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**In Reply Refer To:**  
AESO/SE  
22410-2006-FE-0452

February 14, 2008

Ms. Elaine J. Zieroth  
Forest Supervisor  
Apache-Sitgreaves National Forest  
P.O. Box 640  
Springerville, Arizona 85938-0640

Dear Ms. Zieroth:

Thank you for your request for formal emergency consultation with the U.S. Fish and Wildlife Service (FWS) pursuant to section 7 of the Endangered Species Act of 1973 (16 U.S.C. 1531-1544), as amended (Act). Your request for emergency consultation was dated November 14, 2006, and received by us on November 16, 2006. Your completion of the Emergency-Fire Documentation form and the January 23, 2007, addendum fulfills the requirements necessary to initiate emergency consultation typically provided in a biological assessment and evaluation (BAE). At issue are impacts on the Mexican spotted owl (*Strix occidentalis lucida*) (MSO) and its critical habitat associated with suppression and emergency stabilization activities on the Beaverhead Fire in Greenlee County, Arizona. Your Emergency-Fire Documentation concluded that the suppression and emergency rehabilitation actions likely adversely affected the MSO and its critical habitat. You also concluded that suppression and emergency stabilization actions were not likely to adversely affect the bald eagle (*Haliaeetus leucocephalus*) or Apache trout (*Oncorhynchus apache*). The bald eagle is no longer listed under the Endangered Species Act but is protected by the Bald and Golden Eagle Protection Act (Eagle Act). As a result, evaluation under the Endangered Species Act is no longer necessary. However, we have recently defined the word "disturb" under the Eagle Act and have proposed regulations for incidental take. We have provided our technical assistance in response to your request in Appendix A.

In our February 2, 2007, response letter (acknowledging the Forest's January 23, 2007, request for formal consultation) we initially concurred with your not likely to adversely affect finding for Apache trout. After further review of the Apache trout population, considered within the impact area of the Beaverhead Fire, we have come to the conclusion that the Apache trout population in Hannagan Creek is a hybridized population and should not be considered for analysis under this consultation. Our conclusion is supported in the Draft Apache Trout Recovery Plan and was confirmed through discussions with the species lead, Jeremy Voeltz (pers.comm., September 11, 2007).

This biological opinion is based on information provided in the Emergency-Fire Documentation form, BAE addendum, and associated maps.

Literature cited in this biological opinion is not a complete bibliography of all literature available on the species of concern, or on other subjects considered in this opinion. A complete administrative record of this consultation is on file at our office.

### Consultation History

- June 16, 2006: We received a telephone call from the Forest initiating emergency consultation.
- November 16, 2006: We received a November 14, 2006, letter from the Forest requesting initiation of formal section 7 consultation and a final Emergency-Fire Documentation form.
- January 10, 2007: We sent an email to your staff requesting additional information necessary to initiate consultation.
- January 24, 2007: We received a January 23, 2007, letter and BAE addendum from the Forest.
- February 2, 2007: We acknowledged the Forest's January 23, 2007, request for formal consultation via letter.
- August 13, 2007. We requested a 60-day extension to complete the consultation via letter.
- October 4, 2007: We submitted a draft BO to the Forest, and requested another extension of the consultation period.
- January 10, 2008: We sent an email to your staff requesting review and comment of draft BO.
- January 2008: We received a telephone call from your staff requesting that we finalize the BO.

## **BIOLOGICAL OPINION**

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

The Beaverhead Fire began on June 15, 2006, west of Highway 191 in Township 4 North, Range 30 east, section 20. The Forest initiated emergency suppression actions on the Beaverhead Fire on June 15, 2006. Suppression is defined as all the work of extinguishing or confining a fire

beginning with its discovery (National Wildfire Coordination Group [NWCG] 1996). Wildfire suppression tactics included aerial suppression, ground ignition, and ground suppression. Aerial suppression includes aircraft operations used to aggressively suppress a wildfire, such as helicopters dropping water on a fire. Ground ignition includes all ignition tools and methods used by hand crews to control a wildfire, which is essentially using controlled burning to eliminate fuel. Ground suppression also includes all suppression tools and methods used by hand crews to control a wildfire, such as using a bulldozer, to remove fuel (NWCG 1996).

Beaverhead Fire aerial suppression operations consisted of two helicopters and one fixed wing aircraft. Helicopters made an estimated 40 water-only drops at an altitude of approximately 100 to 150 feet. One fixed wing aircraft completed one retardant drop at an approximate altitude of 500 feet. Approximately 2,000 gallons of retardant (Fire-Trol GTS-R) were applied by the fixed wing aircraft during these aerial suppression operations. During ground suppression operations four acres were impacted by dozer lines (around private property), 0.5 acre was impacted by handlines, and 650 acres were impacted by burnout operations.

Several water sources were used for ground and aerial suppression actions on the fire. A well at Beaver Creek Ranch was used for bucket drops from helicopters and two water tenders pulled water from Acker and Luna lakes.

Wildfire suppression actions were concluded on June 26, 2006. A more detailed description of aerial suppression and ground ignition/suppression operations within the fire perimeter is found within the Effects of the Action section of this biological opinion. For a complete list of aircraft, ground vehicles, and tools, number of personnel, and locations of aerial and ground suppression actions on the Beaverhead Fire, refer to the Emergency-Fire Documentation form, BAE addendum, and maps provided for this consultation.

Emergency stabilization procedures commenced on June 20, 2006. Emergency stabilization is defined as planned actions that occur within one year of a wildland fire to stabilize and prevent further degradation to natural and cultural resources and minimize threats to life or property resulting from the effects of a fire. Stabilization efforts on the Beaverhead Fire included the rehabilitation and placement of erosion control structures where dozer and hand lines occurred. Emergency stabilization actions were concluded on June 26, 2006.

The action area includes the fire perimeter, access roads to the fire, and all lands within the action area boundary shown in the Beaverhead Fire Action Area Map (Appendix B). In the BAE, the Forest identified a discrepancy in the total acres calculated between the GIS layers and the Incident Status Summary (ICS-209) forms. The Forest adjusted the acreage to match the ICS-209 forms and the final size of the fire perimeter was determined to be 1,497 acres. It should be noted that the burn severity acres were not adjusted. For reasons described above, the following acres of burn severity do not match the total acreages; however, these estimates provide a good understanding of the fire impacts. The approximate acres of burn severity within the fire perimeter are 1,300 acres burned at low-severity, 90 acres burned at moderate-severity, 65 acres burned at high-severity, and 45 acres unburned. The Forest estimates that 650 acres of low- to moderate-severity burns within the fire perimeter were ignited from burnout operations. Fire burn severity is a qualitative assessment of the heat pulse directed toward the ground during

a fire. Burn severity relates to soil heating, large fuel and duff consumption, consumption of the litter and organic layer beneath trees and isolated shrubs, and mortality of buried plant parts (NWCG 1996).

## **STATUS OF THE SPECIES**

### Mexican spotted-owl

The MSO was listed as a threatened species in 1993 (USDI 1993). The primary threats to the species were cited as even-aged timber harvest and stand-replacing wildfire, although grazing, recreation, and other land uses were also mentioned as possible factors influencing the MSO population. The Fish and Wildlife Service appointed the Mexican Spotted Owl Recovery Team in 1993, which produced the Recovery Plan for the Mexican Spotted Owl (Recovery Plan) in 1995 (USDI 1995).

A detailed account of the taxonomy, biology, and reproductive characteristics of the MSO is found in the Final Rule listing the MSO as a threatened species (USDI 1993) and in the Recovery Plan (USDI 1995). The information provided in those documents is included herein by reference. Although the MSO's entire range covers a broad area of the southwestern United States and Mexico, the MSO does not occur uniformly throughout its range. Instead, it occurs in disjunct localities that correspond to isolated forested mountain systems, canyons, and in some cases steep, rocky canyon lands. Surveys have revealed that the species has an affinity for older, uneven-aged forest, and the species is known to inhabit a physically diverse landscape in the southwestern United States and Mexico.

The U.S. range of the MSO has been divided into six recovery units (RU), as discussed in the Recovery Plan. The primary administrator of lands supporting the MSO in the United States is the Forest Service. Most owls have been found within Forest Service Region 3 (including 11 National Forests in Arizona and New Mexico). Forest Service Regions 2 and 4 (including two National Forests in Colorado and three in Utah) support fewer owls. According to the Recovery Plan, 91 percent of MSO known to exist in the United States between 1990 and 1993 occurred on lands administered by the Forest Service.

Historical and current anthropogenic uses of MSO habitat include both domestic and wild ungulate grazing, recreation, fuels reduction treatments, resource extraction (e.g., timber, oil, gas), and development. These activities have the potential to reduce the quality of MSO nesting, roosting, and foraging habitat, and may cause disturbance during the breeding season. Livestock and wild ungulate grazing is prevalent throughout Region 3 National Forest lands and is thought to have a negative effect on the availability of grass cover for prey species. Recreation impacts are increasing on all forests, especially in meadow and riparian areas. There is anecdotal information and research that indicates that owls in heavily used recreation areas are much more erratic in their movement patterns and behavior. Fuels reduction treatments, though critical to reducing the risk of severe wildfire, can have short-term adverse effects to MSO through habitat modification and disturbance. As the population grows, especially in Arizona, small communities within and adjacent to National Forest System lands are being developed. This trend may have detrimental effects to MSO by further fragmenting habitat and increasing

disturbance during the breeding season. West Nile Virus also has the potential to adversely impact the MSO. The virus has been documented in Arizona, New Mexico, and Colorado, and preliminary information suggests that owls may be highly vulnerable to this disease (Courtney *et al.* 2004). Unfortunately, due to the secretive nature of owls and the lack of intensive monitoring of banded birds, we will most likely not know when owls contract the disease or the extent of its impact to MSO range-wide.

Currently, high-intensity, stand-replacing fires are influencing ponderosa pine and mixed conifer forest types in Arizona and New Mexico. Uncharacteristic, severe, stand-replacing wildfire is probably the greatest threat to MSO within the action area. As throughout the West, fire severity and size have been increasing within this geographic area.

A reliable estimate of the numbers of owls throughout its entire range is not currently available (USFWS 1995) and the quality and quantity of information regarding numbers of MSO vary by source. USFWS (1991) reported a total of 2,160 owls throughout the United States. Fletcher (1990) calculated that 2,074 owls existed in Arizona and New Mexico. However, Ganey *et al.* (2000) estimates approximately  $2,950 \pm 1,067$  (SE) MSOs in the Upper Gila Mountains RU alone. The FS Region 3 most recently reported a total of approximately 1,025 PACs established on NFS lands in Arizona and New Mexico (B. Barrera, pers. comm. June 18, 2007). The FS Region 3 data are the most current compiled information available to us; however, survey efforts in areas other than NFS lands have resulted in additional sites being located in all Recovery Units.

Researchers studied MSO population dynamics on one study site in Arizona ( $n = 63$  territories) and one study site in New Mexico ( $n = 47$  territories) from 1991 through 2002. The Final Report, titled "Temporal and Spatial Variation in the Demographic Rates of Two Mexican Spotted Owl Populations," (*in press*) found that reproduction varied greatly over time, while survival varied little. The estimates of the population rate of change ( $\Lambda = \text{Lamda}$ ) indicated that the Arizona population was stable (mean  $\Lambda$  from 1993 to 2000 = 0.995; 95 percent Confidence Interval = 0.836, 1.155) while the New Mexico population declined at an annual rate of about 6 percent (mean  $\Lambda$  from 1993 to 2000 = 0.937; 95 percent Confidence Interval = 0.895, 0.979). The study concludes that spotted owl populations could experience great (>20 percent) fluctuations in numbers from year to year due to the high annual variation in recruitment. However, due to the high annual variation in recruitment, the MSO is then likely very vulnerable to actions that impact adult survival (e.g., habitat alteration, drought, etc.) during years of low recruitment.

Since the owl was listed, we have completed or have in draft form a total of 187 formal consultations for the MSO. These formal consultations have identified incidences of anticipated incidental take of MSO in 384 PACs. The form of this incidental take is almost entirely harm or harassment, rather than direct mortality. These consultations have primarily dealt with actions proposed by FS Region 3. However, in addition to actions proposed by FS Region 3, we have also reviewed 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 activities. Only two of these projects (release of site-specific owl location information and existing forest plans) have resulted in biological opinions that the proposed action would likely jeopardize the continued existence of the MSO. The jeopardy opinion issued for existing Forest Plans on November 25, 1997 was rendered moot as a non-jeopardy/no adverse modification BO was issued the same day.

In 1996, we issued a biological opinion on FS Region 3 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. 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 NFS lands. FS Region 3 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 NFS 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 the incidental take of owls associated with 19 PACs. Incidental take associated with Forest Service fire suppression actions, which was not included in the LRMP proposed action, has resulted in the incidental take of owls associated with 12 PACs.

#### *Mexican spotted owl critical habitat*

The final MSO critical habitat rule (USFWS 2004) designated approximately 8.6 million acres of critical habitat in Arizona, Colorado, New Mexico, and Utah, mostly on Federal lands (USFWS 2004). Within this larger area, critical habitat is limited to areas that meet the definition of protected and restricted habitat, as described in the Recovery Plan. Protected habitat includes all known owl sites and all areas within mixed conifer or pine-oak habitat 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 habitat.

The primary constituent elements for proposed MSO critical habitat were determined from studies of their habitat requirements and information provided in the Recovery Plan (USFWS 1995). Since owl habitat can include both canyon and forested areas, primary constituent elements were identified in both areas. The primary constituent elements which occur for the MSO within mixed-conifer, pine-oak, and riparian forest types that provide for one or more of the MSO's habitat needs for nesting, roosting, foraging, and dispersing are in areas defined by the following features for forest structure and prey species habitat:

Primary constituent elements related to forest structure include:

- 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 diameter-at-breast height (dbh) of 12 inches or more;
- A shade canopy created by the tree branches covering 40 percent or more of the ground; and,
- Large, dead trees (snags) with a dbh of at least 12 inches.

Primary constituent elements related to the maintenance of adequate prey species include:

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

The forest habitat attributes listed above usually are present with increasing forest age, but their occurrence may vary by location, past forest management practices or natural disturbance events, forest-type productivity, and plant succession. These characteristics may also be observed in younger stands, especially when the stands contain remnant large trees or patches of large trees. Certain forest management practices may also enhance tree growth and mature stand characteristics where the older, larger trees are allowed to persist.

There are 13 critical habitat units located in the Upper Gila Mountains RU that contain 3.1 million acres of designated critical habitat.

## **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 within 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 in the action area to provide a platform to assess the effects of the action now under consultation.

### **Status of the Mexican spotted-owl and critical habitat within the action area**

Hannagan Creek PAC, a portion of Thomas Creek PAC, and MSO critical habitat reside within the action area (see Appendix B: Beaverhead Fire Action Area Map). Hannagan Creek PAC has not been surveyed for MSO since 1990. Owls were detected during the 1990 survey but breeding was not confirmed. Owls were also detected during the 1989 and 1990 surveys (breeding was not confirmed) in Thomas Creek PAC. No owls were detected in the Thomas

Creek Pac during informal surveys conducted in 1991 and 1992. Based on survey information provided by the Forest, these two PACs have not been monitored for 14-16 years prior to suppression actions on the Beaverhead Fire. The Recovery Plan states that even if MSO are not located within PACs in subsequent years, all PACs should be retained for the life of the Plan (USDI 1995). Based on the Recovery Plan recommendation for retention of PACs, the potential of adult survival to reach 16 years or more, high site fidelity of MSO once territories and home ranges have been established, and the potential recruitment of floaters into a territorial population (USDI 2004, 1995), we consider both PACs to have been occupied prior and leading up to the Beaverhead Fire suppression actions. As indicated in the Recovery Plan, eggs usually hatch in early May and nestling owls generally fledge four to five weeks afterward in early to mid-June (USDI 1995). At this time attempts to fly (within a week after leaving the nest) are short and clumsy and fledglings still depend on their parents for food. This behavior may continue until dispersal occurs in mid September to early October (USDI 1995). Because suppression actions occurred between June 15 and June 26 (when fledglings still depend on their parents for food and mobility is limited), the presence of fledglings and adult MSO was possible within both PACs.

The habitat within the action area consists of mixed-conifer, meadow, and pine upland habitat. The action area is located within critical habitat boundary UGM-7. Critical habitat that was impacted by the wildfire and suppression actions consists of 312 acres of restricted habitat and 142 acres of protected habitat. PCE's were largely intact in this segment of critical habitat. All protected habitat acres are confined to the acres within Hannagan Creek PAC.

### **Factors affecting Mexican spotted-owl and its critical habitat within the action area**

Past and ongoing factors affecting MSO and its critical habitat in the action area include ongoing grazing, wildfire, Forest Road maintenance, and powerline maintenance. These ongoing factors leading up to the emergency suppression actions likely contributed to the current status of the MSO and critical habitat within the action area.

Ongoing grazing is scheduled within pastures of the Foote Creek Allotment within the Beaverhead Fire action area. The Foote Creek Allotment has undergone section 7 consultation in the past for MSO (Regional Office Consultation #000089RO) and its critical habitat (Consultation #02-21-01-F-0303). The Regional Office BO (February 2, 1999) concluded that the ongoing grazing actions were likely to adversely affect MSO. The effects to MSO were described in the BO as a reduction of the suitability of habitat for prey species. This could in turn impair the ability of MSO adults to successfully raise young. In our January 19, 2005, BO we concurred with your determination that the ongoing grazing "may affect, but is not likely to adversely affect" MSO critical habitat in the Foote Creek Allotment. Our concurrence was based on the anticipated protection of MSO primary constituent elements through proper utilization rates, monitoring, and the geography of the allotments. Within the summer pastures of the Foote Creek Allotment livestock grazing is excluded from the Hannagan Creek PAC and downstream from the PAC along Hannagan Creek. Livestock grazing is allowed within the PAC and outside of riparian areas after the MSO breeding season. Also, utilization levels at 30 to 40 percent coupled with pasture rest every other year are followed to provide recovery of herbaceous and woody species. These guidelines will help the Forest meet the desired future conditions within the Allotment and will reduce the grazing impacts to MSO primary constituent elements.

In the past, wildfire and Forest Service suppression actions have impacted MSO and its habitat within the action area. The Thomas and Steeple Fires occurred in 2003 (also known as the Blue River Complex Fires, consultation #02-21-03-M-0283) and the KP Fire occurred in 2004 (Consultation #02-21-04-M-0253). Although the emergency consultation process has not been finalized, the Forest Service provided suppression action information from all three wildfires documenting potential effects to listed species within the action area of the Beaverhead Fire. Table 2 below displays a list of potential/known impacts to MSO or habitat from the wildfires and suppression actions implemented on the Thomas, Steeple, and KP fires.

**Table 2.** Potential effects to MSO and habitat from the Thomas, Steeple and KP fires.

	Ground Suppression/Rehabilitation Operations			Aerial Suppression Operations	
	Burnout	Hand/Dozer Line	Rehabilitation	Aerial Suppression	Aerial Water Drafting
<b>Thomas Fire</b>	Yes-see Aerial Suppression.  Smoke effects to MSO in Hannagan Creek and possibly Thomas Creek PACs	Habitat removal and noise disturbance from ~1.3 miles of handline that occurred in Hannagan Creek PAC.	Noise disturbance from rehab of ~1.3 mile-long hand line in Hannagan Creek PAC.	Aerial burnout operations occurred in Hannagan Creek PAC impacting approximately 123 acres of Protected MSO habitat.  Noise disturbance from operations within Hannagan Creek PAC.	No water drafting occurred near Hannagan Creek or Thomas Creek PACs.
<b>Steeple Fire</b>	Possible smoke effects to MSO in Hannagan Creek and possibly Thomas Creek PACs.	Fire was not within the Beaverhead Fire action area.	Fire was not within the Beaverhead Fire action area.	Fire was not within the Beaverhead Fire action area.	No water drafting occurred near Hannagan Creek or Thomas Creek PACs.
<b>KP Fire</b>	Possible smoke effects to MSO in Hannagan Creek and Thomas Creek PACs.	Fire was not within the Beaverhead Fire action area.	Fire was not within the Beaverhead Fire action area.	Fire was not within the Beaverhead Fire action area.	No water drafting occurred near Hannagan Creek or Thomas Creek PACs.

FR 573 passes through the northern portion of Hannagan Creek PAC and is approximately 0.5 mile in length. This road is a Level 2 (high profile vehicle, single lane) forest road and is rarely maintained by the Forest. Road maintenance that occurs within the PAC may affect MSO through noise and visual disturbance.

The Navopache Electric Co-Op owns and operates a powerline corridor within the Hannagan Creek PAC. Within the PAC, the powerline is approximately 0.8 mile in length and receives periodic maintenance which typically includes the removal of vegetation within the corridor. Powerline maintenance that occurs within the PAC may affect MSO and its habitat through removal of MSO protected habitat elements and from subsequent noise and visual disturbance.

## **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.

### **Mexican spotted-owl**

It is likely that the suppression activities had both positive and negative effects on MSO habitat. Without the actions implemented to suppress the fire, additional resources may have been lost including MSO habitat within PACs, and private property within the action area. However, some adverse effects likely resulted from suppression activities as discussed below.

The wildfire and suppression activities occurred between June 15 and June 26 when fledglings are still dependant on adult MSO. All aerial operations were restricted to daytime use. Ground ignition/suppression operations also occurred during the day. Delaney and Grubb (1999) found that MSO nest attendance through all reproductive phases [incubation (0-32 days), brooding (33-47 days) and nesting (48-until fledgling)] was higher during the daytime than at night. Delaney *et al.* (1999) found that helicopter flights flushed MSO 50% of the time within 98 feet, 19% within 197 feet, 14% within 344 feet, and 0% beyond 344 feet. The distance measured between a helicopter and MSO determined the point at which MSO responded to approaching aircraft. A flush response elicited from a helicopter within the said distances indicated by Delaney *et al.* (1999) would equate to MSO leaving the nest for an unknown time period. It is not known if the fire and/or smoke resulted in owls leaving the area. Because MSO nest attendance is higher during the day, the combination of ground and aerial suppression actions within the action area likely flushed any adult or fledgling MSO in Hannagan Creek PAC and possibly Thomas Creek PAC. Delaney *et al.* (1999) found prey-delivery rates were also affected by stimulus distance; thus concluding that manipulations in close proximity to MSO territories may affect prey deliveries. Adult MSO flushed from the nest during the day will likely not affect fledglings but may ultimately lead to abandonment of fledglings who are dependant on adults for prey delivery. Fledglings that are flushed from suppression actions are not strong enough to leave the area and will likely stay close to the nest. Fledglings that are unable to retreat from the burn area may have been impacted by aerial and/or ground suppression actions.

Habitat loss from ground suppression actions (handline, burnout, and blackline) occurred in MSO protected, restricted, and critical habitat. Within the burn area 52 acres of MSO protected habitat burned as a result of burnout operations. The Forest determined that 101 acres of restricted habitat were impacted by fire suppression actions. An additional 211 acres burned as a result of the wildfire; however, this consultation considers only the acreage affected by suppression activities.

The following discussion highlights the emergency actions taken to suppress the Beaverhead Fire and the effects to MSO from each operation. Table 3 below summarizes the ground and aerial suppression operations and ground rehabilitation operations that occurred within Hannagan Creek PAC.

Table 3. Ground and aerial suppression operations and rehabilitation operations that occurred within Hannagan Creek and Thomas Creek PACs during the Beaverhead Fire.

PAC	Ground Suppression/Rehabilitation Operations			Aerial Suppression Operations	
	Burnout	Handline	Rehabilitation	Aerial Suppression	Aerial Water Drafting
<b>Hannagan Creek</b>	52 acres of protected/critical habitat and 101 acres of restricted/critical habitat. <1 mile of blackline within protected/critical habitat. Possible smoke effects.	Habitat removal and noise disturbance from <1 mile of handline in protected/critical habitat and 132 feet of handline in restricted/critical habitat.	Rehab of <1 mile of handline and trees felled to contour within protected/restricted/critical habitat.	One retardant drop and ~40 water drops within burn area. 7 days of continuous aerial operation 100 to 500 feet above ground within the action area.	
<b>Thomas Creek</b>	Possible smoke effects.			Hovering and fly-over possible during the 7 days of continuous aerial operations.	

Ground Ignition/Suppression and Emergency Stabilization Operations

Burnout operations conducted in Hannagan Creek PAC affected protected and critical habitat and may have contributed to general disturbance. Additional blackline (the pre-burning of fuels adjacent to a control line) operations conducted along handlines throughout portions of the Beaverhead Fire perimeter may have resulted in smoke disturbance to MSO in Hannagan Creek and Thomas Creek PACs. It is difficult to access the magnitude of this effect since smoke created by the wildfire was occurring simultaneously. Within the Hannagan Creek PAC, the burnout operations burned 52 acres of mixed-conifer habitat and approximately one mile of the handline was burned during blackline operations. The burn severity from burnout and blackline operations measured low in the PAC. A low-severity burn in mixed-conifer habitat likely resulted in the consumption of down logs, snags, and trees. The percentage of down logs, snags, and/or trees that may have been impacted by ground suppression operations was not obtainable for this consultation.

Because the burnout operations and the wildfire occurred simultaneously, it is impossible to differentiate the amount of smoke resulting from the wildfire and that from burnout operations. Smoke effects did occur from burnout operations and may have impacted MSO in Hannagan Creek and Thomas Creek PACs. Wind directions recorded during the incident were sporadic (with regard to direction and speed) and it is unknown if they were continuous; therefore, if the winds subsided inversions could have caused smoke to

spread throughout the action area. Smoke may have caused MSO to flush from the nest and/or inhibited foraging activities due to reduced visibility within the PACs.

Burnout operations conducted in Hannagan Creek PAC (52 acres) and restricted MSO habitat (101 acres) resulted in the loss of critical habitat PCEs through the application of fire. Although burnout and blackline operations likely impacted down logs, snags, and trees we are not certain the reduction of these habitat components were reduced below the PCE recommendations found in the final MSO critical habitat rule (USDI 2004). However, a low-severity burn in mixed-conifer habitat likely reduced the levels of PCE number six (adequate levels of residual plant cover to maintain fruits and seeds, and allow plant regeneration).

Handlines were constructed in Hannagan Creek PAC (~1 mile long) in preparation of backline operations. Chainsaws were used during these operations. The known (1990) roost location within the PAC is approximately 0.5 mile from handline operations. Because MSO surveys have not been conducted within the PAC recently, we are limited to the 1990 data to estimate the distance from suppression actions to possible nest or roost locations. Delaney and Grubb (1997) recommended a 344-foot radius, hemispherical, management/protection zone to minimize and possibly eliminate MSO flush response to helicopter overflights and chainsaw noise. Because these actions occurred approximately 0.5 mile away from the 1990 roost location (beyond the 344-foot management/protection zone), noise from equipment and personnel were not likely to have flushed MSO from the nest. MSO foraging within the 344-foot radius, during the day, may have been disturbed from handline and backline operations.

Handline and subsequent blackline operations resulted in the removal of all vegetation within the footprint of the impact area (~1 mile long), including a wide range of live trees, snags, and dead and down woody debris, resulting in long-term effects to MSO protected and critical habitat within the Hannagan Creek PAC. These actions adversely affected PCEs number three (large, dead trees (snags) with a dbh of at least 12 inches) and four (high volumes of fallen trees and other woody debris).

Emergency stabilization efforts started on June 15, 2006, and concluded June 26, 2006. Hand crews were used to stabilize the one-mile long handline portion of Hannagan Creek PAC. Stabilization efforts included waterbars on slopes, raking soil and duff back on to exposed soil, and scattering of slash and material. Hazard tree removal occurred along FR 573 within the northern portion of Hannagan Creek PAC. These actions contributed to noise and general disturbance from equipment and personnel operating within the PAC.

### Aerial Suppression Operations

Aerial suppression actions conducted in Hannagan Creek PAC contributed to noise disturbance from aircraft and may have impacted MSO through injury by water or retardant drops if nests or roosts were hit directly. Only one aerial retardant drop occurred within the PAC and the number of water applications within the Beaverhead fire

perimeter was estimated to be 40. We do not have an estimate of the number of water drops that occurred within the Hannagan Creek PAC; however, the majority of these actions likely occurred within the PAC due to a small patch (18 acres) of high severity burning within the northern portion of the PAC. The location of the retardant drop was within Hannagan Creek PAC approximately 0.5 mile from the 1990 roost location and the water drops were 0.5 mile and greater from the roost location.

Seven consecutive days of aircraft carrying water and retardant en route to the Beaverhead Fire and over the action area resulted in noise disturbance to Hannagan Creek PAC. On the first day of the incident (June 15) one fixed wing air tanker dropped one load of retardant (~500 ft above ground) within Hannagan Creek PAC. Also, two helicopters conducted water drops on the first two days of the incident and one helicopter conducted water drops for the remaining five days of aerial operations. The helicopters were in continuous daytime operation (~100 to 150 feet above the ground) within the action area. MSO that may have been attending to fledglings, or roosting in Hannagan Creek PAC, possibly flushed for an unknown time during aerial operations. Also, continuous daytime operation of aircraft for seven days within close proximity of MSO PACs likely prevented flushed MSO from returning to pre-disturbance behavior until after dark, thereby leading to increased exposure to predators and decreased nest attendance and prey delivery during the fledgling period, possibly resulting in abandonment of the nest. Thomas Creek PAC is located outside of the Beaverhead fire perimeter but within the action area and any disturbance from aerial operations within the seven day period was limited to helicopters hovering over the PAC or entering or leaving the fire perimeter.

#### Summary of Effects from Ground Ignition/Suppression/Emergency Stabilization and Aerial Suppression Actions

Adverse effects to MSO occurred in Hannagan Creek PAC as a result of one or more actions, including ground ignition/suppression/emergency stabilization and aerial suppression. Effects to MSO within Thomas Creek PAC were limited to possible noise disturbance from aerial and ground suppression operations and smoke from burnout and blackline operations. In addition, adverse effects from ground-suppression actions resulted in a reduction of critical habitat PCE's.

#### **Dozerline/Handline Operations**

Direct impacts from habitat removal by handline operations in Hannagan Creek PAC removed live trees, snags, and dead and down woody debris within the impact areas. These actions adversely affected protected habitat by reducing the availability of possible future nest and roost trees for MSO. In addition, the removal of live trees, snags and dead and down woody debris adversely affected critical habitat PCE numbers three, (large, dead trees (snags) with a dbh of at least 12 inches) and four (high volumes of fallen trees and other woody debris).

#### ***Burnout and Blackline Operations***

Fire associated with burnout and blackline operations may have disturbed MSO nesting or roosting in Hannagan Creek PAC. Within the PAC, 52 acres were impacted by

burnout operations and approximately one mile was impacted by blackline operations. Direct effects from fire could have impacted MSO through injury or mortality if a nest or roost was located within the burn area. Because MSO surveys within the Hannagan Creek PAC have not been conducted since 1990, we are not certain the burning operations adversely affected MSO within the PAC. Habitat removal from burnout and blackline likely reduced the levels of residual plant cover to maintain fruits and seeds, and allow plant regeneration. The removal or reduction of residual plant cover adversely affected critical habitat PCE number six within the action area. At the same time, these activities may have prevented the threat of more serious, catastrophic fire.

### ***Aerial Suppression Operations***

The historical roost location within the Hannagan Creek PAC was 0.5 mile away from aerial suppression actions; therefore, direct impacts from water and retardant drops were not likely to have occurred on nests or roosts. Critical habitat was not adversely affected by aerial suppression operations in this PAC.

### ***Smoke***

Smoke effects may have impacted MSO via disturbance in Hannagan Creek and Thomas Creek PACs as a result of indirect effects from burnout and blackline operations located within the Beaverhead Fire containment boundary. Smoke inversions may have caused MSO to flush from the nest and/or inhibit foraging activities due to reduced visibility within the PACs. Information on the duration or intensity of smoke within each PAC is not available, nor can the effects of burnout and blackline smoke be distinguished from those of wildfire smoke.

### ***Noise***

Noise within the action area occurred for a total of twelve days from hand crews and chainsaws on the ground in portions of Hannagan Creek PAC and aircraft conducting suppression operations within the action area. Thomas Creek PAC is within the action area but all direct impacts (aerial and ground) occurred outside of the PAC. Ground-suppression actions occurred >344 feet away from the historical MSO roost site in Hannagan Creek and Thomas Creek PACs as recommended by Delaney and Grubb (1997). Because these actions were located greater than the 344-foot distance, MSO were not likely flushed from ground-suppression actions. However, if MSO foraged (during the day) within the 344-foot radius they may have been disturbed by noise during ground-suppression actions thereby reducing MSOs ability to forage effectively.

Aerial operations occurred for a total of seven days within the action area directly over Hannagan Creek PAC and possibly Thomas Creek PAC. All aerial operations were between approximately 100 and 500 feet above the ground. MSO that may have been attending to fledglings, or roosting in Hannagan Creek PAC possibly flushed during aerial operations. We believe that the combination of noise disturbance from all aerial and ground suppression actions likely flushed fledgling and adult MSO in Hannagan Creek PAC between June 15<sup>th</sup> and June 21<sup>st</sup>. Because the topography on the east side of Thomas Creek PAC is approximately 700 feet above the historical roost location, helicopters hovering, leaving, or en route to the Beaverhead Fire would have been far

beyond the 344-foot radius recommended by Delaney and Grubb (1997); therefore, noise effects to MSO in Thomas Creek PAC are considered insignificant.

## **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 biological opinion. 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. Since the action occurred on Forest Service land, most actions that would occur in the action area would require additional section 7 consultation.

## **CONCLUSION**

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

This biological opinion 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 statutory provisions of the Act to complete the following analysis with respect to critical habitat.

Based on our analysis of your actions associated with the Beaverhead Fire, we conclude the following:

1. Suppression actions associated with the containment of the Beaverhead Fire are not believed to have impeded the survival or recovery of MSO within the Upper Gila Mountains Recovery Unit.
2. Though suppression actions in critical habitat resulted in the loss of some primary constituent elements, the actions impacted only approximately 153 acres of the 863,344 acres of critical habitat in the Upper Gila Mountains RU-7, and reduced the risk of future catastrophic wildfire.

## **INCIDENTAL TAKE STATEMENT**

Section 9 of the Act and Federal regulations pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. "Take" is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. "Harm" is defined (50 CFR 17.3) to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. "Harass" is defined (50 CFR 17.3) as intentional or negligent 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 defined as

take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as the part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this Incidental Take Statement.

Using the best available data as summarized within this document, we have identified suppression actions which are reasonably certain to have resulted in incidental take of MSOs in the Hannagan Creek PAC. Although it is likely that adverse effects to this PAC resulted from the ground ignition/suppression/emergency stabilization and aerial suppression actions and the wildfire itself, it is the effects of the suppression/emergency stabilization actions which must be addressed in this emergency consultation. Even though take likely occurred, we recognize the suppression activities as necessary and beneficial as they likely prevented further loss to the species and/or helped to restore key habitat components. Based on the best available information concerning the MSO, habitat needs of the species, and the project description and other information furnished by the Forest Service, take is reasonably certain to have occurred in Hannagan Creek PAC.

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

1. The combination of direct impacts from habitat removal during ground-suppression operations (handline and dozerline); twelve days of noise disturbance from ground suppression operations; the direct effects of burnout and blackline; and noise associated with seven days of aerial suppression operations (100 to 500 feet above ground) likely resulted in the short-term harassment of the owls associated with the Hannagan Creek PAC.

#### **Effect of the Take**

In this biological opinion, we determine that this level of anticipated take did not likely result in jeopardy to the MSO or result in destruction or adverse modification of MSO critical habitat.

Incidental take statements in emergency consultations do not include reasonable and prudent measures or terms and conditions to minimize take unless the agency has an ongoing action related to the emergency (U.S. Fish and Wildlife Service and National Marine Fisheries 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, INJURED, OR SICK MSO**

Upon locating a dead, injured, or sick MSO, initial notification must be made to the FWS's Law Enforcement Office, 2450 West Broadway Suite #113, Mesa, Arizona 85202 (telephone: 480/967-7900) within three working days of its finding. Written notification must be made within five calendar days and should include the date, time, and location of the animal, a photograph, if possible, and any other pertinent information. The notification shall be sent to the Law Enforcement Office with a copy to this office. Care must be taken in handling sick or injured animals to ensure effective treatment and care, and in handling specimens to preserve the biological material in the best possible state. If possible, the remains of intact MSO(s) shall be provided to this office. If the remains of the MSO(s) are not intact or are not collected, the information noted above shall be obtained and the carcass left in place. Injured animals should be transported to a qualified veterinarian by an authorized biologist. Should the treated MSO(s) survive, the AESO should be contacted regarding the final disposition of the animal.

### **CONSERVATION RECOMMENDATIONS**

Section 7(a)(1) of the Act directs Federal agencies to utilize their authorities to further the purpose 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. We recommend that the Hannagan Creek PAC be formally monitored annually for at least five years and that the results of the monitoring be provided to us.

In order to keep us informed of actions minimizing or avoiding adverse effects or benefiting listed species or their habitat, we request notification of the implementation of any conservation recommendations.

### **REINITIATION - CLOSING STATEMENT**

This concludes formal consultation on the action outlined in this biological opinion. As provided in 50 CFR Section 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 that was not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation.

We appreciate your consideration of the threatened Mexican spotted owl. For further information, please contact Ryan Gordon (x225) or Mary Richardson (x242). Please refer to consultation number 22410-2006- FE-0452 in future correspondence concerning this project.

Sincerely,

/s/Jeff Humphrey for

Steven L. Spangle  
Field Supervisor

cc: District Biologist, Alpine Ranger District, Alpine, AZ (Attn: Linda WhiteTrifaro)  
District Ranger, Alpine Ranger District, Alpine, AZ (Attn: Richard Davalos)  
. Shaula Hedwall, Fish and Wildlife Service, Flagstaff, AZ

Habitat Branch, Arizona Game and Fish Department, Phoenix, AZ (Attn: Josh Avey)

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## APPENDIX A

### Bald eagle

This appendix contains our technical assistance with your “may affect, not likely to adversely affect” determination for the bald eagle.

The final rule to remove the bald eagle from the Federal List of Threatened and Endangered Species was published in the Federal Register on July 9, 2007, and took effect on August 8, 2007. However, the bald and golden eagle continue to be protected by the Bald and Golden Eagle Protection Act (Eagle Act) and the Migratory Bird Treaty Act (MBTA). The Eagle Act prohibits anyone, without a permit issued by the Secretary of the Interior, from taking eagles, including their parts, nests, or eggs. “Take” is defined under the Eagle Act as “to pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb” eagles. “Disturb” means “to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, 1) injury to an eagle, 2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or 3) nest abandonment by substantially interfering with normal breeding, feeding, or sheltering behavior.”

Based on the following information, we believe the suppression actions were not likely to “Take” or “Disturb” bald eagles within the action area of the Beaverhead Fire:

- There is no bald eagle habitat located within the Beaverhead Fire perimeter and the nearest location of suitable habitat is approximately 10 miles east on the Blue River.
- Prior to the Beaverhead Fire bald eagles nesting at Luna Lake failed due to a high wind event disrupting the nest structure. The nest was abandoned and bald eagles later attempted to double clutch; however, on April 18, 2006, the Arizona Game and Fish Department confirmed the eagles attempt was unsuccessful. Water drafting (water tenders only) from Luna Lake occurred at the boat ramp on the south side of the lake, opposite of the bald eagle nest location. Because nesting failed prior to the fire, breeding behavior would not have been affected by water drafting. Although nesting failed, it is possible bald eagles were foraging at Luna Lake at the time of the Beaverhead Fire. However, noise generated from water drafting would have been minimal and would not likely disrupt any foraging activities.

### APPENDIX B

### Action Area Map

