



United States Department of the Interior

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Cons. # 22420-2006-FE-121
#2-22-05-M-204

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Gila National Forest
3005 E. Camino del Bosque
Silver City, New Mexico 88061

Dear Ms. Andre:

This responds to your April 13, 2006, 2002, letter (letter) requesting formal emergency consultation for the management of the naturally-ignited Fork Fire on the Reserve District, Gila National Forest (Forest). The Biological Assessment (BA) evaluates the impacts of actions implemented during the management of the fire on the Mexican spotted owl (*Strix occidentalis lucida*) (MSO) and its critical habitat, the Chiricahua leopard frog (*Rana chiricahuensis*) (frog), the loach minnow (*Tiaroga cobitis*), and the nonessential experimental population of the Mexican gray wolf (*Canis lupus baileyi*) (wolf). You determined that the completed action "may affect, is likely to adversely affect" the Mexican spotted owl and its designated critical habitat. The Forest requested concurrence with the determination of "may affect, is not likely to adversely affect" the frog and the determination of "not likely to jeopardize" the wolf.

The U.S. Fish and Wildlife Service (Service) concurs with the Forest's determination of "may affect, is not likely to adversely affect" the frog and the loach minnow for the following reasons:

Frog

Management ignited fire associated with the Fork Fire burned at low intensities along the North Fork of Negrito Creek, except an 85-acre area that burned a mosaic pattern at moderate intensities. The moderate intensity burn was 1.3 miles upstream of occupied frog habitat. Field surveys revealed negligible amounts of ash moved off slope into ephemeral drainages following rains. For this reason, the emergency action was insignificant and discountable. Therefore, we concur with your determination that the emergency actions associated with the Fork Fire "may affect, is not likely to adversely affect" the frog.

Loach minnow

No occupied loach minnow habitat occurs within the boundaries of the Fork Fire. The entire area burned by the fire drains into Negrito Creek by way of the North and South Fork Negrito Creek. The lower reach of Negrito Creek from the confluence with the Tularosa River upstream to Cerco Canyon (4.2 miles) is occupied by loach minnow. Nevertheless, Cerco Canyon is about 9.5 miles from the boundary where the Fork Fire burned, indicating that downstream effects from ash flow are highly unlikely. For this reason, we concur with your determination of “may affect, is not likely to adversely affect” the loach minnow.

Wolf

Dispersing wolves may have been disturbed during the implementation of the management ignited portions of the Fork Fire. These disturbances were relatively short duration. Due to the mobility of the wolf, animals were likely able to avoid the burning areas. The wolf population has been designated as non-essential experimental, pursuant to section 10(j) of the Act. Therefore, activities associated with the Fork Fire within the 10(j) area will not jeopardize the continued existence of the wolf. For these reasons, we concur with your determination that the actions associated with the Fork Fire were “not likely to jeopardize” the wolf.

This biological opinion (BO) does not rely on the regulatory definition of “destruction or adverse modification” of critical habitat at 50 CFR 402.02. Instead, we have relied upon the statute and the August 6, 2004, Ninth Circuit Court of Appeals decision in Gifford Pinchot Task Force v. USDI Fish and Wildlife Service (CIV No. 03-35279) to complete the following analysis with respect to critical habitat. This consultation analyzes the effects of the action and its relationship to the function and conservation role of MSO critical habitat to determine whether the current proposal destroys or adversely modifies critical habitat. This document represents our BO for the MSO and its designated critical habitat in accordance with section 7 of the Endangered Species Act of 1973, as amended (Act).

Consultation History

Consultation began on June 3, 2005, when the Forest Service contacted the Service to initiate emergency consultation on wildfire. This BO is based on information provided in the April 13, 2006. BA, other information available to the Service, email and telephone conversations with your staff, data in our files; data presented in the Recovery Plan (USDI Fish and Wildlife Service 1995); literature review; and other sources of information including the final rules to list the MSO as threatened (USDI Fish and Wildlife Service 1993; 58 FR 14248) and the final rule to designate critical habitat (USDI Fish and Wildlife Service 2004; 69 FR 53182). References cited in this BO are not a complete bibliography of all literature available on the MSO or cactus, the proposed action, or on other subjects considered in this BO. A complete administrative record of this consultation is on file at this office.

BIOLOGICAL OPINION

I. Description of the emergency action

The management activities are a result of the Fork wildfire that burned from May 30 to about July 16, 2005. The fire was managed as a wildland use fire for a resource benefit (WUFRB) and burned through 11,940 acres. Vegetation types within the burned area were ponderosa pine, mixed conifer, oak woodlands, pinyon-juniper, and grasslands. The Fork Fire burned with a low-intensity ground fire on about 10,300 acres within Catron County, New Mexico. Within about 1,290 acres the fire burned at moderate intensities in a mosaic pattern on 5 to 20 acre patches and burned at high intensity on about 350 acres. The fire was managed to achieve the resource objectives of reducing dead and downed fuels and ladder fuels, assist in restoring a fire-adapted ecosystem, and to reduce the risk of catastrophic wildfire (i.e., a large-scale stand replacing wildfire). The Forest Service established management action points, where an escalation or alteration of management actions would be warranted.

As described below (see also Table 1), the Fork Fire and related management-ignited fires burned within five PACs: 0606076, 0606077, 0606078, 0606079, and 0606080. On June 16 and 17, 2005, the Forest Service ignited two fires on ridgetops within two MSO protected activity centers (PACs) (0606076 and 0606077), after the naturally ignited part of the WUFRB began to burn upslope within these areas. The two management-ignited fires burned at low intensities. On June 18, 2005, the naturally ignited part of the WUFRB reached a management action point, which required the continued burning out of an area along the North Fork of Negrito Creek. Approximately 305 acres of PAC number 0606078 were then burned.

On July 5 and 6, 2005, the Forest Service ignited another fire along Pasture Canyon to prevent the fire from spreading into private lands. About 285 acres were burned at moderate intensities along the 2.5 miles of Pasture Canyon, within mainly ponderosa pine habitat. Additionally, the Forest Service ignited a fire above Pasture Canyon within MSO PACs 0606079 and 0606080. A low-intensity fire burned through about 400 acres within PAC 0606079. Within the same PAC, about 85 acres burned in a mosaic pattern at moderate intensities. A low-intensity fire burned through about 390 acres within PAC 0606080.

Table 1. Acres of PACs burned by management ignited fires.

PAC Number	Acres Burned	
	Low Intensity	Moderate Intensity
060676	562	
060677	723	
060678	305	
060679	401	87
060680	387	

The management ignited fires burned about 2,465 acres within PACs and 190 acres of protected or restricted MSO habitat. The 190 acres of protected or restricted habitat contained one or more

primary constituent elements of critical habitat. The Forest Service estimated that about 2,655 acres of designated critical habitat was burned, with approximately 2,500 acres burning at low intensity and 150 acres burning at moderate intensity. Management-ignited fires did not result in any stand replacing fires within MSO habitat.

II. Status of the species (range-wide)

a. Species/critical habitat description

The MSO was listed as threatened on March 16, 1993 (USDI Fish and Wildlife Service 1993). The Service was ordered to re-propose critical habitat by April 13, 2004, the final rule on MSO critical habitat was published on August 31, 2004 (USDI Fish and Wildlife Service 2004).

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 MSO is distinguished from the California and northern subspecies by plumage, genetic makeup, and geographic distribution. This MSO 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 the Front Range of central Colorado. The owl's distribution is fragmented throughout its range, corresponding to forested mountains and rocky canyon lands (USDI 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).

There are approximately 8.6 million ac (3.5 million hectares [ha]) 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 (USDI Fish and Wildlife Service 1995). Protected habitat is defined as occupied 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.

Protected and restricted habitat are two of the three types of MSO habitat discussed in the Recovery Plan and these habitat types were used as the basis for defining critical habitat (69 FR 53182). Protected areas include known MSO sites (i.e., PACs), areas in mixed-conifer and pine-oak types with greater than 40 percent slopes where timber harvest has not occurred in the past 20 years and administratively reserved lands, such as Wilderness Areas or Research Natural Areas. Restricted habitat includes mixed-conifer forest, pine-oak forest, and riparian areas outside of protected areas. Canyon habitats may also be used for nesting and roosting, and are

typically characterized by cooler conditions found in steep, narrow canyons, often containing crevices, ledges, and/or caves. These canyons frequently contain small clumps or stringers of ponderosa pine, Douglas-fir, white fir, and/or pinyon-juniper. Because MSO habitat may also exhibit a combination of attributes, we designated primary constituent elements for both forested and canyon types of critical habitat. Canyon habitat is not located within the Reserve Ranger District. Therefore, we have only listed primary constituent elements for forested critical habitat.

Forested Critical Habitat

Within forests, the following are considered primary constituent elements:

1. A range of tree species, including mixed conifer, pine-oak, and riparian forest types, composed of different tree sizes reflecting different ages of trees, 30 percent to 45 percent of which are large trees with a trunk diameter of 12 inches (0.3 meters) or more when measured at 4.5 feet (1.4 meters) from the ground;
2. A shade canopy created by the tree branches covering 40 percent or more of the ground; and
3. Large dead trees (snags) with a trunk diameter of at least 12 inches (0.3 meters) when measured at 4.5 feet (1.4 meters) from the ground.

The primary constituent elements related to maintenance of adequate prey species include:

1. High volumes of fallen trees and other woody debris;
2. A wide range of tree and plant species, including hardwoods; and
3. Adequate levels of residual plant cover to maintain fruits, seeds, and allow plant regeneration.

b. Life history

The MSO occupies a broad geographical area, but does not occur uniformly throughout its range (USDI Fish and Wildlife Service 1995). Instead, the MSO occurs in disjunct localities that correspond to isolated mountain systems and canyons. The MSO is frequently associated with mature mixed-conifer, pine-oak, and riparian forests (Ganey 1988, Skaggs and Raitt 1988, Ganey and Balda 1989, Gutierrez and Rinkevich 1991, Willey 1993, Fletcher and Hollis 1994, Ganey and Dick 1995, Gutierrez et al. 1995, Seamans and Gutierrez 1995, Ward et al. 1995). Mature mixed-conifer forests are mostly composed of Douglas-fir (*Pseudotsuga menziesii*), white fir (*Abies concolor*), limber pine (*Pinus flexilis*) or blue spruce (*Picea pungens*). Pine-oak forests are mostly composed of ponderosa pine (*Pinus ponderosa*) and Gambel oak (*Quercus gambellii*).

Riparian forests are dominated by various species of broadleaved deciduous trees and shrubs (USDI Fish and Wildlife Service 1995). Riparian forests function as important components of ecosystems supporting MSO. These communities, particularly mature, multilayered forests, can

be important linkages between otherwise isolated subpopulations of MSOs (USDI Fish and Wildlife Service 1995). 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 MSOs. Historical evidence shows that MSOs once nested in riparian habitats (USDI Fish and Wildlife Service 1995).

MSOs breed sporadically and do not nest every year (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). MSOs are usually silent from December through February (Gutierrez et al. 1995). Courtship 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 (Delaney et al. 1999). The incubation is approximately 30 days and performed entirely by the female (Ganey 1988, Forsman et al. 1984). Foraging is entirely by males 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).

MSOs are highly selective for roosting and nesting habitat, but forage in a wider array of habitats (USDI Fish and Wildlife Service 1995, Ganey and Balda 1994, Seamans and Gutierrez 1995). Roosting and nesting habitat exhibit certain identifiable features, including large trees with trunk diameters greater than 12 inches (in) (30.5 centimeters [cm]), high tree basal area, uneven-aged tree stands, multi-storied canopy, moderate to high canopy closure, and decadence in the form of downed logs and snags (Ganey and Balda 1989, Ganey and Dick 1995, Grubb et al. 1997, Tarango et al. 1997, Peery et al. 1999, Ganey et al. 2000, Geo-Marine 2004). Canopy closure is typically greater than 40 percent (Ganey and Balda 1989, Zwank et al. 1994, Grubb et al. 1997, Tarango et al. 1997, Ganey et al. 1998, Young et al. 1998, Ganey et al. 2000, Geo-Marine 2004).

All nests reported by Zwank et al. (1994), Seamans and Gutierrez (1995), and Geo-Marine (2004) were in mixed-conifer or Douglas-fir habitat. Roost and nest trees were the oldest and largest within tree stands (Ganey and Balda 1989, 1994, Seamans and Gutierrez 1995). MSOs use areas that contain a number of large trees of different types including mixed-conifer and pine-oak with smaller trees under the canopy of the larger trees. These types of areas provide vertical structure and high plant species richness that are important to MSOs (Ganey and Dick 1995, Seamans and Gutierrez 1995, Ganey et al. 2003). Tarango et al. (1994) and Ganey et al. (2000) recorded seven or more tree species at roost sites. Therefore, mixed-conifer dominated by Douglas-fir, pine-oak, and riparian forests with high tree diversity are important to the MSO.

Juvenile MSOs disperse from their natal territories in September and October, into a variety of habitats ranging from high-elevation forests to pinyon-juniper woodlands and riparian areas surrounded by desert grasslands (Gutierrez et al. 1995, Arsenault et al. 1997, Willey and c. Van Riper 2000). Observations of long-distance juvenile dispersal provide evidence that they use widely spaced islands of suitable habitat which are connected at lower elevations by pinyon-juniper and riparian forests. MSOs have been observed moving across open low desert

landscapes between islands of suitable breeding habitat (Arsenault et al. 1997, Ganey et al. 1998, Willey 1998). MSO movements were also observed between sky island mountain ranges in New Mexico (Gutierrez et al. 1995). As a result of these movement patterns, isolated populations may have genetic significance to the MSO's conservation (Keitt et al. 1995, Seamans et al. 1999, Willey and c. Van Riper 2000). Therefore, contiguous stands or islands of suitable mixed-conifer, pine-oak, and riparian forests are important to the MSO.

MSO foraging habitat includes a wide variety of forest conditions, canyon bottoms, cliff faces, tops of canyon rims, and riparian areas (Gutierrez and Rinkevich 1991, Willey 1993). Ganey and Balda (1994) reported that MSOs foraged more frequently in unlogged forests containing uneven-aged stands of Douglas-fir and white fir, with a strong component of ponderosa pine, than in managed forests.

The primary MSO prey species are woodrats (*Neotoma* spp.), peromyscid mice (*Peromyscus* spp.), and microtine voles (*Microtus* spp.) (USDI Fish and Wildlife Service 1995, Young et al. 1997, Delaney et al. 1999, Seamans and Gutierrez 1999). 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 (Sureda and Morrison 1998, Ward 2001). Sureda and Morrison (1998) and Ward (2001) found deer mice (*P. maniculatus*) to be more abundant and widespread in the 60 to 100 year old stands of mixed-conifer forests. Mexican voles (*M. mexicanus*) are associated with mountain meadows and high herbaceous cover, primarily grasses whereas, long-tailed voles (*M. longicaudus*) are found in dry forest habitats with dense herbaceous cover, primarily forbs, many shrubs, and limited tree cover (Ward 2001). High levels of MSO reproductive success and production may be due to prey abundance (Delaney et al. 1999). Ward and Block (1995) documented an increase in MSO production when moderate to high levels of woodrats, peromyscid mice, and voles, were consumed. A diverse prey base is dependant on availability and quality of diverse habitats. MSO prey species need adequate levels of residual plant cover, understory cover, and high log volume. Therefore, a wide variety of forest and vegetative conditions are important to the MSO and its prey.

c. Population dynamics

Historic population size estimates and range of the MSO are not known however, present population size and distribution are thought to be similar (USDI Fish and Wildlife Service 1995). Ninety-one percent of known MSOs existing in the United States between 1990 and 1993 occurred on land administered by the Forest Service (USDI Fish and Wildlife Service 1995). Most MSOs have been found within the 11 National Forests of Arizona and New Mexico. It is unknown why Colorado and Utah support fewer MSOs. In 2002, Forest Service reported 987 PACs in Arizona and New Mexico (USDA Forest Service, Southwestern Region 2002). Additional surveys are likely to document more MSOs on Forest Service and other lands. For example, Geo-Marine (2004) reported an additional 26 activity centers not previously designated by the Gila National Forest. Current information suggests that in addition to the 987 PACs on National Forest lands, there are 15 PACs in Colorado, 105 PACs in Utah, and 43 PACs on

National Park Service lands in Arizona, therefore, 1,176 PACs have been identified. Based on this number of MSO sites, we believe that the total known MSO numbers on Federal lands in southwestern United States range from 1,176 or 2,352, depending on whether one bird or a pair occupies a PAC. Seamans et al. (1999) reported evidence of 10 percent or greater population declines in central Arizona and west-central New Mexico. Both populations experienced lower survival rates in the late 1990's. Gutierrez et al. (2003) concluded that with four additional years of data on these same populations, the decline observed by Seamans et al. (1999) on the Arizona study area was temporary, whereas the decline in New Mexico appeared to be continuing. Wide population fluctuations may be common for populations of MSOs (Gutierrez et al. 2003).

The Upper Gila Mountain Recovery Unit (RU) has the largest known percent of MSO 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) (USDA 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 2003, Sorrentino and Ward 2003, Ward et al. 2003).

d. Status and distribution

Two primary reasons were cited for listing the MSO 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. 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 MSOs, increasing the likelihood of predation. Other threats identified in the Recovery Plan include the potential for increasing malicious and accidental anthropogenic harm (e.g., shooting and vehicle collisions), and for the barred MSO to expand its range, resulting in competition or hybridization with the MSO. The Recovery Plan outlines management actions that guide land management agencies in efforts to remove recognized threats and recover the MSO.

In Forest Service Region 3, 164 formal consultations have been completed or are in draft. These formal consultations identify anticipated take of MSOs in 360 PACs. The total number of PACs with anticipated incidental take is 77 for the Basin and Range East RU (USDI Fish and Wildlife Service 2006). Formal consultations have dealt with actions proposed by the Forest Service, Bureau of Indian Affairs, Department of Energy, Department of Defense (including the Air Force, Army, and Navy) and Federal Highway Administration. These proposals include timber sales, road construction, fire/ecosystem management projects (including prescribed natural and management ignited fires), livestock grazing, recreation activities, utility corridors, military over flights, construction activities, and wildlife research. Major threats, in order of potential effects, include (1) catastrophic, stand-replacement fires, (2) some forms of timber harvest, (3) fuelwood harvest, (4) grazing, (5) agriculture or development for human habitation, and (6) forest insects and disease (USDI Fish and Wildlife Service 1995).

In 1996, we issued a biological opinion on Region 3 of the Forest Service adoption of the Recovery Plan recommendations through an amendment to their Land and Resource Management Plans (LRMPs). In this non-jeopardy biological opinion, we anticipated that approximately 151 PACs would be affected by activities that would result in incidental take of MSOs, with approximately 91 of those PACs located in the Upper Gila Mountains RU. In addition, on January 17, 2003, we completed a reinitiation of the 1996 Forest Plan Amendments biological opinion, which anticipated the additional incidental take of five MSO PACs in Region 3 due to the rate of implementation of the grazing standards and guidelines, for a total of 156 PACs. Consultation on individual actions under these biological opinions resulted in the harm and harassment of approximately 243 PACs on Region 3 National Forest System Lands. Region 3 of the Forest Service reinitiated consultation on the LRMPs on April 8, 2004. On June 10, 2005, the FWS issued a revised biological opinion on the amended LRMPs. We anticipated that while the Region 3 Forests continue to operate under the existing LRMPs, take is reasonably certain to occur to an additional 10 percent of the known PACs on Forest Service lands. We expect that continued operation under the plans will result in harm to 49 PACs and harassment to another 49 PACs. To date, consultation on individual actions under the amended Forest Plans, as accounted for under the June 10, 2005, biological opinion has resulted in 15 PACs adversely affected (11 PACs harassed, 1 PAC harmed, and 2 PAC harmed and harassed), with 6 of those in the Upper Gila Mountains RU.

I. Environmental baseline

Regulations implementing the Act (50 CFR 402.02) define the environmental baseline as the past and present impacts of all Federal, State, or private actions and other human activities in the action area. 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.

a. Status of species within the action area

Mexican spotted owl

The Gila National Forest is within the Upper Gila Mountains Recovery Unit (RU) and within the 2004 designated critical habitat for the MSO (69 FR 51382). The RU lies within the area known as the Mogollon Rim, from north-central Arizona to west-central New Mexico. The RU contains 42 percent private lands, 44 percent Federal lands, 3 percent State lands, and 11 percent Tribal lands.

Currently, catastrophic wildfire is probably the greatest threat to MSO within the Upper Gila Mountains RU. Fuel reduction treatments have the potential to reduce the quality of MSO nesting, roosting, and foraging habitat, and may cause disturbance during the breeding season. Fuels reduction treatments, though critical to reducing the risk of catastrophic wildfire, can have short-term adverse effects to MSO through habitat modification and disturbance.

The dominant land uses within the RU include timber management and livestock grazing. Recreational activities such as off-road driving, skiing, hiking, camping, and hunting are locally common within the RU (USDI Fish and Wildlife Service 1995).

b. Factors affecting species environment within the action area

Mexican spotted owl

The Upper Gila Mountains RU is a topographically complex area consisting of steep foothills and high plateaus dissected by deep, forested drainages. MSO habitat associated with this RU consists of pinyon/juniper woodland, ponderosa pine/mixed-conifer forest, some spruce/fir forest, and deciduous riparian forest in mid- and lower-elevation canyon habitat. The Kaibab, Coconino, Apache-Sitgreaves, Tonto, Cibola, and Gila National Forests administer most habitat within this RU.

Throughout the West, fire intensity and size have been increasing within this geographic area. Several high-intensity fires have had a large influence on MSO habitat in this RU in the last decade including the Rodeo-Chediski, BS Canyon, and the Rhett Prescribed Natural Fire. At least 11 percent of the PAC habitat within the RU has been affected by high-to moderate-intensity, stand-replacing fire in the last ten years. Heavy fuel loads contributed to these large-scale fires, which likely caused relatively short-term (3 to 5 years) adverse impacts on soils and water resources from fire-induced erosion and increased sediment delivery to streams.

Critical Habitat

The action area encompasses critical habitat unit UGM-5a. This 666,481 acre unit is located in the Gila Mountains, north of Silver City, New Mexico. It contains primarily Gila National Forests lands. MSO critical habitat is limited to areas within the mapped boundaries that meet the definition of protected and restricted habitat as described by the MSO Recovery Plan and contains one or more primary constituent elements (USDI Fish and Wildlife Service 1995; 69 FR 53182).

Past and present Federal, State, private, and other human activities that have undergone informal consultation and conferencing and may affect the MSO and its habitat are as follows: WUI treatments, prescribed fire, vegetative thinning, livestock grazing, recreational activities, recreation developments, maintenance activities, power line construction, wildlife research projects, and catastrophic wildfires, their suppression and rehabilitation activities.

The Forest Service and adjacent private lands have conducted, and plan to conduct, a series of prescribed fires and other forest health projects on and adjacent to the Forest to reduce hazardous fuels, including the large-scale WUI fuels reduction program. Adverse effects on the MSO or its habitat may occur during implementation of these projects, even if the projects reduce the likelihood of a future high-severity wildland fire on the RU.

II. 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, which 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. Direct effects are the direct and immediate effects of the project on the species or its habitat. Direct effects result from the agency action including the effects of interrelated actions and interdependent actions. However, we only address and evaluate the effects of suppression and immediate rehabilitation activities that were conducted, not what may have happened in the absence of the actions.

The Fork WUFRB and associated management-ignited fires burned 2,650 acres of designated MSO critical habitat. Included in this estimate is 2,465 acres of MSO habitat within five PACs. During the management of this fire, possible sources of effects to MSO included noise and human activity, smoke, and fire.

Management-ignited fires to back burn areas and minimize the chance of a high-intensity stand fire occurred within five PACs. While it is probable that additional damage to MSO habitat would have resulted had management actions not been taken, it is impossible to assess what may have happened in the absence of these activities. Still, management activities, particularly the ignition of back-burns that were conducted within PAC numbers 0606076, 0606077, 0606078, 0606079, and 0606080 resulted in adverse effects to the MSO and its habitat. General impacts that likely occurred are summarized below.

Noise and Disturbance

Disturbance of MSO by noise and activity in the management of the Fork Fire likely occurred. The Forest Service assumed that MSOs were present within the five PACs, and were directly affected when the fires were ignited. Activities associated with managing this fire included the presence of personnel and the use of vehicles, chainsaws, and helicopters. Noise and activity can disturb the normal breeding, feeding, and sheltering behavior of MSO. Disturbance can result in reduced time at nests and caring for young, which could lead to lowered reproductive success. Disturbance can result in individuals feeding less efficiently in foraging areas, which could reduce survival. Disturbance can also result in individuals avoiding areas that would otherwise provide an appropriate microclimate and protection from predators. Alternatively, many of these impacts may be short-term (e.g., see Bond et al. 2002).

Smoke

Smoke inundation can disturb the normal breeding, feeding, and sheltering behavior of MSO. Since the fire occurred during breeding season, adults or juveniles in the area would likely have

been affected by smoke. This disturbance would have resulted in additional stress and disruption of normal feeding and sheltering. Smoke can make an otherwise appropriate microclimate that is also secure from predators uninhabitable, thus exposing individuals to a higher predation risk.

Suppression

Bulldozer and hand-line construction can result in modification of owl habitat. Use of bulldozers, chainsaws, and other equipment to remove fuels can also result in significant losses of key habitat components (Delaney et al. 1999). Trees removed as a result of fire line construction may have served as nest or roost trees. Additionally, noise from air operations (e.g., helicopters), especially low-flying aircraft dropping water or retardant, can contribute to the disturbance of owls.

Fire

Back-burning operations may include igniting from a control point or line, falling dangerous trees and/or snags that are potential fuels, clearing brush or downed fuels, and limbing or thinning trees to reduce ladder fuels. In certain situations, pre-burn preparation is not possible, and the fireline set on fire downslope to burn fuels in the path of an approaching wildfire, resulting in the consumption and removal of fuels. Back-burning in MSO habitat can result in loss of key habitat components, contribute to the general disturbance of MSO, and even result in the loss of individual MSOs.

Key components of MSO habitat that could be adversely affected by fire include: trees greater than 24 inches dbh, other large trees, snags, large down logs, and hardwoods. Following low-severity fire, vegetation structure remains unchanged and overstory vegetation is unburned. Unburned patches remain in the burn area. Following low-to-moderate-severity fire, foliage is partially scorched, but most overstory vegetation remains and there is limited overstory tree mortality. MSO habitat components are altered, at least for the short term. Snags and downed logs are partially burned, and most ground cover is burned. There may be some loss of trees, particularly in the smaller size classes, and reduced canopy closure. Species diversity may also be reduced, at least on a temporary basis. Low-to-moderate-severity fire changes the vegetation structure and composition of the understory, and consequently prey availability, for one or more years following the fire. Moderate-to-high and high-severity fire removes most, if not all, of the key habitat components of MSO habitat.

Following moderate-to-high and high-severity fire, there is a greater total loss of understory and overstory vegetation. MSO habitat components lost include downed logs; most trees in all size classes, including the largest trees; overstory and understory canopies; plant species richness; and residual vegetation. Because mineral soil is also altered with these fires, these changes are much longer term.

The key habitat components of MSO habitat in the Fork Fire were likely maintained where the fire burned at low severity (Table 1). The key habitat components in the MSO habitat that

burned at moderate severity were adversely affected to some degree, at least temporarily. None of the management ignited actions resulted in high intensity fires.

Mexican Spotted Owl Critical Habitat

The PCEs of MSO forest critical habitat that may have been adversely affected by fire include: high basal area of large-diameter trees; moderate to high canopy closure; wide range of tree sizes suggestive of uneven-aged 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 of residual plant cover to maintain fruits, seeds, and regeneration to provide for the needs of MSO prey species.

The PCEs of MSO critical habitat in the Fork Fire were likely maintained where the fire burned at low intensity (Table 1). The PCEs in the 148 acres of MSO critical habitat that burned at moderate intensity were adversely affected to an unknown degree, but in areas may have been completely lost. Major or complete loss of the PCEs of MSO critical habitat can affect MSO by reducing the quality of the habitat. Important functions of MSO critical habitat include providing a suitable microclimate, foraging opportunities, protection from predators, and protected nesting opportunities. Major losses of PCEs can reduce those functions to the point that the critical habitat can no longer support MSO and their efforts at reproduction.

II. Cumulative effects

Cumulative effects include the effects of future State, tribal, local, or private actions on endangered species that are reasonably certain to occur in the fire suppression action area considered in this BO. Future Federal actions that are unrelated to the actions are not considered because they require separate consultation pursuant to section 7 of the Act.

The area is interspersed by National Forest and non-Federal lands, existing infrastructure (e.g., powerlines), and developed campgrounds, where activities occur either seasonally or year-round. These activities reduce the quality and quantity of owl nesting, roosting and foraging habitat, and cause disturbance to breeding owls.

Conclusion

After reviewing the current status of the owl, the environmental baseline for the action area, the effects of the emergency action, and the cumulative effects, it is the Service's biological opinion that the emergency action did not likely jeopardize the continued existence of the owl and did not likely destroy or adversely modify designated owl critical habitat.

We found that the emergency actions had the potential to cause adverse effects to some areas of designated critical habitat. Nevertheless, it is believed that the impacts did not affect the function or intended conservation role of critical habitat unit UGM-5a relative to the conservation of the

MSO and to the overall critical habitat designation. The implementation of the actions were not expected to impede the ability of the survival or recovery of the MSO within the Upper Gila Mountain Recovery Unit or range-wide.

We provide the following reasons:

1. The 5 PACs that were impacted by management ignited fire and related suppression activities represent less than 1 percent of the 618 PACs identified in the Upper Gila Mountains RU, and less than 0.5 percent of the 980 PACs located in the Southwest region;
2. The low intensity fires that burned within 4 PACs adversely affected MSOs, but likely did not result in harassment or harm of individuals; and
3. The moderate-intensity fire burned about 12 percent of the MSO habitat within 1 PAC.
4. The PCEs of MSO critical habitat were likely maintained where the fire burned at low intensity, whereas the PCEs that burned at moderate intensity totaled 148 acres out of 8.6 million acres that were designated.

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, respectively, 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 impairing essential behavior 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 not limited to, breeding, feeding or sheltering. Incidental take is incidental to, and not the purpose of, the carrying out of 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 to be prohibited taking if taking meets the terms and conditions of this Incidental Take Statement.

For the purpose of evaluating incidental take of MSO from the action under consultation, incidental take can be anticipated as either the direct mortality of individual birds, or the alteration of habitat that affects behavior (i.e. breeding or foraging) of birds to such a degree that the birds are considered lost as viable members of the population and thus "taken." They may fail to breed, fail to successfully rear young, raise less fit young, or desert the area because of disturbance or because habitat no longer meets the owl's needs. In past Biological Opinions, we used the management territory to quantify incidental take thresholds for the MSO (see Biological Opinions provided to the Forest Service from August 23, 1993 through 1995). The current section 7 consultation policy provides for incidental take if an activity comprises the integrity of

a PAC. Actions outside PACs will generally not be considered incidental take. We did not attribute take to the low-intensity fires that burned with 4 PACs (060676, 060677, 060678, and 060680). These PACs were adversely affected by the emergency actions, but the vegetation structure likely did not change, with overstory vegetation essentially unburned.

Amount or extent of take

The following forms and amount of take may have resulted from the emergency action:

1. One pair of MSO and/or associated juveniles in the form of harassment from back-burning activities that resulted in a moderate fire in PAC 060679.

Effect of the take

In this emergency BO, the Service determined that this level of anticipated take did not jeopardize the continued existence of the owl.

Incidental take statements in emergency biological opinions do not include reasonable and prudent measures or terms and conditions to minimize take unless the agency has ongoing actions related to the emergency (U.S. Fish and Wildlife Service 1998). The Forest Service has not advised us of any ongoing actions related to the emergency.

The Fish and Wildlife Service will not refer the incidental take of any migratory bird or bald eagle for prosecution under the Migratory Bird Treaty Act of 1918, as amended (16 U.S.C. Sections 703-712), or the Bald and Golden Eagle Protection Act of 1940, as amended (16 U.S.C. Sections 668-668d).

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.

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 an action on listed species, to help implement recovery plans, or to develop information. The recommendations provided here relate only to the action and do not necessarily represent complete fulfillment of the agency's section 7(a)(1) responsibility for these species. We recommend the following conservation recommendations be implemented:

1. We recommend that the Forest Service initiate a Forest-wide programmatic consultation on fire suppression and rehabilitation activities with the New Mexico Ecological Services Field Office.
2. The Forest Service should increase survey efforts for the owl in previously unsurveyed areas on Forest Service Lands.
3. We recommend that each of the MSO PACs previously designated within the perimeter of the Fork Fire be monitored, beginning in 2003 and continuing annually for at least the next five years if MSO habitat remains in the PACs.
4. We recommend that the Forest Service pursue monitoring and/or research opportunities to determine actual effect to, and recovery of, MSO habitat from the wildfire, and particularly in relation to future occupancy by MSO.

In order for the Service to be kept informed of actions minimizing or avoiding adverse effects or benefiting listed species or their habitats, the Service requests notification of the implementation of any conservation recommendations.

REINITIATION - CLOSING STATEMENT

This concludes formal emergency consultation on the Fork Fire, Reserve Ranger District, Gila National Forest. 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.

Marcia R. Andre, Forest Supervisor

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In future communications regarding this project, please refer to consultation #22420-2006-FE-121. Please contact Eric Hein at the letterhead address or at (505) 761-4735 if you have any questions.

Sincerely,

A handwritten signature in black ink, appearing to read "D. Campbell". The signature is fluid and cursive, with the first name "D." and the last name "Campbell" clearly visible.

David Campbell
Acting Field Supervisor

cc:

Field Supervisor, U.S. Fish and Wildlife Service, Arizona Ecological Services Field Office,
Phoenix, Arizona

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