size, or other areas that do not contain those features identified in aquatic breeding habitat, aquatic non-breeding habitat, or upland habitat as essential to the conservation of the species.

The Service designated critical habitat for the California red-legged frog on 119,492 acres of land in Monterey County (75 FR 12815). This critical habitat unit is named "Carmel River" (MNT-2), and represents approximately 7 percent (in area) of the total critical habitat designated throughout the range of the species. This critical habitat unit is described in greater detail in the Environmental Baseline section of this document.

ENVIRONMENTAL BASELINE

Definition of the Action Area

The implementing regulations for section 7(a)(2) of the Act define the "action area" as all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action (50 Code of Federal Regulations (CFR) 402.02). Based on the information provided to us, we consider the action area to include all areas where people and equipment would be working within the project footprints, any areas downstream that may receive sediment or other project related disturbance, and areas where California red-legged frogs are translocated.

Status of Critical Habitat in the Action Area

The Project would occur entirely within designated critical habitat for the California red-legged frog (75 FR 12815). Observations of California red-legged frog adults, subadults, tadpoles, and eggs have been reported by various individuals at numerous locations throughout the entire Carmel River since the early 1990's (Corps 1994; Nedeff and Hanna 1996; Ecosystems West Consulting Group 2001; Reis 2003). While a comprehensive survey has not been conducted to date, the species is expected to utilize the entire RGP area, from the Pacific Ocean to the San Clemente Dam, as habitat for all life history stages. The areas identified as reproductive habitat are largely associated with off-channel environments that are formed where the floodplain is wide enough for the river to meander. These areas are known to be hydrologically dynamic and change over time. The distribution of reproductive sites changes each year due to winter flows. Aquatic habitat with the potential to support California red-legged frog reproduction changes after large storms due to scour or fill.

At least three non-reproductive habitat types were observed along the river: deep-water refuge sites for adults, shallow water sites late in the dry season for juveniles, and upland areas for foraging and estivation for both adults and juveniles. Upland areas with moist soil or dense leaf litter near the potential reproductive sites were found to be the most likely to contain adults and juveniles (Reis 2003). California red-legged frog habitat is degraded in portions of the river that are damaged by floods, water extraction, or other disturbances; and requires restoration and repair through activities authorized under the RGP. Habitat in these portions is characterized primarily by lack of cover, emergent vegetation, and permanent water.

In November 2004, the Corps issued RGP 24460S, which was valid until November 2009. The RGP applied to a 17.3-mile reach of the Carmel River that contains more than 400 properties. Between 2004 and 2009, work was authorized at 28 sites with most of the work involving vegetation management (26 sites) with hand tools to reduce the potential for bank erosion. There were two bridge maintenance projects and one major restoration project authorized. The total length of stream affected by vegetation management during the 5-year permit period was approximately 4,885 linear feet. Approximately 250 cubic yards of fill were placed into the stream channel and approximately 200 cubic yards of material was removed from the stream

channel along approximately 150 feet. There was no recorded take of California red-legged frogs as a result of authorized projects.

Predators of the California red-legged frog observed in the river include steelhead trout, nonnative bullfrogs, crayfish, and garter snakes (*Thamnophis* sp.). Known occurrences of bullfrogs are included in the maps prepared by the Ecosystems West Consulting Group (2001). Large populations of bullfrogs are known to occur and reproduce between RM 1 and RM 9, near golf course ponds, and above the San Clemente Dam, both in the San Clemente Reservoir and in off-channel ponds above the reservoir.

Non-native plants have invaded areas along the river corridor and threaten the quality of California red-legged frog habitat. French broom and cape ivy are of particular concern in upland areas. MPWMD removes weeds opportunistically and primarily as follow-up maintenance for habitat restoration projects.

The annual maximum scope of work proposed under this RGP would limit MPWMD-sponsored restoration projects to a total of 0.5 mile of stream length (projects requiring heavy construction equipment to restore channel geometry and repair stream-banks), and other projects (other public and privately sponsored projects that qualify for authorization under the RGP) would be limited to a total of 1,000 linear feet (0.2 mile) of stream channel per year for a maximum of about 3,600 linear feet (0.7 mile) of stream affected annually. Vegetation management occurs in selected areas of the channel bottom within an identified reach and removal is often carried out in a discontinuous pattern that alternates between stream-banks. No more than 3 miles per year of vegetation management would be carried out in any single year.

Threats that may require special management in this unit include removal and alteration of aquatic and upland habitat due to urbanization, dewatering of aquatic habitat due to water pumping and water diversions, and predation by nonnative species. The Project is anticipated to result in improved habitat conditions for California red-legged frogs throughout the Carmel River critical habitat unit.

EFFECTS OF THE ACTION

California Red-Legged Frog

Direct effects to adults, sub-adults, tadpoles, and eggs of the California red-legged frog in the footprint of projects utilizing the proposed authorization could include injury or mortality from being crushed by earth-moving equipment, construction debris, and worker foot traffic. The type and level of effects would depend on the specific activity. Limiting the geographic scope of project implementation on an annual basis would minimize the level of effects to California red-legged frogs and their habitat. These effects would also be reduced by minimizing and clearly demarcating the boundaries of the project areas. Proposed activities would likely benefit the California red-legged frog through habitat creation and enhancement.

Direct impacts to California red-legged frogs would also be reduced by relocating California red-legged frogs, if any are found, prior to the start of construction activities. California red-legged frogs could be injured or killed if they are improperly handled or contained during capture and relocation efforts. California red-legged frogs that are relocated could suffer reduced fitness due to increased risk of predation, increased competition, or other factors associated with relocation to an unfamiliar environment. Such effects will be reduced or prevented with the use of Service-approved biologists to capture and move California red-legged frogs to appropriate habitats.

Chytrid fungus is a water-borne fungus that can be spread through direct contact between aquatic animals and by a spore that can move short distances through the water. The fungus only attacks the parts of an animal's skin that have keratin (thickened skin), such as the mouthparts of tadpoles and the tougher parts of adults' skin, such as the toes. It can decimate amphibian populations, causing fungal dermatitis, which usually results in death in 1 to 2 weeks. Infected animals may spread the fungal spores to other ponds and streams before they die. Once a pond has become infected with chytrid fungus, the fungus stays in the water for an undetermined amount of time. Infected equipment or footwear could introduce chytrid fungus into areas where it did not previously occur. If this occurs in the action area, many California red-legged frogs could be affected.

Potential temporary impacts to aquatic habitat for California red-legged frogs could occur from dewatering activities. California red-legged frogs could become stranded and desiccate if appropriate habitat is not available nearby. Surveying for individuals prior to construction activities and proper relocation of any individuals would minimize risk of injury or mortality. Tadpoles may be entrained by pump intakes, if such devices are used to dry out work areas. Screening pump intakes with wire mesh not larger than 0.2 inch in diameter will likely preclude tadpoles from entering the intakes.

We do not anticipate that take of egg masses will result from project activities if they are limited to the proposed work period of July 1 to October 31. Direct impacts to California red-legged frog tadpoles would be minimized by limiting construction activities to this time period, and conducting work as late in the season as possible. Direct impacts would also be reduced by implementation of the MPWMD's recommendation to survey project sites and to translocate the species to suitable habitat, prior to construction activities.

Revegetation of graded areas using construction equipment may occur into the breeding season and may result in harassment, injury, or mortality of California red-legged frog tadpoles and egg masses, in addition to adults and juveniles. To minimize direct effects resulting from such activities during the breeding season, work with equipment will not occur within or adjacent to the flowing stream or in standing water, nor within 25 feet of any area known to be occupied by California red-legged frogs or known to provide breeding habitat. A Service-approved biologist will inspect the work site prior to the onset of revegetation activities for the presence of California red-legged frogs and delay work activities as appropriate. Revegetation by hand methods, weed removal, and monitoring activities using passive methods may result in direct impacts in the form of harassment to adult and juvenile California red-legged frogs.

Construction activities could cause erosion, siltation, and run-off of hazardous materials from the construction sites into the river and wetlands, especially if heavy rains and runoff occur before the denuded areas have been revegetated and the construction areas have been cleaned. Erosion and sedimentation could result in the asphyxiation of eggs of California red-legged frogs. However, this adverse effect would be minimized by limiting the majority of construction activities to outside of the breeding season. Erosion and sedimentation into streams and wetlands could also alter their conditions and may result in adverse effects to aquatic habitat through filling or disturbance of backwater ponds and deep-water pools. To minimize erosion during and after project implementation, the MPWMD proposes to implement best management practices, as identified by the appropriate Regional Water Quality Control Board or the Monterey County Planning and Building Inspection Department.

Trash left during or after project activities could attract predators to work sites, which could, in turn, prey on California red-legged frogs. For example, raccoons are attracted to trash and also prey opportunistically on the California red-legged frog. This potential impact will be minimized by careful control of waste products at all work sites.

Accidental spills of hazardous materials or careless fueling or oiling of vehicles or equipment could degrade water quality or upland habitat to a degree where California red-legged frogs are adversely affected or killed. The potential for this effect to occur will be reduced by informing workers of the importance of preventing hazardous materials from entering the environment, locating staging and fueling areas a minimum of 66 feet from riparian areas or other water bodies, and by having an effective spill response plan in place.

The Corps' proposed re-authorization of RGP 24460S is not expected to result in the permanent loss of California red-legged frog habitat. The restoration projects will provide more stable stream banks, better water quality through decreased erosion and sediment loading, and shelter along stream banks for California red-legged frogs. Additionally, many of the projects will improve California red-legged frog habitat by creating additional pools and providing a more natural water flow regime by eliminating or altering fish passage barriers. The restoration projects will contribute to the local recovery of the California red-legged frog by removing non-native predators such as bullfrogs, which out-compete and ultimately displace California red-legged frogs from suitable habitat, and by improving the riparian buffer along streams which should reduce the movement of pesticides into the aquatic environment.

The Corps' proposed re-authorization of the RGP would affect a small number of California red-legged frogs, if any occur in the areas that would be temporarily disturbed by project activities. Because of the small size of the work areas, the temporal nature of the projects, the implementation of the projects in the dry season, and the proposed protective measures, we anticipate that few, if any, California red-legged frogs are likely to be killed or injured during project activities. The areas disturbed by restoration projects constitute a small portion of the available California red-legged frog habitat in the Carmel Valley; additionally, disturbed areas will be restored and planted with native plants. Restoration and enhancement of riparian

vegetation in project sites is likely to increase the number and quality of cover sites and the diversity and abundance of prey species for California red-legged frogs.

The disturbance from proposed activities with heavy equipment, over a maximum of 0.7 mile each year, is not likely to reduce the ability of California red-legged frogs to thrive along the main stem and adjacent areas within the proposed RGP boundaries. The proposed activities would likely result in improved conditions for the local establishment and persistence of California red-legged frogs in the long term. We do not anticipate that activities authorized under the RGP would have long-term negative effects on the distribution of California red-legged frogs along the Carmel River.

California Red-Legged Frog Critical Habitat

RGP activities within the action area could result in short-term effects to critical habitat unit MNT-2 for the California red-legged frog through habitat alteration, changes in water levels, revegetation efforts, sedimentation, and pollution. RGP activities could result in the temporary disturbance to 0.7 mile of riverine habitat. Vegetation management activities could result in the temporary disturbance of up to 3.0 miles of riverine vegetation. These areas could be used by the species for breeding, sheltering, and feeding and therefore function as habitat essential for the conservation of the species. These areas would be temporarily lost for breeding, sheltering, and foraging activities of California red-legged frogs; however, they represent a small portion of the critical habitat designated in MNT-2. The effects would be temporary in nature, primarily scheduled to occur outside of the breeding season, and ultimately beneficial.

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 any non-Federal actions that are reasonably certain to occur and are likely to adversely affect the California red-legged frog in the action area.

CONCLUSION

After reviewing the current status of the California red-legged frog and its critical habitat, the environmental baseline for the RGP, the effects of the proposed action, and the cumulative effects, it is the Service's biological opinion that the Corps' proposed re-authorization of the RGP for maintenance and restoration activities along the Carmel River, as proposed, is not likely to jeopardize the continued existence of the California red-legged frog or adversely modify its critical habitat. We have reached this conclusion based on the following reasons:

1. The MPWMD has proposed numerous measures to avoid and minimize the potential for take of the California red-legged frog;

2. Few, if any, California red-legged frogs are likely to be killed or injured during project activities;

3. The overall quality of California red-legged frog breeding, foraging, and dispersal habitat would be improved as a result of improved water quality, reduced sedimentation, and habitat restoration and enhancement; and

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibits 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 by the Service as intentional or negligent actions that create the likelihood of injury to listed species 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 7(o)(2) of the Act, taking that is incidental to and not intended as part of 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. The Corps must make them binding conditions of its authorization issued to the MPWMD for the exemption in section 7(o)(2) to apply. The Corps has a continuing duty to regulate the activity covered by this incidental take statement. If the Corps fails to require the MPWMD to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the authorization, the protective coverage of section 7(o)(2) may lapse.

All California red-legged frogs found within the action areas may be subject to take in the form of capture during relocation efforts. A subset of captured California red-legged frogs may experience a significant disruption of normal behavioral patterns to the point that reaches the level of harassment or may be injured or killed during capture and relocation operations. Any California red-legged frogs that remain in the project areas may be subject to increased predation, be crushed by workers conducting project activities, or be otherwise injured or killed.

We cannot determine the precise number of California red-legged frogs that may be killed, injured, harassed, or harmed as a result of the maintenance and restoration activities authorized by the Corps. Numbers and locations of California red-legged frogs within a population vary

from year to year. Incidental take of the California red-legged frog would be difficult to detect because of their small body size and finding dead or injured specimens is unlikely. However, because the Corps and MPWMD have proposed to use numerous avoidance and minimization measures described in the project description section of this document, we anticipate that few, if any, California red-legged frogs are likely to be killed or injured during this work.

The number of California red-legged frogs found dead or injured annually must not exceed five. If more than two California red-legged frogs are found dead or injured as a result of repair and restoration activities, the Corps or MPWMD must contact our office immediately so we can review the project activities to determine if additional protective measures are needed. If more than three California red-legged frogs are found dead or injured as a result of maintenance and enhancement activities, the Corps or MPWMD must contact our office immediately so we can review the project activities to determine if additional protective measures are needed. Project activities may continue during this review period, provided that all protective measures proposed by the Corps and the MPWMD and the terms and conditions of this biological opinion have been and continue to be implemented.

REASONABLE AND PRUDENT MEASURES

The Service believes the following reasonable and prudent measure is necessary and appropriate to minimize take of the California red-legged frog:

1. Well-defined survey and relocation procedures must be implemented by authorized biologists to avoid or minimize the take of California red-legged frogs during project activities.

The Service's evaluation of the effects of the proposed action includes consideration of the measures to minimize the adverse effects of the proposed action on the California red-legged frog that were developed by the Corps and the MPWMD and repeated in the Description of the Proposed Action portion of this biological opinion. Any subsequent changes in these measures proposed by the Corps or the MPWMD may constitute a modification of the proposed action and may warrant re-initiation of formal consultation, as specified at 50 CFR 402.16. This reasonable and prudent measure is intended to supplement the protective measures that were proposed by the Corps and MPWMD as part of the proposed action.

TERMS AND CONDITIONS

To be exempt from the prohibitions of section 9 of the Act, the Corps must ensure that the MPWMD complies with the following term and condition, which implements the reasonable and prudent measure. This term and condition is non-discretionary.

1. The following terms and conditions implement reasonable and prudent measure 1:

a. To ensure that diseases are not conveyed between work sites by the Service-approved biologist, the fieldwork code of practice developed by the Declining Amphibian Populations Task Force must be followed at all times. A copy of the code of practice is enclosed.

b. When implementing the Declining Amphibian Population Task Force's Code of Practice, you may substitute a bleach solution (0.5 to 1.0 cup of bleach to 1.0 gallon of water) for the ethanol solution. Care must be taken so that all traces of the disinfectant are removed before entering the next aquatic habitat.

REPORTING REQUIREMENTS

The MPWMD is responsible for the preparation of annual post-notification/compliance reports and must submit these annually to the Service's Ventura Fish and Wildlife Office (2493 Portola Road, Suite B; Ventura, California 93003). The report must include: (1) Information on all projects constructed under the RGP for a given year; (2) MPWMD evaluation forms prepared for each project; and (3) Project specific information such as: a) project descriptions, b) project impacts, c) maps, d) pre- and post-construction photographs, e) quantities and types of fill material placed and/or acreage of Federal jurisdictional areas affected, and f) compliance with all permit conditions. Reports must be submitted to the Service's Ventura Fish and Wildlife Office by June 1 of each year the Corps' proposed authorization is valid.

DISPOSITION OF DEAD OR INJURED SPECIMENS

Within 3 days of locating any dead or injured California red-legged frogs, the Corps or MPWMD must notify the Ventura Fish and Wildlife Office by telephone (805) 644-1766) and in writing. The report must include the date, time, location of the carcass, a photograph, cause of death, if known, and any other pertinent information.

We recommend that dead California red-legged frogs identified in the action areas be tested for amphibian disease due to the increased occurrence of amphibian chytridiomycosis in California. However, this recommendation is voluntary and to be determined by you upon contacting our office at the discovery of a dead California red-legged frog. If you choose to submit specimens for testing they can be sent to Southern Illinois University Carbondale for low cost testing. You may contact Gretchen Padgett-Flohr through contact information provided below to determine if dead specimens are candidates for testing. If you determine not to submit dead California red-legged frogs for testing, they must be placed with the California Academy of Sciences Herpetology Department (Contact: Jens Vindum, Department of Herpetology, California Academy of Sciences, 875 Howard Street, San Francisco, California, 94103, (415) 321-8289).

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 recommend the following conservation measure to promote recovery of listed species:

> The Corps or MPWMD should submit dead California red-legged frogs for disease testing by following the protocol described below. Care should be taken in handling dead specimens to preserve biological material in the best possible state for later analysis. Specimens collected will be tested for amphibian disease, particularly amphibian chytridiomycosis, by sending them to Gretchen Padgett-Flohr, Department of Zoology, Life Sciences II, Southern Illinois University Carbondale, Carbondale, Illinois 62901. The same methodology is used for all life stages of all caudates and anurans. If the specimen is sloughing skin, care must be taken to include the slough with the animal. Specimens must be placed in a cooler with ice to slow decomposition until proper preservation is possible, but specimens should not be allowed to freeze. Specimens must be preserved in 70 percent ethanol in a leak-proof container (cryogenic vials are not leak-proof). When depositing adult or large post-metamorphic specimens in the ethanol, ensure that the abdominal cavity is punctured with a small incision to allow the preservative to flow into the body of the animal. The sample must be accompanied by a disease notification form that can be downloaded at http://www.ccadc.us/contact.htm, along with $5.00 per sample, which is required for sample analysis and incorporating the data into the California amphibian disease database. The locations of specimens identified as a disease carrier will be georeferenced online at http://www.ccadc.us. Additional information concerning sampling protocols, decontamination procedures, and the mapping project can be found at http://www.ccadc.us (contact: Gretchen Padgett-Flohr, (618-201-5533); gpadgettflohr@aol.com). Arrangements regarding proper disposition of potential specimens should be made with the Southern Illinois University Carbondale, Department of Zoology by the Corps prior to implementation of any actions. If it is determined by Gretchen Padgett-Flohr that the specimen should not be sent to Southern Illinois University Carbondale, the remains of California red-legged frogs must be placed with the institution identified in the Disposition of Dead or Injured Specimens section of this biological opinion.

The Service requests notification of the implementation of any conservation recommendations so we may be kept informed of actions minimizing or avoiding adverse effects or benefitting listed species or their habitats.

REINITIATION NOTICE

This concludes formal consultation on the Corps' proposed re-authorization of RGP 24460S for maintenance and restoration activities along the Carmel River, Monterey County, California. As provided in 50 CFR §402.16, reinitiation of formal consultation is required where discretionary Federal agency 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 biological opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation.

If you have any questions, please contact Chad Mitcham of my staff at (805) 644-1766, ext. 335.

Sincerely,

Diane K. Noda
acting Field Supervisor

Enclosure

REFERENCES

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The Declining Amphibian Populations Task Force Fieldwork Code of Practice

1. Remove mud, snails, algae, and other debris from nets, traps, boots, vehicle tires, and all other surfaces. Rinse cleaned items with sterilized (e.g., boiled or treated) water before leaving each work site.

2. Boots, nets, traps, and other types of equipment used in the aquatic environment should then be scrubbed with 70 percent ethanol solution and rinsed clean with sterilized water between study sites. Avoid cleaning equipment in the immediate vicinity of a pond. wetland, or riparian area.

3. In remote locations, clean all equipment with 70 percent ethanol or a bleach solution, and rinse with sterile water upon return to the lab or "base camp." Elsewhere, when washing machine facilities are available, remove nets from poles and wash in a protective mesh laundry bag with bleach on the "delicates" cycle.

4. When working at sites with known or suspected disease problems, or when sampling populations of rare or isolated species, wear disposable gloves and change them between handling each animal. Dedicate sets of nets, boots, traps, and other equipment to each site being visited. Clean them as directed above and store separately at the end of each field day.

5. When amphibians are collected, ensure that animals from different sites are kept separately and take great care to avoid indirect contact (e.g., via handling, reuse of containers) between them or with other captive animals. Isolation from unsterilized plants or soils which have been taken from other sites is also essential. Always use disinfected and disposable husbandry equipment.

6. Examine collected amphibians for the presence of diseases and parasites soon after capture. Prior to their release or the release of any progeny, amphibians should be quarantined for a period and thoroughly screened for the presence of any potential disease agents.

7. Used cleaning materials and fluids should be disposed of safely and, if necessary, taken back to the lab for proper disposal. Used disposable gloves should be retained for safe disposal in sealed bags.

The Fieldwork Code of Practice has been produced by the Declining Amphibian Populations Task Force with valuable assistance from Begona Arano, Andrew Cunningham, Tom Langton, Jamie Reaser, and Stan Sessions.

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