United States Department of the Interior

FISH AND WILDLIFE SERVICE
Ventura Fish and Wildlife Office
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IN REPLY REFER TO:
2008-F-0441

December 9, 2008

Bruce A. Henderson
Regulatory Branch
U. S. Army Corps of Engineers, Los Angeles District
2151 Alessandro Drive, Suite 110
Ventura, California 93001

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Regulatory Branch

Subject: Biological Opinion for the Proposed California Department of Fish and Game Fisheries Restoration Grant Program Regional General Permit, San Luis Obispo, Santa Barbara, and Ventura Counties, California (1-8-08-F-17)

Dear Mr. Henderson:

This document transmits the U.S. Fish and Wildlife Service's (Service) biological opinion based on our review of the Los Angeles District of the U.S. Army Corps of Engineers' (Corps) proposed issuance of a Regional General Permit (RGP), pursuant to section 404 of the Federal Water Pollution Control Act, as amended (Clean Water Act), authorizing projects funded by the California Department of Fish and Game's (CDFG) Fisheries Restoration Grant Program (FRGP). At issue are the effects of the proposed authorization on the endangered tidewater goby (*Eucyclogobius newberryi*), unarmored threespine stickleback (*Gasterosteus aculeatus williamsoni*), arroyo toad (*Bufo californicus*), California tiger salamander (*Ambystoma californiense*), least Bell's vireo (*Vireo bellii pusillus*), southwestern willow flycatcher (*Empidonax traillii extimus*), Gambel's watercress (*Rorippa (=Nasturtium) gambellii*), marsh sandwort (*Arenaria paludicola*), and Chorro Creek bog thistle (*Cirsium fontinale* var. *obispoense*), and the federally threatened California red-legged frog (*Rana aurora draytonii*). 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 dated April 7, 2007.

This biological opinion is based on information contained in your April 7, 2007, request for consultation, the Final Mitigated Negative Declaration for the 2006 Fisheries Restoration Grant Program (CDFG 2006), the stream restoration manual (CDFG 2002), telephone and electronic mail communications between our staffs, and our files. A complete administrative record of this consultation is available at the Ventura Fish and Wildlife Office.

Although you have determined that issuance of your RGP is likely to adversely affect the California tiger salamander and the Chorro Creek bog thistle, we conclude that these species would not be affected by the Program activities. The California tiger salamander is restricted to still ponds and pools that are not connected to streams in which salmonids would migrate or

breed. Based upon the project description that follows, we believe that the Program would not have projects within California tiger salamander habitat. The Chorro Creek bog thistle is restricted to open seep areas in serpentine soil outcrops and is not likely to occur in areas where fisheries restoration projects would occur. Therefore, these two species will not be addressed in this biological opinion.

Also, your request for consultation did not include designated critical habitat within the counties where the FRGP would be implemented. Within the area under our jurisdiction, critical habitat has been designated for the tidewater goby, southwestern willow flycatcher, least Bell's vireo, arroyo toad, and California red-legged frog. Except for the arroyo toad and least Bell's vireo, units of critical habitat for all of these species could be adversely affected by the actions that would be permitted under the RGP. Therefore, we are including analysis of these critical habitat designations in our biological opinion. We will not be analyzing any effects to arroyo toad and least Bell's vireo critical habitat because these designated areas are well inland of where the FRGP would likely apply or upstream of obstructions which salmonids could not pass (e.g., Gibraltar Dam). If projects are proposed in critical habitat of the arroyo toad and least Bell's vireo in the future, the Corps would be required to reinitiate consultation.

Consultation History

During consultation for this biological opinion, we had come to the conclusion that the project, as proposed, could potentially jeopardize the continued existence of both the marsh sandwort and the Gambel's watercress. We contacted the Corps on June 30, 2008, via e-mail, and notified you of the possible jeopardy. You contacted the CDFG and on July 2, 2008, we received an e-mail from Mary Larson of CDFG informing us that none of the FRGP projects would be conducted in areas where marsh sandwort or Gambel's watercress was known to occur. Also, CDFG would have qualified botanists survey areas within the range of the two plants prior to FRGP projects to ensure that previously unknown populations would not be affected. Further, Ms. Larson stated, and we agreed, that any FRGP projects on Vandenberg Air Force Base that could affect these two plant species would be subject to consultation with the Air Force, so that impacts to the plants would be avoided.

Consequently, the proposed avoidance measure is incorporated into the project description below. Because this measure will avoid adverse effects to marsh sandwort and Gambel's watercress, these species will not be discussed further in this biological opinion.

BIOLOGICAL OPINION

This biological opinion does not rely on the regulatory definition of "destruction or adverse modification of critical habitat" at 50 Code of Federal Regulations 402.02. Instead, we have relied upon the statutory provisions of the Act to complete the analysis with respect to critical habitat that is contained in this biological opinion.

DESCRIPTION OF THE PROPOSED ACTION

The Corps proposes to issue a RGP authorizing the CDFG to fund and carry out various salmonid habitat enhancement and restoration projects through implementation of the FRGP. The Corps' RGP would have a term of 5 years from the date of authorization. Program activities are proposed annually for various watersheds throughout San Luis Obispo, Santa Barbara, Ventura, Los Angeles, Orange, San Diego, San Bernardino, and Riverside Counties. The Corps' proposed authorization addressed by this consultation would apply only to Program projects in counties within the regulatory jurisdictional boundaries of the Corps' Los Angeles District. Of the resulting geographic area, the Ventura Fish and Wildlife Office has regulatory purview only over San Luis Obispo, Santa Barbara, and Ventura Counties, and a portion of Los Angeles County. Therefore, this consultation pertains only to Program projects utilizing the proposed authorization that are executed in San Luis Obispo, Santa Barbara, Ventura, and Los Angeles Counties within the purview of the Ventura Fish and Wildlife Office.

Individual restoration projects would involve the application of one or more of the restoration treatments described in Part VII of the California Salmonid Stream Habitat Restoration Manual (Restoration Manual) (CDFG 2002) with the exception of dam removal. Dam removal activities are not addressed in this consultation due to the varying potential effects of sediment mobilization.

All projects would be restricted to, and carried out in accordance with, techniques identified in the Restoration Manual. The following descriptions of restoration treatments are summarized from the Restoration Manual; these descriptions are not intended to be exhaustive. Part VII of the Restoration Manual contains more detailed information on specific project methods, and is hereby incorporated by reference. In the following discussion, use of heavy equipment refers to one or more of the following types of equipment: hydraulic excavator, front-end loader, self-propelled logging yarder, or backhoe. The following types of projects and treatments are proposed:

1. Instream Habitat Improvements

    a. Cover structures such as logs, root wads, tree bundles, and boulders would be installed using heavy equipment. Cover structures would increase the quality of pool habitat in a stream.

    b. Boulder structures such as boulder weirs, boulder clusters, and boulder wing-deflectors would be installed using heavy equipment. Boulder structures would break up or diversify stream flow in a particular stream reach, provide instream cover for juvenile salmonids and spawning adults, or recruit spawning gravel.

    c. Log structures such as log weirs, log wing-deflectors, divide logs, digger logs, and Hewitt ramps would be installed using heavy equipment and manual labor. Log structures would provide instream cover for juvenile salmonids and spawning

adults, scour pools for rearing habitat, recruit spawning gravel, and stabilize eroding stream banks.

d. Spawning gravel would be placed using heavy equipment. Gravel would be clean, creek-run ranging from 0.5 inch to 4 inches in diameter.

e. Fish screens would be installed at water diversion intake sites. Fish screens would prevent entrainment of juvenile salmonids and other wildlife in water diverted for agriculture, power generations, or domestic use on both gravity flow and pump diversion systems. Fish screens typically consist of perforated metal plate or mesh material with openings sized to prevent entrainment of aquatic wildlife.

2. Fish Passage

a. Obstructions such as log jams or beaver dams would be modified to facilitate fish passage. Log barriers would be modified using either manual labor or heavy equipment.

b. Waterfalls and chutes would be modified by blasting resting pools into bedrock, forming a step-and-pool passage for fish.

c. Landslides would be modified using either manual labor or heavy equipment such as a hydraulic excavator.

d. Man-made obstructions such as dams, sills, and culverts would be addressed through construction of fishways such as step-and-pool, Denil ladders, and Alaskan steep-pass fishways.

e. Culverts would be modified by either constructing back-flooding weirs downstream of the culvert outflow or installing baffles within the culvert.

3. Watershed and Stream Bank Stabilization

a. Boulder riprap to armor stream banks would be installed using heavy equipment such as a hydraulic excavator or backhoe. A gravel blanket or geotextile fabric would be placed on the soil in the area to be covered by riprap. Riprap would be installed beginning in a trench dug at the toe of the bank, and extending up the stream bank to the bankfull discharge level.

b. Log stream bank stabilization structures such as cribbing or bank armoring would be installed using heavy equipment. Log structures may also be installed using manual labor in areas without access for heavy equipment. These structures would be installed by stacking logs against the stream bank and securing them

using threaded rebar and/or steel cable. Base logs would be placed in a toe trench below stream grade. When installing log cribbing, tieback logs would be imbedded 4-6 feet into the slope perpendicular to the direction of stream flow. When installing log bank armoring, metal fence posts, culvert stakes, or 'deadman' structures would be substituted for tieback logs.

c. Tree revetments would be used to stabilize vertical, eroding stream banks in low gradient meadow streams. Trees would be cut and laid against the vertical bank, using either heavy equipment or manual labor, with the tree tops angling downstream. Tree bases would be tied off to the upper stream bank. Branches slow the water velocity and cause suspended sediment to settle, allowing banks to rebuild and vegetation to re-establish.

d. Mulching for erosion control would be conducted by applying weed-free straw or forest leaf litter to bare soil.

e. Revegetation would be accomplished by transplanting, planting container-grown or bare root stock, or sprigging (inserting cut stakes of willows (*Salix* spp.) or cottonwoods (*Populus* spp.)). Transplanting would typically be done using hand excavation. In hard soils, an iron bar or power auger would be used to bore planting holes for cut stakes; otherwise, cut stakes would be driven into the soil by hand.

f. Willow wall revetments, brush mattresses, and willow siltation baffles would also be used to stabilize and revegetate degraded stream banks. These treatments would involve combinations of the following: excavation of a trench at the toe of the stream bank, installation of willow poles perpendicular to the stream bank, weaving willow branches throughout the standing willow poles, or placing and compressing willow branches on the stream bank's soil surface parallel to the stream channel.

g. Checkdams are small dams (less than 10 feet in height) that would be installed across small drainages to reduce water velocity and trap sediment. Checkdams would be constructed using strawbales, rock, brush, small trees, redwood boards, or compacted earth.

h. Waterbars would be installed using hand tools or heavy equipment as a temporary means of breaking surface flow over sloped sections of road. Waterbars would consist of a shallow ditch and rounded berm, less than 2 feet in height, placed diagonally across a road surface.

i. Exclusionary fencing would be installed to prevent livestock from overgrazing riparian vegetation, reducing water quality, and compromising stream bank

integrity. Fencing would be constructed approximately parallel to the stream channel, with a setback of at least 25 feet from the top of the stream bank.

Other protective measures proposed by the Corps and the CDFG include:

1. At least 15 days prior to the onset of activities, the CDFG will submit the name(s) and credentials of biologists who would conduct activities specified in the following measures. No project activities will begin until the CDFG has received written approval from the Service that the biologist(s) is qualified to conduct the work.

2. A Service-approved biologist will survey the work site at least two weeks before the onset of activities. If arroyo toads or California red-legged frogs are found in the project area and those individuals are likely to be killed or injured by work activities, the Service-approved biologist will be allowed sufficient time to move them from the site before work activities resume. Only Service-approved biologists will participate in activities associated with the capture, handling, and monitoring of arroyo toads and California red-legged frogs.

3. Before any construction activities begin on a project, a Service-approved biologist will conduct a training session for all construction personnel. At a minimum, the training will include a description of the arroyo toad and California red-legged frog and their habitat, the importance of the species and their habitat, the general measures that are being implemented to conserve the arroyo toad and 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.

4. A Service-approved biologist will be present at the work site until such time as all removal of arroyo toads and California red-legged frogs, instruction of workers, and habitat disturbance has 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 protective measure 3 above and in the identification of arroyo toads and California red-legged frogs. The on-site biological 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. 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.

6. All fueling and maintenance of vehicles and other equipment and staging areas will occur at least 65 feet from any riparian habitat or water body. The Corps and the CDFG will ensure contamination of habitat does not occur during such operations. Prior to the onset of work, the CDFG will ensure that the contractor has prepared 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.

7. A Service-approved biologist will ensure that the spread or introduction of invasive exotic plant species is avoided to the maximum extent possible. Areas disturbed by project activities will be restored and planted with native plants.

8. 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.

9. Ground-disturbing activities in potential arroyo toad and California red-legged frog habitat will be restricted to the period between July 1 and October 15.

10. To control erosion during and after project implementation, the CDFG will implement best management practices, as identified by the Regional Water Quality Control Board.

11. 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 prevent California red-legged frogs from entering the pump system. Water will be released or pumped downstream at an appropriate rate to maintain downstream flows during construction and reduce the creation of ponded water. Upon completion of construction activities, any barriers to flow will be removed in a manner that would allow flow to resume with the least disturbance to the substrate.

12. A Service-approved biologist will permanently remove, from within the project area, any individuals of exotic species, such as bullfrogs (*Rana catesbiana*), centrarchid fishes, and non-native crayfish to the maximum extent possible. The biologist will have the responsibility to ensure that their activities are in compliance with the California Fish and Game Code.

13. No projects will be implemented in areas outside of Vandenberg AFB where they would affect Gambel's watercress or marsh sandwort, including Nipomo Mesa, Black Lake, Black Lake Canyon, and Oso Flaco Lake. At Vandenberg AFB, CDFG anticipates that the Air Force would consult with the Service prior to any actions that would affect Gambel's watercress in that watershed and that adverse effects would be avoided.

14. CDFG biologists performing pre-project evaluations under the FRGP will be trained to identify both Gambel's watercress and marsh sandwort and their similar relatives, and

will either identify the plants or take photos for review by Service-approved botanists. Alternatively, CDFG will enlist these Service-approved individuals to conduct on-site surveys or to verify plant identifications if either Gambels' watercress or marsh sandwort are suspected.

The description above does not include measures from the CDFG Manual (e.g., Part X) that describe erosion and sedimentation control during and after projects are implemented. We have reviewed these measures and acknowledge that the methods described in the manual are appropriate for controlling erosion and sedimentation that may develop during the activities. The reader is referred to the Manual (CDFG 2002) for details.

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.

STATUS OF THE SPECIES

Tidewater Goby

The tidewater goby was listed as endangered on March 7, 1994 (59 FR 5494). On June 24, 1999, the Service proposed to remove the populations occurring north of Orange County, California, from the endangered species list (64 FR 33816). In November 2002, the Service withdrew this proposed delisting rule and made the determination to retain the tidewater goby's listing as endangered throughout its range (67 FR 67803). A recovery plan for the tidewater goby was completed on December 12, 2005 (Service 2005). A 5-Year Review for the tidewater goby was completed in September 2007 (Service 2007b). Unless otherwise noted, information in the following species account is summarized from the following sources: Wang (1982), Irwin and Soltz (1984), Lafferty et al. (1999a, 1999b), Swift et al. (1989, 1993, 1997), Worcester (1992), Swenson (1995, 1999), and Swenson and McCray (1996).

The tidewater goby is endemic to California and typically inhabits coastal lagoons, estuaries, and marshes, preferring relatively low salinities of approximately 12 parts per thousand (ppt). Tidewater goby habitat is characterized by brackish estuaries, lagoons, and lower stream reaches where the water is fairly still but not stagnant. They tend to be found in the upstream portions of lagoons. Tidewater gobies can withstand a range of habitat conditions and have been documented in waters with salinity levels that range from 0 to 42 ppt, temperatures from 46 to 77 degrees Fahrenheit, and depths from approximately 10 inches to 6.5 feet.

The tidewater goby is primarily an annual species in central and southern California, although some variation in life history has been observed. If reproductive output during a single season fails, few (if any) tidewater gobies survive into the next year. Reproduction typically peaks from late April or May to July and can continue into November or December depending on the

seasonal temperature and amount of rainfall. Males begin the breeding ritual by digging burrows (3 to 4 inches deep) in clean, coarse sand of open areas. Females then deposit eggs into the burrows, averaging 400 eggs per spawning effort. Males remain in the burrows to guard the eggs. They frequently forego feeding, which may contribute to the mid-summer mortality observed in some populations. Within 9 to 10 days, larvae emerge and are approximately 0.20 to 0.27 inch in length. Tidewater gobies live in vegetated areas in the lagoon until they are 0.60 to 0.70 inch long. When they reach this life stage, they become substrate-oriented, spending the majority of time on the bottom rather than in the water column. Both males and females can breed more than once in a season, with a lifetime reproductive potential of 3 to 12 spawning events. Aquatic vegetation is critical for over-wintering tidewater gobies because it provides refuge from high water flows.

Tidewater gobies feed on small invertebrates, including mysids, amphipods, ostracods, snails, aquatic insect larvae, and particularly chironomid midge larvae. Tidewater gobies of less than 0.30 inch in length probably feed on unicellular phytoplankton or zooplankton, similar to many other early stage larval fishes.

Tidewater gobies enter the marine environment when sandbars are breached during storm events. The species' tolerance of high salinities (up to 60 ppt) for short periods of time enables it to withstand marine environment conditions where salinities are approximately 35 ppt, thereby allowing the species to re-establish or colonize lagoons and estuaries following flood events. However, genetic studies indicate that individual populations rarely have contact with other populations so natural recolonization may be rare.

Native predators are not known to be important regulators of tidewater goby population size in the lagoons of southern California. Rather, population declines are attributed to environmental conditions. During high flows, streams flood and breach lagoon barriers creating strong tidal conditions. As a result, tidewater goby populations plummet. Populations typically recover quickly in summer, with recorded mean densities of 54 to 323 fish per square foot. Tidewater goby densities are greatest among emergent and submergent vegetation (Moyle 2002). Tidewater gobies that are found upstream of lagoons in summer and fall tend to be juveniles. The highest densities of tidewater gobies are typically present in the fall.

Historically, the tidewater goby occurred in at least 135 California coastal lagoons and estuaries from Tillas Slough near the Oregon border south to Agua Hedionda Lagoon in northern San Diego County. The southern extent of its distribution has been reduced by approximately 8 miles. The species is currently known to occur in about 112 locations, although the number of sites fluctuates with climatic conditions. Currently, the most stable populations are in lagoons and estuaries of intermediate size (5 to 124 acres) that are relatively unaffected by human activities.

The decline of the tidewater goby is attributed primarily to habitat loss or degradation resulting from urban, agricultural, and industrial development in and around coastal wetlands. Tidewater gobies have been extirpated from water bodies that are impaired by degraded water quality (e.g.,

Mugu Lagoon, Ventura County), but still occur in others (e.g., Santa Clara River, Ventura County). Some extirpations are believed to be related to pollution, upstream water diversions, and the introduction of non-native predatory fish species (most notably, centrarchid sunfish (*Lepomis* spp.) and bass (*Micropterus* spp.)). These threats continue to affect some of the remaining populations of tidewater gobies.

Critical Habitat for the Tidewater Goby

We originally designated critical habitat for the tidewater goby on November 20, 2000 (65 FR 69693); however, in 2006, we proposed revisions to that designation (71 FR 68914). In January 2008, we finalized the revised designated critical habitat (73 FR 5919).

The critical habitat designation for the tidewater goby encompasses approximately 10,003 acres. Critical habitat is located in Del Norte, Humboldt, Mendocino, Sonoma, Marin, San Mateo, Santa Cruz, Monterey, San Luis Obispo, Santa Barbara, Ventura, and Los Angeles Counties, California. This designation is intended to conserve areas supporting primary constituent elements that exist at coastal lagoons, estuaries, backwater marshes, and associated freshwater tributaries, and that are necessary to support the life history functions, of the tidewater goby, which were the basis for the proposal. Because not all life history functions require all of the primary constituent elements, not all critical habitat units contain all of the primary constituent elements.

All of the areas of revised critical habitat for the tidewater goby are within the species' historical geographic range and contain primary constituent elements to support at least one of the tidewater goby's essential life history functions. Based on our current knowledge of the life history, biology, and ecology of the tidewater goby and the requirements of the habitat to sustain the essential life history functions of this species, we have determined that the primary constituent elements for the tidewater goby are: (1) persistent, shallow (in the range of about 4 to 80 inches), still-to-slow-moving, aquatic habitat most commonly ranging in salinity from less than 0.5 ppt to about 10 to 12 ppt, which provides adequate space for normal behavioral and individual and population growth; (2) substrates (e.g., sand, silt, mud) suitable for the construction of burrows for reproduction; (3) submerged and emergent aquatic vegetation, such as *Potamogeton pectinatus* and *Ruppia maritima,* that provides protection from predators; and (4) presence of a sandbar(s) across the mouth of a lagoon or estuary during the late spring, summer, and fall that closes or partially closes the lagoon or estuary, thereby providing relatively stable water levels and salinity.

Unarmored Threespine Stickleback

The unarmored threespine stickleback was listed as endangered in 1970 (35 FR 16047) primarily due to competition with or predation by non-native fish, loss of habitat through urbanization and channelization, and introgression with other subspecies of sticklebacks. Critical habitat for the unarmored threespine stickleback was proposed in 1980 for two reaches of the Santa Clara River, and single reaches of both San Francisquito Creek and San Antonio Creek; however, that

proposal was withdrawn in response to a lawsuit in 2002 (67 FR 58580). The unarmored threespine stickleback is a fully protected species under California law, per California Fish and Game Code, Section 5515 (b)(9).

Unarmored threespine sticklebacks are small fish (up to 2.36 inches) inhabiting slow-moving reaches or quiet water microhabitats of streams and rivers. Favorable habitats usually are shaded by dense and abundant vegetation but in more open reaches algal mats or barriers may provide refuge for the species. Unarmored threespine sticklebacks feed primarily on benthic insects, small crustaceans, and snails, and to a lesser degree, on flat worms, nematodes, and terrestrial insects. Unarmored threespine sticklebacks reproduce throughout the year with a minimum of breeding activity occurring from October to January. Reproduction occurs in areas with adequate aquatic vegetation and gentle flow of water where males establish and vigorously defend territories. The male builds a nest of fine plant debris and algal strands and courts all females that enter his territory; a single nest may contain the eggs of several females. Following spawning, the male defends the nest and, after approximately six days, the newly hatched fry. Most unarmored threespine sticklebacks are believed to live for only one year (Service 1985).

Unarmored threespine sticklebacks historically were distributed throughout southern California but are now restricted to the upper Santa Clara River and certain tributaries in Los Angeles and Ventura counties, Cañada Honda and San Antonio creeks on Vandenberg Air Force Base, Shay Creek (tributary to Baldwin Lake) in San Bernardino County, and San Felipe Creek in San Diego County. The population in Cañada Honda Creek is a transplanted population, as is the small population that may persist in San Felipe Creek.

Habitat degradation is a primary threat to unarmored threespine stickleback survival, such as when people or livestock trample stream banks, causing increased soil erosion and sedimentation in streams and breeding pools and thus reducing the availability of plants and insects that serve as habitat and food for the species. Damage to or destruction of the emergent vegetation along the stream banks also degrades the shallow, weedy nursery areas that provide abundant food and shelter for unarmored threespine stickleback.

Other threats to unarmored threespine stickleback often occur in popular riparian areas near campgrounds. There, people dam pools for wading and inadvertently trample adjacent sand or gravel bars during streamside recreational activities, forcing unarmored threespine sticklebacks into areas where they are more susceptible to injury or mortality due to predation or recreational activities.

Exotic predators, which include African clawed frogs, bullfrogs, mosquitofish (*Gambusia affinis*), crayfish (*Procambarus clarki*), and green sunfish (*Lepomis cyanellus*), prey on or compete for resources with unarmored threespine stickleback. Furthermore, certain exotic species may serve as vectors for the Ich parasite (*Ichthyopthirius multifilis*) that could infect populations of unarmored threespine stickleback. Populations of unarmored threespine stickleback in the Angeles National Forest were severely affected by the introduction of Ich in

1995 (U.S. Forest Service 2000). Introduced goldfish (*Carasius auratus*) were suspected to be the source of the Ich infestation.

Arroyo Toad

The arroyo toad was listed as endangered on December 16, 1994 (59 Federal Register (FR) 64589). Critical habitat for the arroyo toad was designated on April 13, 2005 (70 FR 19562). The final recovery plan for the arroyo toad was published in 1999 (Service 1999). In addition to the final recovery plan, important sources for information below on the biology of the arroyo toad include: Campbell et al. (1996), Griffin and Case (2001), Griffin et al. (1998), Holland and Sisk (2001), Ramirez (2002a, 2002b, 2002c, 2003), and Sweet (1992, 1993).

The arroyo toad is a small, dark-spotted toad of the family Bufonidae. The parotid glands, located on the top of the head, are oval-shaped and widely separated. A light or pale area or stripe is usually present on these glands and on top of the eyes. The arroyo toad's underside is buff-colored and usually without spots (Stebbins 1985). Recently metamorphosed individuals typically blend in with stream side substrates.

Optimal breeding habitat for the arroyo toad consists of low-gradient sections of slow-moving streams with shallow pools, nearby sandbars, and adjacent stream terraces. Arroyo toads breed and deposit egg masses in the shallow, sandy pools of these streams, which are usually bordered by sand-gravel flood-terraces. Stream order, elevation, and flood plain width appear to be important factors in determining habitat capability (Sweet 1992, Barto 1999, Griffin 1999). High stream order (i.e., third to sixth order), low elevation (particularly below 3,000 feet), and wide flood plains seem to be positively correlated with arroyo toad population size. However, small arroyo toad populations are found along first and second order streams at elevations up to 4,600 feet in some locations. Outside of the breeding season, arroyo toads are essentially terrestrial and are known to use a variety of upland habitats including, but not limited to, sycamore-cottonwood woodlands, oak woodlands, coastal sage scrub, chaparral, and grassland (Holland 1995, Griffin et al. 1999).

Breeding typically occurs from February to July on streams with persistent water (Griffin et al. 1999). Female arroyo toads must feed for a minimum of approximately two months to develop the fat reserves needed to produce a clutch of eggs. Eggs are deposited and tadpoles develop in shallow pools with minimal current and little or no emergent vegetation. The substrate in these pools is generally sand or fine gravel overlain with silt. The eggs hatch in 4 to 5 days and the tadpoles are essentially immobile for an additional 5 to 6 days. They then begin to disperse from the pool margin into the surrounding shallow water, where they spend an average of 10 weeks. After metamorphosis (June and July), the juvenile arroyo toads remain on the bordering gravel bars until the pool dries out (usually from 8 to 12 weeks depending on the site and rainfall). Most individuals become sexually mature by the following spring (Sweet 1992).

Arroyo toad tadpoles feed on loose organic material such as interstitial algae, bacteria, and diatoms. They do not forage on macroscopic vegetation (Sweet 1992, Jennings and Hayes

1994). Juvenile arroyo toads feed on ants almost exclusively (Service 1999). By the time they reach 0.7 to 0.9 inch in length, they consume more beetles, along with the ants (Sweet 1992, Service 1999). Adult arroyo toads probably consume a wide variety of insects and arthropods including ants, beetles, spiders, larvae, caterpillars, and others.

Individual arroyo toads have been observed to move approximately 1 mile along a stream reach and 0.6 mile away from the stream, into native upland habitats (Sweet 1992, Holland 1995) or agricultural areas (Griffin et al. 1999). Movement distances may be regulated by topography and channel morphology. Griffin (1999) reported a female arroyo toad traveling more than 948 feet perpendicular from a stream and Holland (1998) found arroyo toads 0.7 mile from a water course. At Little Rock Creek, on the desert slopes of the San Gabriel Mountains, arroyo toads were found up to approximately 120 feet from the active channel; they burrowed closer to the active stream channel as the time after the last spring rain increased (Ramirez 2000). Arroyo toads are critically dependent on upland terraces and the marginal zones between stream channels and upland terraces during the non-breeding season, especially during periods of inactivity, generally late fall and winter (Sweet 1992).

A study by Ramirez (2003) found that arroyo toads generally burrowed within sandy or loamy substrates with no associated canopy cover, or within mule fat (*Baccharis salicifolia*) scrub or arroyo willow (*Salix lasiolepis*) patches. The majority of individuals tracked in that study were located immediately adjacent to the active channel or within the bench habitats located within flood prone areas. Arroyo toads are known to aestivate in their burrows during the non-breeding season, which usually starts in the late summer and extends from August to January (Ramirez 2003).

Arroyo toads have disappeared from approximately 75 percent of the previously occupied habitat in California. They were known historically to occur in coastal drainages in southern California from San Luis Obispo County to San Diego County and in Baja California, Mexico. In Orange and San Diego counties, the species occurred from estuaries to the headwaters of many drainages. In 1996, arroyo toads were discovered on Fort Hunter Liggett, Monterey County. This discovery constituted a northern range expansion for the species. Populations of this species also occur on the desert slopes of both the San Gabriel Mountains (in Little Rock Creek in Los Angeles County) and the San Bernardino Mountains (in the Mojave River and in its tributaries, Little Horsethief and Deep creeks, in San Bernardino County). Arroyo toads now survive primarily in the headwaters of coastal streams as small isolated populations, having been extirpated from much of their historic habitat.

A variety of factors have contributed to the decline of arroyo toads but nearly half of extirpations can be attributed to dam building and operation (Sweet 1992; Ramirez 2003). Suitable habitat is often flooded out by reservoir water and downstream breeding and non-breeding habitat are impacted by reduced flows, as well as unnatural discharges that increase flow rates. These unnatural releases of water destroy sand bars used during the breeding season, and reconfigure or destroy suitable breeding pools, thus disrupting clutch and larval development (Ramirez 2003).

Other threats to arroyo toads include flood control projects, agriculture, sand and gravel mining, urban development, off-highway vehicle use, urbanization, and recreational activities such as camping, fishing, hiking, and the use of campgrounds (Service 1999; Ramirez 2003). The introduction of non-native species that compete for resources or that prey on arroyo toads also pose a serious threat to arroyo toad existence. Non-native bullfrogs (*Rana catesbeiana*) and African clawed frogs (*Xenopus laevis*) are known to feed on arroyo toads in various life stages. Non-native plant species, particularly tamarisk (*Tamarix* spp.) and giant reed (*Arundo donax*) alter the natural hydrology of stream drainages by eliminating sandbars and breeding pools and upland habitats. In summary, the loss of habitat, coupled with habitat modifications due to the manipulation of water levels in many central and southern California streams and rivers, and predation from introduced aquatic species, have caused arroyo toads to disappear from a large portion of their previously occupied habitat in California (Jennings and Hayes 1994).

The recovery plan for the arroyo toad divides its range into the northern, southern, and desert recovery units (Service 1999). The recovery plan recommends that the arroyo toad be reclassified as a threatened species when management plans have been developed and implemented to secure the genetic and phenotypic variation of the species in each recovery unit; this goal would be accomplished by conserving the necessary riparian and upland habitats on federally managed lands. Delisting would be pursued when 15 additional self-sustaining populations of arroyo toads are known to exist, including those that occur on lands that are not managed by Federal agencies.

California Red-legged Frog

The California red-legged frog was federally listed as threatened on May 23, 1996 (61 *FR* 25813). A recovery plan has been published (Service 2002).

Detailed information on the biology of California red-legged frogs can be found in Storer (1925), Stebbins (2003), and Jennings et al. (1992). This species is the largest native frog in the western United States, ranging from 1.5 to 5.1 inches in length. The abdomen and hind legs of adults are largely red; the back is characterized by small black flecks and larger irregular dark blotches with indistinct outlines on a brown, gray, olive, or reddish background color. Dorsal spots usually have light centers, and dorsolateral folds are prominent on the back. Tadpoles range from 0.6 to 3.1 inches in length and are dark brown and yellow with dark spots.

California red-legged frogs spend most of their lives in and near sheltered backwaters of ponds, marshes, springs, streams, and reservoirs. Deep pools with dense stands of overhanging willows and an intermixed fringe of cattails are considered optimal habitat. Eggs, larvae, transformed juveniles, and adults also have been found in ephemeral creeks and drainages and in ponds that do not have riparian vegetation. Accessibility to sheltering habitat is essential for the survival of California red-legged frogs within a watershed, and can be a factor limiting population numbers and distribution. Some California red-legged frogs have moved long distances over land between water sources during winter rains. Adult California red-legged frogs have been documented to move more than 2 miles in northern Santa Cruz County "without apparent regard

to topography, vegetation type, or riparian corridors" (Bulger et al., 2003). Most of these overland movements occur at night.

California red-legged frogs breed from November through March with earlier breeding records occurring in southern localities. California red-legged frogs are often prolific breeders, typically laying their eggs during or shortly after large rainfall events in late winter and early spring. Female California red-legged frogs deposit egg masses on emergent vegetation so that the masses float on the surface of the water. Egg masses contain about 2,000 to 5,000 moderate-sized (0.08 to 0.11 inch) in diameter, dark reddish brown eggs. Embryos hatch 6 to 14 days after fertilization and larvae require 3.5 to 7 months to attain metamorphosis. Tadpoles probably experience the highest mortality rates of all life stages, with less than 1 percent of eggs laid reaching metamorphosis. Sexual maturity normally is reached at 3 to 4 years of age; California red-legged frogs may live 8 to10 years. Juveniles have been observed to be active diurnally and nocturnally, whereas adults are mainly nocturnal.

The diet of California red-legged frogs is highly variable. Invertebrates are the most common food items for adults, although vertebrates such as Pacific treefrogs (*Hyla regilla*) and California mice (*Peromyscus californicus*) can constitute over half of the prey mass eaten by larger frogs (Hayes and Tennant 1985). Larvae likely eat algae.

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. At present, California red-legged frogs are known to occur in 243 streams or drainages in 22 counties, primarily in central coastal California. The most secure aggregations of California red-legged frogs are found in aquatic sites that support substantial riparian and aquatic vegetation and lack non-native predators. Over-harvesting, habitat loss, non-native species introduction, and urban encroachment are the primary factors that have negatively affected the California red-legged frog throughout its range (Jennings and Hayes 1985, Hayes and Jennings 1988). Ongoing causes of decline include direct habitat loss due to stream alteration and disturbance to wetland areas, indirect effects of expanding urbanization, and competition or predation from non-native species.

Although the presence of California red-legged frogs is correlated with still water deeper than approximately 1.6 feet, riparian shrubbery, and emergent vegetation (Jennings and Hayes 1985), there are numerous locations in the species' historical range where these elements are well represented yet California red-legged frogs appear to be absent. The cause of local extirpations does not appear to be restricted solely to loss of aquatic habitat. The most likely causes of local extirpation are thought to be changes in faunal composition of aquatic ecosystems (i.e., the introduction of non-native predators and competitors) and landscape-scale disturbances that disrupt California red-legged frog population processes, such as dispersal and colonization. The introduction of contaminants or changes in water temperature may also play a role in local extirpations. These changes may also promote the spread of predators, competitors, parasites, and diseases.

Critical Habitat for the California Red-legged Frog

Critical habitat for the California red-legged frog was first designated on March 13, 2001 (66 *FR* 14625). On November 6, 2002, the United States District Court for the District of Columbia set aside the designation and ordered the Service to publish a new final rule with respect to the designation of critical habitat for the California red-legged frog (*Home Builders Association of Northern California et al. versus Gale A Norton, Secretary of the Department of Interior et al.* Civil Action No. 01-1291 (RJL) U.S. District Court, District of Columbia.). The Service published a new proposed rule to designate critical habitat for the California red-legged frog on April 13, 2004 (69 *FR* 19620). Critical habitat for the California red-legged frog was re-designated on April 13, 2006 (71 FR 19244).

The critical habitat encompasses 450,288 acres in Alameda, Butte, Contra Costa, El Dorado, Kern, Los Angeles, Marin, Merced, Monterey, Napa, Nevada, San Benito, San Luis Obispo, San Mateo, Santa Barbara, Santa Clara, Santa Cruz, Solano, Ventura and Yuba Counties, California. In addition, the Service finalized a special rule pursuant to section 4(d) of the Act, associated with final listing of the California red-legged frog as threatened, for existing routine ranching activities (71 FR 19244).

For critical habitat of the California red-legged frog, we identified the following features essential to the conservation of the species: aquatic breeding habitat, non-breeding aquatic habitat, upland habitat, and dispersal habitat. Aquatic breeding habitat consists of freshwater bodies both natural and manmade (e.g., stock ponds and backwaters within streams) and is essential for providing space, food, and cover necessary to sustain all life stages of California red-legged frogs. The aquatic non-breeding habitat is essential for providing the space, food, and cover necessary to sustain California red-legged frogs. Non-breeding aquatic habitat consists of those aquatic elements identified above, and also includes, but is not limited to, other wetland habitats such as intermittent creeks, seeps, and springs. Upland habitat is defined as occurring within 200 feet of the edge of the riparian vegetation or the dripline surrounding aquatic and riparian habitat, and comprises various vegetation series such as grasslands, woodlands, and/or wetland/riparian plant species that provide shelter, forage, and predator avoidance. Upland habitat can include structural features such as boulders, rocks and organic debris (e.g., downed trees, logs), as well as small mammal burrows and moist leaf litter. Dispersal habitat is defined as accessible upland or riparian habitat within designated units and between occupied locations within 0.7 mile of each other that allows for movement between sites.

Least Bell's Vireo

The least Bell's vireo was federally listed as endangered on May 2, 1986 (51 *Federal Register* 16474), and critical habitat was designated in 1994 (59 *Federal Register* 4845). The species was listed due to extensive loss of habitat, brood parasitism, and lack of adequate protective regulations. Critical habitat was designated for the least Bell's vireo on February 2, 1994 (59 *Federal Register* 4845). Within the counties listed and covered in the biological opinion, designated critical habitat is present only along the Santa Ynez River in Santa Barbara County,

above Gibraltar Reservoir. A draft recovery plan for the species was completed in 1998. The least Bell's vireo is also State-listed as endangered.

The least Bell's Vireo typically breeds in willow riparian forests supporting a dense, shrubby understory of mulefat (*Baccharis salicifolius*) and other mesic species (Goldwasser 1981, Gray and Greaves 1984, Franzreb 1989). Oak woodland with a willow riparian understory is also used in some areas (Gray and Greaves 1984). The most important aspect of least Bell's vireo habitat is the presence of dense cover within 3.25 to 6.5 feet of the ground, where nests are typically placed and a dense stratified canopy for foraging (Goldwasser 1981, Gray and Greaves 1981, Salata 1981). Although least Bell's vireos typically nest in willow-dominated areas, plant species composition does not appear to be as important a determinant of nesting site selection as habitat structure (USFWS 1998).

Bell's vireos are insectivorous, preying on a wide variety of insects, including bugs, beetles, grasshoppers, moths, and particularly caterpillars (Chaplin 1925, Bent 1950). They obtain prey primarily by foliage gleaning and hovering (USFWS 1998). Foraging occurs at all levels of the canopy, but appears to be concentrated in the lower to mid-strata, particularly when pairs have active nests (Grinnell and Miller 1944, Goldwasser 1981, Gray and Greaves 1981, Salata 1983, Miner 1989). Foraging occurs most frequently in willows (Salata 1983, Miner 1989).

The least Bell's vireo is a subtropical migrant, traveling some two thousand miles annually between breeding and wintering grounds. The earliest studies of color-banded least Bell's vireos suggested that they were strongly site tenacious; once birds selected a breeding site, they returned to it year after year (Salata 1983, Greaves 1989). Not only do least Bell's vireos return to the same drainage, they often return to the same territory and even the same tree or shrub to nest (USFWS 1998). Recent studies have found, however, that least Bell's vireos may change locations during their first few breeding seasons.

Least Bell's vireos arrive on the southern California breeding grounds in mid-March to early April, with males arriving in advance of females by several days (USFWS 1998). They are generally present on the breeding grounds until late September, although they may begin departing by late July (Garrett and Dunn 1981, Salata 1983). Males establish and defend territories through counter-singing, chasing, and sometimes physically confronting neighboring males. In general, a least Bell's vireo's territory is between 0.5 and 7.5 acres (USFWS 1998). Least Bell's vireos begin nest building a few days after pair formation. Nests are typically constructed in the fork of a tree or shrub branch within 3 feet of the ground and are placed in a wide variety of plant species including willows (*Salix spp.*), mule fat, California wild rose (*Rosa californica*), poison oak (*Toxicodendron diversilobum*), grape (*Vitus californica*), elderberry (*Sambucus mexicana*), Fremont cottonwood (*Populus fremontii*), California sycamore (*Platanus racemosa*), coast live oak (*Quercus argifolia*), and several herbaceous species (USFWS 1998). Egg laying begins one to two days after nest completion. Least Bell's vireos typically lay four eggs, occasionally two, and rarely five. Both parents share in incubation, which takes

approximately 14 days. Upon hatching, nestlings are fed by both parents for 10-12 days until fledging, and are then cared for by the parents for an additional two weeks until the defense of territorial boundaries is relaxed (USFWS 1998).

Historically, the least Bell's vireo was widespread and abundant, ranging from interior northern California near Red Bluff (Tehama County), south through the Sacramento-San Joaquin Valleys and the Sierra Nevada foothills, and in the Coast Ranges from Santa Clara County south to approximately San Fernando, Baja California, Mexico. Populations also were found in Owens Valley, Death Valley, and at scattered oases and canyons throughout the Mojave Desert (USFWS 1998). By the early 1980s, the least Bell's vireo had been extirpated from the Sacramento and San Joaquin Valleys, once the center of its breeding range, and the species was restricted to two localities in the Salinas River Valley in Monterey and San Benito Counties, one locality along the Amargosa River (Inyo County), and numerous small populations in southern California south of the Tehachapi Mountains and in northwestern Baja California, Mexico (Gaines 1977, Goldwasser 1978, Goldwasser et al. 1980, Unitt 1984, Wilbur 1987).

The decline of the least Bell's vireo was mainly attributable to habitat loss due to flood control, development, channelization, water extraction, agriculture, and other human-caused factors that eliminated large areas of riparian habitat. The species has also been under assault by the brown-headed cowbird (*Molothrus ater*) which is a brood parasite; the female cowbirds lay their eggs in the nests of other birds and the host birds raise the cowbirds' young to the detriment of its own brood.

Southwestern Willow Flycatcher

The southwestern willow flycatcher was federally listed as endangered on February 27, 1995 (60 FR 10694) and critical habitat was designated for the subspecies on October 19, 2005 (70 FR 60886). The recovery plan for the subspecies was completed in August 2002 (Service 2002a).

The southwestern willow flycatcher occurs in riparian woodlands along streams and rivers with mature, dense stands of willows (*Salix* spp.), cottonwoods, or smaller spring-fed areas with willows or alders (*Alnus* spp.). They forage within, and occasionally above, the canopy of riparian vegetation, taking insects on the wing or gleaning them from vegetation. Nesting habitat consists of even-aged, structurally homogeneous, and dense riparian vegetation (Brown 1988, Sedgwick and Knopf 1992). Historically, they nested primarily in willows and mule fat with a scattered overstory of cottonwood (Grinnell and Miller 1944). Following recent changes in riparian plant communities, nesting occurs in willows where available, but can also include thickets dominated by tamarisk (*Tamarix* spp.) and Russian olive (*Elaeagnus angustifolia*) (Brown 1988). Fragmented riparian zones with large distances between willow patches and individual willow plants are usually not selected for either nesting or singing (Sedgwick and Knopf 1992).

Southwestern willow flycatchers are typically present and singing on breeding territories by mid-May, although presence and status are often confused by migrating individuals of the northern

subspecies (little willow flycatcher; *Empidonax trailii brewsteri*) passing through breeding habitat. The southwestern willow flycatcher builds nests and lays its eggs in late May to early June. They typically raise one brood per year, and clutch size is 3 to 4 eggs (Service 2002a). Fledglings depart the nest at the age of 12 to 15 days in early July and usually disperse from the natal territory at the age of 26 to 30 days. Some variation in these dates has been observed and may be related to altitude, latitude, and re-nesting. Territories range in size from 0.25 to 5.7 acres, although most are 0.5 to 1.2 acres (Service 2002a). Adults depart from breeding territories in mid-August to early September. Sixty-six to 78 percent of breeding southwestern willow flycatchers known to have survived returned to the same breeding sites (Service 2002a). The southwestern willow flycatcher's current breeding range extends from southern California to western Texas, including portions of southernmost Nevada and Utah, southwestern Colorado, and northernmost Sonora and Baja California del Norte. Its current range is similar to the historic range, but the quantity of suitable habitat within that range has been much reduced from historical levels. The historic range of the southwestern willow flycatcher in California included all lowland riparian areas in the southern third of the state (Service 2002a). The flycatcher migrates to Mexico, Central, and possibly northern South America during the non-breeding season.

The decline of the southwestern willow flycatcher is attributed to numerous factors, including nest depredation and brood parasitism by the brown-headed cowbird. However, large scale loss of southwestern wetlands, particularly cottonwood-willow riparian habitat, is the principal reason for the southwestern willow flycatcher's current status. Habitat loss is a result of urban and agricultural development, water diversion and impoundment, livestock grazing, and hydrological changes attributable to these and other land uses (60 FR 10694).

Critical Habitat of the Southwestern Willow Flycatcher

The primary constituent elements of critical habitat for southwestern willow flycatcher are: (i) Riparian habitat in a dynamic successional riverine environment (for nesting, foraging, migration, dispersal, and shelter) with (A) supporting trees and shrubs such as willows (Salix spp.), boxelder (*Acer negundo*), tamarisk, Russian olive (*Eleagnus angustifolia*), cottonwood, stinging nettle (*Urtica dioica*), alders (*Alnus* spp.), velvet ash (*Fraxinus velutina*), poison hemlock (*Conium maculatum*), blackberry (*Rubus ursinus*), mulefat, oaks (*Quercus agrifolia, Quercus chrysolepis*), rose (*Rosa californica, Rosa arizonica, Rosa multiflora*), sycamore (*Platanus wrightii, Platanus racemosa*), false indigo (*Amorpha californica*), Pacific poison ivy (*Toxicodendron diversilobum*), grape (*Vitus arizonica*), Virginia creeper (*Parthenocissus cinquefolia*), Siberian elm (*Ulmus pumila*), and walnut (*Juglans hindsii*); (B) dense riparian vegetation with thickets of trees and shrubs ranging in height from 6 to 98 ft. Lower-stature thickets (6 to 13 ft tall) are found at higher elevation riparian forests, and tall stature thickets are found at middle- and lower-elevation riparian forests; (C) areas of dense riparian foliage at least from the ground level up to approximately 13 ft above ground or dense foliage only at the shrub level, or as a low, dense tree canopy; (D) Sites for nesting that contain a dense tree and/or shrub canopy (the amount of cover provided by tree and shrub branches measured from the ground) (i.e., a tree or shrub canopy with densities ranging from 50 percent to 100 percent); or (E) Dense

patches of riparian forests that are interspersed with small openings of open water or marsh, or shorter/sparser vegetation that creates a mosaic that is not uniformly dense. Patch size may be as small as 0.1 ha (0.25 ac) or as large as 70 ha (175 ac); and (ii) diverse insect prey populations found within or adjacent to riparian floodplains or moist environments, including: flying ants, wasps, and bees (Hymenoptera); dragonflies (Odonata); flies (Diptera); true bugs (Hemiptera); beetles (Coleoptera); butterflies/moths and caterpillars (Lepidoptera); and spittlebugs (Homoptera).

Critical habitat for the southwestern willow flycatcher has been designated across a wide portion of the subspecies' range and is organized into Management Units (as described in the Recovery Plan). We designated stream segments in 15 Management Units found in 5 Recovery Units as critical habitat for the southwestern willow flycatcher. The stream segments designated occur in southern California, southern Nevada, southwestern Utah, Arizona, and New Mexico. Critical habitat segments provide riparian habitat for breeding, migrating, non-breeding, territorial, and dispersing southwestern willow flycatchers. Due to the dynamic nature of riparian habitat and the variety of purposes and conditions that are used by the flycatcher for life-history needs, a location in these segments that has a specific purpose today, such as a breeding site, foraging location, or areas used for migration or dispersal, can change over time (sometimes within a year or over a few years). Changes can occur due to flooding, drought, fire, or choices in land management. These changes can result in an increase or decrease in habitat suitability, growth, and location depending on which influence is exercised. Although all of the designated segments are within the geographical area occupied by the species, not all of the areas known to be occupied by the southwestern willow flycatcher were included.

ENVIRONMENTAL BASELINE

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* 402.02). For the purposes of this biological opinion, we consider the action area to include all watercourses within San Luis Obispo, Santa Barbara, Ventura, and Los Angeles Counties within the jurisdiction of the Ventura Fish and Wildlife Office, which could or do support runs of anadromous salmonids. Because of the generality of the proposed action, we are unable to identify those specific watercourses where restoration projects could occur, so our baseline descriptions below are not specific in most cases. We assume and have noted that most FRGP projects are implemented on the coastal plain or low in a watershed; therefore, we have excluded from the action area portions of watersheds above dams or other barriers, or high up in watersheds where FRPG projects are not likely to be proposed.

Tidewater Goby

Tidewater gobies generally select habitat in the upper parts of an estuary, usually within the fresh-saltwater interface. Tidewater gobies range upstream a short distance into fresh water, and downstream into water of up to about 75 percent sea water. The species is typically found

in salinities of less than 12 parts per thousand (Swift *et al.* 1989). These conditions occur in two relatively distinct situations: 1) the upper edge of tidal bays, near the entrance of freshwater tributaries, and 2) the coastal lagoons formed at the mouths of coastal rivers, streams, or seasonally wet canyons.

Tidewater gobies are known to occur in numerous lagoons and estuaries within the area under our jurisdiction that would be covered by the Corps' RGP for the FRGP. Tidewater gobies are absent from areas where the coastline is steep and streams do not form lagoons or estuaries. For example, a large natural gap in the distribution occurs between the Salinas River, (Monterey County), southward to Arroyo del Oso (northern San Luis Obispo County), because of very steep shorelines preventing lagoon development. Another large gap occurs in the Los Angeles Basin between city of Santa Monica (western Los Angeles County) and Aliso Creek (central Orange County).

Tidewater goby localities closely correspond to major drainages. Sediments provided by these streams produce sandy beaches with low-lying coastal areas conducive to formation of coastal lagoons (Swift *et al.* 1989; Habel and Armstrong 1977). Recolonization of extirpated localities has been documented as occurring when extant populations are present within several miles (Holland 1992; Lafferty *et al.* 1999a, 1999b). More recently, tidewater gobies have been found in localities once considered extirpated and that are separated from the nearest extant tidewater goby locality by 6.2 to 12.4 miles. In 1995, tidewater gobies were found for the first time in Cañada Honda, Santa Barbara County (Lafferty *et al.* 1996). Tidewater gobies had never been found in this locality during previous surveys. The locality was observed to go nearly dry during the drought of the late 1980's and early 1990's (C. Swift, pers. comm. 1995). The nearest locality to Cañada Honda is the Santa Ynez River, 6.5 miles to the north. These more recent records suggest that distant movement by tidewater gobies is possible. However, the source of these recolonizations may have been small numbers of individuals present in these localities that were missed by surveyors (K. Lafferty, U.S. Geological Survey, pers. comm. 1996).

Critical Habitat for the Tidewater Goby

Critical habitat for the tidewater goby in the action area includes 21 units totaling 1,070 acres (10.7 percent of the total designation). They are:

SLO-1 Arroyo del Corral (5 acres)
SLO-2 Oak Knoll Creek (3 acres)
SLO-3 Little Pico Creek (2 acres)
SLO-4 San Simeon Creek (16 acres)
SLO-5 Villa Creek (5 acres)
SLO-6 San Geronimo Creek (1 acre)
SLO-7 Pismo Creek (18 acres)
SB-1 Santa Maria River (468 acres)
SB-2 Cañada de las Agujas (1 acre)
SB-3 Cañada de Santa Anita (3 acres)

SB-4 Cañada de Alegria (1 acre)
SB-5 Cañada de Agua Caliente (1 acre)
SB-6 Gaviota Creek (9 acres)
SB-7 Winchester-Bell Canyons (6 acres)
SB-8 Arroyo Burro (2 acres)
SB-9 Mission Creek – Laguna Channel (14 acres)
VEN-1 Ventura River (51 acres)
VEN-2 Santa Clara River (350 acres)
VEN-3 J Street Drain (45 acres)
LA-1 Malibu Creek (64 acres)
LA-2 Topanga Creek (5 acres)

According to the final critical habitat rule, these units represent the range of special management needs to conserve the tidewater goby. The threats facing these units include: coastal development, water diversions, non-point source pollution, channelization, and cattle grazing.

Unarmored Threespine Stickleback

Within the action area, the unarmored threespine stickleback occurs only on Vandenberg Air Force Base in Cañada Honda and San Antonio Creeks. The unarmored threespine stickleback in Cañada Honda are considered introduced. San Antonio Creek has been surveyed numerous times in previous years for the presence of unarmored threespine sticklebacks and other special-status fishes. The following information was obtained from the Special-Status Fish Species Survey Report for San Antonio Creek (Tetra Tech 1999). (Unarmored threespine sticklebacks do occur in the upper Santa Clara River watershed, Los Angeles and Ventura Counties, but we believe their occurrences are outside of the area in which FRGP projects would be proposed.)

Dr. Camm Swift conducted surveys for special-status fish in San Antonio Creek from around the Lompoc-Casmalia Road Crossing downstream to the lagoon (Tetra Tech 1999). Dr. Swift surveyed San Antonio Creek visually, confirming his observations by occasional seine hauls; careful seining, removal, counting, measuring, and returning of all fishes in 320-foot sections in the creek; setting and monitoring a downstream trap for seaward migrating steelhead just above Lompoc-Casmalia Road; and careful seining of multiple, 256 square-foot quadrants in the lagoon, primarily to obtain quantitative estimates of the tidewater goby population in the lagoon (Tetra Tech 1999).

The unarmored threespine stickleback was the most common fish observed in the creek above the lagoon and is much more abundant in the upper half of the creek area that was surveyed due to the lower stream gradient, slower water velocity, more spread out channel, and lack of native or invasive aquatic predators. The unarmored threespine stickleback comprised approximately 70 percent of fish observed (excluding the survey transects and lagoon surveys) and comprised 99 percent of fish observed in the transects along with small numbers of arroyo chub (*Gila orcutti*), prickly sculpin (*Cottus asper*), mosquitofish, and tidewater goby (Tetra Tech 1999).

Approximately 48,000 unarmored threespine sticklebacks were estimated to inhabit the lower 5 miles of the creek above the lagoon with an average of 1.94 sticklebacks per yard, assuming that the deeper ponded areas not represented in the survey transects had about the same number of sticklebacks as the areas surveyed. The density of stickleback was the highest in the 1.2 miles above and below the El Rancho Road crossing. The unarmored threespine stickleback occurs upstream of VAFB in San Antonio Creek at least as far as Barka Slough (Tetra Tech 1999).

Arroyo Toad

The historical range of the arroyo toad extends from the upper Salinas River system on Fort Hunter Liggett Military Reservation, Monterey County (U.S. Army Reserve Command 1996), south through the Santa Ynez, Santa Clara, and Los Angeles River basins (Myers 1930, Sanders 1950, Stebbins 1951, Sweet 1992) and the coastal drainages of Orange, Riverside, and San Diego Counties, to the Arroyo San Simeon system, about 10 miles southeast of San Quintin, Baja California (Tevis 1944, Gergus *et al.* 1997). Since the early part of this century, arroyo toads have been found in at least 22 river basins in California.

Although arroyo toads may be found along relatively long stretches of some creeks and rivers, suitable breeding or upland habitat may not occur throughout the entire distance. The proportion of suitable habitat may change during the year and from year to year depending on climatic conditions, fires, or other natural or human-related events. Because of this, it is difficult to estimate the exact distribution of arroyo toads or the extent of suitable habitat in any particular system at a given time. Some events or activities clearly have resulted in permanent losses of habitat, while others have caused degradation or temporary habitat losses. The latter may be reversed by appropriate recovery actions.

Within the action area, arroyo toads originally were found in the upper Salinas River basin near Santa Margarita, San Luis Obispo County, on June 12, 1936 (Miller and Miller 1936). Surveys of the area during the 1980's and 1990's located no arroyo toads (S. S. Sweet, pers. comm. 1997). The available arroyo toad habitat probably was affected adversely by the construction of Santa Margarita Dam, approximately 10 miles upstream from the collection site.

Arroyo toads have been reported from the Sisquoc River, Los Padres National Forest, since June 1991 (Campbell *et al.* 1996). The area of suitable habitat for the arroyo toad extends from the vicinity of the junction with Manzana Creek upstream to the vicinity of Sycamore Campground (elevation 1,150 to 2,050 feet), a distance of about 9 miles. Apart from some grazing and low-intensity recreational use, this section of the Sisquoc River is essentially free from habitat disturbances and introduced aquatic predatory species that affect arroyo toad populations elsewhere (Sweet 1992). The number of adult arroyo toads present in this population is unknown. Arroyo toad populations may be located on the lower reaches of the Sisquoc River and its tributaries, such as La Brea and Manzana Creeks, and on other tributaries of the Santa Maria River such as the Huasna River, Cuyama River, and Alamo Creek. The area where toads have been reported is affected by grazing and sand and gravel mining.

Arroyo toads are present at scattered locations on the upper Santa Ynez River, above Gibraltar Reservoir, from Mono Creek to Fox Creek upstream of Juncal Campground, below Juncal Dam (elevation 1,400 to 1,850 feet), a distance of about 8.6 miles. They also are present on the lower reaches of Mono Creek (at the upper end of Gibraltar Reservoir) and Indian Creek from their confluences with the Santa Ynez River to elevations of about 1,700 feet and 1,500 feet respectively, a distance of about 3.5 miles. Arroyo toads in the upper Santa Ynez River were affected by the construction during the 1920's and subsequent operation of Gibraltar Dam, and by the construction during the 1930's and subsequent operation of Juncal Dam. There is a lack of sand and silt in the Santa Ynez River bed below Juncal Dam (C. Charles Evans, Montecito Water District, *in litt.* 1998), probably as a result of sediment trapping in Jameson Lake by Juncal Dam. This has degraded the breeding and foraging habitat for arroyo toads.

The most recent studies on these subpopulations indicate that they are currently small, with the largest number of toads found in Mono Creek. All of these arroyo toad subpopulations are threatened by off-highway vehicles and recreational use of roads and campgrounds in the area (Sweet 1992, 1993). The toads along the Santa Ynez River additionally are affected by introduced fishes (especially green sunfish, bluegill [*Lepomis macrochirus*], and fathead minnows [*Pimephales promelas*]), bullfrogs, and flow regulation of the river (Sweet 1993). Louisiana red-swamp crayfish (*Procambarus clarkii*) and bullfrogs are well-established in Jameson Lake. Tamarisk, an invasive non-native plant, has become established on some sandy terraces, reducing foraging habitat. Interactions of current small population sizes with natural events such as fires, floods, and droughts, and human-induced changes, including collecting, may lead to local extirpation of some subpopulations.

Arroyo toads were found in the Santa Clara River basin on May 22, 1912, at Santa Paula, Ventura County (Camp 1915). This site (now located along Highway 150) apparently was part of a formerly extensive oak (*Quercus* spp.) woodland on the floodplain near Santa Paula Creek. The creek floodplain from 250 to 400 feet elevation, a distance of about 3 miles, has been urbanized extensively and arroyo toads have been extirpated from the area (M. R. Jennings, unpubl. data). The species has also been reported from the Santa Clara River in Los Angeles County, near the city of Santa Clarita and Soledad Canyon. These latter areas are far upstream in the drainage and not likely to be subject to FRGP projects.

A large number of arroyo toads persists along Sespe Creek, Los Padres National Forest, Ventura County, from about Hot Springs Canyon upstream to the mouth of Tule Creek (Sweet 1992). The stream reach with suitable arroyo toad habitat is 15 miles and the elevational range is 2,250 to 3,400 feet. The upper half of the portion of Sespe Creek inhabited by arroyo toads had large areas of excellent habitat and numerous high-quality breeding pools, while the lower portion supports few stream terraces with suitable substrates, and fewer pools appropriate for use as arroyo toad breeding sites (Sweet 1992). Current impacts to this population include recreational activities such as off-highway vehicles, fishing, camping, random events such as fires and floods, and the spread of introduced aquatic predators such as green sunfish, black bullheads (*Ameiurus melas*), and bullfrogs.

Along Piru Creek, Ventura and Los Angeles Counties, arroyo toads historically were found between the mouth (elevation 660 feet) and Bear Gulch (elevation 3,100 feet) (Sanders 1950). With the construction of Lake Piru in the 1950's and Pyramid Lake in the 1970's, arroyo toads were eliminated from much of their historic range in the drainage and now are restricted to short segments above each of the two reservoirs (Sweet 1992). The lower segment is from Blue Point Campground upstream to lower Piru Gorge (elevation 1,100 to 1,350 feet), a distance of 3.5 miles, and the upper segment is from the headwaters of Pyramid Lake upstream to Bear Gulch (elevation 2,500 to 3,100 feet), a distance of 4.5 miles. A population of arroyo toads is also present in the lower 1 mile section of Agua Blanca Creek (Sweet 1992). Upper Piru Creek generally has small populations of arroyo toads distributed in a range of good to marginal habitats, while lower Piru Creek generally has larger numbers of arroyo toads distributed over areas of good to excellent habitat that generally are undisturbed by human activities (Sweet 1992). Toads in both areas are affected by recreational activities. The upper section of Piru Creek also has been impacted by placer mining and off-highway vehicle use. The lower section of Piru Creek is affected by the introduction of Louisiana red-swamp crayfish, bullfrogs, exotic fishes (especially green sunfish, black bullhead, prickly sculpin [*Cottus asper*], and largemouth bass [*Micropterus salmoides*]), recreational activities in and around campgrounds, flow regulation from Pyramid Lake, and grazing of the riparian zone by livestock (Sweet 1992; Campbell *et al.* 1996; D. C. Holland, *in litt.* 1997).

Along Castaic Creek, Los Angeles County, on California Department of Water Resources land and the Angeles National Forest, arroyo toads recently were found below the dam at Castaic Lake, over a distance of 2 miles, as well as above the reservoir in the dredge spoils, over a distance of about 1 mile (Campbell *et al.* 1996; Frank T. Hovore, Planning Consultants Research, Santa Monica, CA; pers. comm. 1997). The toads probably were more widespread in the Castaic Creek drainage between 1,450 to 1,575 feet elevation before the reservoir was constructed in the 1970's. Toads at both sites currently are affected by exotic aquatic predators, off-highway vehicles, flooding, and recreational activities. Toads at the lower site are threatened also by water flow regulation and potential urban development of the surrounding hillsides (Campbell *et al.* 1996).

In summary, arroyo toads are found in several large drainages within the action area. It is likely that they also occur in tributaries to these drainages. Unlike areas to the south, arroyo toads tend to occupy the upper reaches of these drainages, and not the coastal plains as is observed in Orange and San Diego Counties, so many of them may not be in areas where FRGP projects are implemented.

California red-legged frog

The mechanisms for decline of the California red-legged frog are poorly understood. Although presence of California red-legged frogs is correlated with stillwater pools deeper than approximately 1.6 feet, riparian shrubbery, and emergent vegetation (Jennings and Hayes 1985), there are numerous locations in the species' historical range where these elements are well represented yet California red-legged frogs appear to be absent. The cause of local extirpations

therefore does not appear to be restricted solely to loss of aquatic habitat. The most likely causes of local extirpation are thought to be changes in faunal composition of aquatic ecosystems (i.e., the introduction of non-native predators and competitors) and landscape-scale disturbances that disrupt California red-legged frog population processes, such as dispersal and colonization. The introduction of contaminants or changes in water temperature may also play a role in local extirpations. These changes may also promote the spread of predators, competitors, parasites, and diseases.

The central California coast supports the greatest number of drainages currently occupied by California red-legged frogs. Most coastal drainages in San Luis Obispo County are occupied by the species, although they get less common as you move farther south into Santa Barbara, Ventura, and Los Angeles Counties. Some seemingly suitable drainages in these latter counties may not support California red-legged frogs, especially in the most southern part of the action area.

Since the California red-legged frog was listed as threatened on May 23, 1996 (61 *FR* 25813), this office has completed numerous formal consultations on the effects of proposed projects on the California red-legged frog in the action area for this consultation (San Luis Obispo, Santa Barbara, Ventura, and Los Angeles Counties). None of the projects subject to these consultations were expected to appreciably reduce the environmental baseline for the California red-legged frog in the action area. The actions were generally small, short-term, and included post-project restoration. The listing has prompted several restoration projects intended to benefit the California red-legged frog and other aquatic species.

Critical Habitat for the California Red-legged Frog

Within the area under our jurisdiction that would be covered by the Corps' RGP for the FRGP, we designated critical habitat for the California red-legged frog totaling 151,734 acres. This represents approximately 34 percent of the total critical habitat designated. Three units within the counties covered by the proposed RGP were eliminated from consideration in the biological opinion because one drains into the Central Valley of California (SLO-1A-B), one is far inland where it is unlikely to be subject to a restoration project that would benefit salmonids (LOS-1), an one is upstream of a dam in the upper portion of a watershed (STB-7). The remaining units were designated because they contain one or more of the primary constituent elements listed in the Status of the Species section and have direct connection to coastal waters. The remaining critical habitat units extend from San Luis Obispo County to Ventura County and include the following:

SLO-8 Upper Salinas River (16,277 acres)
STB-1 La Brea Creek (25,111 acres)
STB-3 Sisquoc River (47,439 acres)
STB- 4 Jalama Creek (7,662 acres)
STB-5 Gaviota Creek (4,328 acres)
VEN-1 Matilija Creek (6,660 acres)

VEN-2 San Antonio Creek (2,915 acres)
VEN-3 Piru Creek (8,837 acres)

These units were designated because they support aquatic breeding and non-breeding habitat, including the appropriate vegetation, and upland habitat where individual California red-legged frogs can take shelter during dry periods.

Least Bell's Vireo

According to the 5-year status review for the least Bell's vireo (Service 2006), the overall number of nesting least Bell's vireos has increased tenfold since the species was listed in 1986. The vast majority of the increase was realized in the southern part of the species' range (Ventura County and south). In Santa Barbara County, least Bell's vireo numbers have actually declined overall. A Population Viability Analysis (PVA) that measures the potential for a population to survive for a certain period of time was conducted using the least Bell's vireo data in the 5-year review. The results indicated that of the populations targeted for recovery analyzed in the PVA, only the Santa Ynez River population (Santa Barbara County) remained at risk of extinction in the next 100 years.

Within the action area, the major population centers for the least Bell's vireo include the Santa Clara River watershed (Los Angeles and Ventura Counties) and the Santa Ynez River (Santa Barbara County), above Gibraltar Reservoir. As noted above, numbers of least Bell's vireos have increased modestly in the former, while they have declined in the latter. No explanation for this was provided in the 5-year status review (Service 2006). The review did note, however, that future recovery was dependent upon continued efforts to control brown-headed cowbirds.

Least Bell's vireos occur sporadically outside of the known population centers. Individuals and breeding pairs have been reported at isolated, suitable habitat patches within the action area. Consequently, any drainage with the characteristics of least Bell's vireo habitat as described in the Status of the Species section may support the species.

Southwestern Willow Flycatcher

The Recovery Plan for the southwestern willow flycatcher indicates that historically, the southwestern willow flycatcher was common in all lower elevation riparian areas of the southern third of California, including the Los Angeles basin, the San Bernardino/Riverside area, and San Diego County. River systems where the flycatcher currently persists include the Colorado, Owens, Kern, Mojave, Santa Ana, Pilgrim Creek, Santa Margarita, San Luis Rey, San Diego, San Mateo Creek, San Timoteo Creek, Santa Clara, Santa Ynez, Sweetwater, San Dieguito, and Temecula Creek. The remaining flycatcher populations in southern California, most of which number fewer than five territories, occur at scattered sites along drainages that have changed little during the past 15 years. Sogge et al. (2007) report that the number of known breeding sites and territories has increased since 1993, from 40 breeding sites and 140 territories in 1993, to 284 breeding sites and 1,262 territories in 2006. Sogge et al. point out that this increase is not

due to an increase in southwestern willow flycatcher numbers, but to the increased survey efforts that uncovered previously unknown breeding sites and territories.

Within the action area, southwestern willow flycatchers are concentrated in two major drainages: the Santa Clara and Santa Ynez Rivers and their tributaries. Sogge et al. (2007) report that the latest survey data indicates that the Santa Clara River supports 12 potential breeding sites that, in 2006, contained 8 active territories. The Santa Ynez River supports 4 breeding sites and in 2006, 7 territories (Sogge et al. 2007). These small populations are vulnerable to extirpation, as demonstrated by the apparent abandonment of 135 previously known breeding sites since 1993 throughout the range of the southwestern willow flycatcher.

The threats to the southwestern willow flycatcher in the action area are the same as those found elsewhere in the species' range; habitat loss due to a number of factors (i.e., development, water diversion, flood control, agriculture, etc.), nest parasitism by brown-headed cowbirds, habitat conversion to non-native species, competition for nest space with non-native birds, and others. These problems are exacerbated in small populations such as those in the action area.

Critical Habitat for the Southwestern Willow Flycatcher

The action area contains the Coastal California Recovery Unit of the southwestern willow flycatcher which was used to encompass the critical habitat units. The recovery unit stretches along the coast of southern California from just north of Point Conception south to the Mexico border and encompasses the Santa Ynez, Santa Ana, and San Diego Management Units of the critical habitat designation. In 2003, the entire Recovery Unit area supported an estimated 165 southwestern willow flycatcher territories (15 percent of the rangewide total) (Durst et al. 2007). A total of 149 territories were estimated in the three Management Units included in this designation (Santa Ynez, 8 territories; Santa Ana, 41 territories; San Diego, 100 territories). The largest number of territories are within the San Luis Rey (n = 67), Santa Margarita (n = 19), and Santa Ana (n = 40) watersheds (Durst et al. 2007), all of which are south of the action area. Of the three, only the Santa Ynez Management Unit is within the action area for the proposed RGP.

The Santa Ynez Management Unit is composed of a 20-mile reach of the Santa Ynez River, from approximately 1-mile east of Highway 101 near the City of Buellton, downstream to 1.2 miles east of Highway 1 near Lompoc, entirely in Santa Barbara County. This unit supports nesting southwestern willow flycatchers and is northernmost along coastal California. In 2000, 28 territories were detected at this breeding site. In 2006, 7 territories were known at this site (Sogge et al. 2007). Reasons for the decline in this area are not known. Southwestern willow flycatchers have been detected nesting on the Santa Ynez River since 1994.

EFFECTS OF THE ACTION

General Effects

In general, the FRGP should have beneficial effects on the species analyzed in this biological opinion. The individual restoration projects are intended to improve habitat for migrating salmonids, including removing obstructions, controlling erosion, improving vegetation, stabilizing banks, and creating pools. Because the listed species that share habitat with anadromous salmonids evolved under similar conditions and most likely do best under natural conditions, taking the measures listed in the Project Description and the CDFG Manual (2002) should improve their habitat as well. While the conditions that benefit anadromous fish should also benefit other aquatic species, there could be temporary effects and incompatible changes that will affect some of the species considered here.

Some of the activities associated with the FRGP could have negative effects of a similar nature on most or all of the species described in this biological opinion. Movement of equipment and people could crush and injure or kill any of the less mobile species. In addition, ground disturbance such as grading and placement of rip-rap or other features, could also kill or injure some species. The possible exceptions to these effects would be the least Bell's vireo and southwestern willow flycatcher which can move out of the way easily; however, flushing either of these species away from their territories or nests could have an adverse effect on them or their offspring.

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 listed aquatic species are injured or killed. The potential for this effect to occur would be reduced by CDFG's proposals for worker education, locating staging and fueling areas a minimum of 65 feet from riparian areas or other water bodies, and having an effective spill response plan in place.

Tidewater Goby

We anticipate that effects to tidewater gobies will come from two potential sources: sedimentation that reaches goby habitat, and de-watering or stream diversion that reduces freshwater flows into goby habitat.

Sedimentation can smother gobies by clogging their gills, and it can cover their nesting burrows and food sources. It is possible that some tidewater gobies could be injured or killed if this occurs. The threat of sedimentation is greater the closer the project is to tidewater goby habitat; that is, sedimentation from farther upstream may settle out to some degree before it reaches goby habitat, whereas activities immediately adjacent can introduce unchecked sedimentation. However, the CDFG Manual includes measures to control sedimentation. If these measures are implemented and are effective, the effects of sedimentation on gobies would be minimized regardless of where in a watershed a restoration project is implemented.

De-watering a stream or diverting flows away from tidewater goby habitat can have multiple negative effects on the individuals. With reduced freshwater flows, salinities may increase above the level that gobies can tolerate. Reduced flows can also result in lower oxygen levels in the areas where gobies have taken refuge. Most directly, small lagoons or ponds where gobies live could potentially dry out, stranding the fish and leaving them susceptible to desiccation or predation.

To illustrate other potential effects of FRGP-funded projects on the tidewater goby, we have a report from one FRGP-funded project that took place on Arroyo Hondo Creek in Santa Barbara County (subject to a separate consultation, No. 1-8-06-F-14). The report from LFR (2007) states that tidewater gobies upstream of a culvert were "moved" along with several California red-legged frogs, steelhead, and sculpin. The LFR report does not state where the tidewater gobies were taken, but later investigation indicated that they were moved to another estuary. We have no information on the fate of the translocated tidewater gobies; however, moving them to another estuary was counter to the Recovery Plan goal of maintaining genetic separations among drainages. Because of the limitation that is posed by the desire to maintain genetic uniqueness among tidewater goby populations, capture and relocation is not a viable option and any individuals at risk may be killed or injured by the effects described above.

Tidewater Goby Critical Habitat

Effects to tidewater goby critical habitat should be temporary. As described above, we expect that the principal problems associated with the proposed activities would be sedimentation and de-watering/stream diversion. CDFG's measures to control erosion and sedimentation should help avoid related changes to the primary constituent elements. De-watering and stream diversions should be temporary, but while they are occurring the critical habitat areas may become dry or salinities may increase. Overall, the actions that benefit the anadromous salmonids should benefit tidewater goby critical habitat and the critical habitat units should continue to serve their conservation functions.

Unarmored Threespine Stickleback

In addition to the potential general effects described above, the risks from potential restoration project to the unarmored threespine stickleback are similar to those described for the tidewater goby, although unarmored threespine sticklebacks are not likely to be in areas where increasing salinity would be a problem. Also, individual unarmored threespine sticklebacks that may be stranded by de-watering or diversion could be moved upstream or downstream of the disturbance with little adverse effect, although some injury or mortality from capture and relocation cannot be ruled out.

Arroyo Toad and California Red-legged Frog

The discussion of the effects to the arroyo toad and California red-legged frog are lumped here because these effects may be similar. Both species have aquatic and terrestrial stages in their life histories, and the effects described below address both of those stages. Their distributions may not overlap, but where the actions are taking place, the impacts could be the same. Critical habitat for the California red-legged frog is discussed separately below.

Relocating arroyo toads or California red-legged frogs out of harm's way may reduce injury or mortality from equipment, foot traffic, or ground disturbance; however, injury or mortality of individuals may occur as a result of improper handling, containment, or transport of individuals or from releasing them into unsuitable habitat (e.g., where exotic predators are present). Observations of diseased and parasite-infected amphibians are now frequently reported. This has given rise to concerns that releasing amphibians following a period of captivity, during which time they can pick up infections of disease agents, may cause an increased risk of mortality in wild populations. Amphibian pathogens and parasites can also be carried between habitats on the hands, footwear, or equipment of fieldworkers, which can spread them to localities containing species which have had little or no prior contact with such pathogens or parasites. Use of a Service-approved biologist would reduce or prevent improper handling, containment, or transport of arroyo toads or California red-legged frogs.

Work activities, including noise and vibration, may cause arroyo toads or California red-legged frogs to leave the work area. This disturbance may increase the potential for predation and desiccation. Minimizing the area disturbed by project activities may reduce the potential for dispersal resulting from the action. California red-legged frogs, especially, are more likely to disperse overland in mesic conditions. Because the CDFG would primarily be executing the proposed projects during the dry season, these impacts are less likely. As long as no substantial rainfall (substantial rainfall equal greater than 0.5 inch of rain in a 24-hour period) occurs, arroyo toads and California red-legged frogs are unlikely to be at risk.

Tadpoles of both species may be injured or killed if entrained by pump or water diversion intakes. Screening pump intakes with wire with not greater than 0.2-inch diameter mesh, as proposed by CDFG, may reduce the potential that tadpoles would be caught in the inflow.

If water that is impounded during or after work activities creates favorable habitat for non-native predators, such as bullfrogs, crayfish, and centrarchid fishes, arroyo toads and California red-legged frogs may suffer unusual rates of predation. Additionally, any time arroyo toads or California red-legged frogs are concentrated in a small area at unusually high densities, native predators such as great blue herons (*Ardea herodias*), great egrets (*A. alba*), Virginia opossums (*Didelphis virginiana*), and raccoons (*Procyon lotor*) may feed on them opportunistically.

Trash left during or after project activities could attract predators to work sites, which could, in turn, prey on arroyo toads and California red-legged frogs. For example, raccoons are attracted to trash and also prey opportunistically on arroyo toads and California red-legged frogs. This

potential impact would be reduced or avoided by careful control of waste products at all work sites as proposed by the CDFG.

Uninformed workers could disturb, injure, or kill arroyo toads or California red-legged frogs. The potential for this effect to occur may be greatly reduced by informing workers of the presence and protected status of this species and the measures that are being implemented to protect it during project activities. Regular monitoring by a qualified biologist, as proposed by the CDFG, will also reduce the potential for such inadvertent effects.

The restoration projects that would utilize the Corps' proposed RGP are intended to provide additional habitat for and increased populations of anadromous salmonids in the respective project areas. The effects of increasing numbers of potential predators on the arroyo toad and California red-legged frog cannot be accurately predicted. These fish and amphibian species presumably occurred sympatrically in many coastal watersheds prior to the onset of human disturbance. Although we anticipate that some predation of arroyo toads and California red-legged frogs by salmonid fishes may occur, this level of predation is not expected to appreciably alter the population structure within the project areas.

The Corps' proposed RGP and the attendant FRGP projects are not expected to result in the permanent loss of arroyo toad and 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 arroyo toads and California red-legged frogs. Additionally, many of the projects will improve 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 arroyo toad and California red-legged frog by removing non-native predators such as bullfrogs, which out-compete and ultimately displace arroyo toads and 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.

To illustrate potential effects of projects approved under the Corps' RGP, we again cite the results of the FRGP-funded project on Arroyo Hondo in Santa Barbara County (subject to individual consultation, No. 1-8-06-F-13) (LFR 2007). During the restoration project to improve passage for steelhead, monitors observed 47 California red-legged frogs in the project area. Of these, 45 were captured and relocated upstream of the project site, with no data on their fate once relocated. Two of the California red-legged frogs had been injured by equipment and ground disturbance on the site. An unknown number of California red-legged frogs were likely injured or killed and not detected, despite efforts to locate and move them prior to activities.

We conclude that the Corps' proposed authorization would affect a small number of arroyo toads and 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 arroyo toads or California red-legged frogs are likely to be

killed or injured during project activities. 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 arroyo toads and California red-legged frogs. The proposed authorization is likely to improve the quality of habitat for the arroyo toad and California red-legged frog in areas affected by projects implemented under the Program.

California Red-legged Frog Critical Habitat

The effects of restoration projects funded under the FRGP on California red-legged frog critical habitat are likely to be the same as those described for individual California red-legged frogs, above (i.e., small areas of disturbance, temporary de-watering, etc.). In general, any negative impacts to primary constituent elements of the critical habitat would be small and temporary. We do not anticipate any permanent loss of critical habitat, and we anticipate that the projects would, in general, benefit the critical habitat units. The conservation role of the designation would not be diminished.

Least Bell's Vireo and Southwestern Willow Flycatcher

As with the arroyo toad and California red-legged frog, we have lumped the effects analysis for these two bird species because of similarities in habitat, behavior, and presumably response to the proposed activities. The critical habitat of the southwestern willow flycatcher will be treated separately below.

The temporary loss of riparian habitat within the river bed could diminish available foraging habitat for least Bell's vireos and southwestern willow flycatchers. Project-generated dust, noise, and activity near habitat occupied by these species could disturb individuals to the extent that foraging and breeding behavior would be altered. Both species exhibit site fidelity and adults often return to the previous season's territory to breed. Temporary loss of riparian habitat in the project area may cause least Bell's vireos and southwestern willow flycatchers to seek out other areas in which to forage or nest, thereby increasing their vulnerability to predators and competition. These effects would be minimized by the CDFG proposal to work in the dry season, which is presumably late in the nesting season of the least Bell's vireos and southwestern willow flycatcher.

Disturbance and noise resulting from project activities in areas near potential least Bell's vireos and southwestern willow flycatcher breeding habitat could cause breeding adults to spend less time incubating and caring for nests and broods if scared off of their nests or kept busy defending their territories. Human disturbance that affects the amount of parental care during the nesting and brooding period could result in decreased hatching and fledging success.

If there are any breeding/nesting territories within a project area, work crews or other personnel associated with the project could potentially trample nests or nest sites while clearing vegetation. Least Bell's vireo nests are typically built approximately 3 feet above the ground, while nests of the southwestern willow flycatcher generally occur from ground level to approximately 13 feet

above the ground. If project activities begin or noise increases once a least Bell's vireo or southwestern willow flycatcher pair has established a nest or breeding territory, they may abandon their nests, resulting in a failed breeding attempt and unnecessary expenditure of energy.

Human activity near nests may also attract predators and brown-headed cowbirds. If trash is left behind or food items discarded in the work area, raccoons and coyotes may be attracted and may prey upon least Bell's vireos and southwestern willow flycatcher nests. CDFG proposes to remove all trash and keep work sites clean, so this will most likely not be a problem. Brown-headed cowbirds are also attracted to clearings and human activity and may incidentally find least Bell's vireos or southwestern willow flycatcher nests near work areas.

Southwestern Willow Flycatcher Critical Habitat

The potential restoration projects under the FRGP should have only temporary negative effects to southwestern willow flycatcher critical habitat. These temporary effects include vegetation removal, disturbance, installation of erosion control structures, and de-watering. In the long run, however, the projects should be beneficial to the critical habitat because they will restore primary constituent elements, such as vegetation. Also, the streams within the southwestern willow flycatcher critical habitat designation are subject to periodic natural disturbance from flooding and scouring. Therefore, the effects of restoration projects may be no more harmful in the long-term than the natural processes. We anticipate that the critical habitat units for southwestern willow flycatcher will remain intact and continue to serve their conservation role.

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. 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.

Agricultural land use throughout the action area (San Luis Obispo, Santa Barbara, and Ventura Counties) is likely to continue due to the high productivity of soils in these areas. The health of riparian areas throughout much of the action area is also threatened by livestock grazing and ground water pumping. Continued residential and commercial development is also expected in the action area. Indirect effects on the listed species analyzed in this biological opinion, such as pollutant runoff, sedimentation of aquatic habitats, and disruption of dispersal corridors, will likely be amplified as a result of increased development. We are currently unaware of other non-Federal actions that are reasonably certain to occur in the action area that may adversely affect the listed species or designated critical habitat.

CONCLUSION

After reviewing the current status of the species and critical habitat, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, it is the Service's biological opinion that the Corps' issuance of the CDFG Fisheries Restoration Grant Program RGP, as proposed, is not likely to jeopardize the continued existence of tidewater goby, unarmored threespine stickleback, arroyo toad, California red-legged frog, least Bell's vireos, or southwestern willow flycatcher, nor destroy or adversely modify critical habitat for the tidewater goby, California red-legged frog, or southwestern willow flycatcher.

We have reached these conclusions based on the following reasons:

1. The Corps and the CDFG have proposed measures to minimize the potential adverse effects of project activities on the listed species and critical habitat;

2. The projects are generally small in area and of short duration;

3. Few individuals of any species are likely to be killed or injured during project activities;

4. The primary constituent elements of designated critical habitat and the conservation function of those units should be retained and perhaps improved by restoration; and

5. The overall quality of breeding, foraging, and dispersal habitat for all of the species would be improved as a result of improved water quality, reduced sedimentation, and habitat enhancement associated with FRGP projects.

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 CDFG 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 CDFG 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.

Given the avoidance and minimization proposed by CDFG and the Corps, we anticipate that take of listed species will be limited to: crushing of individuals not relocated out of harm's way; spread of pathogens (e.g., chytrid fungus); de-watering or diversion that strands tidewater gobies or the aquatic stages of arroyo toad and California red-legged frog; noise that displaces nesting least Bell's vireos or southwestern willow flycatchers; creation of ponded areas during de-watering or stream diversions that attract predators; and temporary habitat loss. All other potential sources of take are avoided by the measures proposed by CDFG or the Corps and included in the Project Description or the CDFG Restoration Manual.

The FRGP may result in numerous projects under which the CDFG and Corps will need to make specific decisions with regard to future actions. Although we have evaluated the general nature of the effects of these actions, both negative and positive, on the listed species, we cannot fully assess the potential effects of specific future actions under the FRGP because information on the location, timing, nature, and other aspects of the actions is not available at this time. Given this limitation, we cannot quantify the exact numbers of listed animals that may be incidentally killed or injured as a result of the actions that the Corps authorizes through approval of the RGP because of the large size of the action area, the patchy distribution of the listed animal species, the nature of the activities, and the unpredictability of when these activities are likely to cause injury or mortality to the listed species. Additionally, finding carcasses and assigning a cause of death are problematic over such large areas and in the presence of numerous scavengers that are likely to find dead animals soon after they die. Taking these limitations into consideration, we provide the following quantification of the anticipated amount or extent of incidental take resulting from the likely activities:

Species	Unit	By Project	By Year*
Tidewater Goby	Individuals	50	150
Unarmored threespine stickleback	See note below	0	0
Arroyo Toad	Adults/Juveniles	5	15
	Tadpoles	10	30
	Egg Masses	1	3
Capture/Relocation Only	Adults/Juveniles/Tadpoles	10	30
California Red-legged Frog	Adults/Juveniles	5	15
	Tadpoles	20	60
	Egg Masses	2	6
Capture/Relocation Only	Adults/Juveniles/Tadpoles	25	75
Least Bell's Vireo	Acres (suitable nesting habitat)	0.5	1.5
Southwestern Willow Flycatcher	Acres (suitable nesting habitat)	0.5	1.5

*Yearly take totals are not cumulative. That is, if take limits are not reached in a given year, the remainder does not carry over. The anticipated limit expires each calendar year.

We must clarify that these numbers are not based upon specific site conditions, but were determined based upon similar previous projects, the distribution and numbers of listed animal species we anticipate may be in a given restoration site, and the following assumptions:

1. Most arroyo toad and California red-legged frog adults, juveniles, and tadpoles within the boundaries of work areas may be taken through capture during translocation activities.

2. Tidewater gobies may be abundant in a given location, so while the number of individuals taken may be high, the populations can withstand such losses.

3. Arroyo toads are less abundant in the action area than California red-legged frogs, so although effects may be similar, we anticipate that fewer arroyo toads will be taken.

4. Because incidental take of listed animals will be difficult to detect (due to their small body size and finding a dead or injured specimen is unlikely), the number of individuals observed to have been taken may be lower than the number actually taken.

5. The number of individuals taken will be relatively low due to the avoidance and minimization measures proposed by the CDFG and Corps.

6. For the least Bell's vireo and southwestern willow flycatcher, take is best assessed through acreage of habitat based upon average minimum territory size. We assume such habitat loss would be temporary.

7. Generally, the restoration projects approved and funded will be beneficial to all listed animal species dependent upon the resources and habitat conditions shared by anadromous salmonids.

Also, note that we are not providing a take estimate for the unarmored threespine stickleback. This is because CDFG has proposed working with us and the Air Force for any projects in the San Antonio Creek watershed which is on Vandenberg Air Force Base, Santa Barbara County. This is the only known location of unarmored threespine stickleback in the action area in which we expect FRGP projects to be implemented. Consequently, no take of unarmored threespine stickleback would be associated with activities approved under the Corps' RGP until such consultation has been completed.

If any listed animals are found dead or injured, the Corps or the CDFG 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 CDFG and the terms and conditions of this biological opinion have been and continue to be implemented, and as long as the take limits cited above are not met or exceeded. This biological opinion does not authorize any form of take that is not incidental to implementation of the Program projects within the boundaries covered under the Corps' jurisdiction.

Through the reasonable and prudent measures and terms and conditions below, we have established a requirement for the Corps to re-initiate formal consultation with the Service, pursuant to section 7(a)(2) of the Endangered Species Act, if any of the take limits in the table above are met or exceeded. We believe the detection of the incidental take of individual animals resulting from these activities represents a reasonable indicator for determining when the anticipated level of incidental take described in this incidental take statement has been exceeded.

REASONABLE AND PRUDENT MEASURES

The Service believes that the following reasonable and prudent measures are necessary and appropriate to minimize take of listed animal species:

1. Biologists who handle arroyo toads and California red-legged frogs must ensure that their activities do not transmit diseases.

2. Authorized biologists must minimize the effects of capture and relocation on the arroyo toad and California red-legged frog.

3. De-watering and stream diversions must be monitored to ensure that these actions do not attract predators or entrap tidewater gobies, arroyo toads, or California red-legged frogs.

4. Buffer zones will be established between work areas and known nest sites of the least Bell's vireos and southwestern willow flycatcher.

5. The Corps or CDFG must monitor activities to ensure that the level of incidental take of the listed animals is commensurate with the analysis contained in the biological opinion.

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 listed species that were developed by the CDFG 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 CDFG may constitute a modification of the proposed action and may warrant reinitiation of formal consultation, as specified at 50 CFR 402.16. These reasonable and prudent measures are intended to supplement the protective measures that were proposed by the Corps and the CDFG 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 CDFG complies with the following terms and conditions, which implement the reasonable and prudent measures. These terms and conditions are non-discretionary.

1. The following term and condition implements 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.

2. The following terms and conditions implement reasonable and prudent measure 2:

   a. The capture, handling, and monitoring of arroyo toads and California red-legged frogs must be conducted only by Service-approved biologists. The CDFG must provide their qualifications to the Service at least 15 days before they are to begin work.

   b. Prior to the onset of any project-related activities, the approved biologists must identify appropriate areas to receive captured arroyo toad and California red-legged frog adults and tadpoles from the project areas. These areas must be in proximity to the capture site, contain suitable habitat, not be affected by project activities, and be free of exotic predatory species (i.e., bullfrogs, crayfish) to the best of the approved biologists' knowledge.

   c. If arroyo toads or California red-legged frogs are found and these individuals are likely to be killed or injured by work activities, the Service-approved biologists must be allowed sufficient time to move them from the site before work activities resume. The Service-approved biologist must relocate the arroyo toads or California red-legged frogs the shortest distance possible to one of the pre-determined areas discussed in term and condition 2.b. The Service-approved biologist must maintain detailed records of any individuals that are moved (e.g., size, coloration, any distinguishing features, photographs (digital preferred)) to assist him or her in determining whether translocated animals are returning to the point of capture. Only arroyo toads or California red-legged frogs that are at risk of injury or death by project activities may be moved.

3. The following terms and conditions implement reasonable and prudent measure 3:

   a. Any ponded areas created as a result of de-watering or stream diversions must be monitored by the authorized biologist(s) to ensure that non-native predators such as bullfrogs and crayfish are not attracted and concentrated in these areas. Any

such non-native predators observed must be removed and dispatched as humanely as possible.

b. Ponded areas thus created must also be monitored for listed species that may become entrapped. Any arroyo toad or California red-legged frog so entrapped must be relocated to a pre-determined receiving area (see Term and Condition 2.b.). Any tidewater gobies trapped during de-watering or stream diversions must be relocated within the estuary in which the stream flows and not to another drainage, no matter how close.

4. The following terms and conditions implement reasonable and prudent measure 4:

a. Prior to any work in areas where riparian habitat is present, a qualified biologist must do a habitat assessment and determine whether the area within 500 feet of the project site is suitable for nesting by least Bell's vireos or southwestern willow flycatchers. If not, work may proceed without further surveys. If the biologist determines that the area is suitable, a qualified biologist must monitor before and during the project to determine the status of least Bell's vireos and southwestern willow flycatchers within 500 feet of the project site.

b. If any least Bell's vireos or southwestern willow flycatchers are observed nesting within 500 feet of the project activities, work will cease temporarily until it is determined that either the birds are not nesting or young have fledged.

5. The following terms and conditions implement reasonable and prudent measures 5:

a. The CDFG must develop and implement a monitoring plan to determine the level of incidental take of tidewater goby, arroyo toad, California red-legged frog, least Bell's vireos, or southwestern willow flycatcher associated with FRGP-funded activities in the action area. The monitoring plan must include a standardized mechanism for CDFG employees, contractors, permittees, and volunteers to report any observations of dead or injured listed animals to the appropriate Corps and Service offices. The CDFG or Corps must collect information obtained through the monitoring to include in the annual report to the Service that is required by this incidental take statement and described in the "Reporting Requirements" section below.

b. The CDFG or Corps must also report any observation of the incidental take of listed animals associated with the implementation of FRGP projects in the action area to the Service as described in the "Disposition of Dead or Injured Animals" section herein. At that time, the Service and the Corps must review the circumstances surrounding the incident to determine whether any patterns of repeated authorized or unauthorized activities are occurring (e.g., use of an authorized area for development of unauthorized routes or the beginnings of a

trash-dumping site, etc.) that may indicate that additional protective measures are required. If, after completion of the review, the Service and the Corps agree that additional protective measures are required and can be implemented within the existing scope of the action, the Corps must require the CDFG to implement the agreed-upon measures within a reasonable time frame; if the corrective actions cannot be implemented within the scope of the existing action, the Corps and Service will determine whether reinitiation of consultation is appropriate.

c. Notwithstanding term and condition 5.a., the Corps must immediately reinitiate formal consultation with the Service, pursuant to section 7(a)(2) of the Endangered Species Act, if listed animals are taken within the action area at or in excess of the incidental take anticipated in the table in the Incidental Take Statement section, whether by project or by year. Given the analyses contained in the biological opinion regarding the potential effects of FRGP projects, we expect that the cause of any injury or death resulting from these activities is likely to be reasonably identifiable. For example, California red-legged frogs that are killed or injured by vehicles will show signs of crushing. We do not intend to attribute carcasses with no discernable cause of death to the FRGP projects.

REPORTING REQUIREMENTS

The Corps or the CDFG must submit an annual report of implemented projects to the Service's Ventura Fish and Wildlife Office (2493 Portola Road, Suite B; Ventura, California 93003). The report must include: (1) a table documenting the number of tidewater gobies, arroyo toads, California red-legged frogs, least Bell's vireos, or southwestern willow flycatchers observed, killed, injured, or handled during each FRGP project that utilizes the Corps' proposed authorization; (2) a summary of how the terms and conditions of this biological opinion and the protective measures proposed by the Corps and the CDFG worked; and (3) any suggestions of how these measures could be revised to improve conservation of this species while facilitating compliance with the Act. This information will assist the Service in evaluating future actions for the conservation of the listed species involved. Reports must be submitted to the Service's Ventura Fish and Wildlife Office by February 28 of each year the Corps' proposed authorization is valid.

DISPOSITION OF DEAD OR INJURED SPECIMENS

Within 3 days of locating any dead or injured listed animals, the Corps or the CDFG must notify the Service's Division of Law Enforcement in writing (370 Amapola Avenue, Suite 114, Torrance, California 90501) and 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. Care must be taken in handling dead specimens to preserve biological material in the best possible state for later analysis. Should any injured animals survive, either the Corps or the CDFG must contact the Service regarding their final disposition.

The remains of tidewater gobies must be placed with the Department of Biology (OBEE), University of California at Los Angeles, 621 Young Drive S., Los Angeles, California 90095-1606 (Attn: David K. Jacobs, Ph.D.; (310) 206-7885). Arrangements regarding proper disposition of potential museum specimens must be made with Dr. Jacobs by the Corps or CDFG prior to implementation of any action.

The remains of any arroyo toads or California red-legged frogs must be placed with the Santa Barbara Natural History Museum, contact: Paul Collins, Santa Barbara Natural History Museum, Vertebrate Zoology Department, 2559 Puesta Del Sol, Santa Barbara, California 93105; 805/682-4711, extension 321. The Corps or the CDFG should make arrangements with the Museum regarding proper disposition of potential museum specimens prior to the commencement of project activities. In the case of take or suspected take of listed species not exempted in this biological opinion, the Ventura Fish and Wildlife Office must be notified within 24 hours.

The remains of least Bell's vireos or southwestern willow flycatchers must be placed with the Western Foundation of Vertebrate Zoology (Contact: René Corrado, Curator, 439 Calle San Pablo, Camarillo, California, (805) 388-9944).

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 do not have any recommendations at this time; however, the Service requests notification of the implementation of any conservation recommendations so that 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 issuance of a Regional General Permit for the California Department of Fish and Game Fisheries Restoration Grant Program. 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 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 Rick Farris of my staff at (805) 644-1766.

Sincerely,

Steve Henry
Deputy Field Supervisor

Enclosure

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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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