United States Department of the Interior

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Federal Highway Administration
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Dear Messrs. Smith and Atencio:

This document transmits the U.S. Fish and Wildlife Service's (Service) biological opinion on the proposal to reconstruct New Mexico Forest Highway 12 (FH 12) between Fenton Lake and Señorito Pass on the Jemez and Cuba Ranger Districts of the Santa Fe National Forest, and its effects on the threatened Mexican spotted owl. Formal consultation under section 7 of the Endangered Species Act of 1973 (Act), as amended (16 U.S.C. 1531 *et seq.*) was originally requested on November 25, 1996. The Federal Highway Administration (FHWA) provided an "example alternative" to be used as the preliminary proposed action and agreed that the Santa Fe National Forest would prepare a biological assessment (BA) and initiate/coordinate consultation with the Service. The Forest Service (FS) determined that the proposed action is likely to adversely affect the endangered American peregrine falcon (*Falco peregrinus anatum*) and the threatened Mexican spotted owl (*Strix occidentalis lucida*) (owl) and their sensitive breeding habitats. The BA also addressed potential impacts of the proposed project on the federally threatened bald eagle (*Haliaeetus leucocephalus*) (eagle) and the endangered southwestern willow flycatcher (*Empidonax traillii extimus*) (flycatcher). Subsequently, the Forest Service amended the BA on October 11, 2000, and requested formal conferencing because it was determined that the reconstruction project is likely to adversely affect the owl's proposed critical habitat (65 FR 45336). Therefore, this document represents our biological opinion (BO) and conference opinion (CO) on the effects of reconstruction of FH 12 on both the owl and its proposed critical habitat in accordance with section 7 of the Act.

The peregrine falcon was removed from the endangered species list on August 25, 1999 (64 FR 46542); therefore, section 7 consultation requirements no longer apply to this species. However, we believe that the proposed action could adversely impact peregrine falcon nesting habitat (R-57), as a result of construction activities occurring during the breeding season and the subsequent long-term increase in disturbance due to increased traffic and recreational use, as documented in our August 6, 1999, draft biological opinion. We encourage the Forest Service to continue to manage this peregrine habitat in accordance with the R-57 Site Plan dated March, 1998.

Concurrences

Section 7 regulations at 50 CFR 402.14(b) provide that a Federal agency need not initiate formal consultation if the agency determines, with the written concurrence of the Service, that the proposed action may affect, not likely to adversely affect a listed species or critical habitat. The Service concurs with the Forest Service's determination that the proposed project may affect, but is not likely to adversely affect the bald eagle (eagle) and southwestern willow flycatcher (flycatcher). The reasons for this concurrence are provided below.

Bald eagle - The Jemez Mountains do not contain known eagle nesting areas, but eagles may occasionally use the area during migration or winter periods. Winter foraging is concentrated around the Rio Grande and Cochiti Lake, but eagles may occasionally wander over the project area in search of deer or elk carrion. The BA concluded that the proposed action could cause some sound and visual stimulation to wintering or migrating eagles within 0.25 mile of the project area; however, these effects are expected to be insignificant due to the limited use of the area by eagles.

Southwestern willow flycatcher - A small portion of the project area also contains potential flycatcher habitat. The BA identified approximately 10 acres of "capable" flycatcher habitat along the project alignment near Fenton Lake. This riparian habitat is characterized by a low gradient, braided, and meandering stream with vegetation that includes thin-leafed alder, willow species, cat-tails, and herbaceous species; however, the habitat is not currently suitable to support flycatchers. The proposed project (Fenton Lake Alternative 2) would remove about 0.65 acre of this habitat. These impacts are considered to be insignificant because only a small amount of habitat will be affected, the habitat is not currently suitable, and the proposed action would not affect the capability for this area to become or function as suitable habitat in the future.

The following biological opinion and conference report are based on information provided in the preliminary DEIS and maps of the final preliminary design prepared by the FHWA; the BA and subsequent BA amendments prepared by the Forest Service; data presented in the final Recovery Plan (USDA Fish and Wildlife Service 1995) for the owl; data in our files; consultation with experts; survey reports provided by the Forest Service; the June 5, 1995, site visit; the September 26, 1996, meeting; comments provided with FHWA's letters dated

February 9, 1999, and March 14, 2000; Forest Service regional owl data; literature review; and other sources of information. Literature cited in this biological opinion does not represent a complete bibliography of literature available on the owl, the proposed action and its effects, or on other subjects considered in this opinion. A complete administrative record of this consultation is on file at this office.

Consultation History

The Draft Environmental Impact Statement (DEIS) states that three Program Agencies (FHWA, Forest Service, and NMSH&TD) are responsible for cooperatively making major decisions concerning designated Forest Highway projects, such as FH 12. The proposed project requires action on the part of two Federal Agencies: the Forest Service, which manages most of the land on which FH 12 is located, and FHWA, which is the lead agency for this project and is responsible for development of the environmental evaluation, document preparation, and construction contract administration.

The Service is a Cooperating Agency for this project, in accordance with 40 CFR 1501.6, and has been involved with this project since it was proposed. The Service has provided input on issues, concern, and alternatives; participated in joint public involvement activities, attended scoping and coordination meetings and joint field reviews; and provided input on the environmental document.

The original project proposal was to reconstruct FH 12 in two increments: a 6.8 mile segment from Señorito Divide to Telephone Canyon was to be developed first, followed at a later date by the longer, more controversial 18 mile segment from Telephone Canyon to Fenton Lake. On September 20, 1989, the Service responded to an August 9, 1989, request for a species list for the proposed project. The Service's response indicated that no threatened or endangered species would be affected by the proposed project. At that time, only the 6.8 mile segment from Señorito Divide to Telephone Canyon was under evaluation and the Service's response only addressed impacts to that segment. On August 23, 1990, the Service provided comments on a Notice of Intent to Prepare an Environmental Impact Statement for the entire proposed project (both segments). The Service provided the FHWA with an updated species list for the project on October 1, 1993. On October 13, 1994, the FHWA requested that the Service review and comment on the "Draft Task Order Scope of Work" for the project. The Service's October 24, 1994, response recommended that additional studies be conducted on the impacts to fish and wildlife resulting from an increase in recreational use caused by an improved FH 12. Recommendations were also provided on what information should be included in the Biological Assessment. On June 5, 1995, the project site was visited by representatives of the Forest Service, FHWA, and the Service. Issues, concerns, mitigation options, and consultation procedures were discussed.

Early formal consultation was initially requested for this project in a letter from the Forest Service dated June 21, 1996. The request was acknowledged by the New Mexico Ecological Services Field Office on August 13, 1996. At that time, it appeared that the information

required to initiate formal consultation was provided or otherwise accessible for our consideration; however, in a letter dated September 5, 1996, the FHWA provided additional information concerning the preferred alternative for the proposed action, including three proposed realignments that were not considered in the original BA. At a meeting on September 26, 1996, between representatives from the FHWA, the Santa Fe National Forest, and the Service, additional information and analysis of the final preliminary project design was requested. The 90-day consultation period for the proposed action began on November 25, 1996, the date the additional information (BA amendment #1) was received in our office. On January 23 and March 4, 1997, the Service's consulting biologist and Robert Nestel of FHWA discussed comments on the preliminary DEIS and the possibility that the consultation period would need to be extended due to staffing constraints and other work priorities. In addition, during that time (January through May, 1997), the Service had several discussions with the Jemez District biologist concerning peregrine issues and the Forest Service's desire to change the effect determination to "not likely to adversely affect" for this project if they committed to day-use at Seven Springs Campground. In a letter dated April 7, 1997, the Service acknowledged the receipt of this additional information, restarted the consultation time-line, and indicated that this consultation could not be processed within the expected 135 day consultation period due to continuing staffing limitations and higher work priorities.

A draft biological opinion was provided to the Forest Service and FHWA on July 15, 1997. A meeting was held on September 15, 1997, to discuss the Service's draft, but no written comments were received from the action agencies for over a year following the draft biological opinion. On July 16, 1998, the FHWA transmitted to the Service a copy of the Forest Service's May 1, 1998, response to the draft opinion, as well as its own comments on the draft document. On August 24, 1998, the Forest Service amended the BA for the second time to present new information on the Mexican spotted owl. On January 15, 1999, the FHWA provided further comments and requested that the opinion be finalized. In a letter dated February 9, 1999, the Service indicated that the opinion would be delayed due to the need to reanalyze the effects of the proposed action and commitments to other priority projects. On July 22, 1999, following telephone discussions among the Service, Forest Service, and FHWA personnel concerning changes to the opinion, FHWA requested to review a second draft of the opinion. The Service issued a second draft of the biological opinion on August 6, 1999. In a letter dated March 14, 2000, FHWA provided additional Forest Service and FHWA comments and requested that a final biological opinion for the proposed project be prepared. On November 1, 2000, the Forest Service amended the BA for the third time to consider potential impact on proposed critical habitat for the owl. The Service has reviewed the information provided and incorporated it into this biological opinion where appropriate.

BIOLOGICAL OPINION

It is the Service's biological opinion and conference report that the reconstruction of New Mexico Forest Highway 12 between Fenton Lake and Señorito Pass addressed in this document is not likely to jeopardize the continued existence of the Mexican spotted owl or adversely modify or destroy its proposed critical habitat.

DESCRIPTION OF THE PROPOSED ACTION

The FHWA, in cooperation with the Forest Service and the New Mexico State Highway and Transportation Department (NMSH&TD), is proposing to improve a section of New Mexico Highway 126 (NM 126), which is also designated as New Mexico Forest Highway 12 (FH 12). The proposed project begins 1 mile southeast of Fenton Lake at the end of the paved portion of FH 12 and runs generally northwest to the paved portion of the road beginning approximately 8.5 miles east of Cuba, New Mexico, at Señorito Divide. Elevations along the proposed reconstruction route are between 7,600 and 8,800 feet. The purposes of improving this road are to (1) decrease the long-term environmental degradation along the existing road; (2) meet the public needs and expectations of State highway travel; (3) safely and efficiently accommodate vehicle and truck traffic; and (4) reduce maintenance needs.

According to the documents provided, this portion of FH 12 does not meet current design standards for a State highway in its present condition. The existing road is composed primarily of dirt with some gravel, and the surface condition varies depending on the level of maintenance. According to the DEIS, the proposed improvements would decrease environmental degradation that is currently resulting from the existing roadway. Current adverse conditions include unstable cutslope raveling, large unvegetated areas, soil erosion, water quality degradation, and dust. Inadequate drainage and lack of erosion control structures cause water to run down ruts in the middle of the road, carrying sediment into nearby streams. The proposed project includes improving the existing dirt and gravel road to an all-weather surface consistent with FHWA guidelines for low speed recreational roads, and traffic volume of 650 vehicles per day. The alignment would closely follow the existing FH 12 alignment with three proposed realignment alternatives. The maximum design speed would be 30 miles per hour, with lower design speeds in areas where terrain is difficult.

The preferred reconstruction and realignment alternatives (described in the DEIS) that are the subject of this biological opinion are: Alternative B - Reconstruction with Paved Surface; Fenton Lake Realignment Alternative 2; Seven Springs Realignment Alternative; and Rito Peñas Negras Crossing Realignment Alternative. Implementation of these alternatives would include improving the horizontal and vertical roadway alignment; improving drainage; placing culverts in smaller streams; widening the traveled way; and paving the surface. The Fenton Lake Realignment Alternative 2 would move about 0.4 miles of FH 12 northeast of its present alignment, moving it away from the northern edge of Fenton Lake and avoiding the 100 year floodplain. The Seven Springs Community Realignment would provide a 1.2 mile by-pass west of Seven Springs, New Mexico. This

would minimize the impacts to the community, as well as simplify design and construction requirements. The Peñas Negras Crossing would move about 0.4 miles of FH 12 to avoid impacts to private property and simplify design and construction requirements.

No specific time frames for implementation and completion of the project were provided. According to the BA, FHWA would initiate the project over the next 2 to 3 years, with portions of the 20 mile project being paved in consecutive or alternate years, depending on FHWA funding. Based on conversations with FHWA and FS biologists, the project could take up to 10 years to complete.

The existing road is an average of 18-feet wide and is composed primarily of dirt and gravel with no shoulder and can present difficult driving conditions depending on the level of maintenance and weather conditions. According to the DEIS, use of FH 12 is hindered by the following existing conditions: dust in dry weather that obstructs a driver's vision; rutting surfacing that creates an unpleasant and difficult driving experience; undersized drainage structures that cause waste and debris to be carried onto the road; inconsistent width; and limited stopping sight distance. The FHWA estimates that the average daily traffic in 1987 was 189 vehicles per day. Currently, the average daily traffic on this road is about 211 vehicles per day. This traffic includes recreational, private and commercial vehicles. The proposed improvement would provide for a safer, more comfortable facility for increasing volumes of cars, light trucks, recreational vehicles and logging trucks. The FHWA expects traffic on FH 12 to double after paving and estimates a 2percent increase in traffic per year for the next 20 years. Therefore, the volume of traffic is projected to be 650 vehicles per day by the year 2013 if the road is improved.

The proposed action would include: 1) The development of a subgrade that includes foreslopes about 4 feet wide, a ditch about 4 feet wide, and a paved surface that is 26 feet wide, with the total subgrade being about 34 feet wide; 2) ground disturbance and excavation resulting from cutting and filling; and 3) construction activities involving heavy equipment (e.g., D-9 dozers, scrapers, dump-trucks, loaders, water trucks, rollers) and localized blasting.

The DEIS provided information on the width of road, but little information was provided concerning the width of the right-of-way or "construction foot print." Maps provided on October 3, 1996, showing the cut and fill areas, indicate that the amount and extent of disturbance along the proposed alignment would be variable depending on topographic conditions. The figures provided in the DEIS and the BA appear to underestimate the amount of vegetation that will be lost. Additional information provided in FHWA's July 16, 1998, letter indicates that several curves would require widening from 2 to 4.5 feet. Approximately 30 percent of Calaveras Canyon would require guardrail widening of 3.2 feet on at least one side of the road. At the top of all cuts, except rock cuts, an additional 3 feet of rounding beyond the slope stake will be required. Two feet of additional clearing would be required beyond the cut slope rounding limits and at the bottom of all fills. An additional two feet of ditch widening will be required for unstable rock cuts. Therefore, it is possible to

have a maximum additional 17 feet (lateral to the proposed centerline) of disturbed area beyond the typical section limits at selected areas.

According to the FHWA's July 16, 1998, letter, the figure given in the DEIS (119.3 acres) is incorrect. The area of new disturbance, including road widening plus cuts, fills, and slope rounding, would be about 60 hectares (148 acres) for the entire project. This figure also includes disturbance due to the preferred realignment alternatives (Fenton Lake Alternative B, Seven Springs, and Rito Peñas Negras).

Between the mouth of Telephone Canyon and the turnoff to the Seven Springs State Fish Hatchery, the average total disturbance width would be about 23 m (75 ft). The width of new disturbance would be about 17.4 m (57 ft). The average width of new disturbance for the rest of the route would be about 19.4 m (63 ft). Most of the areas of new disturbance would be slopes that would readily revegetate. The figures for new disturbance include cuts, fills, and slope rounding. When computing new disturbances, the width of the existing road is subtracted. The net figures given above tend to overstate the impact because they subtract only the existing traveled way (5.5 m [18 ft]), and do not subtract the existing cuts or fills, many of which have revegetated.

STATUS OF THE SPECIES (range-wide)

The Mexican spotted owl was listed as threatened on March 16, 1993 (58 FR 14248). Critical habitat for the owl was designated on June 6, 1995 (60 FR 29914), but was subsequently withdrawn on March 25, 1998 (63 FR 14378). Critical habitat was proposed again on July 21, 2000 (65 FR 45336). Background and status information on the owl is found in the Final Rule listing the owl as a federally-threatened species (58 FR 14248), previous biological opinions provided by us to the Forest Service, and the final Recovery Plan. The information on species description, life history, population dynamics, status, distribution, and range-wide trends provided in those documents is included herein by reference and is summarized below.

The American Ornithologist's Union currently recognizes three spotted owl subspecies, including the California spotted owl (*Strix occidentalis occidentalis)*; Mexican spotted owl (*S. o. lucida)*; and northern spotted owl (*S. o. caurina)*. The Mexican spotted owl is distinguished from the California and northern subspecies chiefly by geographic distribution and plumage. The Mexican spotted owl is mottled in appearance with irregular white and brown spots on its abdomen, back and head. The spots of the Mexican spotted owl are larger and more numerous than in the other two subspecies giving it a lighter appearance. Several thin white bands mark an otherwise brown tail. Unlike most owls, spotted owls have dark eyes.

The *lucida* subspecies is a distinguishable taxon based on allozyme electrophoresis (Barrowclough and Gutiérrez 1990). Analysis of mitochondrial DNA shows further evidence that the three designated subspecies are valid. Despite the demonstrated

phylogenetic relatedness, there is evidence of reduced gene flow between the subspecies, indicating the three subspecies should be treated as separate conservation units (Barrowclough *et al.* 1999).

The Mexican spotted owl has the largest geographic range of the three subspecies. The range extends north from Aguascalientes, Mexico, through the mountains of Arizona, New Mexico, and western Texas, to the canyons of southern Utah, and southwestern Colorado, and the Front Range of central Colorado. Because this is a broad area of the southwestern United States and Mexico, much remains unknown about the species' distribution within this range. This is especially true in Mexico where much of the owl's range has not been surveyed. The owl occupies a fragmented distribution throughout its United States range corresponding to the availability of forested mountains and canyons, and in some cases, rocky canyon lands. Although there are no estimates of the owl's historic population size, its historic range and present distribution are thought to be similar.

According to the Recovery Plan, 91 percent of owls known to exist in the United States between 1990 and 1993 occurred on land administered by the Forest Service; therefore the primary administrator of lands supporting owls in the United States is the Forest Service. Most owls have been found within Region 3, which includes 11 National Forests in New Mexico and Arizona. Forest Service Regions 2 and 4, including 2 National Forests in Colorado and 3 in Utah, support fewer owls. The range of the owl is divided into 11 Recovery Units (RU), 5 in Mexico and 6 in the United States, as identified in the Recovery Plan (USDI 1995). The Recovery Plan also identifies recovery criteria and provides distribution, abundance, and density estimates by RU. The Upper Gila Mountain Recovery Unit has the greatest known concentration of owl sites (55.9 percent), followed by the Basin and Range-East (16.0 percent), Basin and Range-West, (13.6 percent), Colorado Plateau (8.2 percent), Southern Rocky Mountain-New Mexico (4.5 percent), and Southern Rocky Mountain-Colorado (1.8 percent) RUs.

A reliable estimate of the numbers of owls throughout its entire range is not currently available due to limited information. Fletcher (1990) calculated that 2,074 owls existed in Arizona and New Mexico in 1990 using information gathered by Region 3 of the Forest Service. Fletcher's calculations were subsequently modified by us (USDI 1991), who estimated a total of 2,160 owls throughout the United States. However, these numbers are not considered reliable estimates of current population size for a variety of statistical reasons. While the number of owls throughout the range is currently not available, the Recovery Plan reports an estimate of owl sites based on 1990-1993 data. An owl "site" is defined as a visual sighting of at least one adult owl or a minimum of two auditory detections in the same vicinity in the same year. Surveys from 1990 through 1993 indicate one or more owls have been observed at a minimum of 758 sites in the United States and 19 sites in Mexico. In addition, these surveys indicate that the species persists in most locations reported prior to 1989, with the exception of riparian habitats in the lowlands of Arizona and New Mexico, and all previously occupied areas in the southern States of Mexico.

In a summary of all territory and monitoring data for the 1995 field season, a total of 869 management territories (MT) were reported to us (U.S. Forest Service, in litt. January 22, 1996). Based on this number of owl sites, total numbers in the United States may range from 869 individuals, assuming each known site was occupied by a single owl, to 1,738 individuals, assuming each known site was occupied by a pair of owls. The 1996 data are the most current compiled information available to us; however, more recent surveys efforts have likely resulted in additional sites being located in all Recovery Units.

Mexican spotted owls breed sporadically and do not nest every year. This owl's reproductive chronology varies somewhat across its range. In Arizona, courtship apparently begins in March with pairs roosting together during the day and calling to each other at dusk (Ganey 1988). Eggs are laid in late March or typically early April. Incubation begins shortly after the first egg is laid, and is performed entirely by the female (Ganey 1988). The incubation period for the owl is assumed to be 30 days (Ganey 1988). During incubation and the first half of the brooding period, the female leaves the nest only to defecate, regurgitate pellets, or receive prey from the male, who does all or most of the foraging (Forsman *et al.* 1984, Ganey 1988). Eggs usually hatch in early May, with nestling owls fledging four to five weeks later, and then dispersing in mid-September to early October (Ganey 1988).

Little is known about the reproductive output for the spotted owl. It varies both spatially and temporally (White *et al.* 1995), but the subspecies demonstrates an average annual rate of 1.001 young per pair. Current demographic research in Arizona and New Mexico has documented populations that are declining at greater than 10 percent a year (Seamans *et al.* 1999). Possible reasons for the population declines are declines in habitat quality and regional trends in climate (Seamans *et al.* 1999). Based on short-term population and radio-tracking studies, and longer-term monitoring studies, the probability of an adult owl surviving from one year to the next is 0.8 to 0.9. Juvenile survival is considerably lower, at 0.06 to 0.29, although it is believed these estimates may be artificially low due to the high likelihood of permanent dispersal from the study area, and the lag of several years before marked juveniles reappear as territory holders and are detected as survivors through recapture efforts (White *et al.* 1995). Little research has been conducted on the causes of mortality, but predation by great horned owls, northern goshawks, red-tailed hawks, and golden eagles, as well as starvation, and accidents or collisions, may all be contributing factors.

Mexican spotted owls nest, roost, forage, and disperse in a diverse array of biotic communities. Nesting habitat is typically in areas with complex forest structure or rocky canyons, and contain mature or old-growth stands that are uneven-aged, multi-storied, and have high canopy closure (Ganey and Balda 1989a, USDI 1991). In the northern portion of the range (southern Utah and Colorado), most nests are in caves or on cliff ledges in steep-walled canyons. Elsewhere, the majority of nests appear to be in Douglas fir trees (Fletcher and Hollis 1994, Seamans and Gutierrez 1995). A wider variety of tree species is used for roosting; however, Douglas fir is the most commonly used species (Ganey 1988, Fletcher and Hollis 1994, Young *et al.* 1998). Spotted owls generally use a wider variety of forest

conditions (mixed conifer, pine-oak, ponderosa pine, piñon-juniper) for foraging than they use for nesting/roosting.

Seasonal movement patterns of Mexican spotted owls are variable. Some individuals are year-round residents within an area, some remain in the same general area but show shifts in habitat use patterns, and some migrate considerable distances 12-31 miles during the winter, generally migrating to more open habitat at lower elevations (Ganey and Balda 1989b, Willey 1993, Ganey *et al.*1998). Home-range size of Mexican spotted owls appears to vary considerably among habitats and/or geographic areas (USDI 1995), ranging in size from 647 - 3.688 acres for individuals birds, and 945 - 3,846 acres for pairs (Ganey and Balda 1989b, Ganey *et al.* 1999). Little is known about habitat use of juveniles during natal dispersal. Ganey *et al.* (1998) found dispersing juveniles in a variety of habitats ranging from high-elevation forests to piñon-juniper woodlands and riparian areas surrounded by desert grasslands.

Mexican spotted owls consume a variety of prey throughout their range but commonly eat small and medium sized rodents such as woodrats (*Neotoma* spp.), peromyscid mice, and microtine voles. They may also consume bats, birds, reptiles, and arthropods (Ward and Block 1995). Habitat correlates of the owl's common prey emphasizes that each prey species uses a unique habitat. Deer mice (*Peromyscus maniculatus*) are ubiquitous in distribution in comparison to brush mice (*Peromyscus boylei*), which are restricted to drier, rockier substrates, with sparse tree cover. Mexican woodrats (*N. mexicana*) are typically found in areas with considerable shrub or understory tree cover and high log volumes or rocky outcrops. Mexican voles (*Microtus mexicanus)* are associated with high herbaceous cover, primarily grasses; whereas, long-tailed voles (*M. longicaudus*) are found in dense herbaceous cover, primarily forbs, with many shrubs, and limited tree cover. A diverse prey base is dependant on the availability and quality of diverse habitats.

The Mexican Spotted Owl Recovery Plan provides for three levels of habitat management: protected areas, restricted areas, and other forest and woodland types. "Protected habitat" includes all known owl sites, and all areas in mixed conifer or pine-oak forests with slopes greater than 40 percent where timber harvest has not occurred in the past 20 years, and all reserved lands. Protected Activity Centers (PACs) too are delineated around known Mexican spotted owl sites. A PAC includes a minimum of 600 acres designed to include the best nesting and roosting habitat in the area. The recommended size for a PAC includes, on average from available data, 75 percent of the foraging area of an owl. The management guidelines recommended in the recovery plan for protected areas are to take precedence for activities within those areas. "Restricted habitat" includes mixed conifer forest, pine-oak forest, and riparian areas; the recovery plan provides less specific management guidelines for these areas. The recovery plan provides no owl-specific guidelines for "other habitat."

Past, current, and future timber harvest practices in Region 3 of the Forest Service, in addition to catastrophic wildfire, were cited as primary factors leading to the listing of the owl as a federally-threatened species. Other factors that have or may lead to the decline of

this species include a lack of adequate regulatory mechanisms. In addition, the Recovery Plan notes that forest management has created ecotones favored by great horned owls, increasing the likelihood of predation on the owl. Increases in scientific research, birding, educational field trips, and agency trips are also likely to increase. Finally, there is a potential for increasing malicious and accidental anthropogenic harm, and the potential for the barred owl to expand its range, resulting in competition and/or hybridization with the spotted owl.

ENVIRONMENTAL BASELINE

Under section 7(a)(2) of the Act, when considering the effects of the action on federally listed species, the Service is required to take into consideration the environmental baseline. Regulations implementing the Act (50 CFR 402.02) define the environmental baseline as the past and present impacts of all Federal, State, or private actions and other human activities in the action area, the anticipated impacts of all proposed Federal actions in the action area that have undergone section 7 consultation, and the impacts of State and private actions that are contemporaneous with the consultation in progress. The environmental baseline defines the current status of the species and its habitat in the action area to provide a platform to assess the effects of the action now under consultation. The FH 12 project area passes through land managed by the Forest Service, the State, and private citizens. State owned areas include Fenton Lake State Park and the Seven Springs State Fish Hatchery, as well as several recreational sites. Private land within the project area is mainly used for ranches and summer or permanent residences, and the Chaparral Girl Scout Camp. On the Santa Fe National Forest, past and present Federal, State, private, and other human activities that may affect the owl include: recreational activities; development of recreation sites (campgrounds); issuance of rights-of-way; minerals permits (copper, uranium, pumice); livestock grazing; vegetation manipulations (such as various small sales, fuelwood gathering activities, and prescribed burns), and road construction and maintenance activities. In addition, forest management activities on adjacent Tribal lands, several private timber harvest projects throughout the area, and fire suppression affect the environmental baseline.

A total of 225 projects have undergone formal consultation for the owl. Of that aggregate, 85 projects have resulted in a total anticipated take of 191 (plus additional unknown) owls. These consultations have primarily dealt with actions proposed by Region 3 of the Forest Service, but have also addressed impacts of actions proposed by the Bureau of Indian Affairs, Department of Defense (including the Air Force, Army and Navy), Department of Energy, National Park Service, and FHWA. These proposals have included, but are not limited to, timber sales, road construction, fire/ecosystem management projects (including prescribed natural and management ignited fire), livestock grazing, recreation activities, utility corridors, military overflight, and other construction activities.

In addition to the baseline conditions discussed above, the risk of catastrophic habitat loss due to fire is moderately high. Past fires such as the Dome and Cerro Grande Fires have modified thousands of acres of habitat and impacted several owl territories. It is also

possible that take may have resulted from suppression activities during the Dome Fire; however, no BA has been provided by the Forest Service and consultation has not been completed.

STATUS OF THE SPECIES (within the Action Area)

The project area is within the Southern Rocky Mountains - New Mexico Recovery Unit (RU). This RU encompasses a large portion of northern New Mexico and contains a small portion (an estimated 4.5 percent) of the known owl sites throughout its range. However, Johnson and Johnson (1985) documented approximately 40 observations (historic sites) of owls throughout northern New Mexico. Current owl sites have been recorded in the Jemez and Sangre de Cristo Mountains, Bandelier National Monument and areas surrounding Los Alamos. Owl sites in these areas are generally described as having deep, narrow, timbered canyons with cool shady places for owls to roost. Many areas within northern New Mexico appear to contain owl nesting and roosting habitat but apparently are unoccupied. It is not clear if this is an artifact of survey efforts not being effective in finding owls or the birds are simply not present. Vegetation within this RU has been modified by past logging, extensive grazing, surface mining, fuelwood gathering, and fire suppression (Williams 1986, Van Hooser *et al.* 1992). Major fire events that have occurred in the past in the action area include the 1977 La Mesa Fire, 1996 Dome Fire, and 2000 Cerro Grande Fire.

Little is known about owl habitat within this RU. Owl occurrences within this RU are disjunct and appear to coincide with patchy steep sloped or canyon type habitat. The majority of these records are considered historic (i.e., according to the Recovery Plan, owl sites detected prior to 1989). Johnson and Johnson (1985) documented several owl sites throughout this RU. However, the apparently fragmented owl distribution may be a natural occurrence, the result of past management earlier this century as discussed above, or the result of inadequate survey efforts. While timber harvest has been dramatically reduced on the Santa Fe National Forest within the last 10 years and the management emphasis has changed to Forest health and smaller diameter logs, continued loss of habitat from catastrophic fire may be the greatest threat to recovering this owl population. Areas with low densities of owls tend to have a higher likelihood of extirpation due to random chance because of their small size. Owl nesting and roosting habitat appears to exist in the form of disjunct patches in northern New Mexico. Although these patches of habitat may be relatively small, they may be crucial to the connectedness of other habitat patches throughout the owl's range (see Keitt *et al.* 1995). Habitat disturbances (either natural or anthropogenic) may lead to further isolation of owl pairs and, eventually, these populations become "sink" populations. In all metapopulation models, dispersal is a key component. Dispersal acts as a bridge between subpopulations at the metapopulation scale to provide immigrants to otherwise isolated habitat patches. If the habitat patch has been unoccupied, then the new recruits recolonize it.

Unlike the remainder of the RU, the Jemez Mountains have been relatively well surveyed and much more is known about owl nesting and roosting habitat in the area. The Jemez

Mountains have the largest concentration of owls known in this RU and the history of owl territorial occupancy in this area is one of the longest known anywhere (Johnson 1996). This includes territories in the Santa Fe National Forest, Bandelier National Monument, and the Los Alamos National Laboratory. Johnson (1996) analyzed inventory and monitoring data of all known and historical sites in the Jemez Mountains. According to Johnson (1996), the spotted owl population in the Jemez Mountains may not be characteristic of populations throughout the range of the owl, but as the largest known concentration in northern New Mexico, it is probably representative of this RU. Recent territorial occupancy and productivity in the Jemez Mountains have been low and this population is vulnerable. Whatever factors (natural or anthropogenic) combine to affect the owl population in the Jemez Mountain, land management actions are the only directly controllable factors that may affect owl reproduction and mortality (Johnson 1996).

A portion of the project area is located within proposed critical habitat unit (PCHU) SRM-NM-1. Approximately 9 miles of FH 12 between Fenton Lake and the bottom of Telephone Canyon are within this PCHU. This includes where the two known PACs (Telephone and Fenton Lake) occur along FH 12. Another six PACs have been established in the general area that includes the upper Cebolla and Calaveras Canyon areas. Habitats along this segment of FH 12 contain primary constituent elements including: high basal area and large diameter trees; moderate to high canopy closure; multi-layered canopy with large overstory trees of various species; high snag basal area; high volumes of fallen trees and other woody debris; adequate levels of residual plant cover to maintain fruits, seeds; and regeneration to provide for the needs of owl prey species. In addition, the Calaveras and Cebolla areas contain canyon/cliff habitats where welded-volcanic tuff outcrops with cavities occur in close proximity to mature or over-mature mixed conifer stands, which is typical owl breeding habitat in the Jemez Mountains. Another 3 miles of FH 12 are located along the western boundary of this PCHU. This segment of the road is within 1 mile of the Burnt Canyon PAC. The habitats with 0.5 mile of this segment consist primarily of other forest or woodland habitats as defined by the Recovery Plan and does not generally contain primary constituent elements of proposed critical habitat. The remaining seven miles of the project area are outside of proposed critical habitat.

Forest Service lands surrounding the project area were surveyed for owls from 1988-1996 as part of the planning for this project and the Calaveras, Deer Mountain, Ojitos, Negras, Rito, Smokey Bear, and Vacas diversity units. These efforts resulted in the establishment of five management territories located along or near the project alignment. The BA states that in accordance with the recovery plan and with input from Terry Johnson (local Raptor Consultant), the District Biologist developed seven draft Protected Activity Centers (PAC) that correspond to Calaveras, Pipeline, Seven Springs, and Telephone Canyon management territories. After further discussions with the Service, the Forest Service now considers these to be final PACs, which will remain designated through the life of the Recovery Plan. Two additional PACs, the Burnt Canyon and Fenton Lake PACs were established since 1998 (according to Amendment 2 of the BA).

In the Cuba and Jemez Ranger Districts, known breeding locations are in localized areas with canyon/cliff topography where adequate rock structure (welded tuff of sedimentary rock with cavities) occurs in proximity to mature or over-mature mixed conifer stands. Forest habitats that are closely associated with suitable nesting habitat serve as primary roosting and foraging habitat. Three primary clusters of known breeding habitat occur within these two districts. Past surveys/monitoring indicate that these areas tend to be occupied by individual or paired owls. The general locations of these clusters are in the Calaveras/Cebolla, Cochiti/Dome, and Virgin/Deer Canyon areas. The Telephone, Lower Calavares, Upper Calavares, Pipeline, Pony, Oat, and Seven Springs PACs are considered to be within the Calavares/Cebolla cluster. The Cochiti/Dome and the Virgin/Deer Canyon clusters are approximately 15 and 5 miles from the proposed project area, respectively (Buck Sanchez, U.S. Forest Service, Santa Fe National Forest, pers. comm.).

The PACs identified in the project area include habitats that have been used for breeding in the past and/or contain forest and canyon characteristics that are typical for breeding owls in the Jemez Mountains (i.e., mature mixed conifer stands associated with welded tuff outcrops with cavities and nearby riparian area and live water). Habitats along FH 12 include grasslands, wet meadows, ponderosa pine, mixed conifer, wetlands, and riparian areas. The owl habitat along portions of this roadway include unrestricted ponderosa pine habitats that could be used for foraging or by wandering/migrating owls; restricted mixed conifer habitats that are suitable for foraging/roosting; protected mixed conifer habitats in relatively narrow canyons containing welded tuft rock with cavities that are suitable or potential nesting habitat; and protected mixed conifer or ponderosa pine habitats on slopes greater than 40 percent that are potential nesting or roosting habitat.

EFFECTS OF THE ACTION

The Service's primary task in developing a biological opinion is to determine whether the proposed action is likely to jeopardize the continued existence of any listed species (51 *Federal Register* 1962). The jeopardy/non-jeopardy determination is based on an evaluation of: (1) a species' status in the project area and range wide (see above sections); (2) the effects of the proposed action on the survival and recovery of a listed species (including effects of interdependent and interrelated actions); (3) the aggregate effects of other Federal actions on a listed species (e.g., amount of take occurring as a result of Federal actions subject to previous consultations); and (4) the cumulative effects on a listed species (i.e., future non-Federal actions that are reasonably certain to occur in the action area).

Impacts to the owl from the proposed action will be due to the direct and indirect effects of road construction activities and subsequent increases in traffic and recreational use. Direct impacts to habitat would include removal of vegetation due to clearing, excavating, filling, and re-grading for the reconstruction and realignments. This would result in the loss of forest habitat, including mature trees, along the roadway, Seven Springs bypass/realignment, and from within the Telephone PAC.

A total of 148 acres of forested habitat will be removed along the alignment of FH 12. According to the BA, approximately 10 acres of protected, mixed conifer habitat would be removed from the middle of the Telephone PAC, under the final preliminary design. Of this, about five acres is nest/roost habitat that meets threshold condition and the remaining 5 acres is roosting and foraging habitat. Other areas along the existing alignment and the three proposed realignment segments are not within known occupied habitat (PACs), but have restricted habitat, as defined by the owl recovery plan, that may be affected. The Fenton Lake Alternative 2 would alter 0.65 acres of restricted riparian/wetland habitat. This area contains a low gradient, braided, meandering stream with riparian vegetation that includes thin-leaf alder, willow species, cat-tails, and herbaceous species. The Seven Springs realignment would modify four acres of mixed conifer. According to the BA, the mixed conifer habitat in this area does not meet threshold conditions. The remainder of the habitat that would be impacted along the Seven Springs and Peñas Negras Crossing realignments is composed of ponderosa pine, oak, and meadow/grassland habitats.

Activities that disturb or remove the primary constituent elements within proposed CHUs may adversely affect the owl's critical habitat. These activities may include actions that reduce the canopy closure of a forest stand, reduce the density or the average diameter of trees in a stand, modify the multi-layered structure of a stand, reduce the availability of nesting structures and sites, reduce regeneration or modify the structure of riparian habitat, and/or reduce the suitability of habitats for prey species (65 FR 45336). For an action to result in the destruction or adverse modification of critical habitat, the action's effects must appreciably reduce the value of critical habitat for survival and recovery over a significant portion of the species' range. Altering major portions of a RU may preclude recovery of the species.

According to Amendment 3 of the BA, approximately 50 acres of forested habitat would be removed by the FH 12 project within PCHU SRM-NM-1. Impacts to critical habitat will be in the form of altering owl nesting, roosting and foraging habitat. The proposed project would removing all of the primary constituent elements within the construction footprint thereby reducing the quality and quantity of nest/roost habitat within known and potential PACs and restricted habitat areas; however, only a relatively small amount (less than one percent) of the PCHU would be altered. The Service believes that although there will be adverse effects to critical habitat at a local level within SRM-NM-1 and two PACs (one known and one potential) would be modified, these impacts would not disrupt the function of this CHU. Sufficient owl habitat would remain for owls to nest, roost, forage, and disperse.

Sound and visual disturbance could also affect the Telephone PAC and other potential nest/roost habitat along FH 12. Noise levels during construction would become elevated due to construction activities involving heavy equipment and blasting. The zone of potential sound disturbance is primarily within 0.25 miles of FH 12. Some sounds caused by construction activities could reach 0.5 miles or more, but gradually would be attenuated by vegetation, topography, and wind. About 490 acres of suitable nesting/roosting habitat within the Telephone PAC are within 0.25 miles of FH 12. According to the BA, most of

these 490 acres are roosting habitat with localized inclusions of nesting habitat (welded tuft outcrops close to large trees). There are an additional 400 acres of suitable habitat south of the Telephone PAC within 0.25 miles of FH 12 where monitoring efforts have not documented use by owls. The Fenton Lake PAC contains 625 acres, of which 170 acres are within 0.25 miles of FH 12. The remaining 455 acres (including the known nest/roost sites) are greater than 0.25 mile from FH 12. The remaining area (about 6,450 acres) within 0.25 miles of FH 12 does not contain typical breeding habitat (for the Jemez). Stand data for Calaveras and North Ojitos diversity units indicate that there are about 70 acres of restricted habitat and 450 acres of protected habitat within 0.5 miles of FH 12 that meet threshold conditions, as described in the owl recovery plan. There are also 2,065 acres of protected areas with slopes greater than 40 percent within 0.5 miles of FH 12, of which about 250 acres are within established PACs. Since there are 4,286 acres of mixed conifer habitat within 0.25 mile of the project alignment (according to Table 3 in the BA), the Service believes there is the potential for additional PACs to be established in the area.

The DEIS indicates that if nest sites are found to be occupied, construction activities would not be conducted near them during critical nesting periods; however, the FHWA biologist said that it may not be feasible for FHWA to implement seasonal restrictions (September 1996 meeting). The FHWA has stated that the section of road between Station 6+000 and 12+500, which includes Calavares Canyon (where most of the occupied and potential nest/roost habitat exists), is the most difficult construction on the route, with rock excavation, two bridges (or concrete box culverts) stream realignment, the highest elevation, and the shortest construction season. Consequently, the FHWA stated in their January 15, 1999, letter that they would not be able to implement a seasonal restriction for the entire breeding season even if owls are found to be nesting within the project area. By deferring construction activities until after June 1, the FHWA will avoid disturbances during the early and critical part of the breeding season (i.e., establishment of pair occupancy, courtship, and nesting/breeding behavior). From June through August, when disturbances from the FH 12 project could occur, breeding owls would be attending to the young that fledged and survived. Disturbances during the second part of the breeding season are not generally considered to pose the same magnitude of impacts to breeding behavior and young survival as disturbances that occur early in the breeding season (before young are fledged).

For the purpose of consultation, the Service considers inadequately surveyed areas, or areas with outdated surveys, as occupied. Please note that if more than one year elapses between surveys and project implementation, the Service views this habitat as inadequately surveyed. According to the District Biologist, known PACs in and around the project area have been monitored; however, nest/roost habitat along the entire project alignment has not been recently surveyed. Therefore, existing nest/roost habitat outside the Telephone Canyon PAC has the potential to be occupied by owls. Considering that more than two years have passed since the last complete surveys of the entire project alignment and it is likely to be at least three more years before the proposed project is implemented, it is possible that suitable nest/roost habitat could become occupied before project implementation. Thus, the proposed

reconstruction of FH 12 has the potential to adversely affect owls in the inadequately surveyed areas, particularly if construction occurs during the breeding season.

Since the FHWA has stated that they will be unable to implement a seasonal restriction for the entire breeding season, this opinion includes a discussion of potential impacts (including the possibility of take) on other nest/roost habitat in the project area. The Service believes that two additional areas along the FH 12 alignment (referred to as Calavares and Bear Canyon for the purpose of this analysis) have the potential to be occupied by owls in the future. These areas were identified based on information in the BA, aerial photo interpretation, observations during site visits, and additional information provided by the Forest Service. The Service considers this approach to be is reasonable and warranted, given the availability of nest/roost habitat in the project area and the possibility that this habitat could be occupied in the future.

Based on the location of these habitat areas (potential future PACs) in relation to the FH 12, the Service has determined the magnitude of potential impacts to be as follows: Calavares habitat area will be similar to the Telephone PAC, with the road passing through the middle of the nest/roost habitat. The other potential habitat area (Bear Canyon) is adjacent to the roadway and potential impacts are not expected to be as severe. Impacts are expected to be similar to the impacts discussed below for the Burnt Canyon and Fenton Lake PACs.

The Service believes that the removal of mixed conifer habitat from the Telephone PAC that will result from reconstruction of FH 12 will adversely affect the owl. Although 10 acres is a relatively small amount, removal of this habitat from the PAC and the location of this removal with respect to the boundaries of the PAC may affect the existing microclimate of the site and may increase the visibility of the road from the nest/roost site, thus affecting the integrity of the PAC. The FH 12 roadway is currently about 18 feet wide. Reconstruction will increase the overstory opening to at least 34 feet. This opening of the overstory would occur through the middle of the Telephone PAC and may adversely affect owls (particularly juveniles) that forage and/or disperse along the roadway and through the open overstory, making them more vulnerable to predation (Service 1991; USDA 1992). Therefore, there may be a greater loss of owls over time. In addition, potential prey are more visible in open areas, so owls may be attracted to the opening in the forest created by the roadway, increasing the potential for mortality due to collisions with vehicles.

Noise disturbance caused by construction activities within 1/4 mile of the nest/roost site during the breeding season (March 1 - August 31) could affect breeding in the Telephone Canyon PAC and other potentially occupied nest/roost habitat (the Calaveras habitat area) through either disrupting the breeding attempt altogether or displacing a nesting female, and thus causing mortality to eggs and chicks. The Fenton Lake PAC and the Bear Canyon potential PAC could also be affected given their proximity to FH 12 alignment; however, noise disturbance is not expected to be an issue in these areas because the most suitable nesting habitat by forested vegetation and topography is greater than 0.25 mile from the road. Potential impacts to the other PACs are discussed below.

The Service must also consider the indirect effects from the reconstruction of FH 12 and interdependent and interrelated actions that may affect the owl. Indirect effects are those caused by, or resulting from, the proposed action, and are later in time, but reasonably certain to occur. Interdependent actions have no independent utility apart from the action under consideration. Interrelated actions are part of a larger action, and are dependent on the larger action for their justification. The Service is concerned with the following indirect effects and interrelated and interdependent actions.

Forest Highway 12 is intended to meet the public's recreational needs, provide continuity to the State highway and forest roads systems, and serve local private property owners. Forest Highway 12 currently provides access to the Rancho del Chaparral Girl Scout Camp, several vacation and permanent residences located primarily in the Seven Springs and Will Miller developments, a State fish hatchery, a State wildlife refuge and developed fishing/picnic/camping area, and two developed campgrounds. The road also provides access for various recreational activities including hiking, driving for pleasure, viewing scenery and wildlife, horseback riding, motorcycle riding, camping, picnicking, ski touring, backpacking, photography, hunting and fishing. All of these activities are expected to increase after the road is paved. The DEIS indicates that the proposed reconstruction of FH 12 will improve access to land uses in the entire project area for the Forest Service, State management agencies, private landowners, and the public. Although the Forest Service has taken notable steps to reduce impacts associated with dispersed/developed recreation during the past 10 year and they emphasize that there are no new recreation facilities planned in the foreseeable future, the potential for development of additional campgrounds or other recreational facilities in this area is still of concern to the Service. Additional development may lead to disturbance of owls during the breeding season, and may affect habitat components of the PACs in the area, particularly the Telephone Canyon, Seven Springs, and Oat PACs.

Disturbances from increases in traffic and recreation would likely cause some flight response and/or avoidance behavior by owls within the Telephone Canyon, Seven Springs, and Oat PACs. Forest Highway 12 is located in the central part of the Telephone PAC. Forest Road 314 and the Seven Springs day-use area are located in the central part of the Seven Springs PAC and the Oat PAC is within 0.25 miles of the Seven Springs day-use area. About 400 acres of these draft PACs are within 0.25 miles of the Seven Springs day-use area. According to the Forest Service the Seven Springs Campground has been closed to camping and over-night parking. This, along with the administrative closure of FR 314 above the Seven Spring day-use area, substantially reduces the potential for impacts to the owl and its habitat. However, breeding owls in these three PACs will be subjected to increasing disturbances and likelihood of discovery due to increases in recreational use, increased vehicle traffic and higher traffic speeds. The increased recreational use and traffic along FR 314 and FH 12 would likely cause suppressed reproductive success, greater potential for abandonment of the area after initiation of reproductive behavior, and/or a reduction in occupancy in these PACs. Noise disturbance caused by vehicular traffic in and adjacent to the Telephone Canyon PAC may impact the ability of owls to forage successfully, and/or to

successfully nest in proximity to the road. In addition, owls have been known to be hit by vehicles (Service 1991; USDA 1995; Gutierrez *et. al*, 1995). Given the proximity of FH 12 to the Telephone Canyon PAC, the projected number of vehicles traveling on this road, both now and into the future, the speed at which they will likely be traveling, and the fact that vehicles will be traveling along this road at night when owls are most active, the Service believes owls have an increased potential to be hit by vehicles. Increased recreational development and home-site development also brings with it the increased potential and risk of damage from wildfire, one of the primary threats to the owl throughout its range.

The traffic volume in the project area is expected to increase (according to the DEIS) based on the following factors: demands to meet the Forest Service resource management needs; improvements to existing campgrounds and construction of new campgrounds; increased demand for recreation; designation of the route as a scenic byway; and attractiveness of the route for pleasure driving and other recreational experiences. Traffic is expected to double after paving and increase by 2 percent per year for the next 20 years. Long-term impacts of the road will continue for as long as it is used and maintained.

The Service believes that the long-term effects of widening and paving of FH 12 may adversely affect the integrity and viability of the Telephone Canyon PAC and other nest/roost habitat in the Calaveras Canyon area. In addition, impacts to the Seven Springs and Oat PACs may cause suppressed reproductive success and a reduction in occupancy because of their location and proximity to FH 12, FR 314, and the Seven Springs day-use area. The BA and subsequent BA amendments also state that there would be similar indirect effects on five other PACs (Lower Calaveras, Upper Calaveras, Pipeline, Pony, and Burnt Canyon) in the area. However, these PACs are greater than 0.25 miles from FH 12, Seven Springs State Fish Hatchery, and Seven Springs Campground and the potential impacts of the proposed project (sound disturbance, etc.) are expected to be limited and not likely to cause avoidance/abandonment or lead to future unoccupancy of these areas. At distances greater than 0.25 miles, vegetation, topography, and wind are likely to screen most of the sound and visual disturbances associated with construction activities, traffic, and recreation. Although the Fenton Lake PAC is adjacent to the FH 12 alignment, it is also not expected to be adversely affected for the following reasons: 1) most of this portion of FH 12 is already paved and heavily traveled; 2) dispersed recreation is not expected to increase because of the presence of Fenton Lake State Park; 3) nest/roost habitat is greater than 0.25 mile from the road; 4) the owl has demonstrated occupancy and reproduction under these conditions.

CUMULATIVE EFFECTS

Cumulative effects are those effects of future non-Federal (State, local government, or private) activities on endangered or threatened species or critical habitat that are reasonably certain to occur in the foreseeable future within the project area. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act. Cumulative effects analysis as stated

here applies to section 7 of the Act and should not be confused with the broader use of this term in the National Environmental Policy Act or other environmental laws.

In past biological opinions, it has been stated that, "Because of the predominant occurrence of the owls on Federal lands, and because of the role of the respective Federal agencies in administering the habitat of the owl, actions to be implemented in the future by non-Federal entities on non-Federal lands are considered of minor impact." However, there has been a recent increase of harvest activities on non-Federal lands. In addition, future actions within or adjacent to the Forest Service lands that are reasonably expected to occur include occupancy and use of private land inholdings, recreation development, road building, land clearing, livestock grazing, logging, fuelwood gathering, and other associated actions. These activities reduce the quality and quantity of owl nesting, roosting and foraging habitat, cause disturbance to breeding owls and would contribute as cumulative effects to the proposed action. In addition, past fire suppression activities have resulted in increased fuel loads and increased the potential for wildfires as evidenced by the Dome Fire in 1996 and the Cerro Grande Fire in 2000. Recreational use of the surrounding forest is expected to increase and subsequently the potential for human-induced wildfires may also increase. Catastrophic wildfires have been identified as one of the primary threats to spotted owls and their habitat throughout most of their range.

CONCLUSION

After reviewing the current status of the owl, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, it is the Service's biological opinion that the reconstruction of New Mexico Forest Highway 12 is not likely to jeopardize the continued existence of the owl. The reconstruction of FH 12 and the subsequent increase in traffic and recreational use of the area, as discussed in this opinion, have the potential to adversely impact the local owl population, but the extent and magnitude of the impacts are not expected to result in jeopardy to the species. Adverse effects will be caused by construction activities occurring during the owl breeding season within and adjacent to the Telephone PAC and potentially within additional occupied habitat within the project area, removal of trees within the Telephone PAC, mortalities caused by vehicular traffic, increased disturbance due to recreational development, and increased risk of wildfire caused by these actions. The Service believes that implementation of the proposed action will render the Telephone Canyon PAC and the Calaveras habitat unsuitable for nesting and roosting by owls and adversely affect the Seven Springs and Oat PACs; however, the potential effects on the Lower Calaveras, Upper Calaveras, Pipeline, Pony, Burnt Canyon and Fenton Lake PACs are not likely to be adverse. These impacts and the anticipated level of incidental take are not expected to impede the owl's ability to nest, roost, forage or disperse within the Southern Rocky Mountain - New Mexico RU.

INCIDENTAL TAKE

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 harassing, harming, pursuing, hunting, shooting, wounding, killing, trapping, capturing, or collecting, or attempting to engage in any such conduct. Harass is further defined by the Service as intentional or negligent actions that creates the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, and sheltering. 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 behavioral patterns such as 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 a prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this incidental take statement.

The measures described below are non-discretionary, and must be undertaken by the FHWA and the Forest Service or made a binding condition of any grant or permit issued to the applicant, as appropriate, in order for the exemption in section 7(o)(2) to apply. The FHWA and the Forest Service have a continuing duty to regulate the activity covered by this incidental take statement. If the FHWA and Forest Service (1) fail to assume and implement the terms and conditions or (2) fail to require the applicant to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, the protective coverage of section 7(o)(2) may lapse. In order to monitor the impact of incidental take, the FHWA and the Forest Service must report the progress of the action and its impact on the species to the Service as specified in the incidental take statement [50 CFR § 402.14(1)(3)].

For the purposes of consideration of incidental take of owls by the proposed project now under consultation, incidental take can be broadly defined as either the direct mortality of individual birds, or the alteration of habitat that affects the behavior (i.e., breeding or foraging) of the birds to such a degree that the birds are considered lost as viable members of the population and are thus "taken." They may fail to breed, fail to successfully rear young due to inadequate food supplies available in altered habitat, raise fewer young, raise less fit young, or desert the area because of disturbance when habitat no longer meets their needs.

The current section 7 consultation policy states that incidental take can only be supported if an activity compromises the integrity of a PAC. Action outside PACs will not be considered incidental take, except in cases when areas that may support owls have not been adequately surveyed. Surveys that are more than two years old are considered to be inadequate because the existing nest/roost habitat could have become occupied since the area was last surveyed.

Using available information as presented within this document, the Service has identified conditions of probable take for owls located in the Telephone PAC and other potential nest/roost habitat in the Calaveras Canyon area. Upon project completion, these species will be exposed to increased disturbance by recreationists, due to better road conditions and enhanced recreation opportunities. Based on the best available information concerning the owl, habitat needs of this species, the project description, and information furnished by the Forest Service, take is considered likely for the owl as a result of the following:

1) Tree removal within the center of the Telephone PAC and inadequately surveyed nest/roost habitat in the Calaveras Canyon area.

2) Reconstruction activity occurring during the owl breeding season in and adjacent to the Telephone PAC inadequately surveyed owl nest/roost habitat in the project area, as a result of the agencies' inability to effect seasonal closures for their actions.

3) Mortalities by collision caused by the improvement and long-term use of FH 12 in and adjacent to the Telephone PAC and other inadequately surveyed owl nest/roost habitat in the project area.

4) Recreational use within the Telephone PAC and other potential (inadequately surveyed) nest/roost habitat within the project area, and associated indirect effects, including disturbance to owls during the breeding season, removal of important habitat components, namely down woody material for fuelwood, and the increased risk of wildfire caused by this use.

Amount or Extent of Take Anticipated

The Service anticipates that the proposed project may result in the incidental take of up to eight owls (two breeding pairs and their young) connected with the Telephone Canyon PAC and the potential PAC in the Calaveras Canyon areas. This incidental take is expected to be in the form of harm and harassment due to disruption of normal reproduction and behavior, habitat modification, and increased risk of collision with vehicles along FH 12. This level of take assumes that the Telephone Canyon PAC and Calaveras habitat area could be deserted after one year of disturbance. If these areas are not deserted, it is likely that young owls could be "taken" after construction (due primarily to collision) for as long as FH 12 is used and maintained. This amount of take is unquantifiable, but is expected to be included in the figure listed above. Given the extensive construction period (10 years) for this project, the pssibility that this habitat would becoming occupied during that time, and the FHWAs inability to avoid the entire breeding season, the Service considers the likelihood of take to be high. Other potential nest/roost habitat area, such as the Bear Canyon area, may be impacted if construction activities during the breeding season, but "take" is not expected to occur based the distance of suitable nesting from the project area. The Bear Canyon and Seven Springs areas may be impacted if construction activities during the breeding season

but "take" is not expected to occur based the distance of suitable nesting structures from the project area.

Effect of the Take

In the accompanying biological opinion, the Service determined that this level of anticipated take is not likely to result in jeopardy to the owl.

To the extent that this statement concludes that take of any threatened or endangered species of migratory bird will result from the agency action for which consultation is being made, the Service will not refer the incidental take of any such migratory bird for prosecution under the Migratory Bird Treaty Act of 1918, as amended (16 U.S.C.§§703-712), if such take is in compliance with the terms and conditions specified herein.

Reasonable and Prudent Measures

The Service believes the following reasonable and prudent measures are necessary and appropriate to minimize take.

1) Minimize disturbance to the owl during and after construction is complete.

2) Conduct all proposed activities in a manner that will minimize modification and loss of owl habitat.

Terms and Conditions

In order to be exempt from the prohibitions of section 9 of ESA, the FHWA and Forest Service must comply with the following terms and conditions, which implement the reasonable and prudent measures described above. These terms and conditions are nondiscretionary.

1.1 Construction activities that could cause disturbance (such as vegetation clearing, earth moving, and heavy equipment use) will be restricted during the most critical part of the owl breeding season (March 1 - June 1) of each year within known PACs and other potential nest/roost areas within the project area, unless surveys indicate the area is unoccupied as described below. Other low-impact, low-noise activities (such as mobilization and surveying) my be allowed upon approval of the District Biologist.

a. Conduct annual surveys from Powder Ridge south through Calaveras Canyon continuing through the Seven Springs to 1 mile southeast of Fenton Lake where the pavement currently ends. Surveys would start 2 years before construction begins in any part of this area and continue each year until construction activities are

completed. During years when construction occurs, these surveys will be completed prior to June 1, with the objective of determining nesting status within occupied habitat. Survey will be conducted by a qualified biologist with the oversight of the Forest Service.

b. New PACs will be drawn for any additional owl locations as specified in the Recovery Plan.

c. If owls are determined to be nesting in a given year, no construction activity may occur within 1/4 mile of the nest site during the most sensitive part of the breeding season (March 1 - June 1). If the area is determined to be unoccupied, construction may proceed without this restriction.

1.2 Design the road so that parking is not available in areas where the road parallels key habitat area (from map point 7+500 to map point 12+500 as shown on the Final Preliminary Design Maps, Rolls 1 & 2, dated October 3, 1996).

a. Placing boulders, bollards, and other means will eliminate access to widened areas.

b. This must be done immediately upon completion of this portion of the project.

2.1 The amount of area cleared for the project will be minimized to the greatest extent possible. A biologist will take an active part in horizontal and vertical alignment design reviews to minimize encroachment into important habitat to the extent possible based on topography and design criteria.

2.2 Staging will not be allowed within known PACs during any time of the year. Construction limits (i.e., clearing and rounding limits) throughout the project will be the limit of operation.

2.3 The Service will have the opportunity to review and comment on the final horizontal and vertical alignment designs (i.e., 30 percent design), to provide input into the final alignment to ensure that impacts are minimized and key habitat areas protected (to the maximum extent possible).

The reasonable and prudent measures, with their implementing terms and conditions, are designed to minimize incidental take that might otherwise result from the proposed action. With the implementation of these measures, the Service believes that no more than four owls will be incidentally taken. These are the owls associated with the Telephone Canyon PAC and the Calaveras habitat area (two from habitat impacts and disturbance and two from collisions with vehicles). If, during the course of the action, this level of incidental take is exceeded, such incidental take would represent new information requiring review of the

reasonable and prudent measures provided. The Federal agency must immediately provide an explanation of the causes of the taking and review with the Service the need for possible modification of the reasonable and prudent measures.

Reporting Requirements

If, during the course of the action, this level of incidental take is exceeded, or a Federally listed species is taken in a manner not described above, such incidental take would represent new information requiring review of the reasonable and prudent measures provided. The FHWA and Forest Service must immediately provide an explanation of the causes of the taking and review with the Service the need for possible modification of the reasonable and prudent measures.

The nearest Service Law Enforcement Office must be notified within twenty-four (24) hours in writing should any listed species be found dead, injured, or sick within, adjacent to, or in the vicinity of the project area. Notification must include the date, time, and location of the carcass, cause of injury or death (if known), and any pertinent information. Care should be taken in handling sick or injured individuals and in the preservation of specimens in the best possible state for later analysis of cause of death. In conjunction with the care of sick or injured endangered species or preservation of biological materials from a dead animal, the finder has the responsibility to ensure that evidence associated with the specimen is not unnecessarily disturbed. If necessary, the Service will provide a protocol for the handling of dead or injured listed animals. In the event the FHWA or Forest Service suspects that a species has been taken in violation of Federal, State, or local law, all relevant information should be reported in writing within twenty-four (24) hours to the Service's New Mexico Law Enforcement Office (505/883-7814) or the New Mexico Ecological Services Field Office (505/346-2525).

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. The term "conservation recommendations" has been defined as Service suggestions regarding discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat or regarding the development of information. The recommendations provided here relate only to the proposed action and do not necessarily represent complete fulfillment of the agency's section 7(a)(1) responsibility for these species.

1. The Forest Service should attempt to minimize effects to the Telephone Canyon PAC and any additional PACs located close to FH 12, FR 314, and the Seven Springs day-use area through the continued closure of secondary access roads and limiting dispersed recreation and camping within sensitive habitat areas.

2. The posted speed limit should be no greater than 15 mph in key habitat areas (from map point 7+500 to map point 12+500) to minimize the risk of collision mortalities for owls. -OR

3) Consider constructing the road with a slower design speed, which will enable the road to better follow the existing alignment and contours of the land, thereby minimizing impacts to the habitat (from cut and fill, etc.). Slower design roads appear to be feasible. Across the State of New Mexico it is not unusual to see slower design roads (i.e., Hwy 4, 64, 17) when crossing steep terrain or divides.

30 mph ("Preferred" alt. B)

4) To reduce impacts to owl and other sensitive species habitat, do not construct the Seven Springs bypass. (still "preferred" in FEIS)

In order for the Service to be kept informed of actions that either minimize or avoid adverse effects or that benefit listed species or their habitats, the Service requests notification of the implementation of any conservation recommendations.

DISPOSITION OF DEAD OR INJURED LISTED ANIMALS

Upon finding a dead, injured, or sick individual of an endangered or threatened species, initial notification must be made to the nearest Service Law Enforcement Office. In New Mexico, contact (505/346-7828) or the New Mexico Ecological Services State Office (505/346-2525). Written notification must be made within five calender days and include the date, time, and location of the animal, a photograph, and any other pertinent information. Care must be taken in handling sick or injured animals to ensure effective treatment and care, and in handling dead specimens to preserve biological material in the best possible condition. If feasible, the remains of intact specimens of listed animals shall be submitted to

educational or research institutions holding appropriate State and Federal permits. If such institutions are not available, the information noted above shall be obtained and the carcass left in place.

Arrangements regarding proper disposition of potential museum specimens shall be made with the institution before implementation of the action. A qualified biologist should transport injured animals to a qualified veterinarian. Should any treated listed animal survive, we should be contacted regarding the final disposition of the animal.

REINITIATION - CLOSING STATEMENT

This concludes formal consultation on FH 12 (the Cuba to La Cueva Road) as described in the BA and preliminary draft EIS. As required by 50 CFR 402.16, re-initiation of formal consultation is required if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may impact listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount of incidental take is exceeded, an operation causing such take must cease pending reinitiation of consultation.

In future communications regarding this project, please refer to consultation #2-22-96-F-456. If you have any questions or would like to discuss any part of this biological and conference opinion, please contact Eric Hein ext. 135 or Delfinia Jaramillo ext. 117 of my staff at (505) 346-2525.

Sincerely,

Joy E. Nicholopoulos

Joy E. Nicholopoulos
Field Supervisor

cc:
District Ranger, U.S. Forest Service, Santa Fe National Forest, Cuba Ranger District, Cuba, New Mexico
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Field Supervisor, U.S. Fish and Wildlife Service, Arizona Ecological Services Field Office, Phoenix, Arizona

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