

**United States Department of the Interior  
U.S. Fish and Wildlife Service  
2321 West Royal Palm Road, Suite 103  
Phoenix, Arizona 85021  
Telephone: (602) 242-0210 FAX: (602) 242-2513**

AESO/SE  
2-21-00-F-243

March 26, 2002

Mr. Karl P. Siderits  
Forest Supervisor  
Tonto National Forest  
HC02 Box 4800  
Roosevelt, Arizona 85545

Dear Mr. Siderits:

This biological opinion responds to your request for consultation with the U.S. Fish and Wildlife Service (Service) pursuant to section 7 of the Endangered Species Act of 1973 (16 U.S.C. 1531-1544), as amended (Act). Your request for formal consultation was dated October 30, 2001, and received by us on November 9, 2001. At issue are impacts to the threatened Mexican spotted owl (*Strix occidentalis lucida*) that may have resulted from the wildfire suppression actions associated with the Coon Creek Fire located in the Sierra Ancha Wilderness on Tonto National Forest (Forest), Gila County, Arizona.

This biological opinion is based on information provided in the October 30, 2001, biological assessment (BA), telephone conversations, and other sources of information. Literature cited in this biological opinion is not a complete bibliography of all literature available on the Mexican spotted owl, wildfire suppression 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**

Informal consultation was initiated on April 26, 2000, with a phone message to this office by Don Pollock of the Payson Ranger District. Subsequent discussions occurred between the Forest and members of our staff during the incident, in efforts to minimize the effects of suppression activities on Mexican spotted owl. You requested that formal consultation be initiated on October 30, 2001. We responded in a letter dated December 4, 2001, that your consultation package was complete and formal consultation had been initiated.

## **BIOLOGICAL OPINION**

### **DESCRIPTION OF THE EMERGENCY ACTION**

The Coon Creek Fire started on April 26, 2000, and resulted from a campfire that was left unattended at a remote campsite adjacent to Forest Trail #254 south of Aztec Peak in the Sierra Ancha Mountains. Due to the intensity of the fire and its rate of movement, a Type 1 Incident Management Team, several fire crews, helicopters, and air tankers were ordered. The highest priority was to protect the lookout tower and other improvements on Aztec Peak and private land at Murphy Ranch, and to keep the fire from moving northwest into the high resource areas of Workman and Reynolds creeks. This was accomplished with hand crews building line and burning out, with considerable support from retardant drops from both air tankers and helicopters.

After Aztec Peak and Murphy Ranch were secure, emphasis was placed on holding the northwestern edge of the fire. Efforts were switched to building hand line ahead of the fire from Carr Peak to Workman Creek and from Workman Creek to Murphy Ranch and burning out toward the fire. On the northeastern and eastern flanks, a combination of hand line and air support was used in an attempt to keep the fire out of Pueblo Canyon, Cold Springs Canyon, and Devil's Chasm.

The Incident Command Post and Base Camp for the fire were located across Roosevelt Lake at the Grapevine Campground. Crews were located in spike camps at Sawmill Flat, west of the fire along State Highway 288 and east of the fire on Cherry Creek. Numerous aircraft worked the fire including light, medium, and heavy helicopters, air tankers, and lead planes. The heavy and medium helicopters dipped out of Roosevelt Lake. Bulldozers were assigned to the fire but due to the steepness of the terrain, wilderness values, and high resource values, their role was limited to opening and improving existing roads and two tracks. At the peak of suppression, over 700 personnel were assigned to the fire. A resource advisor from the Pleasant Valley Ranger District was assigned to the fire overhead team. The Zone Wildlife Biologist was provided with daily updates from the resource advisor. Conversely, the resource advisor was continuously provided with threatened, endangered, and sensitive species location and habitat information that was then used by the Planning Section in the development of suppression strategies.

The Coon Creek Fire was declared contained on May 17, 2000. Approximately 9,628 acres were burned, including all or part of five Mexican spotted owl protected activity centers (PACs).

### **STATUS OF THE SPECIES**

#### **Species and critical habitat description**

The Mexican spotted owl was listed as threatened on March 16, 1993 (USFWS 1993). The Service designated critical habitat for the Mexican spotted owl on February 1, 2001 (USFWS

2001). The Mexican Spotted Owl Recovery Plan (Recovery Plan) was issued in 1995 (USFWS 1995).

The Mexican spotted owl is a medium-sized owl, measuring approximately 17 inches in length with a 3.3 foot wingspan. It is mottled in appearance with irregular white and brown spots on its abdomen, back, and head. Several thin white bands mark an otherwise brown tail. Unlike most owls, spotted owls have dark eyes. The Mexican spotted owl is distinguished from the California and northern subspecies chiefly by plumage and geographic distribution. The spots of the Mexican spotted owl are larger and more numerous than in the other two subspecies, giving it a lighter appearance.

In Arizona, a total of 11 critical habitat units totaling 830,803 acres were designated as critical habitat. The Service elected to exclude from critical habitat designation those lands where adequate special management considerations or protection are provided by a legally operative plan or agreement that addresses the maintenance and improvement of the primary constituent elements important to the species, and manages for the long-term conservation of the species. The Service determined that the Southwest Region of the Forest Service amended their Forest Plans in Arizona and New Mexico in 1996 to incorporate the Recovery Plan guidelines as management direction, and, as a result, is providing adequate special management for the Mexican spotted owl. Based on this conclusion, the Service excluded National Forest lands in Arizona and New Mexico from final critical habitat designation.

### **Life history**

A detailed account of the taxonomy, biology, and reproductive characteristics of the Mexican spotted owl is found in the Final Rule listing the Mexican spotted owl as a threatened species (USFWS 1993) and the Recovery Plan (USFWS 1995).

Mexican spotted owls breed sporadically and do not nest every year. Mexican spotted owls' reproductive chronology varies somewhat across the range of the owl. 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, more typically, early April. Incubation begins shortly after the first egg is laid, and is performed entirely by the female. The incubation period for the Mexican spotted 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 to 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 of the Mexican spotted owl. It varies both spatially and temporally (White *et al.* 1995), but the subspecies demonstrates an average annual rate of one young per pair. There are inadequate data at this time to estimate population trend. Little confidence in initial estimates has been expressed due to its reliance on juvenile survival rates,

which are believed to be biased low, and to the insufficient time period over which studies have been conducted.

Based on short-term population and radio-tracking studies, and longer-term monitoring studies, the probability of an adult Mexican spotted owl surviving from one year to the next is 0.8-0.9. Juvenile survival is considerably lower at 0.06-0.29, 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 of the Mexican spotted owl, but starvation, accidents or collisions, and predation by great horned owls, northern goshawks, red-tailed hawks, and golden eagles 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 that contain mature or old-growth stands that are uneven-aged, multi-storied, and have high canopy closure (Ganey and Balda 1989, USFWS 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 (*Pseudotsuga* spp.) (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). Owls use a wider variety of forest conditions for foraging than for nesting or roosting. In northern Arizona, owls generally foraged slightly more than expected in logged forests, and less so in selectively logged forests (Ganey and Balda 1994). However, patterns of habitat use varied among study areas and individual birds, making generalizations difficult.

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 habitats at lower elevations (Ganey and Balda 1989, Willey 1993, Ganey *et al.* 1998).

Prey availability is determined by the distribution, abundance, and diversity of prey and by the owl's ability to capture it. Diet studies conducted on Mexican spotted owls have indicated that prey species include woodrats (*Neotoma* spp.), white-footed mice (*Peromyscus* spp.), voles (*Microtus* and *Clethrionomys* spp.), rabbits and hares (*Sylvilagus* and *Lepus* spp.), pocket gophers (*Thomomys* spp.), and other animals including a variety of bats, birds, insects, and reptiles. Ward and Block (1995) reported that rangewide, 90% of an "average" Mexican spotted owl diet would contain 30% woodrats, 28% peromyscid mice, 13% arthropods, 9% microtine voles, 5% birds, and 4% medium-sized rodents, mostly diurnal sciurids.

An adequate prey base may positively influence Mexican spotted owl survival, reproduction, or numbers and thereby increase the likelihood of persistence of spotted owl populations (USFWS

1995). Male owls must provide enough food to their female mates during incubation and brooding to prevent abandonment of nests or young; accordingly, ecologists suspect that spotted owls select habitats partially because of the availability of prey (Ward and Block 1995). In two studies in Arizona and New Mexico, Ward and Block (1995) found that prey are most abundant during the summer months when young are being raised. Decreases in prey biomass, typical of small mammal populations, occur from late fall through the winter. Ward and Block (1995) state that conditions that increase winter food resources will likely improve conditions for the owl because this will increase the likelihood of egg laying and decrease the rate of nest abandonment. Thus, food availability in the winter, as well as in the summer is important for owl reproduction.

### **Status and distribution**

The Mexican spotted owl has the largest geographic range of the three subspecies. The current known range of the Mexican spotted owl 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 (USFWS 1995). Although this range covers 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. Information gaps also appear in the species' distribution within the United States, however, it is apparent that 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.

According to the Recovery Plan (USFWS 1995), 91% of owls known to exist in the United States between 1990 and 1993 occurred on land administered by the Forest Service. The majority of known owls have been found within Region 3 of the Forest Service, which includes 11 National Forests in Arizona and New Mexico. Forest Service Regions 2 and 4, which include two National Forests in Colorado and three National Forests in Utah, support fewer owls.

A reliable estimate of the numbers of owls throughout its entire range is not currently available. Owl surveys conducted from 1990 through 1993 indicate that the species persists in most of the 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. While the number of owls throughout its range is not currently available, the Recovery Plan (USFWS 1995) reports an estimate of owl sites based on the 1990-1993 data. The surveys indicated that one or more owls were observed at a minimum of 758 sites in the United States and 19 sites in Mexico. Therefore, total numbers in the United States range from 777 individuals (assuming one owl per site) to 1,554 individuals (assuming one pair of owls per site).

Past, current, and future timber-harvest practices in Region 3 of the Forest Service, in addition to catastrophic wildfire, were cited as the primary factors leading to listing of the Mexican spotted owl as a threatened species. Fletcher (1990) estimates that 1,037,000 acres of habitat were converted from suitable (providing all requirements of the owl, e.g., nesting, roosting, and

foraging) to capable (once suitable, but no longer so). Of this, about 78.7%, or 816,000 acres, was a result of human management activities, whereas the remainder was converted more or less naturally, primarily by wildfire. As a result, suppression of wildfires in and near PACs that could be catastrophic and stand-replacing absent suppression (such as with the Peak Fire), is essential to maintaining Mexican spotted owl habitat. However, the suppression activities themselves, and decisions made during suppression, may have some adverse effects, even in cases where the net effect is beneficial.

The Recovery Plan (USFWS 1995) 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% where timber harvest has not occurred in the past 20 years, and all reserved lands. PACs 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% of the foraging area of an owl. The management guidelines for protected areas from the Recovery Plan are to take precedence for activities within protected 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”.

The range of the Mexican spotted owl in the United States has been divided into six recovery units (RUs) as identified in the Recovery Plan (USFWS 1995, Part IIB.). An additional five RUs were designated in Mexico. The Recovery Plan identifies recovery criteria by RU. The upper Gila Mountain RU has the greatest known concentration of owl sites in the United States. This RU is considered a critical nucleus for the owl because of its central location within the owl's range, and the presence of over 50% of the known owls. The other RUs in the United States, listed in decreasing order of known number of owls, are: Basin and Range-East, Basin and Range-West, Colorado Plateau, Southern Rocky Mountain-New Mexico, and Southern Rocky Mountain-Colorado.

At the end of the 1995 field season, the Forest Service reported a total of 866 management territories (MTs) established in locations in Arizona and New Mexico where at least a single Mexican spotted owl had been identified (U.S. Forest Service, *in litt.* November 9, 1995). The information provided at that time also included a summary of territories and acres of suitable habitat in each RU. Subsequently, a summary of all territory and monitoring data for the 1995 field season on Forest Service lands was provided to the Service on January 22, 1996. The Forest Service has converted some MTs into PACs following the recommendations of the Recovery Plan. The completion of these conversions has typically been driven by project-level consultations with the Service and varies by National Forest.

A total of 527 projects have undergone formal consultation for the owl. Of that aggregate, 259 projects resulted in a total anticipated take of 494 spotted owls, plus an additional unquantifiable number of owls. These consultations have primarily dealt with actions proposed by the Forest

Service, Region 3, but have also addressed the impacts of actions proposed by the Bureau of Indian Affairs, Department of Defense (including Air Force, Army, and Navy), Department of Energy, National Park Service, and Federal Highway Administration. These proposals have included timber sales, road construction, fire/ecosystem management projects (including prescribed natural and management ignited fires), livestock grazing, recreation activities, utility corridors, military and sightseeing overflights, and other construction activities.

## ENVIRONMENTAL BASELINE

The environmental baseline includes past and present impacts of all Federal, State, or private actions in the action area, the anticipated impacts of all proposed Federal actions in the action area that have undergone formal or early section 7 consultation, and the impact of State and private actions which are contemporaneous with the consultation process. The environmental baseline defines the current status of the species and its habitat to provide a platform from which to assess the effects of the action now under consultation.

### Description of the Action Area

The majority of the area burned was within the Sierra Ancha Wilderness. The primary vegetation types within the action area were Rocky Mountain montane coniferous forests (>75%) and interior chaparral. Forest types impacted included various ponderosa pine (*Pinus ponderosa*) and mixed conifer associations. Species present within forest associations included ponderosa pine, Douglas-fir (*Pseudotsuga menziesii*), white fir (*Abies concolor*), Gambel oak (*Quercus gambelii*), bigtooth maple (*Acer grandidentatum*), Arizona white oak (*Q. arizonicus*), emory oak (*Q. emoryii*), alligator juniper (*Juniperus depeana*), and a variety of shrub species. Chaparral was dominated by manzanita (*Arctostaphylos pungens*) and shrub live oak (*Q. turbinella*), with numerous other shrub species present.

### Status of the Species Within the Action Area

The Coon Creek Fire was within the Basin and Range-West RU. The fire directly affected 5 of the 15 PACs in the Sierra Ancha Mountains, including the Workman Creek, Devil's Chasm, Pueblo Canyon, Coon Creek, and Cold Springs PACs. These PACs have been monitored in the past (Table 1); however, due to the remoteness of the area and the rarity of management activities, monitoring has not been given a high priority by the Forest.

Wildfires within owl habitat during the breeding season may result in the direct death of adult and young Mexican spotted owls. Death of Mexican spotted owls may also occur due to loss of nest/roost trees caused by crown fires. If a wildfire occurs in such habitat during the breeding season, the fire may result in the loss of owl nests, as well as young owls that may not be able to fly to safety. In addition, the effects of smoke on adult and young owls is largely unknown and may directly affect the health of owls or the ability of owls to forage successfully, and therefore may affect the ability of adults to survive and/or successfully fledge young. The result of a

Table 1. Monitoring results<sup>1</sup> for Mexican spotted owl protected activity centers (PACs) within the action area from 1990-2001.

PAC name	Year											
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Workman Creek	O-NU	O-2Y	O-2Y	O-2Y	O-NU	NI	NI	NI	NI	P <sup>2</sup>	P <sup>2</sup>	NI
Devil's Chasm	NI	NI	P	O-NU	O-NU	NI	NI	NI	NI	NI	O-NU	NI
Pueblo Canyon	NI	NI	NI	P	O-NU	NI	NI	NI	P <sup>3</sup>	NI	NI	NI
Coon Creek	NI	NI	NI	NI	O-NU	NI	NI	NI	NI	NI	IM-NR	NI
Cold Springs	NI	NI	NI	NI	O-NU	NI	NI	NI	NI	NI	O-NU	NI

<sup>1</sup>O = Pair occupancy inferred or confirmed; P = Presence of a single owl inferred or confirmed; sex unknown; Y = Number of young fledged; NI = No information; NU = Nesting status undetermined; IM-NR = Informally monitored - no response or location.

<sup>2</sup>Single owl detected approximately 0.25 mile outside of PAC boundary; no owls detected within PAC.

<sup>3</sup>pers. comm., M. Jakle, U.S. Fish and Wildlife Service.



stand-replacement wildfire in large areas of nest/roost habitat may result in the loss of the use of that habitat by Mexican spotted owls for many years.

Wildfire may also reduce prey abundance through direct mortality and through the loss of prey habitat components such as herbaceous cover, down logs, and snags. The effects of fire on the prey base of the Mexican spotted owl are complex and are likely dependent on the prey species, variations in fire characteristics, and habitat characteristics.

The Coon Creek PAC was largely lost to wildfire before suppression efforts began. Approximately 75% of this PAC experienced a crown fire that killed all trees. A small stringer of coniferous vegetation in the vicinity of the historic roost site survived; however, this stand experienced a very hot underburn that likely affected stand structure and prey habitat. The status of the owls that inhabited this PAC is unknown, although informal monitoring in 2000, approximately 2 months after the fire, failed to detect owls.

Fire burned approximately 33% of both the Pueblo Canyon and Cold Springs Canyon PACs; however, neither of the activity centers (Cold Springs Canyon - roost; Pueblo Canyon - audio site) burned. The Devil's Chasm PAC was entirely within the fire's perimeter, although it is unknown whether the roost site within this PAC burned. Approximately 1 month following the fire, audio responses from two adult owls were obtained in both the Cold Springs Canyon and Devil's Chasm PACs. No information is available regarding the post-fire status of the Pueblo Canyon PAC.

Approximately 50% of the Workman Creek PAC burned, primarily from a backing fire from the south being met by an understory backfire lit from a fire line. The historic nest location and a number of roost sites were located within the fire's perimeter. Approximately 2 months after the fire, a single owl was found near the PAC (approximately 0.25 mile outside of the boundary) in the same location where a single owl was located the preceding year, outside of the burn area.

No monitoring was conducted in 2001 within any of the PACs affected by the Coon Creek Fire.

### **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. Interrelated actions are those that are part of a larger action and depend on the larger action for their justification. Interdependent actions are those that have no independent utility apart from the action under consideration. Indirect effects are those that are caused by the proposed action and are later in time, but are still reasonably certain to occur.

In addition to the direct loss of owl nest/roost habitat caused by a wildfire, effects to owls may also be caused by the actions taken to suppress the fire. In most cases it is difficult to differentiate effects caused by wildfire and those caused by suppression actions. In addition, while it is

probable that additional habitat damage would have resulted had suppression actions not been taken, it is impossible to assess what may have happened in the absence of suppression activities. Thus, the discussion that follows describes the effects that may have resulted from the emergency action. We acknowledge that some of these possible effects may also have occurred in absence of suppression activities.

Suppression actions that may have affected the Mexican spotted owl included the construction of hand line, back-burning to contain the wildfire and prevent its further growth, and the use of low-flying aircraft for the delivery of fire retardant and water. Further, the high-level of human presence (>700 fire personnel) may have caused disturbance to spotted owls. Disturbance may have been caused by fire resource personnel digging fire lines, walking and igniting vegetation with drip torches, and monitoring fire conditions from the ground or air. Suppression activities occurred early in the Mexican spotted owl breeding season. Human disturbance during the breeding season may result in failed reproductive efforts, abandonment of the nest, and/or starvation of young.

Hand-line construction may result in spotted owl habitat modification and a significant loss of key habitat components. Trees removed as a result of hand-line construction may lead to the loss of nest and/or roost trees, and possibly even active nests. Additional effects could include microclimate alteration and increased edge effects along fire lines.

Burnout and backfiring operations may include backfiring from a control point or line, falling dangerous trees and/or snags with potential to spread flames up slopes, clearing or piling brush and downed fuel near the control feature, and limbing and thinning trees to reduce ladder fuels. In certain situations, pre-burn preparation is not possible to implement, and the line is set on fire downslope to burn fuels in the path of an approaching wildfire, resulting in the consumption and removal of fuels. Back-burning conducted in Mexican spotted owl habitat can result in loss of key habitat components, contribute to general disturbance and smoke inhalation, and possibly result in the death of owls.

Noise from all air operations, especially frequent low-level flights, can contribute to the disturbance of spotted owls. Studies of the effects of aircraft overflights on raptors have generally noted a slight but non-significant decrease in reproductive success and number of young fledged at sites exposed to overflights versus control sites without overflights (Delaney *et al.* 1997). Low-level helicopter flights have the greatest potential to disturb owls (Delaney *et al.* 1997), because they move slowly and are relatively noisy. Delaney *et al.* (1999) evaluated the effects of the Sikorsky, HH-60G, and Pave Hawk helicopter overflights on Mexican spotted owls in the Lincoln National Forest, New Mexico. Owl territories were randomly presented with one of three helicopter flight profiles, including 50 feet vertical, 100 feet vertical/100 feet lateral, and 200 feet vertical. Territories with overflights did not differ in reproductive success from territories without overflights. As the distance to the helicopter decreased, owl flush response increased. Owls did not flush in response to helicopters beyond 345 feet, and no owls flushed during the incubation and nestling phases. Flush responses occurred at a rate of 14% within 345 feet, 19%

within 200 feet, and 50% within 100 feet. Flushing responses also did not occur when noise levels were less than 92 dBA; however, distance to the helicopter was a better predictor of spotted owl response than sound level. Net differences in prey deliveries for the 24-hour periods after and before noise manipulations were highly correlated with stimulus distance. Delaney *et al.* (1999) estimated that the threshold for negative effect on prey deliveries was 315 feet. On average, an alert response (i.e., head movements) was elicited when helicopters approached within 1,330 feet, but no response was noted when helicopters were beyond 2,165 feet from an owl. Short duration, single pass aircraft flights appeared to have little effect on spotted owls; diurnal flights affected owls less than nocturnal flights; and although multiple low-level flights were not recommended, the authors believed spotted owls would habituate with repeated exposures and as the nesting season progressed (Delaney *et al.* 1997, 1999). Although the effects of overflights may vary with locations, specific conditions, and aircraft type, the following management implications emerged from the results of Delaney *et al.* (1997, 1999):

1. A 345-foot hemispherical management/protective zone should minimize, and possibly eliminate, spotted owl flush response and negative effects to prey delivery rates associated with helicopter overflights.
2. Flights over owls should be separated by at least seven days.
3. Overflights should be limited to diurnal flights if possible, and nocturnal flights, particularly within three hours of sunrise or sunset, should be minimized.
4. Helicopter flights near roosts or nests that are single pass and of short duration may be less disturbing than other flight maneuvers such as circling, hovering, landing, etc.

The Recovery Plan does not provide recommendations on overflights; however, Service policy is to limit disturbing activities within 1,320 feet of nest sites during the breeding season (March 1-August 31). This corresponds well with the Delaney *et al.*'s 1,330-foot threshold for alert responses to helicopter flights. In addition to disturbance by low-level aircraft, Mexican spotted owls could also be impacted through death or injury by water or retardant drops if nests or roosts receive direct hits.

Suppression activities within the Pueblo Canyon, Cold Springs Canyon, and Devil's Chasm PACs were limited to hand line construction at the heads of the canyons and a "great deal" of aerial retardant application along the canyon rims. Owls were likely disturbed by the frequent passing of low-level aircraft.

A hand line was constructed that bisected the Workman Creek PAC and was located approximately 0.25 mile west of the known nest location; however, the total area of habitat disturbance resulting from hand-line construction was small. A backfire was lit from this line, which accounted for 25% of the area burned within this PAC. Due to environmental conditions, the backfire burned hotter than desirable, potentially reducing key habitat components and

reducing the prey base. Aerial retardant drops were made on the ridge line that forms the southern boundary of this PAC.

A pair of owls was detected post-fire in both the Cold Springs Canyon and Devil's Chasm PACs, and a single owl was detected in the Workman Creek PAC. However, monitoring efforts were insufficient to determine the reproductive status of the owl pairs in the Cold Spring Canyon and Devil's Chasm PACs either pre- or post-fire. Therefore, the possibility remains that suppression activities resulted in nest loss or abandonment within these PACs. Further, no monitoring data exists regarding the pre- or post-fire status of the Pueblo Canyon PAC, and suppression activities may have resulted in the loss of occupancy by adult birds and/or nest abandonment.

No protected/restricted habitat analysis has occurred within the action area because the area is remote and no management activities have been proposed there. Areas not delineated as PACs likely contained areas meeting the definitions of protected and/or restricted habitat under the Recovery Plan. Suppression activities, including hand line construction, retardant delivery, and backfiring, likely affected these habitats. Hand line construction and retardant delivery, however, likely impacted only a small portion of the available habitat. Further, according to the BA, backfiring was conducted in such a way as to have minimal effects on stand structure.

### **CUMULATIVE EFFECTS**

Cumulative effects include the effects of future State, local, or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions are subject to the consultation requirements established under section 7 and, therefore, are not considered cumulative to the proposed action. Non-Federal future actions within the project area that are reasonably certain to occur include recreation, grazing, and other associated actions on private and State lands. These activities have the potential to reduce the quality of Mexican spotted owl nesting, roosting, and foraging habitat, cause disturbance to breeding Mexican spotted owls, and therefore contribute as cumulative effects to the proposed action. However, because of the predominant occurrence of Mexican spotted owls on Federal lands in this area, and because of the role of the respective Federal agencies in administering the habitat of the Mexican spotted owl, actions to be implemented in the future by non-Federal entities on non-Federal lands are considered to be of minor impact.

### **CONCLUSION**

After reviewing the current status of the Mexican spotted owl, the environmental baseline for the action area, the effects of the action, and the cumulative effects, it is our biological opinion that the suppression action conducted for the Coon Creek Fire did not likely jeopardize the continued existence of the Mexican spotted owl and did not likely result in destruction or adverse modification of critical habitat. These conclusions are based on the following:

1. Two adult Mexican spotted owls were detected post-fire in the Devil's Chasm and Cold Springs Canyon PACs.
2. A single owl was detected post-fire near the Workman Creek PAC in the same location as the previous year.
3. A lack of survey information exists to determine whether owls abandoned the Pueblo Canyon PAC.
4. The Coon Creek PAC was lost to wildfire before the initiation of suppression activities.
5. No critical habitat exists in the action area.

### **INCIDENTAL TAKE STATEMENT**

Sections 4(d) and 9 of ESA, as amended, prohibit taking (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or attempt to engage in any such conduct) of listed species of fish or wildlife without a special exemption. Harm is further defined 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 (50 CFR 17.3). Harass is defined as actions that create 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 or sheltering. Incidental take is any take of listed animal species that results from, but is not the purpose of, carrying out an otherwise lawful activity conducted by the Federal agency or the applicant. 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 provided that such taking is in compliance with the terms and conditions of this incidental take statement.

#### **Amount or Extent of Take Anticipated**

We cannot conclude with reasonable certainty that fire suppression actions resulted in the take of any Mexican spotted owls. We base this determination on the documented post-fire occurrence of an owl pair in both the Cold Springs Canyon and Devil's Chasm PACs, and a single owl near the Workman Creek PAC. However, a lack of information in regards to the reproductive status of the owl pairs in the Cold Springs Canyon and Devil's Chasm PACs, and a lack of monitoring data for the Pueblo Canyon PAC preclude our ability to assess with reasonable certainty any loss of occupancy or reduction in nesting success resulting from suppression activities.

### **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. 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.

1. Each of the Mexican spotted owl PACs potentially affected by the Coon Creek Fire should be monitored annually for at least five years. The results of this monitoring should be provided to us.
2. The Forest Service should continue surveying the unsurveyed restricted and protected Mexican spotted owl habitat on the Tonto National Forest.
3. Monitoring and/or research opportunities to determine actual effects to, and recovery of, Mexican spotted owl habitat from the wildfire, and particularly in relation to future occupancy of spotted owl, should be pursued by the Forest Service.
4. The Forest Service should pursue the completion of a forest-wide consultation on wildland fire use for resource benefit and wildfire suppression activities.

### **REINITIATION NOTICE**

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

To avoid the need for future emergency fire consultations, we would like to work with the Forest on development of a programmatic consultation to address fire suppression. Wildfires are acts of God, and are therefore emergency actions pursuant to 50 CFR 402.05. However, fire suppression as a program is an ongoing activity requiring consultation; it also lends itself well to a programmatic approach. We believe we could craft a programmatic consultation that would provide efficient section 7 coverage for your fire suppression program in regard to the Mexican spotted owl and other listed species and critical habitat. We have assigned log number 2-21-00-F-243 to this consultation. Please refer to that number in future correspondence on this

consultation. If we can be of further assistance in this matter, please contact Suzie Hatten (x225) or Jim Rorabaugh (x238) of my staff.

Sincerely,

/s/ David L. Harlow  
Field Supervisor

cc: Regional Director, Fish and Wildlife Service, Albuquerque, NM (ARD-ES)  
Assistant Field Supervisor, Fish and Wildlife Service, Tucson, AZ  
Shaula Hedwall, Fish and Wildlife Service, Flagstaff, AZ

Director, Arizona Game and Fish Department, Phoenix, AZ  
Regional Supervisor, Arizona Game and Fish Department, Mesa, AZ

**LITERATURE CITED**

- Barrowclough, G.F. and R.J. Gutierrez. 1990. Genetic variation and differentiation in the spotted owl (*Strix occidentalis*). *Auk* 107:737-744.
- DeLaney, D.K., T.G. Grubb, P. Beier, L.L. Pater, M. Hildegard Reiser. 1999. Effects of helicopter noise on Mexican spotted owls. *Journal of Wildlife Management* 63:60-76.
- DeLaney, D.K., T.G. Grubb, and L.L. Pater. 1997. Effects of helicopter noise on nesting Mexican spotted owls. A report to U.S. Air Force 49 CES/CEV, Holloman Air Force Base. Project order No. CE P.O. 95-4. 49 pp.
- Fletcher, K.W. 1990. Habitats used, abundance, and distribution of the Mexican spotted owl, *Strix lucidus occidentalis*, on National Forest system lands. USDA Forest Service, Southwestern Region, Albuquerque, NM. 55 pp.
- Fletcher, K. and H. Hollis. 1994. Habitat used, abundance, and distribution of the Mexican spotted owl, *Strix occidentalis lucida*, on National Forest System Lands. U.S. Forest Service, Southwestern Region, Albuquerque, New Mexico. 78 pp.
- Forsman, E.D., E.C. Meslow, and H.M. Wight. 1984. Distribution and biology of the spotted owl in Oregon. *Wildlife Monographs* 87:1-64.
- Ganey, J.L. 1988. Distribution and habitat ecology of Mexican spotted owls in Arizona. MS Thesis. Northern Arizona University, Flagstaff, Arizona.
- Ganey, J.L. and R.P. Balda. 1989. Distribution of habitat use of Mexican spotted owls in Arizona. *Condor* 91:355-361.
- Ganey, J.L. and R.P. Balda. 1994. Habitat selection by Mexican spotted owls in Northern Arizona. *The Auk* 111:162-169.
- Ganey, J.L., W.M. Block, J.K. Dwyer, B.E. Strohmeyer, and J.S. Jenness. 1998. Dispersal, movements, and survival rates of juvenile Mexican spotted owls in Northern Arizona. *Wilson Bulletin* 110:206-217.
- Seamans, M.E. and R.J. Gutierrez. 1995. Breeding habitat of the Mexican spotted owl in the Tularosa Mountains, New Mexico. *The Condor* 97:944-952.
- U.S. Fish and Wildlife Service. 1991. Mexican spotted owl status review. Endangered species report 20. Albuquerque, New Mexico.
- U.S. Fish and Wildlife Service. 1993. Endangered and threatened wildlife and plants; final rule to list the Mexican spotted owl as threatened. *Federal Register* 58:14248-14271.



U.S. Fish and Wildlife Service. 1995. Mexican spotted owl recovery plan. Albuquerque, New Mexico.

U.S. Fish and Wildlife Service. 2001. Endangered and threatened wildlife and plants; final designation of critical habitat for the Mexican spotted owl. Federal Register 66(22):8530-8553.

Ward, J.P. Jr., and W.M. Block. 1995. Mexican spotted owl prey ecology. *In* Mexican Spotted Owl Recovery Plan. U.S. Department of the Interior, Fish and Wildlife Service, Albuquerque, New Mexico.

White, G.C., A.B. Franklin, and J.P. Ward, Jr. 1995. Population Biology. *In* Mexican Spotted Owl Recovery Plan. U.S. Department of the Interior, Fish and Wildlife Service, Albuquerque, New Mexico.

Willey, D.W. 1993. Home range characteristics and juvenile dispersal ecology of Mexican spotted owls in southern Utah. Final Report 1992-93. UDWR Contract No. 91-2577, Amendment No. 1.