United States Department of the Interior

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In Reply Refer to:
AESO/SE
22410-2009-F-0213

October 13, 2009

Mr. Joseph P. Stringer
Acting Forest Supervisor
Coconino National Forest
1824 South Thompson Street
Flagstaff, Arizona 86001-2529

RE: Mormon Mountain Communications Site Project

Dear Mr. Stringer:

Thank you for your request for formal 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 was dated June 10, 2009, and received by us on June 12, 2009. This consultation concerns the possible effects of the construction, fuels, and site-management activities associated with the proposed Mormon Mountain Communications Site (MMCS) Project located on the Mormon Lake Ranger District, Coconino County, Arizona. The Forest Service has determined that the proposed action may affect the threatened Mexican spotted owl (*Strix occidentalis lucida*) (MSO) and its critical habitat.

This biological opinion is based on information provided in the June 10, 2009, Biological Evaluation (BE), conversations and electronic correspondence with your staff, and other sources of information. Literature cited in this biological opinion is not a complete bibliography of all literature available on the species addressed or on other subjects considered in this opinion. A complete administrative record of this consultation is on file at this office.

Consultation History

Details of the consultation history are summarized in Table 1.

Table 1. Summary of Consultation History

Date	Event
March 13, 2009	The Forest Service requested comments on the proposed action for the MMCS.
April 9, 2009	We provided our comments on the MMCS proposed action to the Forest Service.
June 12, 2009	The Forest Service requested formal consultation for potential adverse affects to the MSO and its critical habitat resulting from implementation of the MMCS project.
July 7, 2009	We acknowledged your request for formal consultation with a 30-day letter.

BIOLOGICAL OPINION

DESCRIPTION OF THE PROPOSED ACTION

The MMCS is located on the top of Mormon Mountain, northwest of Mormon Lake, and south and east of Flagstaff, on the Mormon Lake Ranger District of the Coconino National Forest (Township 18 North, Range 8 East, Sections 1 and 2). The project involves construction of a new cell tower and an associated equipment building at the existing MMCS site. The proposed action also includes implementation of a new communications site plan that would allow for increasing the height of existing and replacement towers, removing hazard trees from the project site, managing vegetation within the project site to reduce fire risk, and placing posts at visible intervals around the site boundary with radio frequency (RF) exposure warning signs. The site consists of approximately 12 acres of National Forest System lands.

The full project description is described in the June 2009 BA and is included herein by reference.

The specific proposed actions include the following:

- Constructing a low-power collocation wireless communications facility within the boundaries of the existing MMCS. The facility will consist of a 250-foot-tall freestanding lattice tower and an equipment building. The equipment building and tower will house all tenants and will be owned and managed by D.W. Holdings within a 100-foot by 100-foot lease area. The lease would be issued for a 20-year period.

- Developing a new communications site plan that will allow for existing or replacement tower heights to be increased to 280 feet. The new site plan would require that new towers be freestanding lattice-type towers.

- Surveying and monumentation of the MMCS boundary. All future communications site activities and facilities would be contained within this area.

- Conducting fuels treatments within the MMCS boundary. Treatments would consist of thinning and burning. Within the MMCS, conifers less than 9 inches diameter-at-breast height (dbh) will be removed and the lower branches of larger trees pruned to remove fire ladders. In addition, large trees and snags identified as potential hazards to the site will be removed to protect the MMCS.

Conservation/Mitigation Measures:

- All proposed activities would take place outside the breeding season for the MSO. The MSO breeding season is March 1 through August 31. Therefore, all construction, thinning, burning, and other activities will occur after August 31 and before March 1.

- Design and construction of the communication facilities will conform to the interim guidelines established by the U.S. Fish and Wildlife Service. See the BE for specific details regarding implementation of these guidelines.

STATUS OF THE SPECIES

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). Critical habitat was designated for the MSO in 2004 (USDI 2004).

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 human 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. Landscape level, 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.

Global climate change may also be a threat to the MSO and synergistically result in increased effects to habitat from fire, fuels reduction treatments, and other factors discussed above. Studies have shown that since 1950, the snowmelt season in some watersheds of the western U.S. has advanced by about 10 days (Dettinger and Cayan 1995, Dettinger and Diaz 2000, Stewart *et al.* 2004). Such changes in the timing and amount of snowmelt are thought to be signals of climate-related change in high elevations (Smith *et al.* 2000, Reiners *et al.* 2003). The impact of climate change is the intensification of natural drought cycles and the ensuing stress placed upon high-elevation montane habitats (IPCC 2007, Cook *et al.* 2004, Breshears *et al.* 2005, and Mueller *et al.* 2005). The increased stress put on these habitats is likely to result in long-term changes to vegetation, invertebrate, and vertebrate populations within coniferous forests that effect ecosystem function and process.

A reliable estimate of the numbers of owls throughout its entire range is not currently available (USDI 1995) and the quality and quantity of information regarding numbers of MSO vary by source. USDI (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 ± 1,067 (SE) MSOs in the Upper Gila Mountains RU alone. The Forest Service Region 3 most recently reported a total of approximately 1,025 protected activity centers (PACs) established on National Forest System (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" (Gutierrez *et al.* 2003), found that reproduction varied greatly over time, while survival varied little. The estimates of the population rate of change (Λ=Lambda) indicated that the Arizona population was stable (mean Λ 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 Λ 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 216 formal consultations for the MSO. These formal consultations have identified incidences of anticipated incidental take of MSO in 426 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 Forest Service Region 3. However, in addition to actions proposed by Forest Service 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 BOs 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 BO 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 BO, 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 BO, 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 BOs anticipated incidental take in the form of harm and/or harassment of owls associated with 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 BO 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, BO has resulted in the incidental take of owls associated with 43 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 25 PACs.

Mexican Spotted Owl Critical Habitat

The final MSO critical habitat rule (USDI 2004) designated approximately 8.6 million acres of critical habitat in Arizona, Colorado, New Mexico, and Utah, mostly on Federal lands (USDI 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 (PCEs) for proposed MSO critical habitat were determined from studies of their habitat requirements and information provided in the Recovery Plan (USDI 1995). Since owl habitat can include both canyon and forested areas, primary constituent elements were identified in both areas. The PCEs that occur for the MSO within mixed-conifer, pine-oak, and riparian forest types and 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.

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.

Description of the Action Area

The MMCS is an 11.7 acre area at the top of Mormon Mountain. The elevation of the project site ranges from approximately 8,450 to 8,480 feet. The 11.7-acre project site has been partially cleared to support the seven existing cellular tower facilities ranging in height from 148 to 295 feet, associated equipment storage/maintenance buildings, an access road/trail (Forest Road [FR] 684), and a snow-gauging station.

Vegetation in the project area is Rocky Mountain (Petran) subalpine conifer forest and the forest stand in and around the project site is composed of a mix of mature ponderosa pine (*Pinus ponderosa*), quaking aspen (*Populus tremuloides*), and Douglas-fir (*Pseudotsuga menziesii*). Southwestern white pine (*Pinus strobiformis*), white fir (*Abies concolor*), and rocky mountain juniper (*Juniperus scopulorum*) also occur within the stand. Stand structure is an uneven-aged mix of all tree species arranged in dense clumps (>150 square feet per acre in basal area [BA]) and scattered individuals with several small openings occurring in the stand. Regeneration of all tree species is abundant.

Mormon Mountain tank, an ephemeral dirt tank with no wetland vegetation, is located approximately 0.13 mile south of the MMCS and directly south of FR 684. The nearest aquatic/wetlands habitat is Mormon Lake, approximately two miles southeast and about 1,300 feet lower in elevation than the MMCS.

A. Status of the species and critical habitat within the action area

The Mormon Mountain MSO PAC, which immediately surrounds, but does not include the MMCS, has been proposed by the Coconino National Forest based upon new MSO detections in the area in 2008. As part of this consultation, we concur with the boundaries of the new PAC. In addition, five established PACs are found in the immediate vicinity and on the steep slopes below MMCS: Mormon Mountain North (405008), De Toros (405033), Lockwood (405041), Dairy Spring (405007), and Moore Well/Rock Dike (405011). The nearest known roost/nest site is located approximately ½ mile north of the MMCS in the Mormon Mountain North PAC. All of these PACs have shown high occupancy and reproduction rates since the late 1980's when monitoring first began on Mormon Mountain.

The entire action area lies within Upper Gila Mountains (UGM) critical habitat unit 11. UGM-11 is 144,790 acres in size and is located south of Mountainaire, Arizona, running south-southeast and encompassing Howard, Mormon, and Hutch Mountains. This unit contains both pine-Gambel oak and mixed-conifer habitat and is considered extremely important to the current and future status of the MSO in the UGM RU. The habitat within the 12-acre action area is considered restricted habitat under recovery plan guidelines.

B. Factors affecting the species and its critical habitat within the action area

Current activities affecting the species in the action area are associated with existing communication facilities on Mormon Mountain which have been located on the top of the mountain since 1969. Forest Road 684 receives traffic from recreationists as well as traffic from operations and maintenance activity associated with the communications facilities. The road is closed during the winter but is typically open between May and October. There are two designated recreation trails near the project area, the Arizona Trail and the Mormon Mountain Trail.

Approximately one mile of the Arizona Trail passes through the Lockwood PAC and provides a connection through the Dairy Springs PAC from the Arizona Trail to the Mormon Mountain Trail. The Mormon Mountain Trail extends from the Arizona Trail into the Dairy Springs PAC for a distance of about 1.5 miles. The Mormon Mountain Trail has been in use for the last 30 years, and because it was in place prior to the listing of the MSO, use of this trail has never undergone section 7 consultation. However, formal consultation was conducted on the designation and construction of this section of the Arizona Trail in a BO issued on August 14, 2001 (2-21-01-F-0285). The BO concluded that the trail would not jeopardize the continued existence of the MSO and would not destroy or adversely modify MSO critical habitat. The BO included an incidental take statement for owls associated with both the Lockwood and Dairy Springs PAC.

MSO habitat and designated critical habitat in the Mormon Mountain area is extremely productive and consistently occupied by MSO. Forest management in the area (e.g., Mormon Mountain and the Mormon Lake Ranger District) is likely to increase as the Four Forest Restoration Initiative moves forward. This initiative proposes to work collaboratively to improve forest resiliency and condition; including improving habitat for MSO. Landscape-level forest management across this area will likely result in both positive and negative impacts to MSO and their habitat in the short-term. Over the long-term, with appropriate planning, implementation, and monitoring, we believe that this effort will aid in recovery of MSO in the UGM RU.

EFFECTS OF THE ACTION

Effects of the action include 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.

The intent of the proposed action is to construct a new communications tower and equipment building, and reduce fuels adjacent to the communications site in order to protect the structures and equipment at the site. The MSO habitat that will be affected by the proposed action will be maintained in a state of reduced fuels (i.e., reduced quality and/or quantity of key habitat components of MSO habitat) indefinitely. The direct and indirect effects of the proposed action include impacts from facilities construction and forest fuel treatments (thinning and burning) implemented to protect the MMCS.

Effects to MSO

Disturbance of normal MSO breeding, feeding, and sheltering may occur due to noise and human activity associated with the proposed action. The project area is within and adjacent to six MSO PACs. Several previous MSO detections that contributed to designation of the PACs are close to the project area. However, the disturbance effects may be ameliorated because all treatments will be conducted outside of the MSO breeding season to avoid impacts to MSO nesting activities in adjacent and nearby PACs. At the time when construction starts, MSO young are expected to be nearly or fully independent from adults. Noise and human presence/activity may result in avoidance of the project area and its immediate vicinity during construction or some localized and temporary displacement of young or adults.

Broadcast burning will occur as part of the proposed action. The area to be burned is small (approximately 12 acres), but is surrounded by dense forest on all sides. Smoke from the prescribed burn will be limited due to the size of the area and will not impact MSO during the breeding season. Burning will only occur within the 12-acre site and any effects outside of this area are not covered under this consultation.

Construction and maintenance of the new cell tower is expected to have limited long-term effects on MSOs or their use of this habitat. Though a number of bird species are adversely affected by collisions with communications towers, these are primarily migratory passerine birds (Kerlinger 2000). MSOs are resident/non-migratory, and the existing monitoring data show no evidence that the existing facilities have had a negative effect on MSOs. Communications towers and associated facilities have been present on Mormon Mountain since 1969, and the PACs surrounding MMCS have been more or less continuously occupied since monitoring started (generally in the late 1980s) and all have fledged young. Though there has been substantial variation in occupancy rates and reproductive success between the PACs, these differences are not readily attributable to the presence of the communications facilities and show no clear trend over the monitoring history. It is possible that young MSOs dispersing from these PACs could collide with the tower or building. However, there is little evidence of accidental collisions involving MSOs, with the exception of vehicle collisions or collisions with fences (see USFWS files). Vegetation management, particularly the removal of larger trees within MMCS to reduce falling hazard, will reduce overall canopy cover and may increase habitat suitability for MSO predators such as the great horned owl (*Bubo virginianus*) or the Northern goshawk (*Accipiter gentilis*), but may also improve MSO prey habitat within the area. In summary though, the direct effects to MSO from this action are likely to be small.

Effects to MSO Habitat

Key habitat components (trees greater than 9 inches dbh in PACs, large trees, large logs) of MSO habitat within mixed-conifer habitat and adjacent to the six PACs will be affected by the proposed action. The area includes what would likely be protected habitat, if not for the existing MMCS, and within this area, key habitat components related to forest structure and a substantial number of large trees and snags (see Table 2) may be removed as a part of this action.

The MSO Recovery Plan recommends no harvest of trees > 9 inches dbh in PACs, and retaining or enhancing large logs (> 12 inches diameter), grasses and forbs, and shrubs. Effects to MSO habitat, particularly in protected habitat, may affect normal MSO breeding, feeding, and sheltering. The proposed action will reduce the quality of MSO habitat adjacent to six PACs due to felling of live and dead hazard trees, understory thinning, and burning that will result in decreased canopy cover, structural diversity, and large logs.

Table 2. Inventory of larger trees and snags within the MMCS boundary that may be removed to reduce potential hazards to equipment and buildings.

Species/Type	Size Class (dbh)	Total Number	Density (# per acre)
Live Trees	18-24 inches	87	7.4
	>24 Inches	59	5.0
Snags	18-24 inches	17	1.3
	>24 Inches	15	1.5
Live Trees by Species			
Ponderosa pine	18-24 inches	33	2.8
Douglas fir		40	3.4
White fir		11	0.9
Aspen		1	0.09
Gambel oak		2	0.2
Ponderosa pine	>24 Inches	34	2.9
Douglas fir		22	1.9
White fir		3	0.3

Removal of hazard trees from the MMCS may result in the elimination of up to 59 live trees and 15 snags greater than 24 inches dbh and the elimination of 87 live trees and 17 snags between 18 and 24 inches dbh. It is unknown if all of these trees will be removed. However, these trees and snags were identified as hazards and under the proposed action all or a subset of these trees may be removed. The removal of these trees will reduce the number of large trees, canopy closure, and the number of large snags within the project area. This will eliminate potential roosting and perching sites for MSO and result in more open habitat that may be attractive to Great horned owls or other potential MSO predators. However, the increased opening may also provide increased foraging opportunities for MSO through creation of a more permanently open patch of habitat that could provide for increased prey species diversity.

In addition to the trees and snags identified for removal, it is likely that broadcast burning of the project area will remove additional trees and snags along the periphery of the project area.

However, based upon the proposed action prescribe burning will only occur within the project footprint (approximately 12 acre site). If fire effects go beyond the project boundary, this would be outside this proposed action and additional consultation would likely be required.

Critical Habitat

The project area is located within MSO critical habitat unit UGM-11. The entire 12-acre project area is of the mixed-conifer cover type and thus is MSO critical habitat. Canyon habitat, as defined in the critical habitat rule (USDI 2004), would not be impacted by the proposed action. Therefore, we will not analyze the effect of this project on the primary constituent elements of canyon habitat.

Short-term effects from fuels reduction treatments can adversely affect the primary constituent elements of MSO critical habitat directly or indirectly by altering habitat and/or prey. Broadcast burning and mechanical thinning may affect designated critical habitat by reducing snags, downed logs, woody debris, multi-storied canopies, and dense canopy cover. In addition, the proposed activities may change the structure of MSO prey species' habitat, affecting the abundance and composition of prey species.

Primary constituent elements were identified by the FWS in the final rule designating critical habitat (USDI 2004). The importance of each of these components to MSO habitat is described in the final rule (USDI 2004) and the Recovery Plan (USDI 1995). The information provided in those documents is included herein by reference. The expected effects on the primary constituent elements of MSO critical habitat as a result of the MMCS Project are summarized below by forest structure and prey species habitat.

Forest Structure

A range of tree species composed of different tree sizes reflecting different ages of trees, 30-45% of which are large with a dbh of 12 inches or greater. In forested critical habitat, a range of tree species, composed of different tree sizes reflecting different ages of trees, 30% to 45% of which are large trees with dbh of 12 inches or more, is desired. Diversity in tree-size distributions is typical of MSO habitat and provides the vertical structure that is thought to be important to owls (Seamans and Gutierrez 1995). This PCE will be reduced within the project area due to the felling of hazard trees and snags (see Table 2). However, the loss of these trees will occur over a small area and should not result in a deficit of large trees on Mormon Mountain.

A shade canopy created by the tree branches covering 40% or more of the ground: The Forest Service expects that shade canopy will be reduced following thinning and burning treatments. However, they do not expect canopy closure to fall below 40%. Ganey et al. (2003) found that 32 out of 34 MSO roosting stands had canopy cover >40%, and 75% of stands used for roosting had canopy cover >60%. Resident MSOs occur across Mormon Mountain and though some available roost habitat may be lost due at the MMCS, habitat in the surrounding PACs will continue to provide shade canopy and roosting habitat for MSO.

Large, dead trees (snags) with a dbh of at least 12 inches: Large snags would most likely be reduced following proposed prescribed burning. The burn objective is for predominantly low-intensity fire but there may be small areas that burn at moderate intensity. Much of the fine coarse woody debris (<3 inches diameter) will likely be consumed during prescribed burning. Effects to larger-diameter coarse woody debris will vary from charring with partial consumption to full consumption. The volume of large logs (>12 inches in diameter) will likely be substantially reduced by broadcast burning. However, this impact will occur only within the 12 acre area and not within the PACs surrounding the site.

Maintenance of adequate prey species

High volumes of fallen trees and other woody debris: Fallen trees and woody debris would likely be reduced by the proposed burning treatments (broadcast, piling, and maintenance burning). Logs are expected to be reduced by approximately 30% within restricted habitat. This loss of large logs would result in short-term adverse effects to this primary constituent element. Prior to burning in PACs, large logs (>12 inches dbh) would be lined to prevent their loss.

A wide range of tree and plant species, including hardwoods: We do not expect that this primary constituent element will be adversely affected by the proposed action. Plant species richness would likely increase following thinning and/or burning treatments that result in small, localized canopy gaps. A few aspen and Gambel oak trees may be removed as part of the hazard tree removal, but burning may result in increased aspen sprouting and thinning may improve conditions for both aspen and Gambel oak within the project area.

Adequate levels of residual plant cover to maintain fruits and seeds, and allow plant regeneration: Short-term decrease in plant cover will result from fire-related activities and possibly mechanical thinning. We expect long-term increases in residual plant cover because treatments would provide conditions suitable for increased herbaceous plant growth by removing a thick layer of dead plant debris within treated areas. The mosaic effect created by burned and unburned areas and by opening up this small patch of forest within restricted habitat is also expected to increase herbaceous plant species diversity and, in turn, assist in the production and maintenance of the MSO prey base. The function and conservation role of this primary constituent element would not be compromised by the proposed action.

Summary of effects to Critical Habitat

In summary, several MSO critical habitat primary constituent elements may be adversely affected by the proposed action. Large snags and live trees, large coarse woody debris, and large trees would be lost during project implementation of fuels treatments. However, we find that the effects to the function and conservation role of UGM-11 relative to the Recovery Unit and the entire designation are not significant because the impacts would be temporary and occur in a very small area. Therefore, we conclude that the primary constituent elements of MSO critical habitat would continue to serve the intended conservation role for UGM-11 with the implementation of the MMCS Project.

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 land within the action area is almost exclusively managed by the Forest Service, most activities that could potentially affect listed species are Federal activities and subject to additional section 7 consultations. Operation and maintenance of the communications facilities and recreation are the primary non-Federal activities that occur in the project area. Both activities may result in disturbance effects to the MSO. The extent of such possible disturbance is unknown but is expected to be relatively minor.

CONCLUSION

After reviewing the current status of the MSO, the environmental baseline for the action area, the effects of the proposed fuels reduction project, and the potential for cumulative effects, it is our biological opinion that implementation of the UBWFR Project, as proposed, is not likely to jeopardize the continued existence of the MSO, nor result in the destruction or adverse modification of critical habitat.

We present this conclusion for the MSO and its critical habitat for the following reasons:

1. Though treatments in critical habitat may result in the loss of some primary constituent elements and treatments in protected and restricted habitat may reduce key habitat components, the proposed action will occur on a very limited area (only 0.00008 percent of UGM-11) and should not effect the current presence or density of MSO on Mormon Mountain.

2. The implementation of the proposed action is not expected to impede the survival or recovery of MSO within the Upper Gila Mountains Recovery Unit or critical habitat unit UGM-11.

The conclusions of this biological opinion are based on full implementation of the project as described in the Description of the Proposed Action section of this document, including any Conservation Measures that were incorporated into the project design.

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 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.

AMOUNT OR EXTENT OF TAKE

We do not anticipate that the proposed MMCS Project will result in the incidental take of MSO. Although the noise and human activity associated with the proposed action may affect resident MSO, all treatments will occur outside of the MSO breeding season and will not disrupt breeding, feeding, or sheltering activities when MSO are most vulnerable. Although the quality of the MSO habitat in the project area will be affected, the affected MSO habitat is limited to 12 acres and no known roost or nest sites are known to occur within the project area.

DISPOSITION OF DEAD, INJURED, OR SICK MSO

Upon locating a dead, injured, or sick listed species initial notification must be made to the FWS's Law Enforcement Office, 2450 W. Broadway Rd, 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 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 in handling dead specimens to preserve the biological material in the best possible state.

If possible, the remains of intact species shall be provided to this office. If the remains of the species 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 species survive, contact our office 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 purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information.

1. We recommend that the Forest Service continue to monitor the six PACs on Mormon Mountain.

2. We recommend that the Forest Service include us in the implementation of the prescribed burn for the project site and carefully document all effects from these burns on adjacent MSO habitat.

REINITIATION NOTICE

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.

Thank you for your continued coordination. In all future correspondence on this project, please refer to the consultation number 22410-2009-F-0213. We also encourage you to coordinate the review of this project with the Arizona Game and Fish Department.

Should you require further assistance or if you have any questions, please contact Shaula Hedwall at (928) 226-0614 (x103) or Brenda Smith (x101) of our Flagstaff Suboffice.

Sincerely,

Steven L. Spangle
Field Supervisor

Electronic cc:
Chief, Habitat Branch, Arizona Game and Fish Department, Phoenix, AZ
Field Supervisor, Arizona Game and Fish Department, Region 2, Flagstaff, AZ
District Ranger, Mormon Lake Ranger District, Flagstaff, AZ (Attn: Mike Elson)
Forest Biologist, Coconino National Forest, Supervisor's Office, Flagstaff, AZ
District Biologist, Mormon Lake Ranger District, Flagstaff, AZ (Attn: Henry Provencio)

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LITERATURE CITED

Breshears, D.D., N.S. Cobb, P.M. Rich, K.P. Price, C.D. Allen, R.G. Balice, W.H. Romme, J.H. Kastens, M.L. Floyd, J. Belnap, J.J. Anderson, O.B. Myers, and C.W. Meyer. 2005. Regional vegetation die-off in response to global-change-type drought. Proceedings of the National Academy of Sciences 102(42):15144-15148.

Cook, E.R., C.A. Woodhouse, C.M. Eakin, D.M. Meko, and D.W. Stahle. 2004. Long-term aridity changes in the western United States. Science 306:1015-1018.

Courtney, S.J., J.A. Blakesley, R.E. Bigley, M.L. Cody, J.P. Dumbacher, R.C. Fleischer, A.B. Franklin, J.F. Franklin, R.J. Guitierrez, J.M. Marzluff, and L. Sztukowski. 2004. Scientific evaluation of the status of the northern spotted owl. Sustainable Ecosystems Institute, Portland, Oregon. 508 pp.

Dettinger, M.D. and D.R. Cayan. 1995. Large scale atmospheric forcing of recent trends toward early snowmelt runoff in California. Journal of Climate 8:606-623.

Dettinger, M.D. and H.F. Diaz. 2000. Global characteristics of streamflow seasonality and variability. Journal of Hydrometeorology 1:289-310.

Fletcher, K. 1990. Habitat used, abundance, and distribution of the Mexican spotted owl, *Strix occidentalis lucida*, on National Forest System Lands. U.S. Forest Service, Southwestern Region, Albuquerque, New Mexico. 78 pp.

Ganey, J.L., G.C. White, A.B. Franklin, J.P. Ward, Jr., and D.C. Bowden. 2000. A pilot study on monitoring populations of Mexican spotted owls in Arizona and New Mexico; second interim report. 41 pp.

Ganey, J.L., W.M. Block, and S.H. Ackers. 2003. Structural characteristics of forest stands within home ranges of Mexican spotted owls in Arizona and New Mexico. Western Journal of Applied Forestry 18(3):189-198.

Gutierrez, R.J., C.A. May, M.L. Petersburg, and M.E. Seamans. 2003. Final Report – Temporal and spatial variation in the demographic rates of two Mexican spotted owl populations. Contracting Agency U.S. Department of Agriculture, Rocky Mountain Research Station (contract numbers 53-82FT-1-04, 53-82FT-4-07, 43-82FT-9-0152). 146 pp.

Kerlinger, P. 2000. Avian mortality at communications towers: A review of recent literature, research, and methodology. Prepared for the USFWS Office of Migratory Bird Management.

Intergovernmental Panel on Climate Change (IPCC). 2007. Summary for policy makers. In: Climate Change 2007: The physical science basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change [Solomon, S., D. Quin, M. Manning, Z. Chen, M. Marquis, K.B. Averyt, M. Tignor, and H.L. Miller (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA. Available at http://www.ipcc.ch/.

Mueller, R.C., C.M. Scudder, M.E. Porter, R.T. Trotter III, C.A. Gehring and T.G. Whitham. 2005. Differential tree mortality in response to severe drought: Evidence for long-term vegetation shifts. Journal of Ecology 93(6):1085-1093.

Reiners, W.A., W.L. Baker, J.S. Baron, D.M. Debinski, S.A. Elias, D.B. Fagre, J.S. Findlay, L.O. Mearns, D.W. Roberts, T.R. Seastedt, T.J. Stohlgren, T.T. Veblen, and F.H. Wagner. 2003. Natural Ecosystems I: The rocky mountains (pp. 145-184). In Wagner, F.H. (Ed.), Preparing for Climate Change: Rocky Mountain/Great Basin Regional Assessment Team for the U.S. Global Change Research Program. Utah State University. 240 pp.

Seamans, M.E. and R.J. Gutierrez. 1995. Breeding habitat ecology of the Mexican spotted owl in the Tularosa Mountains, New Mexico. Condor 97:944-952.

Smith, S.J., T. Wigley, and J.A. Edmonds. 2000. "A new route toward limiting climate change?" Science 290(5494):1109-1110.

Stewart, I.T., D.R. Cayan, and M.D. Dettinger. 2004. Changes in snowmelt runoff timing in western North America under a "business as usual" climate change scenario. Climate Change 62: 217-232.

U.S. Department of the Interior (USDI), Fish and Wildlife Service. 1993. Endangered and Threatened Wildlife and Plants; final rule to list the Mexican spotted owl as threatened. Federal Register 58(49):14248-14271. March 16, 1993.

U.S. Department of the Interior (USDI), Fish and Wildlife Service. 1995. Recovery Plan for the Mexican Spotted Owl. Albuquerque, New Mexico.

U.S. Department of the Interior (USDI), Fish and Wildlife Service. 2004. Endangered and Threatened Wildlife and Plants; final designation of critical habitat for the Mexican spotted owl; final rule. Federal Register 69(168):53182-53298. August 31, 2004.

U.S. Fish and Wildlife Service. 1991. Mexican spotted owl status review. Endangered species report 20. Albuquerque, New Mexico.