



United States Department of the Interior

FISH AND WILDLIFE SERVICE
New Mexico Ecological Services Field Office
2105 Osuna NE
Albuquerque, New Mexico 87113
Phone: (505) 346-2525 Fax: (505) 346-2542

December 18, 2003

Cons. # 2-22-03-F-0455

Jose M. Martinez, Forest Supervisor
Lincoln National Forest
Federal Building
1101 New York Avenue
Alamogordo, New Mexico 88310-6992

Dear Mr. Martinez:

This document transmits the U. S. Fish and Wildlife Service's (Service) biological opinion (BO) based on our review of the proposed U.S. Forest Service (Forest Service) construction of a new office building and associated facilities and its effects on the Mexican spotted owl (*Strix occidentalis lucida*) (owl). Your letter requesting formal consultation in accordance with section 7 of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.), was received on May 30, 2003.

The "Biological assessment for the Sacramento new office site, Lincoln National Forest, Sacramento Ranger District, Otero County, New Mexico" (BA), dated May 29, 2003, evaluates anticipated effects on federally listed endangered and threatened species and their habitats resulting from the proposed action. The proposed action would construct approximately 17,000 square feet (sq. ft.) of building space and associated facilities measuring 35,000 sq. ft. During construction, the project would disrupt approximately 28.5 acres (ac).

The Forest Service has determined that the proposed action "may affect, is likely to adversely affect" the owl. The Forest Service determined "no effect" for the Sacramento Mountains checkerspot butterfly (*Euphydryas anicia cloudcrofti*).

This BO is based on information provided in the May 29, 2003, BA, other information available to the Service, and telephone conversations with your staff. A complete administrative record of this consultation is on file in the Service's New Mexico Ecological Services Field Office.

Consultation History

Informal consultation began on February 24, 2003, when the Forest Service submitted a scoping letter requesting comments on the proposed action. We provided comments on March 10, 2003. The Forest Service submitted their BA on May 30, 2003, requesting formal consultation with the Service. The request for formal consultation was acknowledged by the Service in a letter dated June 18, 2003.

BIOLOGICAL OPINION

I. Description of the proposed action

The proposed action would construct approximately 17,000 sq. ft. of building space and associated facilities measuring 35,000 sq. ft. During construction, the project would disrupt approximately 28.5 ac on the outskirts of the Village of Cloudcroft, New Mexico, and be built on Forest Service property during the 2005 fiscal year. The proposed location contains suitable mixed-conifer owl habitat, which is classified as restricted habitat. Mixed-conifer owl habitat is dominated by Douglas-fir and/or white fir, with codominant species including southwestern white pine, limber pine, and ponderosa pine. The land proposed for construction is surrounded by human development, which precludes the use of the area by owls.

The construction would be in a heavily disturbed portion of the Lincoln National Forest. Private land development is on three sides and a Forest Service campground is on the fourth side. Access is by a county road approved for upgrading and widening.

II. Status of the species (range-wide)

a. Species/critical habitat description

The owl was listed as threatened on March 16, 1993 (U.S. Fish and Wildlife Service 1993). The current distribution of critical habitat was designated on February 1, 2001 (U.S. Fish and Wildlife Service 2001). There are approximately 4.6 million ac of critical habitat designated in Arizona, Colorado, New Mexico, and Utah on Federal lands. Critical habitat is limited to areas that meet the definition of protected and restricted habitat as described in the Recovery Plan for the Mexican Spotted Owl (*Strix occidentalis lucida*) (Recovery Plan) (U.S. Fish and Wildlife Service 1995). Protected habitat is defined as 600 ac around known owl sites and mixed-conifer or pine-oak forests with slopes greater than 40 percent where timber harvest has not occurred in the past 20 years. Restricted habitat includes mixed-conifer forest, pine-oak forest, and riparian areas outside of protected areas. Owl background and status information are found in the above referenced listing rules, previous BOs issued by the Service, the Recovery Plan (U.S. Fish and Wildlife Service 1995), and published and unpublished reports. This information is summarized below.

The American Ornithologist's Union recognizes three spotted owl subspecies: California spotted owl (*S. o. 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 by plumage, genetic makeup, and geographic distribution. This owl is mottled in appearance with irregular white and brown spots on its abdomen, back and head. Its white spots are larger and more numerous than in other subspecies giving it a lighter appearance. Several thin white bands mark its brown tail. Unlike most other owls, all spotted owls have dark eyes.

S. o. lucida has the largest geographic range of the three subspecies. Its range extends from Aguascalientes, Mexico, through the mountains of Arizona, New Mexico, and western Texas, the canyons of southern Utah and southwestern Colorado, and the Front Range of central Colorado. The owl's distribution is fragmented throughout its range, corresponding to forested mountains and rocky canyon lands (U.S. Fish and Wildlife Service 1995, Tarango et al. 1997, Young et al. 1997, Sureda and Morrison 1998, Gutierrez et al. 1995, Peery et al. 1999, Sorrentino and Ward 2003).

The primary constituent elements essential to the conservation of the owl include those physical and biological features that support nesting, roosting, and foraging activities. Primary constituent elements in protected activity centers (PAC) include all vegetation and other organic matter contained therein. Protected habitat includes PACs and all areas within mixed-conifer or pine-oak types with slopes greater than 40 percent, where timber harvest has not occurred in the past 20 years. Primary constituent elements on all other areas are provided in canyons and mixed conifer, pine-oak, and riparian habitat types that typically support nesting and/or roosting. These elements were determined from studies of owl behavior and habitat use throughout the range of the owl. Primary constituent elements include: High basal area of large-diameter trees; moderate to high canopy closure; wide range of tree sizes suggestive of uneven-age stands; multi-layered canopy with large overstory trees of various species; high snag basal area; high volumes of fallen trees and other woody debris; high plant species richness, including hardwoods; and adequate levels or residual plant cover to maintain fruits, seeds, and regeneration to provide for the needs of owl prey species (U.S. Fish and Wildlife Service 2001). Although the vegetative communities and structural attributes used by the owl vary across the range of the owl, they consist primarily of warm-temperate and cold-temperate forests, and to a lesser extent, woodlands and riparian deciduous forests. The mixed-conifer community appears to be the most frequently used habitat throughout most portions of the owl's range (Skaggs and Raitt 1988, U.S. Fish and Wildlife Service 1995).

b. Life history

Owls breed sporadically and do not nest every year (Gutierrez et al. 1995). Reproductive chronology varies across its range. Owls call mainly from March through November and are usually silent from December through February (Gutierrez et al. 1995). Calling activity increases from March through May (although nesting females are largely silent during April and early May), and then declines from June through November (Gutierrez et al. 1995). 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 early April. The incubation begins shortly after the first egg is laid and is done entirely by the female (Ganey 1988). The incubation period for owls is assumed to be 30 days (Ganey 1988, Forsman et al. 1984). During incubation and the first half of the brooding period, females leave the nest only to defecate, regurgitate pellets, or receive prey from their mate (Forsman et al. 1984, Ganey 1988). Foraging is entirely by males during incubation and the first half of the brooding period.

Clutch sizes of 1 to 3 eggs have been reported, but little information on clutch size exists because of general inaccessibility of nests (Gutierrez et al. 1995). Geo-Marine, Inc. (2003) reported that during the 2001 field season in their study, 12 pairs established nests, 8 hatched young, and 6 fledged at least 1 young (9 owlets fledged in total).

Nestlings fledge in four to five weeks and disperse in September and October (Ganey 1988, Gutierrez et al. 1995, Arsenault et al. 1997, Willey and C. van Riper 2000). Eighty-five percent of juveniles disperse in September and 15 percent in October (Willey and C. van Riper 2000). Owls banded as juveniles were not observed settling in natal territories (Gutierrez et al. 1995, Arsenault et al. 1997, Willey and C. van Riper 2000). Arsenault et al. (1997) reported that three sub-adult females paired temporarily with adult males in their first summer, but left in the fall, suggesting that dispersal can continue through an owl's second year. More data are needed on patterns of juvenile dispersal to help form the basis for structuring individual and metapopulation models.

Little research has been conducted on causes of owl mortality. Great horned owls and northern goshawks are the primary causes of mortality for fledged young and dispersing juveniles and rarely for adults (Gutierrez et al. 1995). Other known mortality factors are starvation and accidents.

Previous studies (U.S. Fish and Wildlife Service 1995) suggest that owls are highly selective for roosting and nesting habitat, but forage in a wider array of habitats. The Recovery Plan assumed that availability of roosting/nesting habitat was a key factor limiting the distribution of the owl. Owls prefer the coolest parts of the forest in order to dissipate their body heat, and therefore, usually choose nest sites on northern and northeastern facing slopes (Peery et al. 1999). These communities are structurally diverse and are characterized by uneven-aged, multistoried forests with high canopy closure (U.S. Fish and Wildlife Service 1995).

Nesting habitat is typically in complex forest structure or rocky canyons and contains mature or old-growth stands with uneven-aged, multistoried, high canopy closure (Ganey and Balda 1989a, Peery et al. 1999). Nest sites have been reported at elevations of 7,000 ft to 9,350 ft (Seamans and Gutierrez 1995, Geo-Marine, Inc. 2003). Aspect at the nest site ranged from northwest to northeast with slope ranging from 5 percent to 62 percent (Seamans and Gutierrez 1995, Geo-Marine, Inc. 2003). In southern Utah and Colorado, most nests are in caves or on cliff ledges in steep-walled canyons. Gutierrez and Rinkevich (unpublished 1991) reported that all owls in Zion National Park, Utah were found in deep, steep-walled canyons. In the Gila National Forest, nests were always found in some type of mixed-conifer forest (Douglas-fir, white fir, Engelmann or blue spruce forest) (Geo-Marine, Inc. 2003). Seamans and Gutierrez (1995) reported that all nests in their study were on limbs deformed by dwarf mistletoe infection in Douglas-fir. Nest trees were the oldest and largest within the nest stand (Seamans and Gutierrez 1995). In north-central Arizona, owls nested in areas with 70 percent or higher proportions of a closed canopy (Grubb et al. 1997). This is also consistent with owl habitat descriptions in other areas of Arizona and in New Mexico (Ganey and Balda 1989b, 1994; Seamans and Gutierrez 1995; Ganey et al. 1999).

A wider variety of tree species are used for roosting, but Douglas-fir is still used most frequently (Ganey 1988, Fletcher and Hollis 1994, Zwank et al. 1994, Seamans and Gutierrez 1995, Young et al. 1998, Peery et al. 1999, Ganey et al. 2000, Geo-Marine, Inc. 2003). Roost sites tend to have steeper slopes, more canopy layers, higher canopy height, greater canopy closure, and greater live tree and snag basal area than random sites. Roost sites are closely associated with well-shaded areas, low on canyon slopes or in canyon bottoms in cool areas and riparian habitats (Ganey and Balda 1989, Zwank et al. 1994, Ganey et al. 1998, Young et al. 1998). Gutierrez and Rinkevich (1991) reported finding owls in steep canyons characterized with high humidity, multiple vegetation strata and high percentage of ground litter in narrow canyons. Mean slope aspect was northwest to northeast (Seamans and Gutierrez 1995, Geo-Marine, Inc. 2003). The position of most roost sites (94 percent) on the slope was within the lower two-thirds (Zwank et al. 1994, Seamans and Gutierrez 1995, Ganey et al. 2000, Geo-Marine, Inc. 2003). Seamans and Gutierrez (1995) suggested that mixed-conifer forests provide stable and favorable year-round conditions, whereas owls residing in pine-oak forests are forced to adjust roost-site use. Roost sites have been reported at elevations of 6,200 ft to 9,200 ft (Zwank et al. 1994, Seamans and Gutierrez 1995, Tarango et al. 1997, Young et al. 1998, Geo-Marine, Inc. 2003). Slope angles range from 0 to 67 degrees (Tarango et al. 1997, Geo-Marine, Inc. 2003). In pine-oak stands where mixed-conifer is not available, owls roost in the middle to upper third of the slope (Young et al. 1998, Ganey et al. 2000). Canopy closure at roost sites ranges from 48 percent to 85 percent (Tarango 1997, Seamans and Gutierrez 1995, Young et al. 1998, Geo-Marine, Inc. 2003). Roost trees range from 30 ft to 100 ft in height and 10 in to 24 in diameter at breast height (dbh) (Tarango et al. 1997, Geo-Marine, Inc. 2003). Ganey and Balda (1994) reported both roosting and foraging sites in northern Arizona had greater canopy closure, more big logs, greater densities and basal areas of both trees and snags than random sites. Ganey and Balda (1994) also concluded that mature forests are important to owls in northern Arizona, and different forest types may be used for different activities. In Chihuahua, Mexico, Young et al. (1998) reported 16 percent of owls roosted in caves, all with a high timber component surrounding the caves.

Seasonal movement patterns of owls are variable. Some owls are year-round residents others remain in the same general area, but show shifts in habitat use patterns. Some owls migrate 12 to 31 miles (mi) (19-50 kilometers [km]) in winter, generally migrating to more open habitats at lower elevations (Ganey and Balda 1989b, Willey 1993, Ganey et al. 1998). Owl home-range size appears to vary considerably between habitats and geographic areas (U.S. Fish and Wildlife Service 1995) ranging in size from 647 to 3,688 ac (259 to 1475 hectares [ha]) for individual birds, and from 945 to 3,846 ac (378 to 1538 ha) for pairs (Ganey and Balda 1989b, Ganey et al. 1999).

Owls disperse into diverse biotic communities. Little information exists about habitat use by juveniles during natal dispersal. Arsenault et al. (1997) reported dispersing juveniles were found to roost in habitat unlike that normally used by adults, including open ponderosa pine and pinyon/juniper habitat. Ganey et al. (1998) found dispersing juveniles in a variety of habitats ranging from high-elevation forests to pinyon-juniper woodlands and riparian areas surrounded by desert grasslands. The onset of juvenile dispersal is sudden and in various directions

(Arsenault et al. 1997, Willey and C. van Riper 2000). Juvenile dispersal takes place in September and October, with 85 percent leaving in September (Gutierrez et al. 1995, Arsenault et al. 1997, Willey and C. van Riper 2000).

Riparian forests function as important components of ecosystems supporting owls. These communities, particularly mature, multilayered forests, can be important linkages between otherwise isolated subpopulations of owls. They may serve as direct avenues of movement between mountain ranges or as stopover sites and connect large expanses of landscape that otherwise would be inhospitable to dispersing owls. Historical evidence shows that owls once nested in riparian habitats (U.S. Fish and Wildlife Service 1995).

Geo-Marine, Inc. (2003) reported that winter and early spring rainfall is a significant predictor of owl presence. Their preliminary results showed that owls preferred areas with greater rainfall. Closed and unused roads were also significant predictors of owl pair occupancy (Geo-Marine, Inc. 2003). Geo-Marine, Inc. did not report why these associations were present.

Ward (2001) provided strong evidence that spotted owls select habitats according to the distribution of their prey. Owls generally use a wider variety of forest conditions (mixed-conifers, pine-oak, ponderosa pine, pinyon-juniper) for foraging than they use for nesting/roosting. In northern Arizona, Ganey and Balda (1994) reported that owls foraged more in unlogged forests containing uneven-aged stands of Douglas-fir and white fir, frequently with a strong component of ponderosa pine, than in managed forests.

The primary owl prey species are woodrats (*Neotoma* spp.), peromyscid mice (*Peromyscus* spp.), and microtine voles (*Microtus* spp.) (U.S. Fish and Wildlife Service 1995, Young et al. 1997, Seamans and Gutierrez 1999). Owls also consume bats, birds, reptiles, and arthropods (U.S. Fish and Wildlife Service 1995). Habitat correlates of owl's common prey show that each prey species uses unique habitats. A diverse prey base is dependant on availability and quality of diverse habitats. Owl foraging habitats include canyon bottoms, cliff faces, tops of canyon rims, and riparian areas (Willey 1993, Gutierrez and Rinkevich 1991). Previous studies have found variation in owl's prey according to geographic region (U.S. Fish and Wildlife Service 1995, Young et al. 1997). Patterns in the consumption of some prey, like woodrats, vary as a latitudinal-longitudinal cline, with more woodrat biomass consumed in northwestern portions of the owl's range and the least taken in southern portions (Sorrentino and Ward 2003). Consumption of other species, like voles, is clearly limited to areas where owls hunt near or within montane meadows (Sorrentino and Ward 2003).

Mexican woodrats (*N. mexicana*) are typically found in areas with considerable shrub or understory tree cover and high log volumes, or rocky outcrops associated with pinyon-juniper woodlands (Ward 2001). Willey (unpublished data) found that owls in canyons were foraging primarily in pinyon-juniper. This corresponds to woodrat distribution and abundance (Sureda and Morrison 1998). Ward (2001) reported moderate amounts of tree cover and snags corresponded to higher woodrat abundance. Mexican woodrat abundance increased with the volume of large, undecomposed and highly decomposed logs (Ward 2001). The diet of Mexican

woodrats was 70 percent forbs and 7 percent shrubs (Ward et al. 2003). These proportions of plants consumed were similar to that found in the woodrats' local environment.

Sorrentino and Ward (2003) considered woodrats an important food source for the owl occurring in the Guadalupe Mountains, New Mexico. Seamans and Gutierrez (1999) found that woodrats were the most important prey based on relative biomass, followed by white-footed mice. Delaney and Grubb (1999) and Young et al. (1997) reported that woodrats represented the highest percentage of prey biomass in owls' diets in the Sacramento Mountains and in Aguascalientes, Mexico, respectively.

Deer mice (*P. maniculatus*) are ubiquitous in distribution in comparison to brush mice (*P. boyleyi*), which are restricted to drier, rockier substrates, with sparse tree cover (Ward 2001). Although deer mice were common in all vegetation types sampled, Ward (2001) found them to be more abundant in the mid-seral stage (60 to 100 years in age) of mixed-conifer forests. Sureda and Morrison (1998) reported deer mice distribution in all vegetation types they surveyed. They attributed its ubiquitous distribution to the heterogeneous distribution of vegetation types in their study area.

Mexican voles (*M. mexicanus*) are associated with montane meadows and high herbaceous cover, primarily grasses; whereas, long-tailed voles (*M. longicaudus*) are found in mesic forest habitats with dense herbaceous cover, primarily forbs, many shrubs, and limited tree cover (Ward 2001). Ward (2001) reported that when plant biomass in montane meadows dropped below 1 kilogram per hectare, no Mexican voles were found in either mesic or xeric forests in the Sacramento Mountains. Production of grasses and forbs had a strong positive association with summer abundance of Mexican voles (Ward 2001). In his study, Ward (2001) reported 2.6 in (6.6 cm) of mean maximum height of summer grasses or forbs was a threshold, above which Mexican vole abundance increased with the height of herbaceous vegetation during summer months.

c. Population dynamics

Historic populations size estimates and range distributions are not known; however, present population size and distribution are thought to be similar (U.S. Fish and Wildlife Service 1995). Ninety-one percent of known owls existing in the United States between 1990 and 1993 occurred on land administered by the Forest Service; therefore, it is the primary administrator of lands supporting owls (U.S. Fish and Wildlife Service 1995). Most owls have been found within 11 National Forests of Arizona and New Mexico. It is unknown why forests in Colorado and Utah support fewer owls. The Recovery Plan divides the owl's range into 11 Recovery Units (RU), 5 in Mexico and 6 in the United States. The six RUs in the United States are: (1) The Southern Rocky Mountains - Colorado, (2) Southern Rocky Mountains - New Mexico, (3) Basin and Range - East, (4) Basin and Range - West, (5) Upper Gila Mountains and (6) Colorado Plateau. The Recovery Plan identifies locations, descriptions, recovery criteria, and provides distribution, abundance, and density estimates for each RU.

A PAC is defined as the nest site, a roost grove commonly used during the breeding season in the absence of a verified nest site, or the best nesting/roosting habitat if both nesting and roosting information are lacking (U.S. Fish and Wildlife Service 1995). The Recovery Plan for the owl 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 20 years, and all legally and administratively reserved lands. Owl PACs are delineated around known owl sites. PACs include a minimum of 600 ac (240 ha) designed to include the best nesting and roosting habitat in the area. Recommended sizes also include 75 percent of the foraging areas used by owls. "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 does not provide owl-specific guidelines for "other forest habitat." The Upper Gila Mountain RU has the greatest known concentration of owl PACs (63 percent), followed by the Basin and Range-West, (16 percent), Basin and Range-East (14 percent), Southern Rocky Mountain-New Mexico (5 percent), and Colorado Plateau (2 percent) (U.S. Department of Agriculture Forest Service, Southwestern Region 2002). Reports of PAC occupancy range from 68 to 79 percent in the Lincoln and Gila National Forests, respectively (Geo-Marine, Inc. 2003, Sorrentino and Ward 2003, Ward et al. 2003).

Seamans et al. (1999) reported strong evidence of 10 percent or greater population declines in central Arizona and west-central New Mexico. Both populations experienced lower survival rates at the end of the study period (late 1990s). Trends in annual fecundity and juvenile survival were similar between study areas; owls experienced higher fecundity and juvenile survival in the earlier years of the study. Seamans et al. (1999) stated that the large influx of subadult birds into the territorial populations in early years and the rapid decline of the populations thereafter suggests that no floater population (nonterritorial, nonbreeding individuals) existed on either study area or that the floater population was not large enough to compensate for mortality among territorial individuals. In addition, density on the 2 study areas appeared to be closely related to reproductive output from the previous 2 years. This suggested that the floater population was nonexistent or declining and that population densities were sustained only after relatively "good" years of reproduction. Because the trends in reproduction were strongly correlated between the two study areas, the authors suggested that a regional phenomenon, possibly in combination with other factors, may have influenced population dynamics. It was unclear whether these trends were a naturally occurring phenomenon from which the population will rebound (e.g., due to variation in climate) or whether they were a consequence of deterministic declines in habitat quality (e.g., habitat loss and fragmentation) that were detrimental to the owl's long-term persistence. Seamans et al. (1999) recommended protecting conifer forests because 90 percent of owl territories occur within these habitats.

In 2002, the Forest Service, Region 3 reported 987 PACs in Arizona and New Mexico (U.S. Department of Agriculture Forest Service, Southwestern Region, 2002). Based on this number of owl sites, total owl numbers in the United States range from 987 to 1,974, depending on whether one bird or a pair occupies the PAC. Geo-Marine, Inc. (2003) reported that 306 out of 662 (46 percent) owl detections were made in known Forest Service PACs. The remaining 356

of 662 (54 percent) detections were in previously unidentified areas. This indicates that additional surveys are needed on National Forest lands. Survey efforts in areas other than Forest Service lands are also likely to result in additional sites throughout the different RUs. The Service believes that 12 PACs are in Colorado and 105 PACs are in Utah on Forest Service lands. Therefore, a total of 1,104 PACs has been identified on Forest Service lands. Tribal, State, private lands, and Mexican PACs are not included in this calculation.

The Lincoln National Forest is within the Basin and Range - East RU. This RU contains the third largest number (138) of owl PACs in the United States (U.S. Fish and Wildlife Service 1995). Because of the high concentration of owls, this RU is an important source population for other areas (U.S. Fish and Wildlife Service 1995). Owls here occur in isolated mountain ranges scattered across the region, the largest portion occurring in the Sacramento Mountains. Owls have been reported on Forest Service lands in the Sandia, Manzano, Sacramento, and Guadalupe Mountains, and in Guadalupe National Park, Carlsbad Caverns National Park, and the Mescalero Apache Reservation. They are most common in mixed-conifer forest, but have been found occasionally in ponderosa pine forest and pinyon/juniper woodland (Skaggs and Raitt 1988, U.S. Fish and Wildlife Service 1995).

d. Status and distribution

Two primary reasons were cited for listing the owl as threatened in 1993: (1) Historical alteration of its habitat as the result of timber management practices, specifically the use of even-aged silviculture, and the threat of these practices continuing; and (2) the danger of catastrophic wildfire. Forest Service, Region 3, timber harvest practices and catastrophic wildfires, were cited as primary factors leading to listing the owl as a federally threatened species. Another factor that contributed to declines included the lack of adequate existing regulatory mechanisms. The Recovery Plan also notes that forest management has created habitats favored by great horned owls, increasing the likelihood of predation. Other threats include the potential for increasing malicious and accidental anthropogenic harm (e.g., shooting and vehicle collisions), and for the barred owl to expand its range, resulting in competition or hybridization with the owl.

Bond et al. (2002) described short-term effects of wildfires on spotted owls throughout the species' range. The authors reported that relatively large wildfires that burned nest and roost areas appeared to have little short-term effect on survival, site fidelity, mate fidelity, and reproductive success of spotted owls, as rates were similar to estimates independent of fire. Bond et al. (2002) hypothesized that spotted owls may withstand the immediate, short-term (1-year) effects of fire occurring at primarily low to moderate severities within their territory. The Forest Service (U.S. Department of Agriculture Forest Service, Southwestern Region 2003) reported similar results following the 2002 Lakes Fire in the Jemez Mountains of north-central New Mexico. Danney Salas (Forest Service, personal communication, 2003) reported that all but one owl pair in the Scott Able Fire have returned to their previous territories. Salas (Forest Service, personal communication, 2003) also reported that all owls have returned and are reproducing within the Bridge Fire footprint. He added that owls are generally not found in areas where fire retardant (slurry) was used during fire suppression activities. Given historical

fire regimes within its range, the spotted owl may be adapted to survive wildfires of various size and severities. Therefore, prescribed burning could be an effective tool in reducing current fire risk and restoring forests to natural conditions with minimal short-term impacts to owls.

Geo-Marine, Inc. (2003) results suggest that owls avoid areas with aircraft noise and were found in areas with low aircraft noise. Johnson and Reynolds (2002) and Geo-Marine, Inc. (2003) reported that owls did not flush from their roost or nest as a response to aircraft noise. Delaney et al. (1999) found that owls did not flush when noise stimuli from helicopters and chainsaws were greater than 115 yd (105 m) away. Chainsaws were more disturbing to owls than helicopter flights at comparable distances (Delaney et al. 1999). Delaney et al. (1999) recommended a 115-yd buffer for helicopter overflights to minimize owl flushing responses and any potential effects on nesting activity. Other recommendations were diurnal flights and separating overflights along the same path by 7 days (Delaney et al. 1999)

III. Environmental baseline

a. Status of species within the action area

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. Also included in the environmental baseline are anticipated impacts of all proposed Federal projects that have undergone section 7 consultation, and impacts of State and private actions that are contemporaneous with the consultation in progress.

The action area is within the Basin and Range - East RU. The Service's analysis includes the construction footprint plus a 0.25 mi buffer. The 0.25 mi buffer is included because of increased human use associated with construction and operation of the buildings.

In Forest Service Region 3, a total of 125 formal consultations has either been completed or are in draft. These formal consultations identified anticipated take of owls in 289 PACs. Consultations have dealt with actions proposed by the Forest Service, Bureau of Indian Affairs, Department of Defense (including the Air Force, Army, and Navy) and Federal Highway Administration. These proposals included timber sales, road construction, fire/ecosystem management projects (including prescribed natural and management ignited fires), livestock grazing, recreation activities, utility corridors, military, other construction activities, and wildlife research. One hundred-thirty-six (136) PACs have been identified on the Lincoln National Forest. Of these, 109 PACs are on the Sacramento Ranger District, where the action area is found. The 109 PACs have many uses occurring in them, including grazing, power lines and year-round recreation. The total number of PACs with anticipated incidental take is 19 PACs for the Basin and Range East RU.

The action area contains suitable nesting, roosting, and foraging owl habitat. The Forest Service conducted owl surveys within and adjacent to the action area in 1991, 1992, 1995, 1996, 1997,

1998, and 1999, and no owls were detected in the action area. The nearest PAC is more than 0.75 mi away.

b. Factors affecting species environment within the action area

Owls occurring in the Sacramento Mountains have been exposed to various disturbances for centuries, including forest fires, insects and disease, human disturbances, such as timber and fuelwood harvest, grazing, land development, and recreation. Coniferous forests, especially mixed-conifer, were extensively logged during the railroad logging era of 1890 to 1945 (Glover 1984, U.S. Fish and Wildlife Service 1995). After the railroad logging era, trees grew rapidly on favorable sites and attained merchantable sizes in about 40 to 50 years. Consequently, habitat currently used by owls in the Sacramento Mountains is regrowth forest that has attained a high density of moderately sized trees, poles, and saplings, forming multiple layers. According to the Recovery Plan, the greatest threats in this RU, in order of potential effects, are catastrophic fire, timber harvest, fuelwood harvest, grazing, human developments, and forest insects and disease. Other activities considered potential threats to the owl include certain military operations, other habitat alterations (such as power lines and roads), mining, and recreation. Recovery in this unit will require maintenance of existing and future populations by conserving occupied and unoccupied sites (U.S. Fish and Wildlife Service 1995).

On the Lincoln National Forest, past and present Federal, State, private, and other human activities that may affect the owl and its habitat are as follows: The Walker fire suppression, the Hay and Scott Able timber sales, Bridge salvage sale, Walker fire salvage sale, other vegetation manipulations, livestock grazing, recreational activities, recreational and scenic vista developments, road construction, maintenance activities, land exchanges, rights-of-way issuance, off-road motorcycle events, power line construction, and wildlife research projects. Forest management activities (timber sales, etc.) on adjacent Tribal and private lands, urban development, and fire suppression and rehabilitation activities affect the environmental baseline. In addition, the risk of catastrophic habitat loss due to fire is extremely high. Fires such as the Burgett, Bridge, Scott Able, and Walker, have modified thousands of acres of habitat and impacted multiple owl territories.

The Scott Able fire burned 16,034 ac, of which 14,551 ac are administered by the Lincoln National Forest and 1,483 ac are private land. Approximately 12,291 ac that burned were considered suitable owl habitat. The fire affected all or portions of 6 PACs, 2 additional PACs are next to the burned area. The Burgett fire affected all or portions of 3 PACs. The Walker fire burned 3,434 ac and portions of 2 PACs. The Walker fire affected 45 ac in the Sixteen Springs PAC (R03F08F-019) and 283 ac in Crooked PAC (R03F08F-072).

The 28.5 ac involved in this action area meet the criteria for owl nesting, roosting and foraging habitat, except that the amount of human activity (e.g., football field, subdivision, the Village of Cloudercroft and campground) precludes owl use within the action area. The proposed construction would permanently remove owl habitat and may result in growth of commercial or private development. Therefore, the proposed action may significantly lower the environmental

baseline by supporting further development within owl territories. The proposed building space and associated facilities construction area is managed by the Forest Service. Various facilities and land use (e.g., the Village of Cloudcroft, football field, subdivision, access road, State Highway 130, and Deerhead Campground) exist in the area.

The construction and operation of the building space and associated facilities would increase human use and noise disturbance. Sound, visual, and habitat disturbance from recreation may affect owl habitat at a local scale. Swarthout and Steidl (2003) concluded that the cumulative effects of high levels of short-duration recreational hiking near nests may be detrimental to owls. In areas that receive use by 50 or more hikers per day, owls are likely threatened by hiking (Swarthout and Steidl 2003). Concentrated human development may affect dispersing and wintering owls by reducing the spatial extent of habitat (U.S. Fish and Wildlife Service 1995). Displaced or dispersing owls (particularly juveniles) that forage through disturbed areas may be more vulnerable to predation or accidents resulting in a greater loss of owls over time (U.S. Fish and Wildlife Service 1995).

In the BA, the analysis area of the potential impacts included a 0.5 mi buffer around the project area. This analysis area does not encompass any PACs. The nearest PACs (Pierce PAC R03F08D02-068 and Zoo PAC R03F08D02-100) are 0.75 mi from the action area. A single owl was detected in the Pierce PAC in 1996. Pairs have never been detected in the Pierce PAC. A pair of owls is currently occupying the Zoo PAC.

IV. Effects of the action

Effects of the action refer to the direct and indirect effects of an action on the species or critical habitat, together with the effects of other activities that are interrelated and interdependent with that action, that will be added to the environmental baseline. Indirect effects are those that are caused by the proposed action and are later in time, but are still reasonably certain to occur.

a. Factors to be considered

The proposed action would construct approximately 17,000 sq. ft. of building space and associated facilities measuring 35,000 sq. ft. Construction would disrupt 28.5 ac on the outskirts of the Village of Cloudcroft, New Mexico, on Forest Service property during the 2005 fiscal year. The proposed location contains suitable mixed-conifer owl habitat, which is classified as restricted habitat, but the land proposed for construction is surrounded by human development and precludes the use of the area by owls. Construction of the proposed action would further degrade the habitat permanently with increased light and noise surrounding the new facility. Direct impacts include removal of vegetation due to clearing, excavating, filling, and construction activities. This would result in permanent forest habitat loss, including mature trees in restricted habitat.

b. Analyses of effects of the action

Increased sound, visual, and habitat disturbance from recreation and construction activities would likely affect owl habitat at a local scale. Swarthout and Steidl (2003) concluded that the cumulative effects of high levels of short-duration recreational hiking near nests may be detrimental to owls. These effects are considered adverse, as described in the Recovery Plan (U.S. Fish and Wildlife Service 1995).

The most significant indirect effects are expected to occur from development disturbances, vehicular traffic, and recreation in and around the action area. If the action area becomes developed, it would be subjected to high levels of disturbance (noise, lighting, etc.) that extend into adjacent lands. Approved road widening, maintenance and upgrades are expected as an indirect effect from construction of the building space and associated facilities. Construction would increase traffic and may encourage additional development in the area. That in turn could increase habitat degradation. Commercial or private development and increased human use may increase wildfire potential, a primary threat to the owl throughout its range. Noise from chainsaws during action area preparation prior to the start of construction may disturb owls in the vicinity. Delaney et al. (1999) found that owls did not flush when noise stimuli from helicopters and chainsaws were greater than 115 yd (105 m) away. Chainsaws were more disturbing to owls than helicopter flights at comparable distances (Delaney et al. 1999).

The Recovery Plan considers the reduction of large trees outside protected areas a threat to owls in the Basin and Range - East RU (U.S. Fish and Wildlife Service 1995). In areas that receive use by 50 or more hikers per day, owls are likely threatened by hiking (Swarthout and Steidl 2003). Hikers caused declines in several important activities that could adversely affect the reproductive success of owls (Swarthout and Steidl 2003). Human disturbances near nests decrease the quality of prey delivered and consumed at raptor nests (Swarthout and Steidl 2003).

Owls would likely avoid the action area because concentrated human development may affect dispersing and wintering owls by reducing the spatial extent of habitat (U.S. Fish and Wildlife Service 1995). As a result, displaced or dispersing owls (particularly juveniles) may be more vulnerable to predation or accidents resulting in a greater loss over time.

c. Species' response to a proposed action

The permanent removal of 28.5 ac of suitable owl habitat is expected to adversely affect the species. Foraging, roosting, and nesting are expected to be adversely affected by the removal of the 28.5 ac of suitable habitat because in this portion of the RU all available suitable owl habitat is occupied. Therefore, permanent loss of this suitable habitat precludes expansion of the subspecies into this area.

V. Cumulative effects

Cumulative effects include the effects of future State, Tribal, local, or private actions that are reasonably certain to occur in the action area considered in this BO. 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.

The action area is found on the eastern and northeastern edge of the Village of Cloudcroft, New Mexico. It is surrounded by National Forest and non-Federal lands including Lost Lodge Subdivision, State Highway 130, Forest Service trails, existing infrastructures (e.g., power lines), high school football field, Deerhead Campground, and the Village of Cloudcroft where activities occur year-round. These activities reduce the quality and quantity of owl nesting, roosting and foraging habitat, and cause disturbance to breeding owls and contribute as cumulative effects to the proposed action. Expected future actions within or next to Forest Service lands include urban development, road construction, land clearing, logging, fuelwood gathering, and other associated actions. In addition, timber harvest activities have increased on the Mescalero Apache Reservation and private land.

VI. Conclusion

After reviewing the current status of owls, the environmental baseline for the action area, the effects of the proposed construction of a new office building and associated facilities and the cumulative effects, it is the Service's biological opinion that the construction of a new office building and associated facilities, as proposed, is not likely to jeopardize the continued existence of the owl. No critical habitat has been designated within the action area for this species, therefore, none will be affected.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit take of endangered and threatened species without special exemption. Take means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harm means an act that actually kills or injures listed species. Such acts may include significant habitat modification or degradation that result in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Harass means an intentional or negligent act or omission that creates the likelihood of injury to a listed species by annoying it to such an extent as to significantly disrupt normal behavior that includes, but is not limited to, breeding, feeding or sheltering. Incidental take is incidental to, and not the purpose of, carrying out an otherwise lawful activity. In section 7(b)(4)(iv) and section 7(o)(2) of the Act, incidental take not intended as part of agency action is not considered prohibited taking if such taking meets the terms and conditions of an Incidental Take Statement.

The implementation of the proposed action, as described in this BO, has the potential to adversely affect restricted owl habitat and render the action area permanently unsuitable for nesting, roosting, and foraging. However, the extent and size of the impacts are not expected to result in "take" of owls. This conclusion was reached by considering the following: 1) The proposed action area is currently subject to high disturbance levels from adjacent heavily traveled roads and developed areas; 2) the area is significantly smaller than an owl PAC; and 3) the nearest PAC is approximately 0.75 mi away. Direct impacts of habitat loss are expected to occur in restricted owl habitat within the action area.

It is our opinion that the proposed action will not lead to an incidental take of owls. This determination was based on the knowledge that no owls have been detected in the action area after multiple years of surveys. This determination is consistent with our final policy for conducting section 7 consultations on owls and critical habitat dated July 1, 1996. The policy states that incidental take can be supported when habitat-altering actions compromise the integrity of a PAC or in cases where areas that may support owls have not been adequately surveyed. Our conclusion is also based on knowledge that owl surveys were conducted during 1999 and will continue within the action area. Because we do not anticipate incidental take related to the proposed action, no reasonable and prudent measures are provided. However, if during the action, incidental take occurs, such incidental take would represent new information requiring review of the project's effects. The Forest Service must immediately provide an explanation of the taking and review with us the need for reasonable and prudent measures.

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. The recommendations provided here relate only to the proposed action and do not represent complete fulfillment of the agency's section 7(a)(1) responsibility for this species. We recommend the following conservation recommendations be implemented for the construction of the new office building and associated facilities:

1. The Forest Service should work with private landowners and the Village of Cloudcroft to emphasize the benefits of ecological diversity and the contribution that the owl provides to biological diversity and forest health.
2. The Forest Service should provide information regarding Habitat Conservation Plans and Safe Harbor Agreements to private landowners, communities, local and County governments, or businesses to ensure potential direct and indirect impacts to the owl and other listed species are authorized under the Act. This program would benefit these non-Federal entities by allowing incidental take of federally listed species, thus reducing their risk of violating any enforcement provisions of the Act.

3. The Forest Service should work with local officials to ensure that the potential for catastrophic wildfires is reduced on the lands surrounding the Village of Cloudcroft.

4. The Forest Service should increase survey efforts for the owl in previously unsurveyed areas on Forest Service lands.

In order for the Service to be kept informed of actions minimizing or avoiding adverse effects or benefitting 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 dead, injured, or sick individual 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 Field Office (505-346-2525). Written notification must be made within five calendar days and include date, time, and location, 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, remains of intact specimens of listed species will be submitted to educational or research institutions holding appropriate State and Federal permits. If such institutions are not available, information noted above will be obtained and the carcass left in place.

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

REINITIATION - CLOSING STATEMENT


This concludes formal consultation on actions outlined in the request. As provided in 50 CFR § 402.16, formal consultation reinitiation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) The amount or extent of incidental take is exceeded; (2) new information reveals effects of agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this BO; (3) agency action is subsequently modified in a manner that causes an effect to listed species or critical habitat not considered in this BO; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation.

Jose M. Martinez, Forest Supervisor

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In future communications regarding this project, please refer to consultation #2-22-03-F-0455. Please contact Santiago R. Gonzales at the letterhead address or at (505) 761-4755 if you have any questions.

Sincerely,



for Joy E. Nicholopoulos
State Supervisor

cc:

District Ranger, U.S. Forest Service, Lincoln National Forest, Sacramento Ranger District,
Cloudcroft, New Mexico
Field Supervisor, U.S. Fish and Wildlife Service, Arizona Ecological Services Field Office,
Phoenix, Arizona

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