United States Department of the Interior

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In Reply Refer To:
AESO/SE
22410-2007-F-0028
22410-2007-F-0077 June 26, 2007

Mr. Timothy Short
District Ranger
North Kaibab Ranger District
P.O. Box 248
430 South Main Street
Fredonia, Arizona 86022-0248

Dear Mr. Short:

This biological opinion responds to 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). We received your March 12, 2007, request for formal consultation on March 13, 2007. At issue are impacts that may result from the proposed Warm Fire Hazard Tree Removal projects in the North Kaibab Ranger District (District) of the Kaibab National Forest located in Coconino County, Arizona, on the Mexican spotted owl (MSO) (*Strix occidentalis lucida*) and its critical habitat.

The March 12 letter included a request for concurrence with a determination that the proposed project may affect, but is not likely to jeopardize, the nonessential experimental population of California condors (*Gymnogyps californianus*), which is regarded as a proposed species on Forest Service lands. Section 7 regulations do not require a conference for non-jeopardy determinations made by action agencies for proposed species. However, we recommend full implementation of the conservation measures, and have included our concurrence in Appendix A.

The March 12 letter also includes a request for concurrence with a determination that the proposed action will not affect the conservation agreement species Kaibab plains cactus (*Pediocactus paradinei*). Section 7 regulations do not require you to request our concurrence on "no effect" determinations. However, we agree with your proposal to implement appropriate measures from the conservation strategy. Based on the information you have provided, we do not believe the species will be affected by the project.

This biological opinion is based on information provided in a March 8, 2007, biological evaluation (BE), telephone conversations, meetings, and other sources of information. Literature cited in this biological opinion is not a complete bibliography of all literature available on the species of concern, road rehabilitation and its effects, or on other subjects considered in this opinion. A complete administrative record of this consultation is on file at this office.

Consultation History

Table 1 is a summary of the consultation history for the proposed project.

Table 1. Consultation history for the Warm Fire Hazard Tree Removal projects in the Kaibab National Forest.

Date	*Event*
September 12, 2006	We received a scoping letter regarding hazard tree removal associated with the Warm Fire along Highway 89A.
October 16, 2006	We responded with comments on the proposed action.
October 25, 2006	We received a scoping letter regarding hazard tree removal associated with the Warm Fire along Forest Service System roads and the Arizona Trail.
November 17, 2006	We responded with comments on the proposed action.
February 21, 2007	We received a draft February 7, 2007, BE for the Hazard Tree Removal projects for review.
March 13, 2007	We received a March 8, 2007, BE for the Hazard Tree Removal projects and received a March 12, 2007, letter requesting formal consultation.
April 26, 2007	We issued a thirty-day letter initiating formal consultation.
May 11, 2007	We issued a draft biological opinion to the District for review.
June 6, 2007	We received comments on the draft biological opinion.

BIOLOGICAL OPINION

DESCRIPTION OF THE PROPOSED ACTION

Most of the information regarding the proposed action in this document is from the March 8, 2007 BE (Sanders 2007). The Warm Fire started on June 8, 2006, from a lightning strike near the junction of Forest Road 205 and Highway 67 on the North Kaibab Ranger District. The fire was managed as wildland fire use until the weather and management conditions abruptly changed on June 24. The fire was converted to a suppression attack wildfire on June 25. The fire was contained on July 3, controlled on August 9, and declared out on September 14. A total of 58,622 acres were burned during wildland fire use and wildfire/suppression. Approximately 39,110 acres that burned during wildfire/suppression sustained severe fire effects.

The fire burned with sufficient intensity to kill many of the trees along Forest Service System roads and the Arizona Trail. Due to concern for public safety, the District developed two hazard tree removal projects to remove dead and dying trees along roads traditionally experiencing high public use and along the Arizona Trail. One project was referred to as the Arizona Department of Transportation (ADOT) Slivers Project, and the other was referred to as the Forest Service Roads Hazard Tree Removal Project. The ADOT Slivers project includes removing trees along Highways 89A and 67 within the fire area where trees could fall into the road prism, but were not within the right-of-way owned by ADOT (our consultation number 22410-2007-F-0028). The other project includes fire mortality salvage along interior unpaved forest roads and along the Arizona Trail (our consultation number 22410-2007-F-0077). The District combined and addressed both projects in the March 8, 2007 BE. The combined projects constitute the proposed action addressed by this biological opinion.

The proposed action will result in removing all trees that pose a hazard to human health and life. Highway rights-of-way and forest roads selected for hazard tree removals burned in both the wildland fire use and wildfire/suppression portions of the Warm Fire. Hazard trees in the wildland fire use portion are scattered, but trees in the wildfire/suppression portion experienced crown fires resulting in large areas of tree mortality.

The entire project will include treatment of more than 82 miles of roads for a total of approximately 2,247 acres. Approximately 11.9 miles (288.6 acres) of the non-highway roads are within the wildland fire use portion and 71.8 miles (1,178.9 acres) are in the wildfire/suppression portion.

For roads that were affected by wildfire/suppression, all trees within an identified treatment area will be removed. The width of the treatment area for roads selected for hazard tree removal will be defined as a 200 foot-wide buffer area centered on the centerline of the road. The length of the treatment area for each road is specific to the given road. For roads that were affected by wildland fire use, only those trees with potential to imminently fall into the road prism will be removed.

Along the Arizona Trail, only those trees in imminent danger of falling into the trail will be removed. The width of the treatment area for the Arizona Trail will be defined as a 100 foot-wide corridor centered on the centerline of the trail. Approximately 14.6 miles of the Arizona Trail will be treated, resulting in about 177 acres of potential tree removal. Areas proposed for hazard tree removal along the Arizona Trail include 4.2 miles (51.2 acres) in the wildland fire use portion and 10.4 miles (124.6 acres) in the wildfire/suppression portion.

Small branches that break off during hazard tree removal will be deposited and left on the forest floor. Larger diameter pieces (3 inches and up) that are the result of hazard tree removal activities will be piled and burned, removed from the hazard tree units to another location for burning, or chipped on site. Only project-created slash would be removed, burned or chipped; some fire-hardened down wood would be retained on the site. The decision to remove or leave some or all of the activity created slash will be at the discretion of implementation crews who will consider site, public safety, contract requirements, funding and soil protection needs.

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.

The proposed action occurs in the Colorado Plateau Recovery Unit which includes most of southern and south-central Utah, plus portions of northern Arizona, northwestern New Mexico, and southwestern Colorado. MSO habitat appears to be naturally fragmented in this RU, with most owls found in disjunct canyon systems or isolated mountain ranges. In northern Arizona, MSO have been reported in both canyon and montane situations. Recent records of MSO exist for the Grand Canyon and Kaibab Plateau, as well as for the Chuska Mountains, Black Mesa, Fort Defiance Plateau, and the Rainbow/Skeleton Plateau on the Navajo Nation. Federal lands account for 44 percent of this RU. Tribal lands collectively total 30 percent, with the largest single entity being the Navajo Nation.

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 (USDI 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 ± 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). Based on this number of MSO sites, total numbers in the United States may range from 1,025 individuals, assuming each known site was occupied by a single MSO, to 2,050 individuals, assuming each known site was occupied by a pair of MSOs. 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. Approximately 200 MSO PACs have been designated in the Colorado Plateau Recovery Unit (S. Hedwall, FWS, pers. comm. 2007).

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 (Λ=Lamda) 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 183 formal consultations for the MSO. These formal consultations have identified incidences of anticipated incidental take of MSO in 376 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, a total of 18 (approximately 9 percent) PACs in the Colorado Plateau Recovery Unit have been involved in actions where incidental take has been anticipated. 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, with approximately 91 of those PACs located in the Upper Gila Mountains RU. In addition, on January 17, 2003, we completed a reinitiation of the 1996 Forest Plan Amendments biological opinion, which anticipated the additional incidental take of five MSO PACs in Region 3 due to the rate of implementation of the grazing standards and guidelines, for a total of 156 PACs. Consultation on individual actions under these biological opinions resulted in the harm and harassment of approximately 243 PACs on Region 3 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 11 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 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 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 eight critical habitat units located in the Colorado Plateau RU totaling approximately 3.4 million acres of designated critical habitat, although not all of those acres meet the definition of 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 in the action area that have undergone formal or early section 7 consultation, and the impact of State and private actions which are contemporaneous with the consultation process. The environmental baseline defines the current status of the species and its habitat in the action area to provide a platform to assess the effects of the action now under consultation.

A. Status of the species within the action area

Mexican Spotted Owl

Some, but not all, of the project area containing MSO habitat has been surveyed to protocol in conjunction with other projects in 2000, 2002, 2004, and 2005 (Sanders 2007). Table 2 summarizes the survey status of MSO habitat within the wildfire/suppression area, not just that within hazard tree removal corridors along the roads. No MSO were detected during those surveys.

Table 2. Survey status of MSO habitat within the Warm Fire suppression area.

Surveyed		*Unsurveyed*	
Habitat Category	*Acres*	*Habitat Category*	*Acres*
Restricted	4,407.59	Restricted	1,928.25
Target	2,183.66	Target	347.16
Threshold	473.92	Threshold	40.23
Total	7,065.17	Total	2,315.64

The project area was subjected to an intense wildfire. No surveys were conducted in advance of burning, and no surveys have been completed since due to a lack of access, safety concerns, and time of fire occurrence in relation to MSO breeding seasons.

Mexican Spotted Owl Critical Habitat

All of the MSO habitat in the project area is also designated forested critical habitat in MSO critical habitat unit CP-10. Unit CP-10 is 918,000 acres in size, but because not all of that acreage is protected or restricted MSO habitat (USDI 2004), the amount of actual MSO critical habitat in the unit is an unknown smaller proportion of that figure. There is no canyon MSO critical habitat in the project area.

B. Factors affecting the species' environment within the action area

Mexican Spotted Owl

No MSO habitat occurs in the wildland fire use portion of the Warm Fire. MSO habitat occurs in the wildfire/suppression portion of the burned area, and Table 3 summarizes the fire effects in that portion of the Warm Fire.

Table 3. Summary of fire effects to MSO habitat in the wildfire/suppression portion of the Warm Fire.

Habitat Category	*Low Severity (acres)*	*Low-Moderate Severity (acres)*	*Moderate-High Severity (acres)*	*High Severity (acres)*	*Total (acres)*
Restricted	763	658	539	4,374	6,334
Target	309	301	240	1,680	2,530
Threshold	21	58	57	378	514
Totals	1,093	1,017	836	6,432	9,378

Mexican Spotted Owl Critical Habitat

Because all of the MSO habitat in the project area is also designated critical habitat in MSO critical habitat unit CP-10, the fire effects summarized in Table 3 also apply to the critical habitat.

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

In general, MSO can be affected in two major ways. The regular behavior (feeding, sheltering, breeding) of individuals can be affected by noise or other disturbance associated with project activity. The second major category of potential effect to the species is alteration or loss of its habitat.

Most of the MSO habitat involved in the project area has been surveyed for MSO, and no individuals were detected as a result of the surveys. The relevant surveys were conducted in 2000, 2004, 2005, and 2006 prior to other project activities, in accordance with the protocol in effect at the time of the surveys. However, there are unsurveyed areas within the wildfire/suppression area and the hazard tree removal areas (Sanders 2007). The Wildfire/Suppression Area column of Table 4 represents all acres within the suppression area that were not surveyed, and the Hazard Tree Removal Areas column represents all acres in the hazard tree removal corridors along the roads.

Table 4. Unsurveyed MSO habitat in the Warm Fire wildfire/suppression and hazard tree removal areas.

Habitat Category	*Wildfire/ Suppression Area (acres)*	*Hazard Tree Removal Areas (acres)*
Restricted	1,928.25	94.48
Target	347.16	31.90
Threshold	40.23	0.10
Total	2,315.64	126.48

Project implementation will begin as soon as possible during summer 2007 and continue until completed. Some of the project areas were not previously surveyed, and the Forest Service does not plan to survey these areas prior to implementation. Although much of the Warm Fire resulted in high severity burns (Table 3), some herbaceous vegetation remained or responded following the fire in areas that burned at a lower intensity. This regrowth is likely to result in higher populations of small mammals in these areas, increasing the prey base available for MSO or other raptors. It is possible that noise and human activity during hazard tree removal could disturb MSO foraging in or dispersing through the project area.

Table 5 summarizes the amount of MSO habitat in each habitat category that will be affected by the proposed project. All or most of the dead and dying trees will be removed from this habitat.

Table 5. MSO habitat that will be treated with hazard tree removal.

Habitat Category	*Acres*
Restricted	436
Target	288
Threshold	140
Total	864

MSO habitat in the project area sustained a range of fire effects due to the Warm Fire. The proposed project will further remove dead trees in the MSO habitat of the selected treatment areas. The large snag component of the MSO habitat will be reduced by the project. Complete removal of the trees will also affect the recovery of the large down log component of that MSO habitat in the future. Combined with the fire effects, hazard tree removal will result in even-aged stand conditions over a large area until trees age enough to develop mixed-species and uneven-aged conditions. Roadside areas are key zones to protect visitors and allow speedy access into remote areas for future fire suppression. Therefore, these roadside areas will likely not contribute to long-rotation periods and uneven-aged conditions (Sanders 2007), reducing the amount of MSO habitat that can be recovered in the project area.

Large snags are a key habitat component of MSO habitat, and that component will be significantly reduced by the project. The estimated numbers of large (12 inches in diameter at breast height [dbh] or larger) snags to be removed from the 864 acres of MSO habitat are summarized in Table 6.

Table 6. Estimated number of large snags that will be removed in MSO habitat.

Location	*MSO Habitat (acres)*	*Ponderosa Pine*	*White Fir*	*Douglas-fir*	*Engelmann Spruce*	*Aspen*	*Total*
Between mileposts 586 and 594 of Highway 67	243	300	70	28	1	12	411
Forest Service Roads and the Arizona Trail	618	742	185	7,107	247	3,028	11,309
Total	861	1,042	255	7,135	248	3,040	11,720

Trees smaller than 12 inches dbh will not be targeted for removal unless they obstruct equipment access to larger trees, they pose a hazard to cutting crews, or they pose a risk to motorists. Those smaller trees, when cut, would be treated like slash from larger trees during the operation and piled and burned, removed, or chipped. Some aspen may be bucked into segments and left on-site due to limited market and extensive heart rot.

Large down logs are another key habitat component of MSO habitat. Most of the down wood that existed prior to the Warm Fire was probably consumed by the fire. The proposed action will remove the large diameter (3 inches and larger) debris created by removing the hazard trees. In addition, removal of all or most of the standing trees from the treatment areas will preclude the recruitment of large down logs in the treated MSO habitat. Only scattered, residual fire-hardened down wood will remain after hazard tree operations. Portions of Forest Service Road 641U (approximately 2.5 miles), and the tips of roads that overlap Inventoried Roadless Areas will not have trees removed once fallen. Trees may be bucked up to allow them to be manually rolled away from the roadbed, and could be collected by fuel-wood harvesters or others.

Ground-disturbance activities associated with hazard tree removal will also slow recovery of treated MSO habitat. Use of machinery and other project activity on already damaged soils can lead to soil compaction and scarification (Beschta *et al.* 2004, Donato *et al.* 2006). Continued disturbance of the ground could result in less or slower recovery of the vegetation, including trees and understory plant cover, that constitutes MSO habitat.

In summary, the proposed action will adversely affect key habitat components including large snags and large down logs in the 864 acres of MSO habitat in the treatment units. The project will remove most of the key habitat components that remain in the road and trail corridors. These areas will serve as fuelbreaks and safety corridors indefinitely. The Forest Service will not deliberately alter the natural recovery until vegetation is of sufficient density and size to provide a fuels or safety hazard. This management will likely reduce the overstory MSO habitat characteristics from developing. The project will create wider road and trail corridors across the area, limiting recovery of habitat in these corridors. This leads to further habitat fragmentation, reducing value of the area for dispersing and foraging birds.

Mexican Spotted Owl Critical Habitat

All of the 864 acres of MSO habitat selected for treatment are also designated forested MSO critical habitat in critical habitat unit CP-10. The anticipated effects of the action on the primary constituent elements of that critical habitat are summarized below.

30-45 percent of trees are 12 inches dbh or larger

The proposed action will remove most or all of the dead trees from the selected road or trail prisms in the project area. As a result of the Warm Fire, those areas of MSO critical habitat do not currently contain live trees, and the project will not affect the proportion of live trees over 12 inches dbh in the hazard tree removal areas.

Shade canopy of tree branches covering 40 percent or more of the ground

Shade canopy will not be affected within the hazard tree removal areas because living tree canopies no longer exist in the affected MSO critical habitat.

Large snags that are 12 inches dbh or larger

As stated above in the Effects of the Action-Mexican Spotted Owl section, all or most of the trees in the selected treatment areas in MSO habitat will be removed. Thus, all or most (11,720) large snags will be removed from 861 acres of MSO critical habitat. The removal virtually eliminates this primary constituent element in long corridors through the affected MSO critical habitat.

High volumes of fallen trees and other woody debris

As stated above in the Mexican Spotted Owl section, few large down logs and little other woody debris remains in the project area as a result of the Warm Fire. The proposed action will remove the large-diameter debris created by removing the hazard trees, but not the fire-caused existing down wood unless it provides a hazard to crews or the public. Furthermore, removal of all or most standing trees from the treatment areas will preclude the recruitment and recovery of large down logs in the treated MSO critical habitat. Thus, this primary constituent element will also be virtually eliminated in the treated MSO critical habitat.

A wide range of tree and plant species, including hardwoods

Dominant vegetation in MSO critical habitat in the project area prior to the Warm Fire consisted of a mixture of woody plants, warm and cool season grasses, and forbs. Woody plants included aspen, Gambel oak, ponderosa pine, blue spruce, Douglas-fir, white fir, Engelmann spruce, sub alpine fir, Fendler's ceanothus, and New Mexico locust. Those species may recover in the future, depending on how the treatment areas are managed. However, ground activities associated with hazard tree removal will slow the recovery of these species in MSO critical habitat. Effects to the soils from project activity may also differentially affect the recovery of each of the species.

Adequate levels of residual plant cover to maintain fruits, seeds and allow plant regeneration

Due to the fire effects of the Warm Fire, little residual plant cover exists in the MSO critical habitat that will be treated in the proposed action. Plant cover may recover in the future, depending on how the treatment areas are managed. However, ground activities associated with hazard tree removal will slow the recovery of plant cover in MSO critical habitat. Effects to the soils from project activity may also differentially affect the recovery of species that contribute to plant cover.

In summary, the proposed action will adversely affect the primary constituent elements that include large snags, large down logs, and other plant cover in the 864 acres of MSO critical habitat in the treatment units. That habitat will be altered to the point that few to no primary constituent elements will remain. These areas will not be managed to eventually recover to pre-fire conditions due to the treatments. The affected MSO critical habitat will be lost, and will no longer contribute to the survival and recovery of the species.

We know from past experience in occupied areas that, immediately post-fire, MSO use burned forests in the short-term for foraging, roosting, and nesting due to increased prey response following understory production (Bond *et al.* 2002). In the longer-term, severely burned areas across large landscapes may offer less use to MSO. However, as the MSO habitat affected by the Warm Fire recovers either naturally and/or with human facilitation, MSO in the area will eventually be able to use the habitat again for foraging, sheltering, dispersal and other movements, and reproduction. The Kaibab Plateau may play an important role in dispersal of MSO from canyon habitats in Utah to those in northern Arizona. Future management of burned MSO critical habitat in the Warm Fire area to recover the primary constituent elements that have been lost can play an important role in recovery of the MSO.

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.

The action area occurs entirely on Federal land, and therefore non-Federal actions are likely to be minimal. Private actions that are likely to occur within the action area include various forms of recreation such as sightseeing, camping, hunting, horse riding, hiking, and biking.

CONCLUSION

After reviewing the current status of the MSO and MSO critical habitat, the environmental baseline for the action area, the effects of the proposed project in the North Kaibab Ranger District, and the cumulative effects, it is our biological opinion that the Warm Fire Hazard Tree Removal projects in the Kaibab National Forest, as proposed, are not likely to jeopardize the continued existence of the MSO, or result in adverse modification of MSO critical habitat.

We present this conclusion for the following reasons:

1. No designated MSO PACs are in the project area.

2. The proposed action is of limited scope and duration.

3. The project will affect 864 acres of MSO critical habitat which is an unknown but very small percentage of critical habitat in the CP-10 critical habitat unit (USDI 2004).

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 regulation 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 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 (50 CFR 17.3). "Harass" is defined 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 (50 CFR 17.3). "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 action will incidentally take any MSO.

Disposition of Dead or Injured Listed Species

Upon locating a dead, injured, or sick listed species, initial notification must be made to our Law Enforcement Office, 2450 West Broadway Road, 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 care, and in handling dead specimens to preserve the biological material in the best possible state.

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.

We have not identified any conservation recommendations.

REINITIATION NOTICE

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

We appreciate your efforts to identify and minimize effects to listed species from this project. For further information, please contact Bill Austin at (928) 226-0614 (x102) or Brenda Smith (x101).

Sincerely,

/s/ Steven L. Spangle
Field Supervisor

cc: Forest Supervisor, Kaibab National Forest, Williams, AZ

Chief, Habitat Branch, Arizona Game and Fish Department, Phoenix AZ
Regional Supervisor, Arizona Game and Fish Department, Flagstaff, AZ
Shaula Hedwall, Fish and Wildlife Service, Flagstaff, AZ

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APPENDIX A - CONCURRENCE

We concur with your determination that the proposed project may affect, but is not likely to jeopardize, the nonessential experimental population of the California condor. We base this concurrence on the following measures that are part of the proposed action (Sanders 2007):

1. At least one week prior to the beginning of any human project-related activity, the district biologist will contact the Peregrine Fund to identify condor locations and type of behavior or activity in or near the activity area. If multiple activities are undertaken within a similar timeframe, condor activity will be monitored by the district biologist during that period rather than for a specific treatment type. Educate all crews about the potential for condors to arrive on-site, and the appropriate actions to take.

2. While nesting activity is likely limited in and adjacent to potential treatment areas, condors may select a nest site within or near the project boundary. If condor nesting activity is identified within 0.5 mile of any treatment area, some types of activity may require adjustments to work areas (i.e. shifting to another area away from nesting area, etc.), or limitations to human disturbance during the nesting season. Different activities have different effects on condor behavior; therefore, no set direction can be given for all activities.

3. The need to alter implementation schedules, adjust work areas, or take other appropriate action will be evaluated by the district biologist and applied when condor nesting near a project site becomes an issue, on a case-by-case basis. FWS Biologists may be notified to assist in project adjustments to protect condors as needed. The important factor is rapid notification to avoid condor or human injury, and appropriate steps to allow project continuation without interfering with condor behavior.

4. If condors arrive and remain in or are very near human activity areas, the following actions will be taken:

    - Elevate the awareness of crews working in the area of the potential for condors to visit an area

    - Educate crews working in the area of potential visitation by condors and how to respond.

    - Prior to the start of a project component, the district contact personnel monitoring condor locations and movement to determine condor status in or near the project.

    - Project workers and supervisors will be instructed to avoid interaction with condors and to contact the appropriate personnel immediately if and when condor(s) occur at a project site.

    - If a condor occurs at the project site, permitted personnel (biologists) will employ techniques to cause the condor to leave the site as necessary. The particular

project activity will temporarily cease if injury of a condor is imminent, until a biologist can assess the situation and determine the correct course of action.

- Project sites will be cleaned up at the end of each work day (i.e., trash disposed of, scrap materials picked up) to minimize the likelihood of condors visiting the site. District condor staff will complete a site visit to ensure adequate clean-up measures.

- To prevent water contamination and potential condor poisoning, the district-approved vehicle fluid-leakage and spill plan will be adhered to. The plan will be reviewed by the district biologist for adequacy in addressing condors.