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In Reply Refer To:  
AESO/SE  
02-21-05-F-0800

April 7, 2006

Mr. Lawrence Rudolph  
General Counsel  
National Science Foundation  
4201 Wilson Boulevard  
Arlington, Virginia 22230

Dear Mr. Rudolph:

This biological opinion (BO) responds to your request for formal consultation pursuant to section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. *et. seq.*, ESA) (ESA). Your request for formal consultation was dated November 30, 2005, and received by us December 1, 2005. At issue are impacts that may result to the threatened Mexican spotted owl (*Strix occidentalis lucida*) (MSO) from the proposed construction of the VERITAS (the Very Energetic Radiation Imaging Telescope Array System) project on Kitt Peak, within the Tohono O'dham Nation (TON), Pima County, Arizona.

This BO is based on information provided in the November 2005 biological assessment (BA) prepared by SWCA Environmental Consultants, meetings, and other sources of information. Literature cited in this BO is not a complete bibliography of all literature available on the species of concern, the effects from development, the project area, or other subjects considered in this opinion. A complete administrative record of this consultation is on file at the Arizona Ecological Services Office.

**Consultation History**

- June 1, 2005: We received your request for informal consultation, through your consultant, SWCA, on the VERITAS project. We asked you to provide the BA to TON for their review.
- August 2, 2005: SWCA sent the BA to TON for their review.
- August 22, 2005: We provided technical assistance to TON, at their request, to survey for the MSO on Kitt Peak.
- September 22, 2005: TON sent their comments on the BA to SWCA.

- September 23, 2005: We sent a letter to SWCA expressing our concerns with the determination of effects to MSO and encouraged the National Science Foundation (NSF), Department of Energy (DOE), and the Smithsonian Institute, to coordinate with TON to address their biological concerns with the proposed project.
- October 24, 2005: We met with Bureau of Indian Affairs (BIA), TON, SWCA, NSF, and the Smithsonian to discuss the project effects, address mitigation concerns and develop the timeline for completion of the biological assessment. NSF and the Smithsonian Institute agreed to revise the BA to reflect concerns of TON and the BIA. The revised BA was to be completed within two weeks and all parties were to be sent a draft for review.
- November 21, 2005: We received comments from BIA on the revised BA, dated November 18, 2005.
- December 8, 2005: We received comments from TON on the revised BA, dated December 6, 2005.
- December 1, 2005: We received the request from NSF for formal consultation, dated November 30, 2005. Based on a telephone conversation we had with NSF, SWCA, and the Smithsonian Institute on November 22, 2005, we agreed to expedite the BO.
- December 28, 2005: Draft BO sent to NSF.
- February 10, 2006: We received comments from NSF on the draft BO.
- February 23, 2006: We clarified your comments during a phone conversation and modified text for the final BO.
- February 28, 2006: NSF agreed to share the draft BO with TON and BIA and sent the document to them for comments.
- March 21, 2006: NSF transmitted comments from TON and the BIA, asking us to finalize the BO.

## **BIOLOGICAL OPINION**

### **DESCRIPTION OF THE PROPOSED ACTION**

The applicants (NSF and the DOE) propose to fund the construction of a four-telescope array on Kitt Peak. The telescopes are identical and provide ground-based capability to study extremely energetic gamma rays potentially produced from a variety of astrophysical sources. A control

building, dormitory, communications link, and inter-telescope roads with underground utilities are also part of the proposed action. NSF operates Kitt Peak National Observatory on the TON under a long-term lease agreement. The proposed site for VERITAS is a 25-acre parcel located west of Kitt Peak in Horseshoe Canyon, south of State Route (SR) 86 and is within the NSF leasehold area. The proposed footprint for the project is 10 acres. This consultation does **not** cover the clearing of the ten-acre site, construction of inter-telescope roads, or the construction of four concrete pads, water tank installation and utilities. These activities were conducted in 2004.

### Construction

Remaining construction work consists of constructing two concrete foundations for the control building and dormitory, pouring concrete, and placement of building utilities. Some isolated rocks may have to be broken with a jack-hammer (30 percent chance), but no blasting will occur. There is a very slight chance (20 percent) that five trees with a diameter at breast height (dbh) greater than 9 inches will have to be removed and will require the use of a chainsaw for one day. This construction is expected to last 2 months and will be completed outside of the MSO breeding season, with the exceptions noted below in the proposed conservation measures.

### Installation

The next phase the project consists of the installation of the four telescopes and their associated sheds. The major components are fabricated off site. The sheds will arrive fully assembled and will be lifted into place. Each telescope/shed installation requires approximately 15 days of crane operation distributed over 4 to 8 weeks. The dormitory and control buildings will arrive disassembled in metal pieces and will be fabricated on site over approximately 2 weeks, and installed on the previously constructed concrete foundations. Completion of the interiors of the buildings would then take approximately an additional month of activity that will occur indoors. All operations will occur during daytime hours, excluding dawn and dusk. NSF proposes to proceed with installation work without MSO breeding season restrictions.

### Operation

The long-term operation of the site will consist of three astronomers staying in the dormitory during operations. They will enter the control room primarily at night, but may also enter during the day to work on data analysis, calibrations, etc. There will be periodic checks of the equipment outside. Mirror alignment will take place once a year using manlifts. This activity will take place at night. There is a backup generator at the site that will be used in the event of power failure.

### **Proposed Conservation Measures**

1. NSF and DOE will conduct one season of MSO protocol surveys (following our 2003 MSO recommended survey protocol), starting March 2006, to determine the breeding status of the MSO (male) that has been detected near the picnic area, approximately 0.5 mile (mi) from the 10-acre disturbance zone. These agencies will also map surrounding

vegetation and share the information with TON staff to aid in the refinement of MSO PAC boundaries, if the TON determines a revision is needed. If protocol surveys determine MSO non-reproductive status by July 15, then activities described in the construction section above can be initiated. No construction work will begin until after the MSO protocol surveys have been conducted and non-reproductive status for that year is verified. Should protocol surveys verify MSO reproductive status, work can only be initiated after discussions with us have taken place and appropriate mitigation measures, if any, are agreed upon.

2. Installation activities can be conducted without MSO breeding season restrictions, except that all activities will take place during daylight hours, avoiding the times when the MSO is likely to be foraging (dawn and dusk hours). To further minimize noise disturbance associated with installation, the use of air wrenches to bolt the telescopes on the slabs will be restricted to nut/bolt placement only; the nuts will be tightened by hand, or quiet electrical torque wrenches, to avoid the loud noise associated with tightening the nuts/bolts with the air wrenches.
3. The agencies are required to seek input from TON and BIA regarding revegetation of the area using native grasses, trees, and shrubs. A landscape maintenance plan will be developed and implemented to ensure the survival of the plant material.
4. The agencies will require the project comply with Kitt Peak National Observatory's existing fuel reduction program.
5. The agencies will not authorize the removal of any more than five trees greater than 9 in. DBH.

## **STATUS OF THE SPECIES**

### **Mexican Spotted Owl**

The Mexican spotted owl was listed as a threatened species in 1993 (USDI 1993). The primary threats to the species were cited as even-aged timber harvest and the threat of catastrophic wildfire, although grazing, recreation, and other land uses were also mentioned as possible factors influencing the MSO population. We 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). The Recovery Plan is currently being revised and will be out for public review in 2006.

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,

well-structured 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 2 National Forests in Colorado and 3 in Utah) support fewer owls. According to the Recovery Plan, 91% of MSO known to exist in the United States between 1990 and 1993 occurred on lands administered by the Forest Service.

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  $2,950 \pm 1,067$  (SE) MSOs in the Upper Gila Mountains RU alone. The Forest Service Region 3 most recently reported a total of approximately 987 protected activity centers (PACs) established on National Forest lands in Arizona and New Mexico (USDI 2005). Based on this number of MSO sites, total numbers in the United States may range from 987 individuals, assuming each known site was occupied by a single MSO, to 1,960 individuals, assuming each known site was occupied by a pair of MSOs. The Forest Service Region 3 data are the most current compiled information available to us; however, survey efforts in areas other than National Forest System lands have likely resulted in additional sites being located in all Recovery Units. Currently, we estimate that there are likely 12 PACs in Colorado (not all currently designated) and 105 PACs in Utah.

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 initial publication of the findings reported that both study populations were declining at  $\geq 10\%$  a year and that owl survival rates in Arizona may be declining over time (Seamans *et al.* 1999). The authors noted two possible reasons for the population decline were declines in habitat quality and regional trends in climate. 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 ( $\Lambda = \text{Lamda}$ ) indicated that the Arizona population was stable (mean  $\Lambda$  from 1993 to 2000 = 0.995; 95% Confidence Interval = 0.836, 1.155) while the New Mexico population declined at an annual rate of about 6% (mean  $\Lambda$  from 1993 to 2000 = 0.937; 95% Confidence Interval = 0.895, 0.979). The study concludes that spotted owl populations could experience great ( $>20\%$ ) 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.

The current condition of MSO habitat within Arizona and New Mexico is a result of historical and recent human use, as well as climate change, vegetative species conversion, and wildfires. 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 which 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 catastrophic 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. Unfortunately, due the secretive nature of owls and the lack of intensive monitoring of banded individual 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. Mexican spotted owl habitat in the southwestern United States has been shaped over thousands of years by fire. Since MSO occupy a variety of habitats, the influence and role of fire has most likely varied throughout the owl's range. In 1994, at least 40,000 acres of nesting and roosting habitat were impacted to some degree by catastrophic fire in the Southwestern Region (Sheppard and Farnsworth 1995). Between 1991 and 1996, the Forest Service estimated that approximately 50,000 acres of owl habitat has undergone stand replacing wildfires (Sheppard and Farnsworth 1995). However, since 1996, fire has become catastrophic on a landscape scale and has resulted in hundreds of thousands of acres of habitat lost to stand-replacing fires. This is thought to be a result of unnatural fuel loadings, past grazing and timber practices, and a century of fire suppression efforts. The 2002 Rodeo-Chediski fire, at 462,384 acres, burned through approximately 55 PACs on the Tonto and Apache-Sitgreaves National Forests and the White Mountain Apache Reservation (within the Upper Gila Recovery Unit). Of the 11,986 acres of PAC habitat that burned on National Forest lands, approximately 55% burned at moderate to high severity. Based on the fire severity maps for the fire perimeter, tribal and private lands likely burned in a similar fashion. We define moderate severity burn as high scorch; trees burned may still have some needles and high severity burn as completely scorching all trees (trees completely dead).

The Basin and Range West RU encompasses a small portion of New Mexico and the majority of southern Arizona and is the second largest RU in the United States. The base of the Mogollon Rim defines the northern border of this RU. The western boundary defines the western extent of the MSO's range. Land ownership within this RU is a mosaic of public and private lands, with the MSO primarily occupying Forest Service lands. The Forest Service has designated 154 PACs on the Coronado, Tonto, Prescott, and Apache-Sitgreaves National Forests within the Basin and Range West RU.

The RU is characterized by numerous mountain ranges, which rise abruptly from the broad, plain-like valleys and basins. In southern Arizona, these mountain ranges are often referred to as the Sky Islands. Vegetation ranges from desert scrubland and semi-desert grassland in the valleys upwards to montane forests (chaparral and pine-oak woodlands at low and middle elevations and ponderosa pine, mixed-conifer, and spruce-fir forests at higher elevations). Within the Sky Islands, MSO habitat is characterized by woodland habitat, and territories occur in both heavily forested terrain and in areas with hardwood and conifer stringers dominated by Madrean evergreen woodland. In general, however, much of the MSO habitat occurs in forested, steep-slope canyons and drainages. The mature trees throughout much of the forest outside of these canyons and drainages have been partially or completely harvested.

The primary threats to MSO within this RU are catastrophic wildfire, recreation, and livestock grazing (USDI 1995). As in the Upper Gila Mountain RU, this area has experienced multiple wildfires that have influenced MSO habitat. The Clark Peak, Gibson Canyon, Miller, Noon, Rattlesnake, Shovel, Bullock, and Oversite fires burned at varying intensities throughout MSO PACs on the Coronado National Forest. The Four Peaks/Lone Fire was a catastrophic, high-intensity wildfire on the Tonto National Forest that burned through two MSO PACs. In 2003, there were two fires that burned at high-intensity across significant acreage that included MSO habitat. The Aspen Fire on the Coronado National Forest burned approximately 85,000 acres and partially burned nine MSO PACs and the Helen's 2 Fire burned approximately 3,500 acres and impacted three MSO PACs within Saguaro National Park. The 2004 Nuttall Complex Fire in the Pinaleno Mountains burned approximately 29,725 acres and potentially impacted 20 PACs. However, a majority of the acreage in MSO habitat burned at moderate fire severity and the long-term effects to MSO habitat are not known.

The Coronado, Tonto, and Prescott National Forests are used heavily for recreation, mainly due to their proximity to the large urban areas of Tucson and Phoenix. Riparian areas may provide important dispersal habitat between mountain ranges in this RU, so grazing in these areas is of concern due to potential negative impacts.

There are a total of 38 wildland urban interface projects in this RU. Nineteen of the proposed projects contain MSO PACs; 28 PACS within this project area will receive fuels reduction treatments. The Prescott National Forest is expecting to treat seven of the 15 known PACs on the forest. The WUI programmatic biological opinion states that only four of the PACs are expected to receive intensive treatments. Approximately 8,927 acres of protected habitat and 55,000 acres of restricted habitat occur within the proposed project area. No more than 2,000 acres of protected habitat are expected to be intensively treated, with the remainder of protected habitat treated per the recommendations in the Recovery Plan. The restricted habitat is all located within 0.5 mile of private land and will most likely receive fairly intensive treatments.

Since the owl was listed, we have completed or have in draft form a total of 157 formal consultations for the MSO. These formal consultations have identified incidences of anticipated incidental take of MSO in 361 PACs. The form of this incidental take is almost entirely harm or harassment. These consultations have primarily dealt with actions proposed by the Forest Service, Region 3. However, in addition to actions proposed by the 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 biological opinions that the proposed action would likely jeopardize the continued existence of the MSO.

In 1996, we issued a biological opinion on Region 3 of the Forest Service adoption of the Recovery Plan recommendations through an amendment to their Land and Resource Management Plans (LRMPs). In this non-jeopardy biological opinion, we anticipated that approximately 151 PACs would be affected by activities that would result in incidental take of MSOs, with approximately 61 of those PACs located in the Basin and Range West RU. In addition, on January 17, 2003, we completed a reinitiation of the 1996 Forest Plan Amendments biological opinion, which anticipated the additional incidental take of five MSO PACs in Region 3 due to the rate of implementation of the grazing standards and guidelines, for a total of 156 PACs. Consultation on individual actions under these biological opinions resulted in the harm and harassment of approximately 243 PACs on Region 3 National Forest System Lands. Region 3 of the Forest Service reinitiated consultation on the LRMPs on April 8, 2004. On June 10, 2005, the FWS issued a revised biological opinion on the amended LRMPs. We anticipated that while the Region 3 Forests continue to operate under the existing LRMPs, take is reasonably certain to occur to an additional 10 percent of the known PACs on Forest Service lands. We expect that continued operation under the plans will result in harm to 49 PACs and harassment to another 49 PACs. To date, consultation on individual actions under the amended Forest Plans, as accounted for under the June 10, 2005, biological opinion has resulted in 14 PACs adversely affected (11 PACs harmed, 3 PACs harassed), with 9 of those PACs in the Basin and Range West RU and 5 in the Upper Gila Mountains RU.

#### 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, proposed 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% to 45% of which are large trees with dbh of 12 inches or more;
- A shade canopy created by the tree branches covering 40% 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 16 critical habitat units located in the Basin and Range West RU that contain approximately 1.2 million acres of designated critical habitat.

## **ENVIRONMENTAL BASELINE**

The environmental baseline includes past and present impacts of all Federal, State, or private actions in the action area, the anticipated impacts of all proposed Federal actions 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 from which to assess the effects of the action now under consultation.

### **A. Status of MSO within the action area.**

The action area for this project is the preliminary PAC, as delineated by TON staff, which encompasses 640 acres surrounding the area where a male MSO has been detected. The PAC was delineated by TON staff based on preliminary vegetation work and is believed to represent the best breeding and foraging habitat based on the preliminary work. We acknowledge that you do not believe that the area supports MSO breeding or roosting habitat, and that you believe that

the delineation of a PAC is premature, but the MSO recovery plan recommends that PACs be established at all known MSO sites. Therefore, we acknowledge and accept the current delineation of the PAC, with the caveat that the TON, in collaboration with NSF, may refine the boundaries based on vegetation information and additional MSO survey results collected in 2006.

One male MSO was detected in 2005 approximately 0.5 mi from the project site. There had been previous reports of MSO presence, in this same general vicinity, in 1997, 1999, 2001, and May 2003. We confirmed the presence of one male MSO in August 2005 in this area. There have been no MSO protocol surveys conducted in the action area.

#### **B. Factors affecting MSO in the action area.**

The picnic area, which is within the general area where one MSO has been seen, is used quite often by recreationists. We have no information to assess what the effects of the use of the picnic area are on MSO in this area.

#### **C. Status of Critical Habitat within the action area.**

There is no designated critical habitat for MSO on the TON.

### **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 or interdependent with that action, which 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.

The 10-acre project footprint lies within the PAC. We acknowledge that the majority of disturbance (the clearing) occurred in 2004, before the PAC delineation. The remaining construction work proposed will occur outside of the MSO breeding season, or will not be initiated until after non-reproductive status is confirmed for the year. It should be noted, despite the clearance activities that took place in 2004, that a male MSO was detected in 2005, in the area where one MSO had been reported on previous occasions, near the picnic grounds. The picnic grounds are at least one-half mile from the construction area associated with this project. NSF has stated that there is a 25-acre study area for the telescopes, but disturbance is confined to 10 acres within that 25-acre study area. The surrounding vegetation in the 25-acre site remains intact. This means there is a buffer between the construction area and the location where this MSO has been detected.

Noise associated with construction activities should not affect MSO because those activities will occur outside of the MSO breeding season, as recommended by the MSO recovery plan. There

is the slight chance that five trees greater than 9 in. dbh may possibly be removed during construction. Although the MSO recovery plan recommends that no trees greater than 9 in. dbh be removed from inside of a PAC, we believe that the removal of these trees will not compromise the foraging and breeding behavior of this, or any future MSOs because of the large amount of surrounding habitat that is available and undisturbed. We do not know how many trees were removed during the 2004 clearance, but it would seem that their removal has not affected the foraging behavior of MSO because there is still one bird, at least, using the area. Also, the replacement of trees is part of the revegetation plan for the cleared area, so any effects of tree loss will not be permanent.

Noise and other disturbances (vehicle traffic) associated with the installation activities, which will take place during the MSO breeding season, are not anticipated to significantly affect this or future MSOs. The installation activities generate the least amount of noise (compared to the construction activities), they will take place during daylight hours, and the agencies are making every attempt to minimize noise, such as reduced use of the air wrenches for installing the telescopes. MSO may be disturbed by some noise, but there are other easily accessible and available areas where an owl can roost during the day.

The long-term operation of the telescopes is not anticipated to affect this or future MSOs. Most activities will generate very little noise, will be extremely short-term, and are not anticipated to significantly disturb MSOs. The only possible exception may be the use of the backup generator. We believe the use of the generator will be sporadic and will not occur over an extended period of time; therefore effects to MSOs from the operation of the telescopes are considered minor.

## 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 project area is located on lands leased to NSF, managed under the terms of the lease by KPNO and owned by TON. All parties have indicated that future development is anticipated to be minimal. We know of no plans for activities in the area.

## CONCLUSION

After reviewing the current status of MSO, the environmental baseline for the action area, the effects of the proposed action and the cumulative effects, it is our biological opinion that the proposed action is not likely to jeopardize the continued existence of MSO. No critical habitat has been designated on TON; therefore, none will be affected. In making our determination we considered the following:

- The agencies will not construct during the MSO breeding season, as recommended in the MSO recovery plan. They will also conduct MSO protocol surveys to determine if the

MSO in the action area is in reproductive status in 2006. If the bird is determined to be in non-reproductive status, work may be initiated after July 15, 2006. This will minimize the effects from construction on breeding and nesting behavior, if it is applicable.

- Installation activities are not anticipated to reduce the suitability of the area for foraging because it will not result in the removal of vegetation. Noise associated with installation will be minimized and is not anticipated to affect the foraging behavior of the MSO. In addition, the vegetation surrounding the 10-acre construction zone is intact and is expected to provide a noise buffer between the construction zone and the area where the MSO has been detected, which is about one-half mile distant.
- The agencies have agreed to revegetate the site with the appropriate native vegetation, in order to minimize the loss of foraging habitat. This will be done in consultation with TON. It is anticipated that the effect from the action will not be permanent, but may result in a short-term adverse effect to the species. Previous actions (clearing and associated noise) did not appear to displace MSO from the general area.

## **INCIDENTAL TAKE STATEMENT**

Sections 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 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.

For the purpose of evaluating incidental take of MSO from the action under consultation, incidental take can be anticipated as either the direct mortality of individual birds, or the alteration of habitat that affects behavior (i.e. breeding or foraging) of birds to such a degree that the birds are considered lost as viable members of the population and thus "taken." They may fail to breed, fail to successfully rear young, raise less fit young, or desert the area because of disturbance or because habitat no longer meets the owl's needs.

In past Biological Opinions, we used the management territory to quantify incidental take thresholds for the MSO (see Biological Opinions provided to the Forest Service from August 23, 1993 through 1995). The current section 7 consultation policy provides for incidental take if an activity compromises the integrity of an occupied PAC to an extent that we are reasonably

certain that incidental take occurred. Actions outside PACs will generally not cause incidental take, except in cases when areas that may support owls have not been adequately surveyed.

Using available information as summarized within this document, we have identified no incidental take of MSO associated with the proposed action. We believe the proposed conservation measures will minimize the effects of the actions and that there will be no direct mortality of a MSO from this action. We also believe that habitat within the PAC will not be altered to the point that the bird is not able to function (breed or forage) in the future. Indeed, the bird seems to continue to use the area, despite a much larger disturbance from previous actions in the same area.

## **CONSERVATION RECOMMENDATIONS**

Section 7(a)(1) of the ESA directs Federal agencies to utilize their authorities to further the purposes of the ESA 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 agencies coordinate and share their 2006 vegetation mapping, and future work with the TON and the BIA. This will allow the TON to adjust the boundaries of the PAC, based on vegetation information gathered in 2006, if needed.
2. We recommend that the agencies conduct more than one year of protocol survey to determine the breeding status of the MSO. One year of protocol surveys is not conclusive in determining the reproductive status of the bird.
3. We recommend that the agencies develop a protocol for inviting the active and early involvement of the TON and BIA in projects occurring on lands under their control and management.
4. We recommend that the agencies coordinate with TON staff if tree removal is necessary.

In order that we are kept informed of actions minimizing or avoiding adverse effects or benefitting listed species or their habitats, we request notification of the implementation of any conservation recommendations.

## **REINITIATION NOTICE**

This concludes formal consultation on the VERITAS project. 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 (not applicable to this consultation); (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.

We appreciate your efforts to identify and minimize effects from this project. If we can be of further assistance, please contact Mima Falk (520) 670-6150 (x225) or Sherry Barrett (520) 670-6150 (x223). Please refer to consultation number 02-21-05-F-0800 in future correspondence regarding this project.

Sincerely,

/s/ Steven L. Spangle  
Field Supervisor

cc: Assistant Field Supervisor, Fish and Wildlife Service, Tucson, AZ  
Bureau of Indian Affairs, Western Regional Office, Phoenix, AZ (Attn: Amy Heuslein)  
Assistant Field Supervisor, Fish and Wildlife Service, Flagstaff, AZ (Attn: Shaula Hedwall)  
Tohono O'Odham Nation, Natural Resource Department, Wildlife and Vegetation  
Management Program, Sells, AZ (Attn: Selso Villegas, Karen Howe)

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