United States Department of the Interior

FISH AND WILDLIFE SERVICE
Ventura Fish and Wildlife Office
2493 Portola Road, Suite B
Ventura, California 93003

IN REPLY REFER TO:
PAS 52.56.85

February 23, 2005

Gloria Brown, Forest Supervisor
Los Padres National Forest
6755 Hollister Avenue, Suite 150
Goleta, California 93117

Subject: Biological Opinion on the Proposal to Lease Oil and Gas Resources within the Boundaries of the Los Padres National Forest, California (1-8-04-F-32)

Dear Ms. Brown:

This document transmits the U.S. Fish and Wildlife Service's (Service) biological opinion based on our review of your proposal to provide leases for oil and gas extraction within the boundaries of the Los Padres National Forest (Los Padres N.F.), and its effects on the federally endangered arroyo toad (*Bufo californicus*), blunt-nosed leopard lizard (*Gambelia sila*), California condor (*Gymnogyps californianus*), least Bell's vireo (*Vireo bellii pusillus*), southwestern willow flycatcher (*Empidonax trailii extimus*), giant kangaroo rat (*Dipodomys ingens*), and San Joaquin kit fox (*Vulpes macrotis mutica*), and on the threatened California red-legged frog (*Rana aurora draytonii*). This biological opinion is prepared in accordance with section 7 of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq*.). Your April 5, 2004, request to initiate formal consultation was received by our office on April 15, 2004.

This biological opinion is based on information provided in the biological assessment/biological evaluation for leasing of oil and gas resources within the boundaries of the Los Padres N.F., (Forest Service 2004); the draft environmental impact statement for oil and gas leasing (Forest Service 2001a); a map of the proposed lease areas provided by your office (Forest Service 2001b); informal consultation between our staffs; and our files. A complete administrative record of this consultation is on file in the Ventura Fish and Wildlife Office.

You have made the determination that project activities would not affect 16 other listed species that occur on the Los Padres N.F. In our November 12, 2002, letter to you we concurred with your determination that the project would not affect six coastal/marine species. The remaining 10 species were: bald eagle (*Haliaeetus leucocephalus*), Smith's blue butterfly (*Euphilotes enoptes smithi*), Conservancy fairy shrimp (*Branchinecta conservatio*), longhorn fairy shrimp (*Branchinecta longiantenna*), vernal pool fairy shrimp (*Branchinecta lynchi*), Hoover's woolly star (*Eriastrum hooveri*), Kern mallow (*Eremalche parryi kernesis*), California jewelflower (*Caulanthus californicus*), La Graciosa thistle (*Cirsium loncholepis*), and Camatta Canyon amole (*Chlorogalum purpureum reductum*). You should note that Hoover's woollystar was delisted on October 7, 2003 (68 FR 57829); thus, consultation is no longer required for this species.

You also made the determinations that project activities would not affect critical habitat of the California condor, nor would it destroy or adversely modify critical habitat proposed for the arroyo toad or California red-legged frog. We concur with your determination that project activities would not destroy or adversely modify critical habitat proposed for the arroyo toad or California red-legged frog based on the following:

1. Critical habitat for the arroyo toad was proposed on April 28, 2004 (69 FR 23254). A small portion of this proposed critical habitat (Subunit 5b, lower Piru Creek) lies within the area proposed for oil and gas leasing (Sespe High Oil and Gas Potential Area (HOGPA)). Because all of the lands proposed for oil and gas leasing within this proposed critical habitat are subject to the No Surface Occupancy stipulation, we do not anticipate that critical habitat proposed for the arroyo toad would be destroyed or adversely modified.

2. Critical habitat for the California red-legged frog was proposed on April 13, 2004 (69 FR 19620). A small portion of this proposed critical habitat (Unit 27) falls within the area proposed for oil and gas leasing (Sespe HOGPA) and would be available for limited surface use. These areas may or may not contain the primary constituent elements of critical habitat, and thus, we cannot determine at this time whether or not critical habitat may be affected. However, the minimization measures you have proposed (described below) state that oil and gas facilities and access roads would be located outside of riparian zones and other aquatic or wetland habitats identified as suitable, key or occupied habitat of all listed species (by definition, key habitat includes all critical habitats). Given this measure and the small amount of limited surface use within the boundaries of critical habitat proposed for the California red-legged frog, we do not anticipate that it would be destroyed or adversely modified.

CONSULTATION HISTORY

You published the draft environmental impact statement (DEIS) for oil and gas leasing on the Los Padres N.F. in October, 2001 (Forest Service 2001a). The project at that time involved potentially offering leases throughout much of the Los Padres N.F., with a particular focus on nine HOGPAs. You requested initiation of formal consultation on the effects of the preferred alternative on the California condor in your July 22, 2002 letter to us. We responded in a letter dated November 12, 2002, stating that we concurred with your determination that the proposed project would have no effect on the six listed species that occur along the coast in the Monterey Ranger District. We also stated that we did not have sufficient information to make a determination on the effects of the project on the California condor or the other listed species, and associated critical habitats, that occur on the Los Padres N.F.

Maeton Freel and Al Hess, of your staff, presented to us a draft revised biological assessment at a meeting between our staffs in November 2003. The project had been substantially narrowed such that only the area within three HOGPAs was now under consideration for oil and gas leasing. The draft revised biological assessment contained the determination that no listed

species would be affected by the proposal, and therefore initiation of formal consultation was not requested, because no ground-disturbing activities would be directly authorized by the leasing proposal. In an electronic mail message sent February 11, 2004, to Mr. Freel and Mr. Hess, Creed Clayton, of my staff, stated that past judicial rulings directed us to consider the effects of the entire action (*i.e.*, all stages of oil and gas leasing, exploration, development, production, reclamation) (see Conner v. Burford, 848 F.2d 1441, 9th Cir. 1998). Thus, on April 5, 2004, you sent us an updated and finalized biological assessment and a request for initiation of formal consultation on the effects of the proposed project on eight listed species. We received the request and biological assessment on April 15, 2004. On November 22, 2004, Mr. Clayton communicated to Mr. Freel that the biological assessment did not contain determinations regarding the effects of the project on any critical habitats. Via telephone and electronic mail, Mr. Freel replied that you would like our concurrence on your determination that the project would not affect critical habitat for the California condor and would not destroy or adversely modify critical habitats proposed for the arroyo toad and California red-legged frog.

BIOLOGICAL OPINION

DESCRIPTION OF THE PROPOSED ACTION

The Los Padres N.F. boundary encompasses 1,969,520 acres, including private inholdings. A portion of Los Padres N.F. lands would be made available for oil and gas leasing. Once the proposal is finalized, the Bureau of Land Management (BLM) would then be authorized to offer specific Forest Service lands for lease. Your oil and gas leasing proposal does not directly authorize oil and gas extraction or any other ground-disturbing activities. However, ground-disturbing activities with the potential to adversely affect listed species are likely to ultimately result from your proposal and are an interdependent part of your action. As we noted in the Consultation History section of this biological opinion, Connor v. Burford requires that we evaluate the potential impacts of the process of extracting oil and gas from the leases under consideration. Therefore, our description of the proposed action includes those measures the Forest Service will implement during activities related to exploration, development, and abandonment of the leases, even though future consultations will deal with these actions in a more specific manner.

Designated wilderness areas were specifically excluded from the proposal and would not be offered for lease. The lands to be made available for leasing would be located within three HOGPAs: South Cuyama, San Cayetano, and Sespe (see map, Forest Service 2001b). Within these three HOGPAs, 52,075 acres would be open to potential leasing (2.6 percent of the total Forest acreage). The land area within these three HOGPAs that would be available for oil and gas leasing is categorized as one of the following: No Surface Occupancy, Limited Surface Use, Timing Limitations, and Standard BLM Lease Terms Only. Surface disturbance on National Forest lands (Limited Surface Use, Timing Limitations, and Standard BLM Lease Terms Only) would be restricted to 4,277 acres within the three HOGPAs. All inventoried roadless areas have been designated as No Surface Occupancy.

Directional drilling from private lands bordering the Los Padres N.F. would also be possible to access oil and gas reserves underneath Forest Service lands designated as No Surface Occupancy. Presumably, the standard BLM lease terms would apply to such extraction activities, which would be conducted from private land. The DEIS (Forest Service 2001a) assumes that directional drilling may occur up to 0.5 mile from outside an area where surface occupancy is denied. Any future ground-disturbing activities to access the oil and gas reserves within the three HOGPAs, such as exploration, drilling, or field development, would need to go through additional environmental analysis under the National Environmental Policy Act (NEPA) and permitting under the Endangered Species Act.

Ground-disturbing activities associated with oil and gas extraction generally progress through five basic operational phases: 1) preliminary investigation (includes geophysical exploration); 2) exploratory drilling; 3) development; 4) production; and 5) abandonment. This entire process may cover a time span of up to 50 years.

Geophysical exploration (Seismic Reflection Surveys) may involve the introduction of shock waves into the earth with truck-mounted thumpers, explosives placed into small-diameter holes drilled 100 to 200 feet deep, surface charges detonated 3 feet above ground, or the detonation of primacord buried in 2.5-foot deep furrows plowed by a tractor. Off-road cross country travel by trucks may be necessary, unless helicopters are used to deliver equipment to remote locations. Drilling water, when needed, is usually obtained locally. Detonations and seismic sensors may be located along lines on a 1- to 2-mile grid, although once a lease has actually been obtained, investigations may be intensified by extending lines on a 0.5-mile grid.

Exploratory drilling may involve stratigraphic tests and wildcat wells. Stratigraphic test holes are typically drilled 100 to 500 feet deep drilled with truck-mounted equipment. Casing is needed for stratigraphic holes in areas of shallow high-pressure zones. The drill site typically occupies an area approximately 30 feet by 30 feet. Wildcat wells are deeper test wells that usually disturb a larger surface area and require construction of drill pads and access roads large enough for tractor-trailer sized vehicles (usually 14-feet wide). Culverts and cattle guards may be installed as necessary. The construction vehicles needed may include bulldozers, scrapers, and motor-graders, along with semi-trucks to bring in drilling equipment. An average well site on the Los Padres N.F. is approximately 200 feet square, not counting cuts and fills, and occupies approximately 1 acre. Prior to the installation of drilling equipment, all of the topsoil would be removed from a well site and stockpiled in an area that would allow for easy reclamation. On the drill pad, equipment and attendant facilities typically include the drill rig, pumps, mud tanks and reserve pit, diesel-powered electric generators, pipe racks, and a tool house. Other facilities such as storage tanks for water and fuel may be located near the drill pad. The most noticeable feature of a drill rig is the mast, which may rise to over 160 feet above the ground surface.

Cement is typically poured around the borehole to prevent unconsolidated material from sloughing into the hole. Drilling mud, containing additives that may be caustic, toxic, or acidic, would be used to cool and lubricate the drill bit; after use, it is typically stored in tanks for later

disposal at an approved facility. Water would be continually transported to the well site during drilling operations. The water necessary for drilling is typically obtained from rivers, reservoirs, or wells drilled on or close to the drill site. Although it varies significantly from well to well, approximately 1,700,000 gallons of water may be required to drill an oil or gas well to the depth of 9,000 feet. In areas where drilling must penetrate clay or shale layers, oil-based drilling muds are often used instead of water-based muds.

Drilling operations would continue 24 hours a day, 7 days a week. A high level of human activity and use of heavy construction and drilling equipment would occur during drilling operations, which would be accompanied by considerable noise and highly visible activity. Upon completion of drilling, the well would be tested and considered dry or economically capable of producing hydrocarbons. Gas well testing generally requires flaring of test gas in large quantities for up to 30 days. Dry wells must be plugged according to State and Federal regulations.

The completion of a wildcat well as a commercial producer marks the beginning of the development of an oil and gas field. Field development would include a surface plan containing information on existing and proposed roads, wells, tank batteries (storage tanks), camps, airstrips, water supply, waste disposal methods, and reclamation plans. The well spacing pattern established for an oil and gas field is the primary factory that determines the amount of human presence and surface disturbance. The wider the well-spacing pattern, the lower the concentration of human activity and the lesser the overall surface disturbance that must occur within the oil and gas field. Oil well spacing patterns in the United States range from less than one acre per well to 640 acres per well. Gas well spacing patterns in the United States range from 40 to 1440 acres per well. Pipelines to connect wells are installed and may be located above or below ground; these “flowlines” are typically 2-to 4-inch diameter steel pipes. A larger pipeline to a market outlet would be constructed if sufficient oil and/or gas reserves exist to make the construction of the pipeline economical.

Production at an oil and gas field is generally a combination of operations that include: bringing oil, gas, and/or water to the surface; treating and separating these fluids; preparing the extracted oil and gas for market; transporting these products to market; and disposing of produced water. Production activities at the first wells may occur simultaneously with field development activities and the drilling of additional wells. Wells are sometimes stimulated to increase production by various means, including hydraulic fracturing. This is used to create cracks in sandstone reservoirs by pumping fluid, either gelled water or diesel fuel, under high pressure into the well. Chemical pumps may also be used to inject emulsion breakers, corrosion inhibitors, or paraffin solvents into the well. After the pressure within a natural oil reservoir is depleted, some form of artificial lift would be used to raise the fluid to the surface. Surface pumping units would be powered either by electric motors or internal combustion engines, which may operate at high noise levels. Failed pump components are a common cause of oil spills. Gas compressor stations, which can compress natural gas over 100 times normal atmospheric pressure, also operate at a high noise level and are normally housed in large metal buildings. Produced water

from oil and gas operations is typically disposed of by subsurface injection, lined pits, unlined pits, or other methods acceptable to the BLM.

Abandonment of an oil and gas field involves plugging the wellbore with cement and reclamation of the land surface to a stable and productive use. Prior to the start of reclamation, all equipment and debris must be removed. When an entire lease is abandoned, tanks, drilling, production, and other processing equipment are removed and the surface restored. Flowlines and pipelines installed on the surface are removed, but buried lines are usually left in place. Excavations and mud pits must be backfilled and graded to conform to the surrounding terrain. Water bars and terracing may be installed to prevent erosion. Standard reclamation practices may include contouring, terracing, topsoil replacement, scarifying, mulching, fertilizing, seeding, and/or planting. Road reclamation may range from complete recontouring to the original contour to simple obliteration of the roadway surface and barricading.

Not all of the 4,277 acres potentially available for surface disturbance are likely to be disturbed, or even leased. Data provided by the oil and gas industry and Forest Service indicate that oil and gas extraction under the Reasonably Foreseeable Development (RFD) scenario would result in an estimated 20.4 acres of surface disturbance (Forest Service 2001a). This includes ground disturbance for the construction of well pads, access roads, pipeline corridors, and related facilities. However, it does not include temporary habitat disturbances associated with exploration, such as small diameter shot holes drilled for explosives or off-road vehicle travel to access detonation sites.

Minimization and Avoidance Measures. The following measures would be included as conditions of approval for leases when the Forest Service determines that threatened, endangered, or proposed (TEP) species or their habitats could be affected by a proposed operation. Minimization and avoidance measures resulting from site-specific section 7 consultations on these proposals would also be made conditions of approval. The following were outlined in Appendix D of the biological assessment (Forest Service 2004):

California Condor:

1. No surface occupancy shall be allowed within 1.5 miles of historic or active nest sites or reintroduction sites, or within 0.5 miles of active roost sites, unless provided for through site-specific section 7 consultation. [This applies to seismic prospecting and exploration as well (A. Hess, Oil & Gas Resource Specialist, Los Padres N.F., pers. comm. 2004).]

2. If new power transmission and distribution lines directly associated with oil and gas development are necessary, they shall be placed underground to avoid potential for collision by California condors; where undergrounding of power lines is not possible, location and design of such lines will be allowed only as provided for through section 7 consultation.

3. All power lines, poles and guy wires which exist within flyways used frequently by California condors shall be retrofitted with raptor guards, flight diverters and other anti-perching or anti-collision devices as deemed necessary to minimize the potential for collision or electrocution of condors. No new above ground power lines shall be allowed within high use California condor flyways unless provided through site specific section 7 consultation.

4. All surface structures associated with oil and gas leasing, which are identified as a risk to California condors, will be located, modified (*e.g.*, to include installation of raptor guards, anti-perching devices, etc.), or relocated as required following site-specific section 7 consultation.

5. No open drilling mud, water, oil or other liquid storage or retention structures will be allowed. All such structures will be required to have some sort of netting or other covering that precludes entry or other use by condors or other listed avian species.

6. To preclude impacts on California condors, *all* construction debris and other trash (including such small items as screws, nuts, washers, nails, coins, rags, small electrical components, small pieces of plastic, glass or wire, and anything that is colorful or shiny) shall be covered or otherwise removed from a project site at the end of each day or prior to periods when workers are not present at the site.

7. All food items and associated trash shall be placed in covered containers to preclude access to or use by California condors. This would include small bits of trash and debris, such as soda can pull tabs, electrical connectors, broken glass, and pieces of rubber, plastic, and metal.

8. No dogs or other potential predatory domesticated animals are to be allowed to run free at oil and gas worksites by either Forest Service or oil company employees or subcontractors.

9. No loose wires, open containers or other supplies or materials associated with oil and gas development which could pose a risk to California condors shall be allowed at work sites unless approved in a site specific section 7 consultation.

10. No ethylene glycol based anti-freeze or other ethylene glycol based liquid substances shall be used on oil and gas work sites. Vehicles assigned to regular use of the oil and gas site(s) shall be required to use propylene glycol based antifreeze unless they can show problems with vehicle engine warranties. No changing of antifreeze of any type will be allowed within an oil and gas development area.

11. No aircraft use associated with oil and gas development shall be allowed without prior review and approval by a designated Forest Service representative.

12. Flaring sites for natural gas or other flammable gases or substances shall require prior approval of designated Forest Service representative. These actions should undergo section 7 consultation prior to approval.

13. Any use of a well site and its associated facilities by California condors shall be reported to designated Forest Service or Fish and Wildlife Service personnel as soon as practical after observation.

Arroyo Toad, California Red-Legged Frog, and Fairy Shrimp Species:

1. Oil and gas facilities and access roads shall be located outside of vernal pools, riparian zones and other aquatic or wetland habitat areas identified as suitable, key or occupied TEP species habitat, unless approved by a site specific section 7 consultation.

2. Drill pad location, design and construction shall avoid or minimize added sedimentation or other harmful runoff from entering key or occupied TEP aquatic or wetland habitat or adversely affecting the natural drainage patterns of such habitat areas.

Giant Kangaroo Rat, San Joaquin Kit Fox, Blunt-Nosed Leopard Lizard, and Threatened and Endangered Plants:

1. No ground disturbing activities will be allowed in potential habitat of the giant kangaroo rat, San Joaquin kit fox, blunt-nosed leopard lizard or proposed or listed plants until field surveys are conducted, to official protocol, and it is determined that these species do not occupy the area. Habitat areas deemed by the Forest Service as essential for the species survival will also be precluded from unacceptable degradation unless approved by a site specific section 7 consultation. Should any of the above species be found within the proposed development area, a biological assessment will be conducted and consultation with the Fish and Wildlife Service will be conducted if the project "may affect" the species.

In addition to the above conditions of approval, any future leases issued under this proposal would contain the "Endangered, Threatened, Proposed, Candidate and Sensitive Animal or Plant Species Lease Notice" contained in Appendix D of the biological assessment (Forest Service 2004). This notice informs lessees that a biological evaluation of leased lands will be required prior to surface disturbance to determine if listed species or their habitats are present and to identify needed mitigation measures. The lessee would be informed that the findings of the biological evaluation, analysis and consultation may result in restrictions to the operator's plans, or even disallow use and occupancy, to comply with the Endangered Species Act and Forest Service regulations.

All areas that would be offered for oil and gas leasing would be subject, at a minimum, to the Standard BLM Lease Terms. As stated in the DEIS (p. 2-19, Forest Service 2001a), the Standard BLM Lease Terms provide that the "lessee shall conduct operations in a manner that minimizes

adverse impacts...Under current practice, this has been interpreted to include requirements of information notices and allowing for moving a proposed activity up to 200 meters [656 feet] or postponing a current activity up to 60 days within any year." (For example, as we understand the project description, the Forest Service could require a lessee to move a well pad 656 feet further away from a ridge line or area of high use by condors).

Areas proposed for leasing with a higher level of sensitivity have additional stipulations. For example, the following areas may be subject to Limited Surface Use, Timing Limitations, or No Surface Occupancy: critical habitat for the California condor, grassland and sagebrush habitat within the range of the San Joaquin kit fox, and potential habitats of sensitive plant species. The appropriate restrictions to minimize adverse effects to listed species would be made terms of a given lease following site-specific surveys by qualified professionals and after consultation with us. Additionally, as stated in the biological assessment (Forest Service 2004), other constraints on oil and gas activities may be applied from Forest Service regulations or previously completed formal consultations between the Service and the Forest Service.

STATUS OF THE SPECIES

Arroyo Toad. The arroyo toad was listed as endangered on December 16, 1994 (59 *Federal Register* 64589). Critical habitat for the species was finalized on February 7, 2001 (66 *Federal Register* 9414). On October 30, 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 (*Building Industry Legal Defense Foundation, et al., v. Gale Norton, Secretary of the Interior, et al., and Center for Biological Diversity, Inc. and Defenders of Wildlife, Inc.* Civil Action No. 01-2311 (JDB) (U.S. District Court, District of Columbia)). Critical habitat for the arroyo toad was again proposed on April 28, 2004 (69 *Federal Register* 23254); however, a final rule has not been published. 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 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 light-olive green or gray to tan, dark-spotted toad with a distinctive light-colored, V-shaped stripe across the head and the eyelids. The species is endemic to the coastal plain and mountains of central and southern California and northwestern Baja California from near sea level to about 8,000 feet in elevation. Within these areas, arroyo toads are found in both perennial and intermittent rivers and streams that have shallow, sandy to gravelly pools adjacent to sand or fine gravel terraces. Breeding habitat requirements are highly specialized; specifically, arroyo toads require shallow, slow-moving streams, and riparian habitats that are disturbed on a regular basis, primarily by flooding. High stream order (*i.e.*, 3rd to 6th 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 1st and 2nd order streams at elevations up to 4,200 feet in southern California. The arroyo toad evolved in a system that is inherently dynamic, with marked seasonal and annual fluctuations in rainfall and flooding.

Arroyo toad juveniles and adults use upland areas adjacent to breeding habitat for foraging and wintering. They 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 and Goodman 1998, Griffin and Case 2001, Holland and Sisk 2001), but grasslands are perhaps less suitable and may primarily be used to travel through (United States Geological Survey (USGS) 2003). Griffin *et al*. (1999) found arroyo toads spent most of their time during the breeding season within the stream channel or on adjacent sandy terraces, but they also used upland areas such as campgrounds and even agricultural fields. Additionally, they found that arroyo toads seemed to select habitat more according to vegetation structure than vegetation type; dense and tall vegetative structure was preferred least of all.

In a radio telemetry study conducted during the arroyo toad breeding season, Griffin *et al*. (1999) found that adult female arroyo toads moved up to 443 feet from water, on average, while males moved up to 302 feet from water, on average, in streams with broad, coastal floodplains. In a study using pitfall traps, Holland and Sisk (2001) captured arroyo toads primarily within the stream channel and riparian habitats, but approximately 18 percent of the adult and subadult captures averaged across all three years of the study were in upland habitats (11 percent at one site and 24 percent at the other). These upland captures averaged more than 1,640 feet and 820 feet from the riparian/upland ecotone in two separate coastal streams; one arroyo toad was even captured 3,740 feet beyond the edge of the riparian habitat bordering the stream. However, radio telemetry and pitfall trap studies from a variety of inland streams often bordered by steep, dry terrain show arroyo toad activity typically closer to the active stream channel. Four separate studies of inland populations by Ramirez (2002a, 2002b, 2002c, 2003) showed that arroyo toads burrowed no farther than 121 to 1,062 feet from the edge of a stream, with an overall average of approximately 52 feet between a toad's burrow and the edge of the stream. Griffin *et al*. (1999) also found male arroyo toads no further than 75 feet, on average, from a steep-sided stream near the coast. The extent of arroyo toad movement away from the stream channel is influenced by climatic conditions, availability of surface water, floodplain width, vegetative cover, and topography (Griffin *et al.* 1999; Ramirez 2002a). Moderate, stable temperatures and high humidity facilitate longer-distance movements into upland habitats (Service 1999).

Arroyo toads typically breed sometime between March and early June, although the breeding season may occur earlier or later, depending on weather conditions, elevation, and latitude. Males may breed with several females in a season; however, female arroyo toads release their entire clutch of eggs as a single breeding effort and probably do not produce a second clutch during the mating season. Eggs are deposited and larvae (tadpoles) develop in shallow pools with minimal current, little or no emergent vegetation and sand or pea gravel substrate. Embryos usually hatch in four to six days; the larval period lasts approximately 65 to 85 days. Metamorphosis from tadpole to juvenile toad typically occurs in June or July. The juveniles remain on gravel bars bordering the stream until the pool dries up. They reach sexual maturity in one to two years, and arroyo toads may live for as few as five years (Sweet 1993). Much less is known about movements or behavior in the late summer and winter months.

Larvae feed by inserting their heads into the substrate and ingesting loose organic material such as detritus, interstitial algae, bacteria, and diatoms. Juveniles and adults forage for insects, especially ants and small beetles, on sandy stream terraces. Juveniles spend more time exposed on terraces during the daytime than do adults, and are thus vulnerable to diurnal predators. Once juveniles are of sufficient size to dig burrows and bury themselves in the sand, they become nocturnal. All age classes of post-metamorphic arroyo toads tend to be active on rainy nights with moderate temperatures (above 45 degrees Fahrenheit). Adults excavate shallow burrows for shelter during the day when the surface is damp or during longer intervals in the dry season. 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 Monterey 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. 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).

Extensive habitat degradation has lead to the decline and isolation of the remaining populations of arroyo toads. This habitat loss is due primarily to urbanization, agriculture, dam construction, water manipulation (*e.g.*, diversion, drawdown, changed hydroperiod), mining, livestock grazing, and recreational activities in riparian areas. The introduction of bullfrogs and exotic fish have negatively affected arroyo toad populations due to predation. Exotic plant species degrade arroyo toad habitat, and may cause changes in the invertebrate fauna upon which the arroyo toad feeds. The spread of chytrid fungus (*Batrachochytrium dendrobatidis*) may have also played a role in the loss of some populations. Changes in hydrologic regimes and loss of overwintering habitat as streamside areas are developed are probably the most important factors in the decline of arroyo toads.

California Red-legged Frog. The California red-legged frog was federally listed as threatened on May 23, 1996 (61 *Federal Register* 25813). The Service has issued a final recovery plan (Service 2002a). Critical habitat for the California red-legged frog was designated on March 13, 2001 (66 *Federal Register* 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 critical habitat proposal for the California red-legged frog by March 2004 (*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). We proposed critical habitat once again for the California red-legged frog on April 13, 2004 (69 *Federal Register* 19620). A final determination on this proposal is due November 2005.

The California red-legged frog is the largest native frog in the western United States ranging from 1.75 to 5.25 inches from the tip of the snout to the vent (Stebbins 2003). From above, the frog can appear brown, gray, olive, red, or orange, often with a pattern of dark flecks or spots. The back of the frog is bordered on either side by an often prominent ridge (dorsolateral fold) running from the eye to the hip. The hind legs are well-developed with large, webbed feet. A cream, white, or orange stripe usually extends along the upper lip from beneath the eye to the

rear of the jaw. The undersides of adult frogs are white, usually with patches of bright red or orange on the abdomen and hind legs. The groin area sometimes exhibits bold black mottling with a white or yellow background.

The historical range of the California red-legged frog extended coastally from southern Mendocino County and inland from the vicinity of Redding, California, southward to northwestern Baja California, Mexico (Jennings and Hayes 1985, Schafer *et al*. 2004, Storer 1925). The California red-legged frog has sustained a 70 percent reduction in its geographic range as a result of several factors acting singly or in combination (Jennings *et al*. 1992). Only a few drainages are currently known to support California red-legged frogs in the Sierra Nevada foothills, compared to more than 60 historical records. In southern California, the California red-legged frog has essentially disappeared from the Los Angeles area south to the Mexican border; the only known, viable population in Los Angeles County is in San Francisquito Canyon on the Angeles National Forest.

Habitat loss and alteration, over-exploitation, and introduction of exotic predators were significant factors in the species' decline in the early- to mid-1900s. Reservoir construction, expansion of introduced predators, grazing and prolonged drought fragmented and eliminated many of the Sierra Nevada foothill populations. Several researchers in central California have noted the decline and eventual disappearance of California red-legged frog once bullfrogs (*Rana catesbeiana*) become established at the same site (L. Hunt, *in litt*., 1993). Bullfrogs prey on California red-legged frogs (Twedt 1993) and interfere with their reproduction (Jennings and Hayes 1990, Twedt 1993).

California red-legged frogs have been found at elevations that range from sea level to about 5,000 feet. The frog uses a variety of habitat types, which include various aquatic systems, riparian, and upland habitats. There is much variation in how California red-legged frogs use the environment and in many cases they may complete their entire life cycle in a particular area without using other components *(i.e*., a pond is suitable for each life stage and use of upland habitat or a riparian corridor is not necessary). Populations appear to persist where a mosaic of habitat elements exists, embedded within a matrix of dispersal habitat. Here, local extinctions may be counterbalanced by recolonizations of new or unoccupied areas of suitable habitat. Adults are often associated with dense, shrubby riparian or emergent vegetation and areas with deep (> 28 inches) still or slow-moving water; the largest summer densities of California red-legged frogs are associated with deep-water pools with dense stands of overhanging willows (*Salix* spp.) and an intermixed fringe of cattails (*Typha latifolia*) (Jennings 1988). California red-legged frogs spend considerable time resting and feeding within dense riparian vegetation; it is believed the moisture and camouflage provided by the riparian plant community provide good foraging habitat and riparian vegetation provides cover during dispersal (Rathbun *et al*. 1993).

Breeding sites of the California red-legged frog are in aquatic habitats; larvae, juveniles and adult frogs have been collected from streams, creeks, ponds, marshes, deep pools and backwaters within streams and creeks, dune ponds, lagoons, and estuaries. California red-legged frogs frequently breed in artificial impoundments, such as stock ponds, given the proper management

of hydro-period, pond structure, vegetative cover, and control of exotic predators. While frogs successfully breed in streams and riparian systems, high spring flows and cold temperatures in streams often make these sites risky egg and tadpole environments. California red-legged frogs also successfully breed in artificial ponds with little or no emergent vegetation and have been observed in stream reaches that are not cloaked in riparian vegetation. In a coastal marsh in San Mateo County, Reis (1999) found California red-legged frog egg masses that successfully produced tadpoles in water as shallow as 4 inches; adult frogs selected shallow and warm water locations over either cold or deep-water locations for laying eggs. An important factor influencing the suitability of aquatic breeding sites is the general lack of introduced aquatic predators.

California red-legged frogs are sensitive to high salinity. When eggs are exposed to salinity levels greater than 4.5 parts per thousand, 100 percent mortality occurs, and larvae die when exposed to salinities greater than 7.0 parts per thousand (Jennings and Hayes 1990). Nussbaum *et al*. (1983) state that early red-legged frog (*Rana a. aurora*) embryos are tolerant of temperatures only between 48 and 70 degrees Fahrenheit and both the lower and upper lethal temperatures are the most extreme known for any North American ranid frog. Data specific to the California red-legged frog are not available.

During periods of wet weather, starting with the first rains of fall, some individuals may make long-distance overland excursions through upland habitats to reach breeding sites. In Santa Cruz County, Bulger (2003) found marked California red-legged frogs moving up to 1.7 miles through upland habitats, via point to point, straight-line migrations without apparent regard to topography, rather than following riparian corridors. Most of these overland movements occurred at night and took up to two months. Similarly, in San Luis Obispo County Rathbun and Schneider (2001) documented the movement of a male California red-legged frog between two ponds that were 1.78 miles apart; this was accomplished in less than 32 days. However, most California red-legged frogs in the Bulger (2003) study were non-migrating frogs and always remained within 426 feet of their aquatic site of residence (half of the frogs always stayed within 82 feet of water). Rathbun *et al*. (1993) radio tracked several frogs near the coast in San Luis Obispo County at various times between July and January; these frogs also stayed rather close to water and never strayed more than 85 feet into upland vegetation. Nine California red-legged frogs radio-tracked from January to June, 2001, in East Las Virgenes Creek in Ventura County remained relatively sedentary as well; the longest within-channel movement was 280 feet and the furthest movement away from the stream was 30 feet (Scott 2002).

After breeding, California red-legged frogs often disperse from their breeding habitat to forage and seek suitable dry-season habitat. Cover within dry-season aquatic habitat could include boulders; downed trees; logs; agricultural features, such as drains, watering troughs, spring boxes, abandoned sheds, or hay-ricks; and industrial debris. California red-legged frogs use small mammal burrows and moist leaf litter (Jennings and Hayes 1994, Rathbun *et al*. 1993); incised stream channels with portions narrower and deeper than 18 inches may also provide habitat (61 FR 25813). This type of dispersal and habitat use, however, is not observed in all red-legged frogs and is most likely dependent on the year to year variations in climate and

habitat suitability and varying requisites per life stage. For the California red-legged frog, this habitat is potentially all aquatic and riparian areas within the range of the species and includes any landscape features that provide cover and moisture (61 *Federal Register* 25813).

California red-legged frogs breed from November through March; earlier breeding has been recorded in southern localities (Storer 1925). Males appear at breeding sites from two to four weeks before females (Storer 1925). They typically call in small, mobile groups of three to seven individuals to attract females (Jennings and Hayes 1985). Female California red-legged frogs deposit egg masses on emergent vegetation so that the masses float on the surface of the water (Hayes and Miyamoto 1984). Egg masses contain about 2,000 to 5,000 moderate-size (0.08 to 0.11 inch in diameter), dark reddish brown eggs (Storer 1925, Jennings and Hayes 1985). Eggs hatch in 6 to 14 days (Storer 1925). Larvae undergo metamorphosis 2.5 to 7 months after hatching (Storer 1925, Jennings and Hayes 1990, Service 2002a). Egg predation is infrequent; most mortality probably occurs during the tadpole stage (Licht 1974), although eggs are susceptible to being washed away during high stream flows. Schmieder and Nauman (1994) report that the California red-legged frog eggs have a defense against predation which is possibly related to the nature of the egg mass jelly. Schmieder and Nauman (1994) report that California red-legged frog larvae are highly vulnerable to fish predation; larvae appear to be most vulnerable to fish predation immediately after hatching when the nonfeeding larvae are relatively immobile. Sexual maturity can be attained at two years of age by males and three years of age by females (Jennings and Hayes 1985); adults may live 8 to 10 years (Jennings *et al*. 1992) although the average life span is considered to be much lower.

The diet of California red-legged frogs is highly variable. Tadpoles probably eat algae (Jennings *et al*. 1992). Hayes and Tennant (1985) found invertebrates to be the most common food item for adults. Vertebrates such as Pacific tree frogs and California mice (*Peromyscus californicus*), represented over half of the prey mass eaten by larger frogs (Hayes and Tennant 1985). Feeding activity probably occurs along the shoreline and on the surface of the water. Hayes and Tennant (1985) found juvenile frogs to be active diurnally and nocturnally, whereas adult frogs were largely nocturnal.

Blunt-nosed Leopard Lizard. The blunt-nosed leopard lizard was federally listed as endangered on March 11, 1967 (32 *Federal Register* 4001) and state listed as endangered on June 27, 1971. A recovery plan for the blunt-nosed leopard lizard was first prepared in 1980 and revised in 1985 (Service 1985). The multi-species Valley Recovery Plan issued by the Service in 1998 replaces the 1985 plan. This species account is a brief summary of the recovery plan, except as otherwise cited. The recovery strategy requires that the Service (1) determine appropriate habitat management and compatible land uses for the blunt-nosed leopard lizard; (2) protect additional habitat for them in key portions of their range; and (3) gather additional data on population responses to environmental variation at representative sites in their existing geographic range (Service 1998).

The blunt-nosed leopard lizard was distributed historically throughout the San Joaquin Valley and adjacent interior foothills and plains, extending from central Stanislaus County south to

northeastern Santa Barbara County and northwestern Ventura County. Today its distribution is limited to scattered parcels of undeveloped land, with the greatest concentrations occurring on the west side of the San Joaquin Valley floor and in the foothills of the Transverse Range. The recovery plan states that the blunt-nosed leopard lizard is not found at elevations above 2,600 feet (Service 1998), whereas Stebbins (2003) puts the elevational limit "about" 2,400 feet, and California Department of Fish and Game (1988) states that it ranges up to 3,000 feet.

The blunt-nosed leopard lizard hybridizes with the long-nosed leopard (*Gambelia wislizenii*) where their ranges meet in Ballinger Canyon and the upper Cuyama River watershed (Santa Barbara and Ventura Counties). The blunt-nosed leopard lizard prefers grassland habitats at elevations up to 2,400 feet, whereas the hybrid utilizes primarily ecotonal areas between grassland and pinyon-juniper woodland at elevations from 2,400 to 3,600 feet (Service 1979). This is a natural occurrence of hybridization and in many ways could be considered even more vital to preserve than some of the pure-strain populations (Service 1979 in litt.; R. Stebbins, Professor Emeritus of Zoology, U.C. Berkeley, in litt. 1979).

The blunt-nosed leopard lizard prefers open, sparsely vegetated areas of low relief which support habitats such as valley sink scrub, valley saltbush scrub, alkali playa, valley/plain grasslands, and foothill grasslands. Vegetation often includes shrubs of the family Chenopodiaceae, such as iodine bush (*Allenrolfea occidentalis*) and saltbush (*Atriplex* spp.), bunchgrasses, non-native annual grasses, and in some areas mormon tea (*Ephedra* spp.) (Stebbins 2003). Areas with 15 to 30 percent ground cover are optimal as leopard lizard habitat, and greater than 50 percent cover is unsuitable. In general, leopard lizards are absent from areas of steep slope, dense vegetation, or areas subject to seasonal flooding.

Blunt-nosed leopard lizards seek shelter from predators and temperature extremes primarily in burrows, but may also use rock piles, trash piles, and brush. Burrows are usually abandoned ground squirrel tunnels and those constructed by kangaroo rats, whether occupied or not. In areas of low mammal burrow density, blunt-nosed leopard lizards will construct shallow, simple tunnels in earth berms or under rocks. Adult lizards hibernate during the colder months of winter, and are less active in the hotter months of late summer. Adults are active above ground from about March or April through August or September. Hatchlings are active until mid-October or November. Recent studies have shown that blunt-nosed leopard lizards can withstand severe, long term drought by remaining dormant for up to 22 months.

Blunt-nosed leopard lizard habitat has been significantly reduced, degraded, and fragmented by agricultural development, petroleum and mineral extraction, livestock grazing, pesticide application, and off-road vehicle use. By 1985, 94 percent of wildlands on the San Joaquin Valley floor which may have supported blunt-nose leopards lizards had been lost to agricultural, urban, petroleum, mineral, or other development.

San Joaquin Kit Fox. The San Joaquin kit fox was federally listed as endangered on March 11, 1967 (32 *Federal Register* 4001) and state listed as threatened on June 27, 1971. Recovery of

the San Joaquin kit fox is addressed in the recovery plan for upland species of the San Joaquin Valley (Service 1998a). This species account is a brief summary.

With the possible exception of the island fox (*Urocyon littoralis*), the San Joaquin kit fox is the smallest native canid in North America and has a tail length of approximately 30 inches including the tail. It is a nocturnal animal but can be active during daylight hours in late spring and early summer. The diet of San Joaquin kit foxes varies geographically, seasonally, and annually based on variation in abundance of potential prey. They feed primarily on kangaroo rats, ground squirrels, mice, and lagomorphs. San Joaquin kit foxes will also eat insects, birds, and vegetation.

Historically, the San Joaquin kit fox occurred within an 8,700-square mile range in central California, from the vicinity of Tracy in the upper San Joaquin Valley, south to the general vicinity of Bakersfield. The current range of the San Joaquin kit fox is divided into two areas; the northern range centering around Contra Costa County, and the southern range in the San Joaquin Valley and neighboring valleys. They also occur in interior coastal ranges and watersheds from Monterey County to Ventura County. Throughout their range, San Joaquin kit foxes are currently limited to remaining grassland, saltbush, open woodland, alkali sink valley floor habitats, and other similar habitats located along bordering foothills and adjacent valleys and plains. The largest extant populations of San Joaquin kit foxes are in the Elk Hills and the Buena Vista Naval Petroleum Reserve in Kern County, and the Carrizo Plain Natural Area in San Luis Obispo County. In the southern San Joaquin Valley, San Joaquin kit foxes also appear to use habitat fragments in an urbanizing environment.

San Joaquin kit foxes use dens for temperature regulation, shelter from adverse environmental conditions, reproduction, and escape from predators. They may change dens four or five times during summer months and change natal dens one or two times per month. During September and October, adults begin to prepare natal and pupping dens, usually selecting sites with multiple openings. Mating takes place between late December and March. Litters of two to six pups are born between February and late March. Pups emerge from dens at slightly more than one month old and begin to disperse about four to five months later. Reproductive success of kit foxes is correlated with prey abundance. Success decreases when the density of prey species drops because of drought, too much rainfall, or other circumstances. Home ranges of approximately one to 12 square miles have been reported.

Intensive agriculture, urbanization, and other land-modifying actions have eliminated extensive portions of habitat and are the most significant causes of this species' endangerment. Such habitat losses contribute to San Joaquin kit fox decline through displacement, direct and indirect mortalities, barriers to movement, and reduction of prey populations. The coyote (*Canis latrans*) and the introduced red fox (*Vulpes vulpes*) compete for food resources with the smaller San Joaquin kit fox and are known to prey upon San Joaquin kit foxes as well. Predation, competition, poisoning, illegal shooting and trapping, prey reduction from rodent control programs, and vehicle strikes contribute substantially to the vulnerability of this species.

Giant Kangaroo Rat. The giant kangaroo rat was federally listed as endangered on January 5, 1987 (52 *Federal Register* 283) and state listed as endangered on October 2, 1980. Recovery of the giant kangaroo rat is addressed in the Valley Recovery Plan (Service 1998a). This species account is a brief summary.

The giant kangaroo rat was distributed historically from southern Merced County, south through the San Joaquin Valley, to southwestern Kern County and northern Santa Barbara County. Significant populations survive only in a few areas of remaining habitat, including the Panoche Hills, Cuyama Valley, Carrizo and Elkhorn Plains, and the Lokern area. The species' preferred habitat is native annual grasslands (sometimes with sparse vegetation such as forbes and widely-scattered desert shrubs), areas with good drainage, sandy-loam soils, and slopes of less than 10 percent. It occurs at elevations ranging from approximately 280 to 2,800 feet, but is rare above 2,400 feet (Stephenson and Calcarone 1999). The giant kangaroo rat is the largest of more than 20 kangaroo rat species in the genus *Dipodomys*.

Giant kangaroo rats are active all year and in all types of weather. They do not migrate or become dormant or torpid. Giant kangaroo rats are nocturnal and typically emerge from their burrows soon after sunset and are active for about 2 hours, although they are above ground only for about 15 minutes per night. Results from trapping of kangaroo rats show most movements are less than 330 feet and rarely as much as 0.62 mile. However, the genetic data suggest that effective dispersal distances can be up to several miles.

Completion of the San Luis Unit of the Central Valley Project and the California Aqueduct of the State Water Project resulted in rapid cultivation and irrigation of natural communities that had provided habitat for giant kangaroo rats along the west side of the San Joaquin Valley (Williams 1992, Williams and Germano 1993). Between about 1970 and 1979, almost all the natural communities on the western floor and gentle western slopes of the Tulare Basin were developed for irrigated agriculture, restricting occurrence of most species of the San Joaquin saltbush and Valley Grassland communities, including the giant kangaroo rat. This rapid habitat loss was the main reason for its listing as endangered.

Habitat destruction resulting from the development of small cities and towns along the western edge of the San Joaquin Valley between Coalinga and Maricopa, as well as development of the infrastructures for petroleum and mineral exploration and extraction, roads and highways, energy and communications infrastructures, and agriculturally related industrial developments collectively have contributed to the endangerment of the giant kangaroo rat. Widespread use of rodenticides and rodenticide-treated grain to control ground squirrels and kangaroo rats may also have contributed to the decline of giant kangaroo rats in some areas. It currently occupies about two percent of its former range. Recovery of the giant kangaroo rat can be achieved when the three largest populations (one of which is within the Carrizo Plain Natural Area) and three other specific populations (one of which is the Cuyama Valley population) are protected and managed appropriately. Currently, the Cuyama Valley population includes "no public or conservation lands" (Service 1998a, p. 93).

Least Bell's Vireo. The least Bell's vireo is a small, olive-grey migratory songbird that nests and forages almost exclusively in riparian woodland habitats. Bell's vireos as a group are highly territorial and are almost exclusively insectivorous.

Least Bell's vireo nesting habitat typically consists of well-developed overstories and understories, and low densities of aquatic and herbaceous cover. The understory frequently contains dense subshrub or shrub thickets. These thickets are often dominated by sandbar willow (*Salix hindsiana*), mule fat (*Baccharis salicifolia*), young individuals of other willow species such as arroyo willow (*S. lasiolepis*) or black willow (*S. gooddingii*) and one or more herbaceous species. Important overstory species include mature arroyo willows and black willows; occasional cottonwoods (*Populus* spp.) and western sycamores (*Platanus racemosa*) also occur in some habitats. Additionally, coast live oaks (*Quercus agrifolia*) can be a locally important overstory component, as can mesquite (*Prosopis* spp.).

Least Bell's vireos generally begin to arrive from their wintering range in southern Baja California and establish breeding territories by mid-March to late March. Most breeding least Bell's vireos apparently depart their breeding grounds by the third week of September and only a very few individuals are found wintering in California. Following pair formation, it takes approximately 5 to 7 days for least Bell's vireos to finish nest construction and egg-laying. Young typically fledge within 20 to 24 days after eggs are laid. The egg-laying and incubation periods are critical to the nesting success as disturbance at this point may result in abandonment of the nest. Once young are fledged, they wander widely throughout the parents' territory.

Although least Bell's vireos occupy home ranges that typically range in size from 0.5 to 7.5 acres, a few may be as large as 10 acres. In general, areas containing relatively high proportions of degraded habitat seem to have lower productivity (hatching success) than areas that contain high quality riparian woodland.

Historically described as common to abundant in the appropriate riparian habitats from as far north as Tehama County, California to northern Baja California, Mexico, the least Bell's vireo currently occupies a small fraction of its former range, restricted now to eight counties in southern California and portions of northern Baja, Mexico. Widespread habitat losses have fragmented most remaining populations into small, disjunct, widely dispersed subpopulations. The decline of this species is attributed, in part, to the combined, perhaps synergistic effects of the widespread loss of riparian habitats and brood-parasitism by the brown-headed cowbird.

Because of its decline, the least Bell's vireo was listed as endangered by the Service on May 2, 1986 (51 *Federal Register* 16474). Critical habitat was designated for the least Bell's vireo on February 2, 1994 (59 *Federal Register* 4845). A draft recovery plan was completed in 1998 (Service 1998b). The final listing rule estimated the number of pairs in southern California at 330. By 1996, the estimated number of pairs had increased to 1,346, possibly due to the trapping of brown-headed cowbirds and habitat conservation and restoration (Service 1998b). Additional information on the least Bell's vireo may be found in Wilbur (1980), Garrett and Dunn (1981), Miner (1989), Pike and Hays (1992), Zembal *et al.* (1985), and Service (1998b).

Southwestern Willow Flycatcher. The southwestern willow flycatcher was listed as endangered on February 27, 1995 (60 *Federal Register* 10694). The Recovery Plan for the southwestern willow flycatcher was completed in 2002 (Service 2002b). Critical habitat was designated along 599 river miles of flycatcher critical habitat in New Mexico, Arizona and California in 1997. In 2001, the 10th Circuit Court of Appeals set aside designated critical habitat within New Mexico–the only state under the court's jurisdiction where critical habitat was originally proposed. The Service then set aside critical habitat designated for the species in all three states until a reassessment of the economic effects of designation could be completed, which the court had found to be inadequate. On October 12, 2004, critical habitat was reproposed along 1,556 river miles (within the100-year floodplain) in California, Arizona, Nevada, Utah, Colorado and New Mexico (69 *Federal Register* 60706).

The southwestern willow flycatcher's 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 historical range, but the quantity of suitable habitat within that range is much reduced from historical levels. In southern California, the southwestern willow flycatcher was once considered common in the Los Angeles basin where its historic range apparently included all lowland riparian habitats with suitable vegetation. The flycatcher migrates to Mexico, Central, and possibly northern South America for the non-breeding season.

The southwestern willow flycatcher is one of four subspecies of the willow flycatcher currently recognized (Hubbard 1987; Unitt 1987), though Browning (1993) suggests a possible fifth subspecies (*E. t. campestris*) in the central and midwestern United States. Within the six southwestern states where it is found, the southwestern willow flycatcher breeds and forages in relatively dense riparian habitats from near sea level to over 6,100 feet. It nests in thickets of trees and shrubs ranging in height from 6 to 98 feet. Lower-stature thickets (6–13 feet tall) tend to be found at higher elevation sites, with tall-stature habitats at middle and lower elevation riparian forests. Nest sites typically have dense foliage at least from the ground level up to approximately 13 feet above ground, although dense foliage may exist only at the shrub level, or as a low dense canopy. Nest sites typically have a dense canopy. Some of the more common tree and shrub species currently known to comprise nesting habitat include willows, arrowweed (*Pluchea* spp.), coyote brush (*Baccharis pilularis),* boxelder (*Acernegundo*), tamarisk (*Tamarix ramosissima*), and Russian olive (*Eleagnus angustifolia*), often with a scattered overstory of cottonwoods. Generally, you would not find southwestern willow flycatchers nesting in an area without willows or tamarisk (69 *Federal Register* 60706).

Southwestern willow flycatchers typically forage within and occasionally above the canopy of riparian vegetation, taking insects on the wing or gleaning them from vegetation. The southwestern willow flycatcher is present and singing on breeding territories by mid-May, although its presence and status are often confused by migrating individuals of northern subspecies passing through *E. t. extimus* breeding habitat. They build nests and lay eggs in late May and early June, and fledge young in early to mid-July. Some variation in these dates has been observed and may be related to altitude, latitude, and renesting.

Approximately three quarters of southwestern willow flycatchers surviving from one breeding season to the next will return to the same breeding site. They have higher site fidelity than nest fidelity and can move among sites within drainages and sometimes between drainages. Within-drainage movements generally range from 1 to 18 miles, but can be as long as 25 miles. Movements of birds between drainages, which is more rare, has been documented to range from 25 miles to a single movement of 275 miles (69 *Federal Register* 60706).

When the southwestern willow flycatcher was listed as endangered in 1995, approximately 350 territories were known to exist. At the end of the 2002 breeding season (the most recent survey data), the minimum known number of southwestern willow flycatcher territories in the six southwestern states was 1,153, with 238 of those (21 percent) being in California. This does not include flycatchers likely to occur on some Tribal and private lands (69 *Federal Register* 60706). The four largest populations of southwestern willow flycatchers in California are along the Kern, Owens, San Luis Rey, and Santa Margarita Rivers (Service 2002b).

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 *Federal Register* 10694).

California Condor. The California condor was listed as endangered on March 11, 1967 (32 *Federal Register* 4001), and state listed as endangered on June 27, 1971. Critical habitat for the California condor was designated nine years later on September 24, 1976 (41 *Federal Register* 187), and consists of nine critical habitat units scattered throughout the California condor range in California totaling approximately 570,400 acres. An experimental population listed as threatened under section 10(j) of the Act was begun in Arizona in 1996. The latest version of the California Condor Recovery Plan (Service 1996) is the source of most of the information on California condor biology provided in the following discussion.

The California condor is a member of the family Cathartidae or New World vultures, a family of seven species, including the closely related Andean condor (*Vultur gryphus*) and the sympatric turkey vulture (*Cathartes aura*). Although the family has traditionally been placed in the Order Falconiformes, most contemporary taxonomists believe that New World vultures are more closely related to storks (Ligon 1967, Rea 1983, Sibley and Ahlquist 1990). California condors are among the largest flying birds in the world. Adults weigh approximately 22 pounds and have a wing span up to 9.5 feet. They are generally black, with prominent white underwing linings, with naked skin on the head neck that ranges from gray to shades of yellow, red, and orange. Males and females cannot be distinguished by size or plumage characteristics.

California condors nest in various types of rock formations including crevices, overhung ledges, and potholes, and, more rarely, in cavities in giant sequoia trees (*Sequoia giganteus*) (Snyder *et al.* 1986). California condor nest sites share the following characteristics: nest cavity ceiling

height of at least 15 inches at the egg position, fairly level floors with some loose surface substrate, unobstructed area around the nest for incubating adults, and short distance to an accessible landing point (Snyder *et al*. 1986).

All but one of the nest sites used between 1979 to 1986 were in a narrow belt of chaparral and coniferous forested mountains from central Santa Barbara County across northern and central Ventura County to northwestern Los Angeles County. The sites were located within a total area approximately 56 miles from west to east and only about 15 miles from north to south. The only nest outside this area was located in a giant sequoia in Tulare County in 1984. All recent California condor nest sites were located on public lands within the Los Padres, Angeles, and Sequoia National Forests.

California condors are opportunistic scavengers, feeding only on the carcasses of dead animals. Typical foraging behavior includes long-distance reconnaissance flights, lengthy circling flights over a carcass, and hours of waiting at a roost or on the ground near a carcass. Prior to the arrival of European man, California condor food items within interior California probably included mule deer (*Odocoileus hemionus*), tule elk (*Cervus elaphus nannoides*), pronghorn antelope (*Antilocapra americana*), and smaller mammals. Along the Pacific shore the diet of the California condor may have included whales, sea lions, and other marine species (Koford 1953, Emslie 1987, Service 1984). More recently, Koford (1953) estimated that 95 percent of the California condor diet consisted of cattle, domestic sheep, ground squirrels (*Spermophilus beecheyi*), mule deer, and horses.

Most California condor foraging occurs in open terrain of foothill grassland and oak savannah habitats. Although the California condor is not as ungainly on the ground as portrayed in popular literature, it does require fairly open spaces for feeding. This ensures easy take-off and approach and makes finding food easier. As mentioned earlier, mule deer are a normal food item, yet deer tend to drift toward canyon bottoms to die (Taber and Dasmann 1958, Blong 1954), where steep terrain and brush may interfere with California condor foraging.

The principal foraging regions used by California condors from the late 1970s to 1987 were the foothills bordering the southern San Joaquin Valley and axillary valleys in San Luis Obispo, Santa Barbara, Kern, and Tulare Counties. After 1982, most observations of feeding by the small remaining wild population of California condors occurred in the Elkhorn Hills-Cuyama Valley-Carrizo Plain complex, and in the foothills of the southern San Joaquin Valley (Meretsky and Snyder 1992). The majority of important foraging areas were on private cattle-grazing lands. Currently, released California condors are provided with calf carcasses as supplemental food to reduce their potential exposure to lead poisoning through ingestion of bullet fragments or lead shot in contaminated animal carcasses.

Depending upon weather conditions and the hunger of the bird, a California condor may spend most of its time perched at a roost. California condors often use traditional roosting sites near important foraging grounds (Service 1984). Although California condors usually remain at roosts until mid-morning, and generally return in mid- to late afternoon, it is not unusual for a

bird to stay perched throughout the day. While at a roost, California condors devote considerable time to preening and other maintenance activities. California condors apparently will tolerate more disturbance at a roost than at a nest. Roosting sites and nesting sites are susceptible to similar disturbance threats, and their preservation requires isolation from human intrusion. Cliffs and tall conifers, including snags, are generally utilized as roost sites in nesting areas. Although most roost sites are near nesting or foraging areas, scattered roost sites are located throughout the range.

California condors use topography and associated thermal weather patterns for flight. This is best illustrated by observations indicating that almost all flights by California condors, whether covering long distances or not, followed routes over the foothills and mountains bordering the southern San Joaquin Valley. It was rare for a California condor to pass directly over the flat, highly agricultural floor of the Valley. Where flat, agricultural regions are much less extensive, such as the Cuyama Valley in Santa Barbara and San Luis Obispo Counties, California condors freely passed high above en route to foraging grounds. It has become apparent that California condors are highly dependent on topography as it dictates prevailing wind patterns (Service 1984).

During the Pleistocene era (10,000 to 100,000 years ago) the California condor ranged from British Columbia, Canada to Baja California, Mexico and through the southwest to Florida and north to New York State. With the extinction of the large Pleistocene Era mammals, condors declined in range and numbers. Another large decline occurred when European settlers arrived on the West Coast, and accelerated during the gold rush of 1849. Condors were wantonly shot and poisoned, and eggs and adults were collected. By 1940, the condors' range was reduced to a horseshoe-shaped area in southern California that included the coastal mountain ranges of San Luis Obispo, Santa Barbara and Ventura Counties; a portion of the Transverse Range in Kern and Los Angeles Counties; and the Southern Sierras in Tulare County.

The California condor declined over the past century to such a low level that only 21 individuals existed in 1982. The last free-flying California condors were captured by 1987 and brought into a captive breeding program. Following several years of increasingly successful captive breeding, captive-produced California condors were first released back to the wild in southern California in early 1992. Further releases have been made near the Ventana Wilderness area, Pinnacles National Monument, and in Baja California, Mexico. Under section 10(j) of the Act, an experimental population was also begun with releases in Arizona in 1996.

The California condor remains one of the world's rarest and most imperiled vertebrate species. As of October 1, 2004, 51 California condors are free-flying in California, 8 in Baja California, and 47 in Arizona. Another 141 are in captivity. The first nesting activity by California condors released back into the wild occurred in 2001 in Lion Canyon above the Cuyama River Valley. Although this nesting attempt was ultimately unsuccessful, it marked the beginning of an increasingly successful pattern of reproduction in the wild, once again, by California condors (California condors also attempted to nest in Arizona in 2001). In 2002, three condor chicks were produced in the wild in California by re-introduced birds. Unfortunately, these three chicks

perished prior to fledging. One died due to ingestion of foreign materials (*e.g*., glass, bottle caps, etc.); the cause of death of the other two is unknown, but they both were found to have elevated levels of copper. Another chick was produced in the wild in California in 2003, but again died before fledging due to the ingestion of foreign objects. Three chicks were produced in the wild in California in 2004. One died partly due to the ingestion of foreign objects, one was taken into captivity for rehabilitation after it broke a wing (and is scheduled for release next year), and the third recently fledged. Nesting activity has also been occurring in the Arizona population where the first California condor chick to successfully fledge in the wild since the 1980s occurred in the Grand Canyon in 2003. The two chicks produced there this year are also close to fledging.

Currently, the most serious sources of human-related mortality are lead poisoning, shooting, collision with power lines, and the ingestion of small pieces of garbage. Two California condors have been shot and killed since 1999, including AC-8, the last wild female captured in 1986 and the first of the original wild birds to be released in 2000 (M. Hall, Refuge Manager, Hopper Mountain National Wildlife Refuge, pers. comm. 2004).

Post-mortem examinations performed on four wild California condors found dead since 1983, indicated that three of the birds died from the effects of lead poisoning (Janssen *et al.* 1986, Wiemeyer *et al*. (1988) and one died of cyanide poisoning when a California condor triggered an M-44 cyanide gun set out for coyotes (Wiemeyer *et al.* 1988). High lead levels, presumably obtained from the ingestion of fragments of lead bullets in shot mammal carcasses, may be a pervasive problem throughout the historical foraging range of the California condor. Wiemeyer *et al*. (1988) concluded that lead exposure was the major factor having an adverse impact on the wild California condor population from 1982 to 1986. The possible effects on California condors of another highly toxic heavy metal, copper, have not been investigated, but Wiemeyer *et al.* (1983) reported unusually high copper levels in the liver tissue of an immature California condor found dead from unknown causes in 1974.

Six of the California condors released since 1992 were lost due to collisions with power lines. At least two deaths from collisions with manmade objects, including power lines, were known historically (Koford 1953). Because of deaths from contact with power lines, condors started undergoing power line aversion training in 1995 before their release. Currently, it is believed that such collisions along with lead poisoning and shooting will remain the principal causes of California condor mortality as the population recovers. The ingestion of debris and small pieces of garbage also remains a pervasive and dangerous threat to California condor chicks.

ENVIRONMENTAL BASELINE

Arroyo Toad. Within the areas proposed for oil and gas leasing, arroyo toads are only known to occupy Piru Creek, which is in the Sespe HOGPA. Arroyo toads were first documented in lower Piru Creek by Sanders (1950). Sweet (1992, 1993) conducted the most thorough investigation of arroyo toads on the Los Padres N.F., including lower Piru Creek. He mapped arroyo toad breeding pools there and counted up to 79 clutches within lower Piru Creek and Agua Blanca Creek (a tributary) in a single breeding season (1991). More recent surveys documenting

breeding success of the lower Piru Creek arroyo toad population have been commissioned by the United Water Conservation District; approximately 12 arroyo toad clutches were produced in lower Piru and Agua Blanca Creeks in 2003 (N. Sandburg, biological consultant, Santa Barbara, California, pers. comm. 2003).

The Sespe HOGPA includes approximately 1 river mile of Piru Creek above Lake Piru. Habitat occupied by arroyo toads along this section of Piru Creek includes riparian areas and uplands adjacent to Piru Creek as well as tributaries entering Piru Creek, such as Canton Canyon, up to approximately 1 mile from Piru Creek. The biological assessment (Forest Service 2004) states that 69 acres of habitat occupied by the arroyo toad could be subject to oil- and gas-related development. It further states that a larger acreage of potentially suitable habitat for the arroyo toad could be subject to oil- and gas-related development -874 acres- although arroyo toads are not known to occupy these areas. However, recent discussions between members of your staff and my staff have led to a substantial reduction in the acreage of "modeled" habitat for the arroyo toad; much of it has been reclassified as unoccupied or unsuitable (J. Uyehara, biologist, Los Padres N.F., pers. comm. 2003). (Areas of *potentially* suitable habitat for each listed species on Forest Service land have been identified using a computer model by specifying limiting parameters, such as appropriate soil type, vegetation type, slope, elevation, etc.; the areas of potentially suitable habitat are known as "modeled habitat" for each species.) Modeled habitat for the arroyo toad no longer exists within any of the three HOGPAs, although a short segment of habitat determined to be suitable for the arroyo toad exists within the lower reach of Canton Canyon. We consider the action area for the arroyo toad to be all of the area within the Sespe HOGPA that we have proposed as critical habitat for the arroyo toad (69 *Federal Register* 23254), as well as the lowest 1 mile of Canton Canyon. This includes all of Piru Creek within the Sespe HOGPA and the lower portion of Canton Creek, along with flood zones, riparian areas, and adjacent upland habitats associated with both of these creeks.

Because lower Piru Creek is below Pyramid Dam, the habitat there has experienced some degradation over the years from perennial water releases, rapid changes in flow volume, excessive flows during the breeding season, and an increased presence of exotic predators. However, beginning in March 2005, releases from Pyramid Dam are scheduled to more closely mimic natural flows, which will benefit the arroyo toad. This should result in an expanded, stable population distributed over areas of good to excellent habitat in and around lower Piru Creek that is generally undisturbed by human activities.

California Red-legged Frog. Historically, California red-legged frogs inhabited streams within the Piru Creek drainage, which is in the Sespe HOGPA. However, we do not know the current status of the species within the Sespe HOGPA. Modeled habitat for the California red-legged frog exists within Canton, Resor, and Dominquez Canyons in the Sespe HOGPA, as well as along Piru Creek. California red-legged frogs likely still inhabit Agua Blanca Creek, which enters Piru Creek approximately 1 mile upstream from the Sespe HOGPA boundary (N. Sandburg, biological consultant, Santa Barbara, California, pers. comm. 2003). Habitat within and along lower Piru Creek appears to be suitable for California red-legged frogs (personal observation), but the presence of exotic predators, such as bullfrogs, prickly sculpins (*Cottus*

asper), and largemouth bass (*Micropterus salmoides*) (Sweet 1992) may keep California red-legged frogs from inhabiting most or all of Piru Creek. As discussed for the arroyo toad, beginning next spring the number of exotic aquatic predators inhabiting Piru Creek should decline when the flow regime from Pyramid Dam will be changed to simulate natural flows.

California red-legged frogs may also inhabit streams within the San Cayetano HOGPA as modeled habitat exists for them there, primarily within Santa Paula and Sisar Canyons. We have no records of California red-legged frogs inhabiting streams within the San Cayetano HOGPA, but that could be due to the lack of survey effort there. No historical or current records exist of California red-legged frogs within the South Cuyama HOGPA, although they have been observed in the Cuyama River over 30 miles downstream, much closer to the coast. Streams within the South Cuyama HOGPA contain modeled habitat for the California red-legged frog, but its presence in this HOGPA is less likely, due to the greater distance from the coast and associated increased aridity. The biological assessment (Forest Service 2004) states that a total of 393 acres of habitat potentially suitable for the California red-legged frog could be subject to oil- and gas-related development within the three HOGPAs. We consider the action area for the California red-legged frog to be all modeled habitat for the California red-legged frog within each of the three HOGPAs as well as any private lands containing potentially suitable habitat for the species that are within 0.5 mile of lease areas within one of the three HOGPAs.

Blunt-nosed Leopard Lizard. According to the Los Padres N.F., only one location of a suspected pure-strain blunt-nosed leopard lizard has been reported on Forest Service lands. It was reported in the early 1990's to be on the Ventucopa administrative parcel near the Cuyama River at an elevation of 2,840 feet (M. Freel, Wildlife Biologist, Los Padres N.F., pers. comm. 2004). Other reports of blunt-nosed leopard lizards on the Los Padres N.F. were deemed to be hybrids with the long-nosed leopard lizard, or possibly even long-nosed leopard lizards misidentified as blunt-nosed leopard lizards. Forest Service records place blunt-nosed leopard lizards (probable hybrids) in various locations within the South Cuyama HOGPA, primarily within Santa Barbara, Quatal, and Apache Canyons. These records, which extend beyond the limits of the South Cuyama HOGPA, extend up to approximately 3,900 feet in elevation in both Quatal, and Apache Canyons. Forest Service records also place blunt-nosed leopard lizards (probable hybrids) near the Ozena Campground, approximately 15 miles up the Cuyama River from the Ventucopa administrative parcel.

The biological assessment (Forest Service 2004) states that 102 acres of habitat potentially suitable for the blunt-nosed leopard lizard could be subject to development. This is based on "modeled habitat" for the blunt-nosed leopard lizard, which extends up to 3,000 feet in elevation on slopes less than 10 percent that are covered by the appropriate type of vegetation. A small portion of the habitat potentially suitable for the blunt-nosed leopard lizard and subject to oil and gas leasing, including private lands within 0.5 mile of the Forest boundary, occurs below 2,600 feet in elevation. These areas are primarily private lands found near the South Cuyama Oil Field (and within 0.5 mile of the Forest boundary), but a small area of private land within Wells Creek, which could potentially be used to access oil and gas under the Los Padres N.F., also extends below 2,600 feet. Although the potential exists for blunt-nosed leopard lizards to be found in

these areas (especially below 2,600 feet), there are no definitive records of pure-strain blunt-nosed leopard lizards in areas subject to oil and gas leasing, other than the single record at the Ventucopa administrative parcel. We consider the action area for the blunt-nosed leopard lizard to be all areas that: are occupied by blunt-nosed leopard lizards or hybrid blunt-nosed leopard lizards; contain modeled habitat for the blunt-nosed leopard lizard; or are private lands containing potentially suitable habitat for the blunt-nosed leopard lizard that are within 0.5 mile of lease areas within the South Cuyama HOGPA.

San Joaquin Kit Fox. According to Stephenson and Calcarone (1999), the San Joaquin kit fox is most likely a transitory visitor on National Forest system lands, as little high-quality habitat exists for them on those lands. We are unaware of any records of the San Joaquin kit fox on Los Padres N.F. lands. However, San Joaquin kit foxes have been observed in the upper Cuyama River Valley within 0.5 mile of Los Padres N.F. lands in the South Cuyama HOGPA. Additionally, the biological assessment (Forest Service 2004) states that 927 acres of habitat potentially suitable for the San Joaquin kit fox could be subject to development. As with the blunt-nosed leopard lizard, modeled habitat for San Joaquin kit fox denning sites extends up to 3,000 feet in elevation within the Cuyama River Valley. Modeled foraging habitat extends up to 4,500 feet in grasslands within the Cuyama River Valley. We consider the action area for the San Joaquin kit fox to be all denning and foraging habitat modeled for the San Joaquin kit fox as well as any private lands containing potentially suitable habitat for the species that are within 0.5 mile of lease areas within the South Cuyama HOGPA.

Giant Kangaroo Rat. The giant kangaroo rat's range approaches, and potentially extends onto, the Los Padres N.F. within the Cuyama River Valley. However, we are unaware of any observations on, or within 0.5 mile of, Los Padres N.F. lands. Any occurrences on the Los Padres N.F. would be at the fringe of suitable habitat, which is concentrated in the valley below (Stephenson and Calcarone 1999).

As with the blunt-nosed leopard lizard, the biological assessment (Forest Service 2004) states that 102 acres of habitat potentially suitable for the giant kangaroo rat could be subject to development. Modeled habitat for the giant kangaroo rat also extends up to 3,000 feet in elevation within the Cuyama River Valley. Below this elevation, modeled habitat for the giant kangaroo rat is found on slopes of less than ten percent covered with desert grassland, desert subshrub scrub, or saltbush scrub. A very small portion of the habitat potentially suitable for the giant kangaroo rat and subject to oil and gas leasing occurs below 2,400 feet in elevation, where giant kangaroo rats are more likely to be found. These areas, primarily found near the South Cuyama Oil Field, are on private lands within 0.5 mile of the Forest boundary and could potentially be used to access oil and gas under the Los Padres N.F. We consider the action area for the giant kangaroo rat to be all habitat modeled for this species as well as any private lands containing potentially suitable habitat for the species that are within 0.5 mile of lease areas within the South Cuyama HOGPA.

Least Bell's Vireo. Least Bell's vireos have not been observed within any of the three HOGPAs. However, modeled habitat for least Bell's vireo exists within all three HOGPAs. The

biological assessment (Forest Service 2004) states that 134 acres of habitat potentially suitable for the least Bell's vireo could be subject to oil and gas development. We consider the action area for the least Bell's vireo to be all habitat modeled for this species as well as any private lands containing potentially suitable habitat for the species that are within 0.5 mile of lease areas.

Southwestern Willow Flycatcher. Willow flycatchers have been observed along Piru Creek within, and north of, the Sespe HOGPA. We are unaware whether or not these birds were *E. t. extimus* or a different subspecies migrating through. No willow flycatchers have been observed in the South Cuyama or San Cayetano HOGPAs. However, modeled habitat for the southwestern willow flycatcher exists within all three HOGPAs. The biological assessment (Forest Service 2004) states that 790 acres of habitat potentially suitable for the southwestern willow flycatcher could be subject to oil and gas development. We consider the action area for the southwestern willow flycatcher to be all occupied and modeled habitat for this species as well as any private lands containing potentially suitable habitat for the species that are within 0.5 mile of lease areas.

California Condor. California condors are known to use areas within or near each of the three HOGPAs (Ventana Wilderness Society, in litt., 2004; Service, in litt. 2004). The highest use occurs in and near the Sespe HOGPA. Although no condors have chosen to nest within any of the HOGPAs since their release back into the wild, they have chosen recent nest sites within 1.5 miles of areas proposed for oil and gas leasing. In 2001, condors nested in Lion Canyon, approximately 1.3 miles from the boundary of the South Cuyama HOGPA. In subsequent years, several California condor nest sites have been chosen near the Sespe HOGPA, at least one of which was less than 1 mile from areas proposed for oil and gas leasing. Although no recent nesting activity has occurred within the San Cayetano HOGPA, historical California condor nest sites are located within this HOGPA on or near areas proposed for oil and gas leasing. The primary California condor release site is located on Hopper National Wildlife Refuge, which is near the Sespe HOGPA. A secondary release site is located in Lion Canyon near the South Cuyama HOGPA. We consider the action area for the California condor to be all areas offered for oil and gas leasing within the three HOGPAs, private lands that are within 0.5 mile of lease areas, and all land within 1.5 miles of these two land types.

EFFECTS OF THE ACTION

The issuance of leases for oil and gas development in the Los Padres N.F. will not, in and of itself, adversely affect listed species because it does not authorize any ground-disturbing activities. As we discussed previously in this biological opinion, however, Connor v. Burford requires that we evaluate the potential impacts on listed species that are likely to result from the issuance of leases. The actual area to be eventually utilized in oil and gas exploration and development cannot be determined at this time. Thus, no way exists to accurately estimate the effects of the action on any of the species addressed in this biological opinion. We will, however, evaluate your proposed action under the assumption that oil and gas development would generally proceed under the reasonably foreseeable development projections outlined in

the biological assessment (Forest Service 2004), which would result an estimated 20.4 acres of surface disturbance.

The extent of effects on endangered species would be dependent on exploration, production, and development plans presented by lessees. Some leases may never be explored, or initial exploratory studies may reveal little indication of producible reserves. Any future ground-disturbing activities that may affect listed species, such as exploration, drilling, or field development, will require individual consultations prior to implementation.

Arroyo Toad, California Red-legged Frog. Individuals of these two amphibian species could be injured or killed by vehicles or heavy equipment involved in road construction, off-road vehicle travel, exploration, field development, reclamation activities, water contamination, or other activities related to oil and gas extraction. Suitable upland habitat adjacent to occupied riparian corridors inhabited by these species could be affected by road, pipeline, or well pad construction.

However, oil and gas facilities and access roads would be located outside of riparian zones and aquatic or wetland habitat identified as suitable for, or occupied by, these amphibian species, unless approved by a site-specific, future consultation. Drill pad location, design, and construction would avoid or minimize sedimentation or other harmful runoff from entering riparian zones and aquatic or wetland habitat identified as suitable for, or occupied by, these species. Project activities would also avoid disturbing the natural drainage patterns of such habitat areas. Also, as stated in the biological assessment (Forest Service 2004, p. 24), "…the BLM SLTs [Standard Lease Terms] provide for moving a proposed activity up to 200 meters [656 feet] without any special stipulation attached to the lease. This has the effect of protecting most, if not all, riparian areas from disturbance."

All of the lease lands known to be occupied by arroyo toads, which are all within the Sespe HOGPA, are designated as No Surface Occupancy. Surface occupancy could potentially occur in a small area within Canton Canyon just upstream of habitat occupied by arroyo toads. Private lands along Piru Creek near Lake Piru could also be subject to surface disturbance to accommodate access to oil and gas under Forest Service lands. According to the biological assessment (Forest Service 2004, Table 3), 3.0 acres in the Sespe HOGPA would be subject to surface disturbance under the reasonably foreseeable development scenario. Even if all 3 acres of the projected development occurred near Piru Creek in habitat occupied by the arroyo toad (*e.g.*, on private land; a worst case scenario we do not expect, given the minimization measures and lease conditions outlined in the biological assessment), the effects would still not appreciably reduce the ability of the species as a whole to survive and recover. We say this because, based on the relatively extensive range of the species and the status of the various arroyo toad populations throughout its range, the full development and subsequent abandonment of projected oil and gas facilities on the Los Padres N.F. should not appreciably reduce the numbers, reproduction, or distribution of arroyo toads range-wide, nor result in the loss of the lower Piru Creek population.

Although surveys associated with future site-specific consultations may locate California red-legged frogs within areas offered for oil and gas leasing, we are currently unaware of any California red-legged frogs inhabiting lease areas. Given this, the minimization measures outlined in the biological assessment, the fact that only 20.4 acres would be subject to surface disturbance under the reasonably foreseeable development scenario, and the relatively extensive range of the species, the proposed oil and gas leasing project, as described, would not appreciably reduce the ability of the species as a whole to survive and recover, nor result in the loss of any known California red-legged frog population.

Blunt-nosed Leopard Lizard, San Joaquin Kit Fox, Giant Kangaroo Rat. These species, which occupy the Cuyama River Valley and possibly range into the South Cuyama HOGPA, could be injured or killed by vehicles or heavy equipment involved in road construction, off-road vehicle travel, exploration, field development, reclamation activities, or other hydrocarbon extraction related activities. Burrows used by any of these three species could be crushed by heavy equipment. Suitable habitat used by these species could be affected by road, pipeline, or well pad construction.

However, the Los Padres N.F. is at the fringe of the range of the blunt-nosed leopard lizard, San Joaquin kit fox, and giant kangaroo rat. Stephenson and Calcarone (1999) state that the conservation of the blunt-nosed leopard lizard (at least the full species *G. sila*), San Joaquin kit fox, and giant kangaroo rat would be minimally influenced by management of public lands in this area (*i.e.*, the Los Padres N.F.). The biological assessment states that protocol surveys for these species would be conducted prior to any ground disturbance and that habitats occupied by any of these species, or essential to any of these species, would be avoided. Additionally, Zoellick *et al*. (2002) found that oil field development (where up to 30 percent of native habitat is lost to production facilities) in the San Joaquin Valley did not affect home range size, home range overlap, or length of the nightly movements of San Joaquin kit foxes.

According to the biological assessment (Forest Service 2004, Table 3), 2.9 acres of surface disturbance would occur in the South Cuyama HOGPA under the reasonably foreseeable development scenario. Given this, the minimization measures outlined in the biological assessment, and the fact that nearly the entire range of each of these three species is found off the Los Padres N.F., the proposed oil and gas leasing project, as described, would not appreciably reduce the ability of any of these three species to survive and recover, nor result in the loss of any known blunt-nosed leopard lizard, San Joaquin kit fox, or giant kangaroo rat populations.

Least Bell's Vireo, Southwestern Willow Flycatcher. Nest sites and foraging habitat used by these bird species could be affected by road, pipeline, well pad construction, or other hydrocarbon extraction related activities. It is also possible that young birds without well-developed flying skills could be injured or killed by vehicles involved in crew transport, off-road vehicle travel for exploration activities, or trucks transporting oil off-site. Perhaps more likely, project-related noise, such as from detonations, gas compressors, or diesel-powered electric generators, could cause adult birds to repeatedly flush from, or eventually abandon, an active nest, or prevent them from choosing otherwise suitable habitat as a nest site.

However, because these two bird species nest and forage in riparian habitats, adverse effects from project related activities would likely be reduced by the minimization measures mentioned above for arroyo toads and California red-legged frogs. The only area known to be occupied by either of these birds species-Piru Creek, occupied by the southwestern willow flycatcher-is also occupied by arroyo toads. Also, as stated in the biological assessment (Forest Service 2004, p. 24), "…the BLM SLTs [Standard Lease Terms] provide for moving a proposed activity up to 200 meters (656 feet) without any special stipulation attached to the lease. This has the effect of protecting most, if not all, riparian areas from disturbance."

All of the lease lands known to be occupied by willow flycatchers, which are all within the Sespe HOGPA, are designated as No Surface Occupancy. Private lands along Piru Creek near Lake Piru could be subject to surface disturbance to accommodate access to oil and gas under Forest Service lands. We are unaware of any other willow flycatchers occurring on or near lease areas, although modeled habitat for the southwestern willow flycatcher exists within each of the three HOGPAs. According to the biological assessment (Forest Service 2004, Table 3), 20.4 acres would be subject to surface disturbance under the reasonably foreseeable development scenario, with 3.0 of these acres in the Sespe HOGPA. Even if all 3 acres of the projected development occurred near Piru Creek in habitat utilized by willow flycatchers (and even if we assume that all of the willow flycatchers observed along Piru Creek to date have been southwestern willow flycatchers), and the remaining 17.1 acres of surface disturbance occurred along other creeks supporting potentially suitable habitat for this species (a worst case scenario that we do not expect, given the minimization measures and lease conditions outlined in the biological assessment), the effects would still not appreciably reduce the ability of this subspecies as a whole to survive and recover. We say this because, based on the relatively extensive range of the subspecies, the full development and subsequent abandonment of projected oil and gas facilities on the Los Padres N.F. would not appreciably reduce the numbers, reproduction, or distribution of southwestern willow flycatchers range-wide.

Although surveys associated with future site-specific consultations may locate least Bell's vireos within areas offered for oil and gas leasing, we are currently unaware of any least Bell's vireos inhabiting lease areas. Given this, the minimization measures outlined in the biological assessment, and the relatively extensive range of the species, the proposed oil and gas leasing project, as described, would not appreciably reduce the ability of the species as a whole to survive and recover, nor result in the loss of any known least Bell's vireo population.

California Condor. Nest, roost, or perch sites and/or foraging habitat used by California condors could be affected by road, pipeline, well pad construction, or other hydrocarbon extraction related activities. Project-related noise, such as from detonations, gas compressors, diesel-powered electric generators, or low-flying helicopters, could cause adult birds to repeatedly flush from, or eventually abandon, an active nest, or prevent them from choosing otherwise suitable habitat as a nest site. General human activity associated with oil and gas extraction could discourage condor use of habitat that may otherwise be suitable for nesting, perching, roosting, or foraging.

Garbage and debris could be left out by oil and gas workers while conducting project activities. This could include small items such as bottle caps, nails, screws, nuts, washers, rags, electrical components, and wire. Condors have been known to ingest items such as these. Several of the recent California condor chicks raised in the wild have recently suffered or died from ingesting debris such as this (M. Hall, Refuge Manager, Hopper Mountain National Wildlife Refuge, pers. comm. 2004). Long sections of loosely coiled wire can entangle curious condors that might investigate work sites (this happened within the last few years at a communication site on the Los Padres N.F.). Toxic fluids could also be left out in the open accessible to condors (this resulted in the death of a California condor in the past when it drank antifreeze that was left out) (B. Palmer, former California Condor Recovery Coordinator, pers. comm. 2003). If crude oil were to leak from a well or ruptured pipeline and form a pool, a California condor could land in it and become oiled or entrapped (*e.g.*, in 2002, California condor number 100 visited a well pad and got his head covered in oil and others have been found with oil on their heads as well (M. Hall, Refuge Manager, Hopper Mountain National Wildlife Refuge, pers. comm. 2004)).

Aircraft used to access remote locations where oil and gas exploration might occur could collide with flying condors. California condors might also collide with exposed power lines erected to deliver power to well pads to run pumps, compressors, and generators. Power lines that span canyons or are located along ridge lines would be the most dangerous for flying condors. Collisions with power lines has been one of the leading causes of recent California condor mortality, especially for young birds. Six immature condors have been recovered below power lines on or near the Hopper Mountain National Wildlife Refuge; other condors have collided with power lines in the northern portion of their range near the Ventana Wilderness Area (M. Hall, Refuge Manager, Hopper Mountain National Wildlife Refuge, pers. comm. 2004). California condors can also be electrocuted by power lines if the lines are spaced too closely. Additionally, curious California condors may be drawn to new structures encountered within their home range. This could include oil and gas facilities, such as oil derricks, tank farms, and storage sheds. Condors that perch on human made structures and become habituated to human activity lose their fear of humans and are less likely to avoid human actions that could result in their injury or death. Dogs or other pets brought to a work-site could also chase after any condors that happened to be nearby.

However, the minimization measures you have proposed, which are described above, would serve to eliminate or minimize most of these potential adverse effects. In particular, nesting and roosting activity would be protected by the stipulation that no surface occupancy or surface disturbance would occur within 1.5 miles of historic or active nest sites or reintroduction sites, nor within 0.5 mile of an active roost site, unless deemed acceptable in a future consultation. Power line collisions would be minimized by the stipulation that power lines are to be placed under ground where possible; where not possible, they would only be placed above-ground where deemed acceptable in a future consultation and fitted with anti-collision devices. Similarly, collisions with guy wires would be minimized through the use of anti-collision devices. Collisions with aircraft would be minimized by the stipulation that all proposed aircraft use would need to be approved first by a Forest Service representative. Perching on human-

made structures and the associated habituation with human activities would be minimized through the use of anti-perching devices on all surface structures that pose a risk to condors.

The ingestion of toxic liquids by condors, or getting caught in harmful liquids, would be minimized by the stipulation that no open drilling mud, water, oil, or other exposed liquid storage would be allowed. Ethylene glycol *(i.e.*, toxic antifreeze) would not be located at work sites as it would not be allowed for use as anti-freeze at any of the oil and gas work sites. The ingestion of harmful garbage or small debris would be minimized by the stipulation that all such debris be removed from a project site or made inaccessible to condors at the end of each day or whenever workers are not present at a site. Any use of a well site and its associated facilities by condors would be reported to the Forest Service or Fish and Wildlife Service as soon as practical so that appropriate measures could be taken to safeguard the condors. Measures intended to protect scenic values would have the added benefit of precluding operations from taking place along ridge tops, which condors travel along and use as flight corridors (Forest Service 2004). Additionally, surface disturbance for oil and gas development is not expected to exceed approximately 20 acres (Forest Service 2004).

The Sespe HOGPA is adjacent to areas that are critically important to the California condor, the Sespe Condor Sanctuary and Hopper Mountain National Wildlife Refuge. Areas in and near the South Cuyama and San Cayetano HOGPAs are important for California condors as well. However, given the minimization measures contained in the biological assessment and mentioned above, as well as the fact that only 20.4 acres of surface disturbance are projected to occur under the reasonably foreseeable development scenario, we do not expect your oil and gas leasing proposal to appreciably reduce the ability of the species to survive and recover in the wild. We expect that, although California condors may be adversely affected, few or none are likely to be killed.

CUMULATIVE EFFECTS

Cumulative effects are those impacts of future state and private actions that are reasonably certain to occur in the project area. Future Federal actions will be subject to the consultation requirements established in section 7 of the Act and, therefore, are not considered cumulative to the proposed project. All of the lands within the three HOGPAs are owned by the U.S. Forest Service; any future actions proposed on these lands that may affect any listed species would be subject to future consultations with the Service. Private lands within 0.5 mile of the areas proposed for oil and gas leasing can be considered to be within the action area because directional drilling would allow oil and gas reserves under Forest Service property to be accessed from non-Forest Service land up to 0.5 mile away. However, we are unaware of any non-federal actions that are reasonably certain to occur in the action area that may adversely affect any of the eight listed species that are addressed in this consultation.

CONCLUSION

After reviewing the current status of the arroyo toad, California red-legged frog, blunt-nosed leopard lizard, San Joaquin kit fox, giant kangaroo rat, least Bell's vireo, southwestern willow flycatcher, and California condor, the environmental baseline for the action area, the effects of the proposed project, and the cumulative effects, it is our biological opinion that the proposal to issue leases for oil and gas within the Los Padres N.F. is not likely to jeopardize the continued existence of these species.

We have reached this conclusion because the actual issuance of leases will not result in any physical activities on the ground that would adversely affect these species.

The Ninth Circuit Court's decision in Connor v. Burford requires us to reach a conclusion with regard to the future development of oil and gas leases. Therefore, we have further concluded, based on the information available at this time, that future exploration for oil and gas resources on these leases and their future development and abandonment are not likely to jeopardize the continued existence of the arroyo toad, California red-legged frog, blunt-nosed leopard lizard, San Joaquin kit fox, giant kangaroo rat, least Bell's vireo, southwestern willow flycatcher, and California condor because:

1. The number of individuals that are expected to be adversely affected by on-the-ground activities within the parcels leased for oil and gas development would be relatively small;

2. Only 20.4 acres of surface disturbance are estimated to result from the on-the-ground activities within the parcels leased for oil and gas development; and

3. A small proportion of the ranges of these species would be affected by the on-the-ground activities within the parcels leased for oil and gas development;

4. The Forest Service has proposed measures that would avoid or minimize the adverse effects of the on-the-ground activities within the parcels leased for oil and gas development on these species.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harm is further defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Harass is defined 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 behavior patterns which include, but are not limited to, breeding, feeding or sheltering. Incidental take is defined

as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to 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 an incidental take statement contained in a biological opinion.

This biological opinion evaluates the general nature of the effects of oil and gas leasing, exploration, development, production, and abandonment on the arroyo toad, California red-legged frog, blunt-nosed leopard lizard, San Joaquin kit fox, giant kangaroo rat, least Bell's vireo, southwestern willow flycatcher, and California condor. Because no individuals of listed species will be taken as a result of the proposed action-offering oil and gas reserves for lease-this biological opinion does not provide any exemptions to the prohibitions against take that are contained in section 9 of the Act. Therefore, because the proposed action will not result in incidental take, we will not include reasonable and prudent measures or terms and conditions in this biological opinion.

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 offer the following conservation recommendation:

1. The Forest Service should encourage companies obtaining oil and gas leases to protect other sensitive species during implementation of project activities.

2. The Forest Service should continue efforts to bring about the removal of small pieces of trash and debris at existing oil and gas facilities on Forest Service lands within the range of the California condor.

3. The Forest Service should continue to bury existing power lines located in areas of high use by the California condor. Where burial is not feasible, anti-collision devices should be installed and wires should be spaced far enough apart to prevent California condor electrocutions.

4. The Forest Service should continue other efforts to recover the California condor, such as reducing the exposure of California condors to lead bullets used by hunters on Forest Service lands.

5. The Forest Service should conduct, fund, or arrange for studies that document the toxicity of other potentially harmful metals that California condors may encounter and consume, such as zinc (from washers, galvanized metal, etc.) and copper (from copper bullets, wire, etc.).

6. The Forest Service should try to minimize or eliminate adverse effects to migratory bird populations resulting from ongoing or future oil and gas activities on Forest Service land. Such measures might include seasonal work restrictions, identification and avoidance of important cavity trees, colonial bird nesting areas, and other active nest sites.

We request notification of the implementation of any conservation recommendations to keep us informed of actions that either minimize or avoid adverse effects or that benefit listed species or their habitats. We also request copies of any reports of surveys for non-listed, sensitive species which are conducted in the project area.

REINITIATION NOTICE

This concludes formal consultation under section 7 of the Act on the proposal to lease oil and gas reserves on the Los Padres N.F. Re-initiation of formal consultation is required if: (1) new information reveals effects of the agency action that may adversely affect listed species or critical habitat in a manner or to an extent not considered in this biological opinion; (2) the agency action is subsequently modified in a manner that causes an effect to a listed species or critical habitat that was not considered in this biological opinion; and (3) a new species is listed or any new critical habitat is proposed or designated that may be affected by this action (50 *CFR* 402.16).

If you have any comments or questions, please contact Creed Clayton of my staff at (805) 644-1766.

Sincerely,

/s/ Carl Benz

Carl Benz
Assistant Field Supervisor
South Coast/Deserts

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