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AESO/SE  
02-21-04-F-0006

May 4, 2006

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

RE: Chitty Creek Restoration Project

Dear Ms. Zieroth:

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 August 30, 2005, and received by us on September 1, 2005. At issue are impacts that may result from the proposed Chitty Creek Restoration Project located in Greenlee and Apache Counties, Arizona. Your biological assessment and evaluation (BAE) concluded that the proposed project “may affect, and is likely to adversely affect”, the Mexican spotted owl (*Strix occidentalis lucida*) (MSO) and its critical habitat.

You determined that the project “may affect, but is not likely to adversely affect”, the jaguar (*Panthera onca*), bald eagle (*Haliaeetus leucocephalus*), Southwestern willow flycatcher (*Empidonax traillii extimus*), Chiricahua leopard frog (*Rana chiricahuensis*), loach minnow (*Tiaroga cobitis*), spikedace (*Meda fulgida*), and Gila chub (*Gila intermedia*); and “not likely to jeopardize” the continued existence of the Mexican gray wolf (*Canis lupus baileyi*). We concur with your determination for the jaguar, bald eagle, Southwestern willow flycatcher, Chiricahua leopard frog, loach minnow, spikedace, Gila chub, and Mexican gray wolf, and our reasoning is provided in Appendix A. We did not concur with your determination for the Gila trout (*Oncorhynchus gilae*). Your office subsequently withdrew consultation for the Gila trout.

The FWS informed the Forest of the presence of proposed spikedace and loach minnow critical habitat within the Chitty Creek Restoration action area. The Forest acknowledged that the proposed action is “not likely to adversely affect” proposed critical habitat for the spikedace loach minnow and requested an informal conference. Our informal conference is provided within Appendix A of this document.

This biological opinion is based on information provided in the August 30, 2005, BAE, the July 2005, environmental assessment, telephone conversations and emails with wildlife biologist Joshua Chapman and fire management specialist Kim Kuhar of 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 of concern, prescribed fire, and thinning and their effects, or on other subjects considered in this opinion. A complete administrative record of this consultation is on file at this office.

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## CONSULTATION HISTORY

- 2002 - Clifton District biologist Lance Koch discussed the Chitty Creek Restoration Project with Debra Bills (AESO).
- April 2003 – AESO staff Debra Bills, Jennifer Graves and Ryan Gordon participated in field visit of the Arrow Fire and discussion of Chitty Creek Restoration Project.
- February 2005 - Clifton District personnel made a presentation to the AESO in Phoenix, on the Chitty Creek Restoration Process, with AESO staff in attendance.
- June 22, 2005 – We received your request for formal consultation and BAE for the Chitty Creek Restoration Project.
- July 28, 2005 – We sent an electronic mail to Josh Chapman, Wildlife Biologist, Clifton Ranger District, requesting additional information.
- July 29, 2005 – We received an electronic mail from Josh Chapman, Wildlife Biologist, Clifton Ranger District, addressing the additional information request. Information necessary to initiate formal consultation is complete.
- August 10, 2005 - We responded to your request with a letter initiating formal consultation.
- September 13, 2005 – We requested additional information pertaining to the status of the MSO and factors affecting the MSO within the action area.
- September 14, 2005 – We received the additional information pertaining to the status of the MSO and factors affecting the MSO within the action area.
- November 7, 2005 – Email between Ryan Gordon and Josh Chapman regarding Chiricahua leopard frog and the analysis of effects discussion within the BAE.
- November 28, 2005 – We sent a letter explaining the reason for not concurring with your “may affect, not likely to adversely affect” determination for the Gila trout and requested additional clarification on prescribed burns within the riparian areas.
- January 9, 2006 – We received your amendment to the BAE and your request to withdraw consultation on the Gila trout. 135 days begin.
- February 23, 2006 – We received an email from Joshua Chapman requesting an informal conference for proposed spikedace and loach minnow critical habitat.
- March 21, 2006 – We sent the draft biological opinion for formal review.
- April 21, 2006 – We received notification from ASNF to finalize the biological opinion.
- May 23, 2006 is the date that the consultation period ends

## BIOLOGICAL OPINION

### DESCRIPTION OF THE PROPOSED ACTION

The Clifton Ranger District is proposing a forest fuels management project including prescribed fire and noncommercial understory thinning within the Chitty Creek Restoration Project area located within the Apache – Sitgreaves National Forest (ASNF) approximately 30 miles south of Alpine in Greenlee County, Arizona (see Figures 1 and 2 for map of action area and burn and thinning blocks). The action area includes the 14,000 acres (National Forest land only) proposed for treatment and the 232,359 acres potentially impacted by smoke dispersal and downstream effects. The application of prescribed fire will occur across all acres, while thinning (by chainsaw) will occur on up to 1,400 acres (see Figure 1). Additional limited removal of trees

and limbs along trails, roads, and natural barriers for pretreatment of burn units will occur. The initial action is scheduled to take place in the fall of 2006, with subsequent re-entries through the fall of 2015.

The purpose of the project is to restore ecosystem functionality to allow for the reintroduction of natural fire to occur in the project area. The specific objectives of the project include the following:

- Reduce stems in the forested types by 50-70% in the 0-5" size class.
- Maintain or reduce existing dead and down fuel loadings for all size classes by 10-50%.
- Improve soil conditions and nutrient cycling through reduction of surface litter by 10-50%.
- Improve herbaceous diversity through reduction of surface litter, 0-5" size class trees, and decadent shrub stands.
- Reintroduce fire to the ecosystem as a natural disturbance factor based on historical fire regimes.
- Improve vegetative diversity, resilience, and overall resistance to large scale high severity fire.
- Protect values at risk such as MSO PACs, wetland and riparian habitats.
- Protect areas above the Mogollon rim from the impacts of high-severity fire traveling from the project area.

Currently, the Chitty Creek area is classified as Fire Regime Current Condition Class (FRCCC) 3, which is defined as having a high departure from the natural (historical) regime of vegetation characteristics; fuel composition; fire frequency, severity and pattern; and other associated disturbances (Schmidt et al. 2002). Areas classified as FRCCC 3 may need a high level of restoration, including thinning and the application of prescribed fire to return them to a condition that is allowable for the reintroduction of a natural (historical) fire regime and wildland fire use. The action area has been divided into five land blocks (see Figure 1) to facilitate management of prescribed fire. Blocks were delineated using combinations of topographical features, changes in vegetation, or existing fire holding lines such as roads or trails. A proposed timeline for treatments within each block is found in the BAE. Spring burns (mountain brush only, see description in BAE) will occur between April 1 and May 30, and fall burns (pine and mixed conifer only) will occur between September 1 and October 31. Thinning, line enhancement and construction, and line rehabilitation may occur at any time of the year.

- Block A is 3,932 acres and is characterized by steep slopes, mixed conifer to pine/oak vegetation associations with mountain shrub vegetation occupying southerly aspects. Gila trout reintroduction in Chitty Creek is planned within this block.
- Block B is 1,369 acres is adjacent to Block A and is characterized by steep slopes, mixed conifer to pine/oak vegetation associations with mountain shrub vegetation occupying southerly aspects. This block encompasses the Blue Vista MSO PAC.
- Block C is 3,681 acres and is characterized by long ridges covered by pinyon-juniper with slope varying from flat on ridge tops to steep within canyons.

- Block D is 4,522 acres and is characterized by long ridges covered by pinyon-juniper with slope varying from flat on ridge tops to steep within canyons.
- Block E is 1,200 acres and is characterized by mixed conifer forest and extensive aspen stands interspersed throughout the block. Terrain is flat to rolling with mild slopes.

### ***Prescribed Fire***

Entries of fire will occur at 3-5 year intervals for Block's A, C, D, and E over a 10 year period. Applications of fire will occur in the fall, in mixed conifer and pine forest and in the spring in woodland and shrub communities. Application will occur over multiple years with some areas experiencing repeated entries of fire. Both hand and aerial ignition methods may occur during burn operations and firing techniques may be altered to reduce mortality and potential high severity impacts on the landscape. Head fire<sup>1</sup> will be applied in woodland and shrub types. Treatment of woodland and shrub communities will require pretreatment of adjacent forested areas prior to application of fire. This is to reduce the chance of fire spotting or being carried by unconsumed fuels between vegetation types. Hotter burning areas within the treatment area may be cooled by helicopter bucket drops, with water being acquired at the Strayhorse dip site (at the Strayhorse Helispot, see Figure 1). Helicopter bucket drops may also be used as a holding measure along the fire line, or to reduce spot fires. No chemical retardant will be dropped during any prescribed fire event.

Fire entries into the pine type will be spaced by a period of at least three years, with a maximum number of fire entries of three times in the 10 year time frame of this document. The fire return interval may be greater than three years, depending upon the results of earlier fire entries. The brush type may be treated in year 1, year 5, and year 10, but with a minimum space of at least three years between the applications of fire. During any one application 50-70% of the treated area will be affected by fire of varying intensities. Fire will be applied to create a mosaic of patch burns over all blocks. A range of weather and fuel conditions will be utilized in the application of prescribed fire. Moisture trends in all fuel strata will be monitored over time to determine appropriate application of fire.

Block B will be treated with the pine and mixed conifer prescription in the fall (outside of the MSO breeding season). This Block will be burned during the first year of ignition, but will not be burned for at least seven years to allow for a reestablishment of rodent populations within the Blue Vista MSO PAC and to reduce direct disturbance to the owls. Block B will, therefore, be burned only twice during the 10 year time period. The area encompassing the Blue Vista PAC will be ignited by hand, with helicopter ignition being used in other areas occurring beyond a 1,330-foot hemispherical boundary of the PAC.

### ***Thinning***

Thinning using chainsaws will be done in the specified locations in Block B and anywhere within Block E at any time of the year, but always maintaining a 1,330-foot buffer (no use of chainsaws) zone around the Blue Vista MSO PAC to reduce noise disturbance. Within Block B, 200 acres will be thinned in the Crabtree Park area (conifers 5" and below, and oak species 3" and below), while 1,200 acres in Block E will be thinned (see Figure 2). Slash treatments, either

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<sup>1</sup> Head fire: A fire spreading or set to spread with the wind. (NWCG 1996)

lop and scatter, or pile burning of thinned trees and brush will occur during the treatment of the pine type. Lop and scatter treatments involve bucking up and scattering thinned trees and brush across the ground to be burned during the treatment of the pine type. Pile burning treatments involve piling thinned trees and brush into teepee shaped piles (10 - 15 feet in diameter) to be burned. Burning of slash could result in generation of heavier smoke for short duration (up to 8 hours).

Line enhancement will occur along the project treatment boundary at all times of the year, on existing trails and roads, with brushing occurring up to a maximum of 100 feet from existing trails and roads (though most often the distance will be shorter). There may be some removal of snags up to 100 feet from trails and roads if they pose a threat to fire fighter safety. Snags will not be removed without the approval of the ASNF wildlife biologist. Some snags within 200 feet of the fire line will be lined to be retained after the prescribed fire. Some minimal new line construction will occur around archeologically sensitive areas, and valuable snags and large oaks within the 100-acre buffer area inside the Blue Vista PAC. Lining around snags and large oaks ( $\geq 18''$ ) will occur only in the fall, outside of the critical breeding period for MSO. Some line construction and light brushing may occur along allotment fences and traps throughout the 10 year period. Fire line constructed will be covered with surface litter and water bars will be installed to prevent erosion within one year after the last prescribed burn. Line construction will be implemented with consideration to minimize the effects of erosion due to water drainage.

### *Conservation Measures*

#### General

- Burning will be conducted in such a manner as to create buffers of unburned areas around treated areas. This will mitigate potential sediment movement, and create vertical diversity within the landscape.
- Ignition will not occur within 200-500 feet of riparian corridors.

#### MSO

- Ignition will take place with the weather conditions allowing for the best smoke dispersal: including high transport winds providing vertical lift and a Haines<sup>2</sup> index (of 4 or 5).
- Burn will create a mosaic of burnt patches, to increase habitat heterogeneity and to allow for refugia for rodents with herbaceous cover remaining in patches. This is important for prey species of the Mexican spotted owl.
- Care will be taken to protect key habitat components such as logs and snags within the 100-acre core area of the Blue Vista PAC by lining snags and large diameter oaks.
- Ignition will be done by hand within the PAC.
- Burning of the pine and mixed conifer fuel type will only occur in the fall (9/1-10/31) to avoid disturbance during the MSO breeding season.
- No mechanical thinning will occur within the Blue Vista PAC.
- Helicopter use will occur outside of the Blue Vista PAC. No helicopter flights will be made within 1,330 feet of the PAC. A preferred helicopter flight buffer of 2,200 feet from the PAC will be observed whenever logistically possible.

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<sup>2</sup> Haines index: An atmospheric index used to indicate the potential for wildfire growth by measuring stability and dryness of the air over a fire (NWCG 1996).

- The Blue Vista PAC will be monitored each year for reproductive status during the length of this project to aid in the accumulation of knowledge on the affects of prescribed fire on Mexican spotted owls.
- If time and budget permit, prey base monitoring will occur prior to the initial application of fire, and will continue through the length of the project.

## **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 catastrophic 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 Upper Gila Mountains RU, in which this project is located, is a relatively narrow band bounded on the north by the Colorado Plateau RU and to the south by the Basin and Range-West RU. The southern boundary of this RU includes the drainages below the Mogollon Rim in central and eastern Arizona.

Currently, catastrophic wildfire is probably the greatest threat to MSO within the Upper Gila Mountains RU. Fuel reduction treatments have the potential to reduce the quality of MSO nesting, roosting, and foraging habitat, and may cause disturbance during the breeding season. Fuels reduction treatments, though critical to reducing the risk of catastrophic wildfire, can have short-term adverse effects to MSO through habitat modification and disturbance. As throughout the West, fire intensity and size have been increasing within this geographic area. Table 1 shows several high-intensity fires that have had a large influence on MSO habitat in this

RU in the last decade. The information in Table 1 is not a comprehensive analysis of fires in the Upper Gila Mountains RU or the effects to MSO. However, the information does illustrate the influence that stand-replacing fire has on current and future MSO habitat in this RU. This list of fires alone estimates that approximately 11% of the PAC habitat within the RU suffered high-to-moderate-intensity, stand-replacing fire in the last ten years.

**Table 1.** Some recent influential fires within the Upper Gila Mountains Recovery Unit, approximate acres burned, number of PACs affected, and PAC acres burned.

<b>Fire Name</b>	<b>Year</b>	<b>Total Acres Burned</b>	<b># PACs Burned</b>	<b># PAC Acres Burned</b>
Rhett Prescribed Natural Fire	1995	20,938	7	3,698
Pot	1996	5,834	4	1,225
Hochderffer	1996	16,580	1	190
BS Canyon	1998	7,000	13	4,046
Pumpkin	2000	13,158	4	1,486
Rodeo-Chediski	2002	462,384	55	~33,000
<b>TOTAL</b>		<b>525,894</b>	<b>84</b>	<b>~43,645</b>

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 989 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 989 individuals, assuming each known site was occupied by a single MSO, to 1,978 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.

Since the owl was listed, we have completed or have in draft form a total of 165 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 91 of those PACs located in the Upper Gila Mountains RU. In addition, on January 17, 2003, we completed a reinitiation of the 1996 Forest Plan Amendments biological opinion, which anticipated the additional incidental take of five MSO PACs in Region 3 due to the rate of implementation of the grazing standards and guidelines, for a total of 156 PACs. Consultation on individual actions under these biological opinions resulted in the harm and harassment of approximately 243 PACs on Region 3 National Forest System Lands. Region 3 of the Forest Service reinitiated consultation on the LRMPs on April 8, 2004. On June 10, 2005, the FWS issued a revised biological opinion on the amended LRMPs. We anticipated that while the Region 3 Forests continue to operate under the existing LRMPs, take is reasonably certain to occur to an additional 10 percent of the known PACs on Forest Service lands. We expect that continued operation under the plans will result in harm to 49 PACs and harassment to another 49 PACs. To date, consultation on individual actions under the amended Forest Plans, as accounted for under the June 10, 2005, biological opinion has resulted in 15 PACs adversely affected (11 PACs harassed, 1 PAC harmed, and 2 PAC harmed and harassed), with 6 of those in the Upper Gila Mountains RU.

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

## **ENVIRONMENTAL BASELINE**

The environmental baseline includes past and present impacts of all Federal, State, or private actions in the action area, the anticipated impacts of all proposed Federal actions 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.

## **DESCRIPTION OF ACTION AREA**

The action area includes the 14,000 acres proposed for burning and/or mechanical thinning, the 232,359 acres of potential smoke dispersal, and the areas of downstream effects. Smoke may travel from treatment areas as far as the Apache County-Greenlee County border to the north, the Arizona-New Mexico border to the east, the San Francisco and Blue River drainages to the south, and to the border between Graham and Greenlee County to the west (see Figure 2). The smoke action area is estimated on a worst case smoke scenario, actual smoke dispersal is expected to be less.

The downstream action area is comprised of Eagle Creek, extending from the southern terminus of the treatment area as far south as the Double Circles Ranch, in Township 1 South, Range 28 East, Section 20 (see Figure 2).

## A. STATUS OF THE SPECIES AND CRITICAL HABITAT WITHIN THE ACTION AREA

### MSO and Critical Habitat

The action area occurs along the Mogollon Rim in eastern Arizona within critical habitat unit Upper Gila Mountains Recovery Unit-7 (USDI 2004). Forty-seven MSO PACs occur within the action area. One MSO PAC, the Blue Vista PAC, is located within the treatment area in Block B. This PAC was designated in 2002 and nesting was confirmed in 2005. The other forty-six MSO PACs are located within the smoke dispersal portion of the action area.

Wildfire is probably the greatest threat to MSO within the action area. Several wildfires and resulting suppression activities have occurred within the action area affecting several MSO PACs and critical habitat. Since 2000, approximately 5,543 acres within 11 MSO PACs have burned (see Table 2). Numerous smaller fires, generally less than 10 acres, and suppression activities have also occurred in the action area. Their affects have not been determined, although positive and negative effects are expected to have occurred.

**Table 2. MSO PACs within action area affected by wildfire.**

<b>Fire Name</b>	<b>PAC Name</b>	<b>Number of PAC acres burned</b>
Blue Vista	Blue Vista	2.84
KP	Lower KP Creek	568.09
KP	Rim	695.24
Largo	Dutch	40.21
Thomas	Hannagan Creek	156.99
Thomas	Oliver	639.41
Thomas	Castle Rock	726.22
Thomas	Foote Creek	652.64
Thomas	East Castle	434.83
Three Forks	Redondo	408.70
Steeple and KP	Upper KP Creek	640.00
Steeple and KP	Butterfly	662.56

As previously stated, the Chitty Restoration Project lies entirely within the boundary of the UGM RU-7 boundary, which comprises 863,344 acres. UGM RU-7 is essential to the conservation of the species as it currently possess the primary constituent elements required for nesting, roosting, foraging, and dispersal. Since 2003, 45,502 acres have burned within this critical habitat unit.

Twenty-four grazing allotments under varying stages of use are within the action area. MSO PACs are located within several grazing allotments and the majority of allotments are located within UGM RU-7. Within the treatment action area, the KP allotment has undergone formal consultation for affects to MSO. It was determined that the action would not jeopardize the continued existence of the species and no take was anticipated. Thirteen grazing allotments within the smoke dispersal action area have undergone formal consultation for affects to MSO. The FWS made non-jeopardy determinations in all cases and no take was anticipated for any actions. Two grazing allotments located within the downstream action area have undergone formal consultation for affects to MSO. The FWS made non-jeopardy determinations in both cases and no take was anticipated for either action. Of the 24 grazing allotments in the entire

action area, 22 have undergone informal consultations for effects to MSO critical habitat. For each allotment, the FWS concurred with the ASNF determination of “may affect but not likely to adversely affect” MSO critical habitat (see Table 3 in Appendix for allotment status).

## **B. FACTORS AFFECTING SPECIES ENVIRONMENT AND CRITICAL HABITAT WITHIN THE ACTION AREA**

### **MSO and Critical Habitat**

Past and ongoing factors affecting MSO in the action area include recreation, fish reintroduction, grazing, timber harvest practices and wildfire. The action area is managed by the Arizona Game and Fish Department as Game Management Unit 27. Hunting, fishing, and associated activities such as horseback riding, scouting, hiking, all terrain vehicle travel, and camping have and will continue to occur in the action area during the implementation of the action and after it is completed. Of the 47 PACs in the action area, nearly all are accessible by hiking trails and many are adjacent to maintained or primitive roadways. Additionally, most PACs are located in canyon habitat associated with perennial streams suitable for recreational fishing.

The occurrence of catastrophic wildfires has also significantly contributed to the owl’s current status. Habitat conditions (e.g. densely stocked forests over mature chaparral) in the action area contribute to the likelihood of the occurrence of a stand-replacing fire. Eleven MSO PACs have been subjected to wildfire and suppression activities in the action area. Since 1959, approximately 52,000 acres have burned within the UGM RU-7. FWS is currently conducting consultations with the ASNF on suppression activities associated with the KP, Steeple, Thomas, Largo, and Three Forks fires which have occurred within the action area since 2003. All fires were contained prior to final designation of MSO CH (August 31, 2004); therefore, an analysis of effects to CH from suppression actions will not be evaluated for the above mentioned wildfires. Approximately 5,543 acres within 11 MSO PACs were affected by these fires and resulting suppression activities (see Table 2). The effects of suppression activities to MSO have not yet been determined.

On-going and long-term grazing is scheduled within the action area, with allotments located in MSO PACs and critical habitat. Allotments within the treatment area will be rested from livestock grazing to ensure herbaceous recovery. This is expected to be at least two full growing seasons, but will be monitored by ASNF range management staff, and restocking recommendations will be made by the range staff.

Apache trout reintroduction within the action area underwent formal consultation in 2002, due to the construction of fish barriers within three PACs. Take, in the form of harassment, was anticipated for those three PACs during barrier construction during the two-year duration, totaling six MSO.

Timber management occurring within the action area includes the Hoodoo TSI Project, which underwent formal consultation in 1997. The project involved precommercial thinning of 312 acres for the purpose of improving forest health. The FWS anticipated take of up to four pairs of MSO associated with three PACs and unsurveyed habitat outside of designated PACs, which may have been capable of supporting one MSO PAC.

We believe the aggregate effects of healthy forest initiatives along with disturbance, habitat degradation, and habitat removal within the owls current range resulting from past timber management, fire suppression, catastrophic wildfire, species reintroduction, and recreational impacts all contribute to the present status of the MSO and critical habitat in the action area.

## **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.

### **MSO and Critical Habitat**

Prescriptions for prescribed fire in the Blue Vista PAC and within the project area will be designed such that trees  $\geq 16''$  dbh make up  $\geq 50\%$  of stand basal area, approximately 150 square feet of trees per acre basal area will be present within roosting habitat, at least 50% canopy cover will be retained, and at least 20 cubic yards of downed logs per acre will be maintained and or recruited. Residual plant cover will be completely consumed or severely reduced within prescribed fire portions of the project area, reducing the risk of repeated fires, but also temporarily negatively affecting the primary constituent elements pertaining to maintenance of adequate prey species (*Peromyscus sp.*). Affects to adequate prey species is expected to be short-term, as fire promotes the growth of herbaceous plants benefiting MSO prey species.

Prescribed burning will occur throughout the entirety of the Blue Vista MSO PAC (treatment Block B) and hand lining around nest trees, roost trees, snags, and large oaks will occur within the 100-acre nest core area (prior to burning). Prescribed burning in Block A will occur adjacent to the eastern boundary of the Blue Vista PAC. Prescribed burning (Block A and B) and hand lining (Block B) will occur in the fall, outside the breeding season. Because prescribed burning will not occur during the breeding season in Block A and B, there will be no effects from smoke or noise on the reproductive efforts of the Blue Vista PAC. However, activities associated with prescribed burning (and resulting smoke effects) and hand-lining (outside of the breeding season) in the Blue Vista PAC and directly adjacent to the PAC can directly affect wintering MSO through auditory or visual disturbance. Noise disturbance associated with hand lining will likely disrupt daytime roosting activities. Disturbance from prescribed burning will likely disrupt activities such as feeding and roosting. Short-term disturbance from treatment activities mentioned above will likely effect nesting, feeding, and roosting MSO and may result in increased metabolic rate by making the MSO more active. Increased activity can, in turn, deplete the animals energy reserves (Bowles 1995).

All other prescribed burning treatments including Blocks A, C, D, and E, will occur outside of the Blue Vista PAC. Prescribed burning in the mountain brush habitat will occur during the MSO breeding season (spring). Smoke will be the only cause of disturbance to MSO in the Blue Vista PAC from these treatments. Short-term disturbance from smoke effects in the mountain

brush habitat will likely effect nesting, feeding, and roosting MSO within the breeding season. Prescribed burning in the pine and mixed conifer habitats will occur outside of the MSO breeding season (fall). Smoke will be the only cause of disturbance to MSO in the Blue Vista PAC from these treatments. Short-term disturbance from smoke effects in the pine and mixed conifer habitats will likely affect wintering MSO through visual disturbance. Aerial helicopter operations and use of chainsaws will be restricted to a 1,330-foot border surrounding the Blue Vista PAC; therefore, noise disturbance will be limited.

Smoke from all Burn Blocks will likely disperse from the treatment areas to the other 46 PACs within the action area (effects from smoke for the Blue Vista PAC are mentioned above). According to the burning schedule found in the BAE (Table 2), smoke from the proposed burning operations may occur seven out of the ten years (including spring and fall burns), potentially affecting all 46 MSO PACs within the project timeframe. Smoke-management requirements usually allow for ignition only when conditions allow for adequate smoke dispersal, including high transport winds providing vertical lift and a Haines index (of 4 or 5). When climatic conditions do not allow for fairly immediate smoke dispersal (e.g. an inversion exists), permission to burn is typically denied. As such, smoke is not expected to linger within PACs but rather will move out fairly quickly. Smoke may affect short-term foraging capabilities by limiting site distance of prey, and the inhalation of smoke by both adults and young may negatively affect breathing during the duration of the burn. Smoke effects during the breeding season are estimated to last up to 8 hours after a burn event. Effects from smoke inversions will decrease as the distance to 46 PACs outside of the project area also increase. Short-term disturbance from smoke effects mentioned above will likely effect nesting, feeding, and roosting MSO within and outside of the breeding season.

Prescribed fire and line enhancement will result in the loss or reduction of PCEs in MSO critical habitat in the treatment area. Prescribed fire is expected to consume large trees  $\geq 12$  inches dbh in pine-oak and mixed conifer forest, snags  $\geq 12$  inches dbh, high volumes of fallen trees and other woody debris, and residual plant cover while retaining adequate levels to maintain fruits and seeds, and allow plant regeneration. Burn patterns will create a mosaic of burned and unburned patches, increasing habitat heterogeneity and retaining elements of PCEs within portions of the treatment areas. Losses of snags, fallen logs, and woody debris are expected to be replaced, as prescribed fire often results in snag and woody debris recruitment. Losses of residual plant cover maintaining fruits and seeds are also expected to be short-term, as fire promotes the growth of herbaceous plants.

Long-term beneficial effects from the Chitty Creek Restoration project include: reducing the potential for a stand replacing fire within the Blue Vista PAC, and increasing the herbaceous growth to benefit prey populations as well as the potential to increase the number of larger diameter trees within the PAC, and improve overall forest health.

## **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 majority of the land within the project boundaries is of Federal ownership. However, non-Federal actions that

are likely to continue to occur in the project areas include recreation resulting from increased tourism, and private land fuels reduction and development. Unregulated recreational activities occurring in the action area include camping, and OHV use. These activities periodically cause disturbance to MSO and therefore contribute as cumulative effects to the proposed action. However, the majority of these actions will occur during the day and are considered to be of lesser concern to breeding/foraging MSO within the action area. Actions on private lands may result in habitat degradation effects to the MSO. However, the extent of the possible effects is unknown.

## CONCLUSION

After reviewing the current status of the MSO, the environmental baseline for the action area, the effects of the proposed Chitty Creek Restoration Project and the cumulative effects, it is the FWS's biological opinion that the Chitty Creek Restoration Project, as proposed, is not likely to jeopardize the continued existence of the MSO, and is not likely to destroy or adversely modify designated critical habitat. This biological opinion does not rely on the regulatory definition of "destruction or adverse modification" of critical habitat at 50 CFR 402.02. Instead, we have relied upon the statutory provisions of the Act to complete the following analysis with respect to critical habitat.

This conclusion is based on the following:

### Mexican spotted owl

- Burning within the Blue Vista PAC will only occur in the fall (9/1-10/31) to avoid disturbance during the MSO breeding season.
- No mechanical thinning will occur within the Blue Vista PAC, and ignition will be done by hand.
- Helicopter use will occur outside of the Blue Vista PAC and no helicopter flights will be made within 1,330 feet of the PAC.
- Disturbance to other PACs in the action area will be limited to short-term smoke disturbance.

### Mexican spotted owl critical habitat

- Light- to moderated- intensity prescribed fire will retain the primary constituent elements related to forest structure.
- Primary constituent elements regarding prey species will retain a diversity of tree and plant species (including hardwoods).
- Although a short-term reduction in snags, downed logs, and vegetative ground cover will adversely affect MSO critical habitat elements, the Chitty Restoration Project is likely to retain the conservation value of the primary constituent elements within the UGM RU-7.
- The overall health of the action area will be improved with this aggressive restoration action.

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 further 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.

The measures described below are non-discretionary, and must be undertaken by the ASNF so that they become binding conditions of any grant or permit issued to the ASNF, as appropriate, for the exemption in section 7(o)(2) to apply. The ASNF has a continuing duty to regulate the activity covered by this incidental take statement. If the ASNF (1) fails to assume and implement the terms and conditions or (2) fails to require the (applicant) to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, the protective coverage of section 7(o)(2) may lapse. In order to monitor the impact of incidental take, the ASNF must report the progress of the action and its impact on the species to the FWS as specified in the incidental take statement. [50 CFR §402.14(i)(3)].

## **AMOUNT OR EXTENT OF TAKE**

The FWS anticipates that two pair (one pair for prescribed burn entry at year one and year 7 within the PAC) of owls associated with the Blue Vista PAC is reasonably certain to be taken resulting from prescribed burning throughout the PAC. The FWS believes prescribed burning throughout the PAC will result in the temporary loss of key habitat components including snags, large logs, canopy cover, and residual plant cover, resulting in habitat degradation that is likely to result in less habitat available within the PAC to provide the microclimate and physical habitat characteristics (snags, large logs, canopy cover) needed for nesting and roosting. Conservation measures are proposed to protect these habitat components where feasible but, depending on fire severity, these measures will not likely eliminate incidental take. The incidental take is expected to be in the form of harassment, which creates the likelihood that injury will result due to significant disruption of normal behavior patterns, and modified key habitat components. Prescribed burns will only occur when climatic conditions allow for adequate smoke dispersal; therefore, smoke is not anticipated to result in incidental take to MSO.

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

668d), if such take is in compliance with the terms and conditions (including amount and/or number) specified herein.

### **EFFECT OF THE TAKE**

In this biological opinion, the FWS determines that this level of anticipated take is not likely to result in jeopardy to MSO. While the proposed action may adversely affect MSO in the short-term, the long-term ramifications of the project are expected to be beneficial through reducing the potential for catastrophic fire in PACs and critical habitat.

### **REASONABLE AND PRUDENT MEASURES AND TERMS AND CONDITIONS**

In order to be exempt from the prohibitions of section 9 of the Act, the ASNF must comply with the following terms and conditions, which implement the reasonable and prudent measures described above and outline required reporting/monitoring requirements. These terms and conditions are non-discretionary.

The following reasonable and prudent measures and terms and conditions are necessary and appropriate to minimize take of MSO:

1. The ASNF shall monitor incidental take resulting from the proposed action and report to the Arizona Ecological Services Office (AESO) the findings of that monitoring.
  - A. Occupancy and reproduction monitoring, as described in the current MSO survey protocol, of Blue Vista PAC will occur one year prior to spring or one season prior to fall when project treatments (including but not limited to treatments in Block A and B) are within or adjacent to a PAC over the life of the proposed actions.
  - B. The ASNF shall submit annual monitoring reports to the (AESO) by January 1 following the first year of treatment. The report shall include results of MSO surveys, as well as any observations of MSO or notes about the effects of the action. The report shall also summarize the implementation of the proposed action.

Review requirement: The reasonable and prudent measures, with their implementing terms and conditions, are designed to minimize incidental take that might otherwise result from the proposed action. If, during the course of the action, the level of incidental take is exceeded, such incidental take would represent new information requiring review of the reasonable and prudent measures provided. ASNF must immediately provide an explanation of the causes of the taking and review with the AESO the need for possible modification of the reasonable and prudent measures.

### **Disposition of Dead or Injured Listed Species**

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 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.

1. We recommend the ASNF implement the potential research opportunities identified within the BAE.
2. We recommend continuing prey base monitoring after project completion in order to understand the long-term implication of fuel reduction treatments.
3. We recommend monitoring the effects of fuels reduction treatments through systematic and standardized research designs within Blue Vista PAC.

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

### **REINITIATION NOTICE**

This concludes formal consultation on the actions 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.

The FWS appreciates the ASNFs efforts to identify and minimize effects to listed species from this project. For further information please contact Ryan Gordon (x225) or Debra Bills (x239). Please refer to the consultation number, 02-21-04-F-0006, in future correspondence concerning this project.

Sincerely,

Steven L. Spangle  
Field Supervisor

cc: District Ranger, Clifton Ranger District, Duncan, AZ  
Forest Biologist, Clifton Ranger District, Duncan, AZ (Attn: Josh Chapman)  
Forest Biologist, Clifton Ranger District, Duncan, AZ (Attn: Bill Wall)  
Shaula Hedwall, Fish and Wildlife Service, Flagstaff, AZ

Chief, Habitat Branch, Arizona Game and Fish Department, Phoenix, AZ

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**TABLES AND FIGURES**

**Table 3. Chitty Creek Restoration Grazing Allotment Status**

<b>Allotment</b>	<b>Consultations for MSO</b>	<b>Consultations for MSO Critical Habitat</b>
<b>Treatment Action Area</b>		
East Eagle	NA	NLAA
KP	Non-Jeopardy	NLAA
Stray Horse	NA	NLAA
<b>Smoke Dispersal Action Area</b>		
Alpine	NA	NLAA
Beaver Creek	Non-Jeopardy	NLAA
Bobcat-Johnson	Non-Jeopardy	NLAA
Cow Flat	Non-Jeopardy	NLAA
Coyote-Whitmer	Non-Jeopardy	NLAA
Fish Creek	Non-Jeopardy	NLAA
Fishhook	Non-Jeopardy	NLAA
Foote Creek	Non-Jeopardy	NLAA
Grandfather	NA	NLAA
Hannagan	Non-Jeopardy	NLAA
Lower Campbell Blue	Non-Jeopardy	NLAA
Red Hill	Non-Jeopardy	NLAA
Sprucedale-Reno	Non-Jeopardy	NLAA
Steeple Mesa	Non-Jeopardy	NLAA
Upper Campbell Blue	Non-Jeopardy	NLAA
West Fork	NA	NA
<b>Downstream Action Area</b>		
Baseline-Horse Springs	NA	NA
Dark Canyon	Non-Jeopardy	NLAA
Double Circles	NA	NLAA
Mud Springs	NA	NLAA
Tule	Non-Jeopardy	NLAA

NA = not applicable, NLAA= not likely to adversely affect.

Figure 1. Treatment Area Burn Blocks

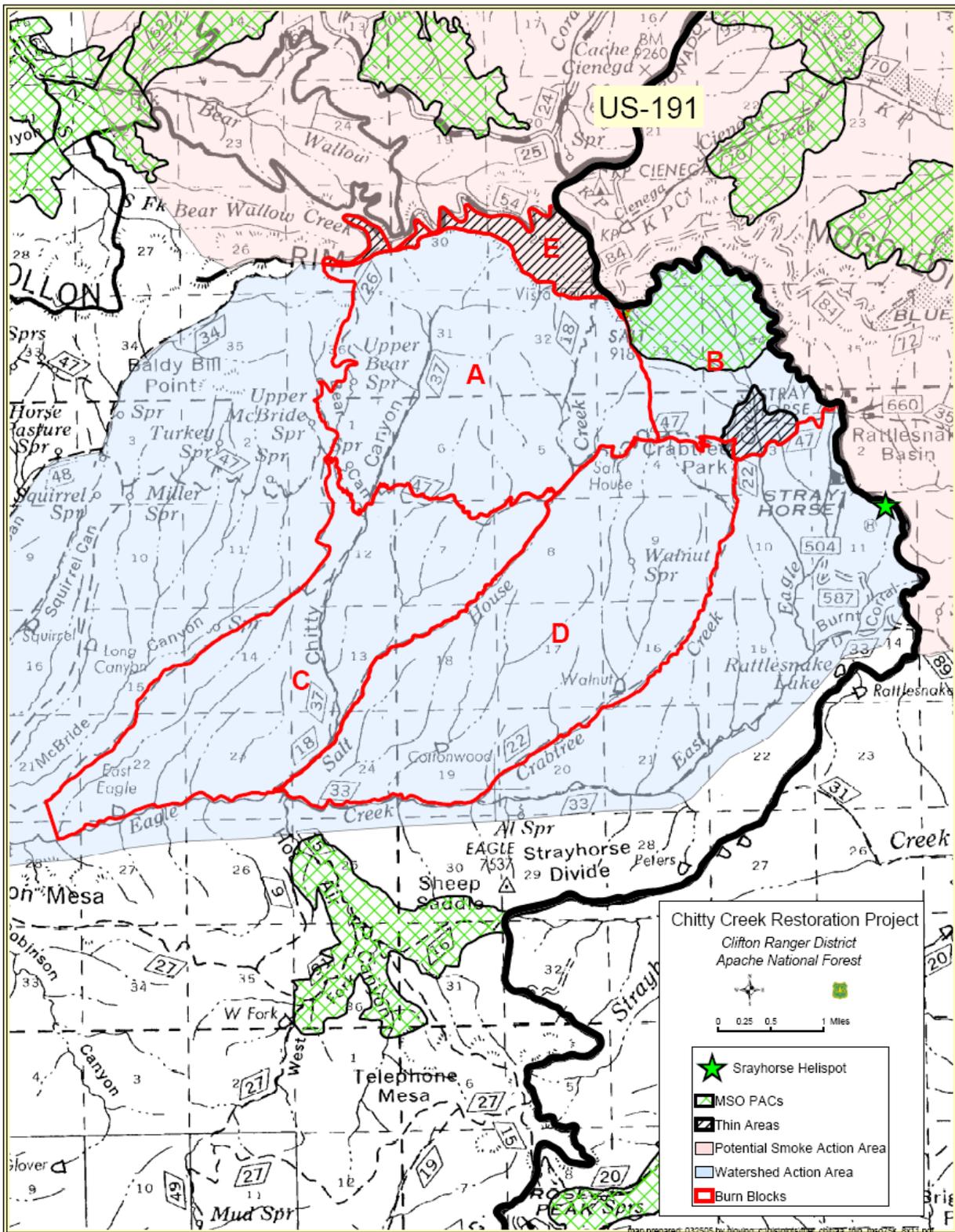
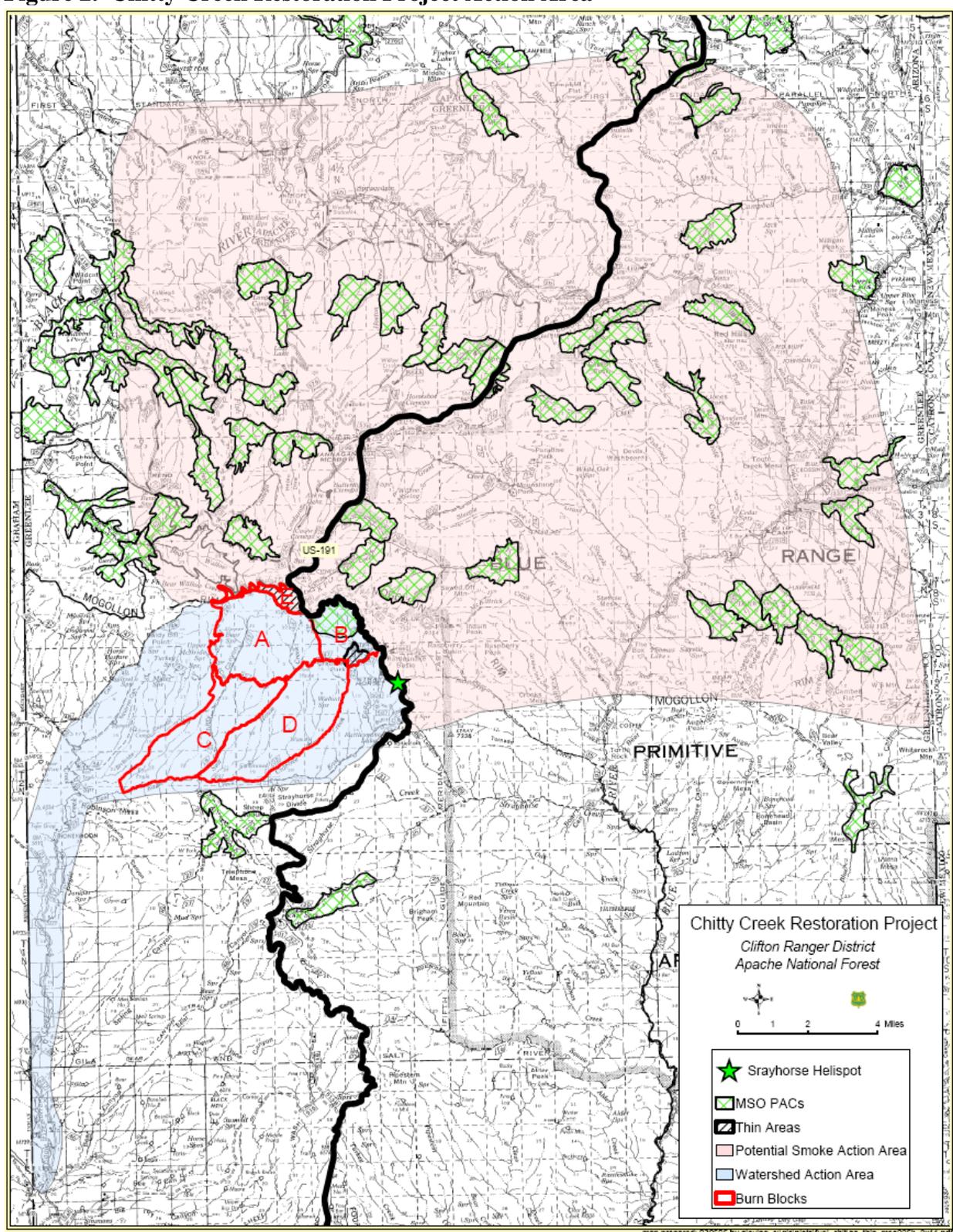


Figure 2. Chitty Creek Restoration Project Action Area



APPENDIX A

## Concurrence and Informal Conference

Appendix A documents our concurrence and informal conference with your determination of “may affect, is not likely to adversely affect” for the species and “is not likely to adversely affect” proposed critical habitat listed below. In addition, the FWS has provided reasoning for these concurrences.

### Jaguar (*Panthera onca*)

Although no confirmed sightings of a jaguar have occurred in the Chitty Creek Restoration Project area, the availability of suitable habitat along the Mogollon Rim may provide areas for population expansion into Central Arizona. Suitable habitat for the jaguar could potentially be affected by prescribed fire and thinning activities, resulting in the loss of foraging and denning habitat. Affects are expected to be short-term. However, the treatments and conservation measures as outlined in the Description of the Proposed Action will reduce the potential to affect the jaguar and its habitat.

The FWS concurs with your determination that the implementation of the Chitty Creek Restoration Project, as described in the Description of the Proposed Action, may affect, but is not likely to adversely affect the jaguar for the following reasons:

1. No jaguar has been recorded in the action area and their potential for occurrence is low;
2. Dispersal habitat and habitat for resident and future jaguars will be maintained.

### Bald eagle (*Haliaeetus leucocephalus*)

Although no formal surveys have been conducted within the treatment portion of the action area, bald eagles are not known within the treatment portion of the action area. Bald eagle habitat is present along Eagle Creek and East Eagle Creek, so there is potential for bald eagle presence.

The FWS concurs with your determination that the proposed action may affect, but is not likely to adversely affect the bald eagle for the following reasons:

1. No trees large enough to serve as potential nest or roost trees will be cut;
2. Potential nest or roost sites will not be disturbed;
3. Wintering bald eagles will not be displaced as prescribed burning treatments will not occur during the months of November through March and mechanical thinning operations are not located within or near Eagle and East Eagle creeks;
4. Impacts to riparian areas will be minimal;
5. Prey species populations will not be negatively impacted.

### Southwestern willow flycatcher (*Empidonax traillii extimus*)

The FWS concurs with your determination that the proposed action may affect, but is not likely to adversely affect the Southwestern willow flycatcher for the following reasons:

1. Surveys for Southwestern willow flycatchers in 2002-2003 within the action area were negative;
2. Mechanical treatments or prescribed burning will not occur in potential flycatcher habitat along Eagle Creek;
3. Ignition will not occur within 200-500 feet of riparian corridors;

4. Riparian areas in the action area lack extensive riparian galleries and floodplain development typical of flycatcher habitat. Regeneration of riparian obligate plant species has been inhibited by scouring and grazing by elk.

Chiricahua leopard frog (*Rana chiricahuensis*)

The last recorded occurrence of Chiricahua leopard frogs in the treatment area was in 1988, according to the Arizona Game and Fish Department Heritage Database Management System. This 1988 location, was surveyed formally by trained personnel in 2004, and informally in 2003 and no frogs or tadpoles were found. Surveys were completed in 2003 for the length of Chitty Creek, resulting in no detections.

The FWS concurs with your determination that the proposed action may affect, but is not likely to adversely affect the Chiricahua leopard frog for the following reasons:

1. The last recorded occurrence of Chiricahua leopard frogs within the project area is >18 years.
2. No additional known populations exist within dispersal distance (within one mile over land, three miles along an ephemeral or intermittent drainage, or five miles along a perennial stream) to suitable habitat within the project area.
3. Ignition will not occur within 200-500 feet of riparian corridors;
4. Burning will be conducted in such a manner as to create buffers of unburned areas around treated areas. This will mitigate potential sediment and ash movement;
5. According to ASNF personnel, there will be no long term loss in watershed soil conditions or significant change in present watershed soil conditions within the East Eagle Creek (in which the last known occurrence is located) sub-watershed as a result of this activity.

Loach minnow (*Tiaroga cobitis*) and its proposed critical habitat

Loach minnow was listed as a threatened species on October 28, 1986 (USFWS 1986a) and critical habitat was proposed December 20, 2005 (USFWS 2005). Habitat for loach minnow does not exist above the Honeymoon Campground, which is approximately 3.5 miles south of the treatment area. Loach minnow occur within the action area and are documented (2004) below the Honeymoon Campground. Proposed critical habitat occurs outside of the treatment area but within the action area located in Eagle Creek.

The FWS concurs with your determination that the proposed action may affect, but is not likely to adversely affect the loach minnow and its proposed critical habitat for the following reasons:

1. According to ASNF personnel, the overall fire intensity of the treatment will not produce visible evidence of ash or sediment flow within the mainstem of Eagle Creek below Honeymoon campground;
2. Ignition will not occur within 200-500 feet of riparian corridors;
3. Burning will be conducted in such a manner as to create buffers of unburned areas around treated areas. This will minimize potential sediment and ash movement to the point where it is expected to be insignificant should it reach occupied habitat.
4. According to ASNF personnel, there will be no long term loss in watershed soil

conditions or significant change in present watershed soil conditions within the East Eagle Creek sub-watershed as a result of this activity.

5. Downstream indirect effects from treatment activities are not expected to reach a level that will adversely modify primary constituent elements that are essential for the conservation of loach minnow.

Spikedace (*Meda fulgida*) and its proposed critical habitat

Spikedace was listed as a threatened species on July 1, 1986 (USFWS 1986b) and critical habitat was proposed December 20, 2005 (USFWS 2005). Suitable habitat for spikedace does not exist above the Honeymoon Campground, which is approximately 3.5 miles south of the treatment area. Spikedace occur within the action area and are documented (2004) below the Honeymoon Campground. Proposed critical habitat occurs outside of the treatment area but within the action area located in Eagle Creek.

The FWS concurs with your determination that the proposed action may affect, but is not likely to adversely affect the spikedace and its proposed critical habitat for the following reasons:

1. According to ASNF personnel, the overall fire intensity of the treatment will not produce visible evidence of ash or sediment flow within the main stem of Eagle Creek below Honeymoon campground;
2. Ignition will not occur within 200-500 feet of riparian corridors;
3. Burning will be conducted in such a manner as to create buffers of unburned areas around treated areas. This will minimize potential sediment and ash movement to the point where it is expected to be insignificant should it reach occupied habitat.
4. According to ASNF personnel, there will be no long term loss in watershed soil conditions or significant change in present watershed soil conditions within the East Eagle Creek sub-watershed as a result of this activity.
5. Downstream indirect effects from treatment activities are not expected to reach a level that will adversely modify primary constituent elements that are essential for the conservation of spikedace.

Gila chub (*Gila intermedia*)

Gila chub occur within the action area and are documented (2004) below the Honeymoon Campground. There is no critical habitat within the action area. East Eagle Creek and the upper reaches of Eagle Creek above Honeymoon campground do not have the quality of pool habitat needed to sustain a population within these reaches. Recent high flow events (winter 2004) along with riparian recovery may have improved this area's pool quality.

The FWS concurs with your determination that the proposed action may affect, but is not likely to adversely affect the Gila chub for the following reasons:

1. According to ASNF personnel, the overall fire intensity of the treatment will not produce visible evidence of ash or sediment flow within the mainstem of Eagle Creek below Honeymoon campground;
2. Ignition will not occur within 200-500 feet of riparian corridors;
3. Burning will be conducted in such a manner as to create buffers of unburned areas around treated areas. This will mitigate potential sediment and ash movement;
4. According to ASNF personnel, there will be no long term loss in watershed soil

conditions or significant change in present watershed soil conditions within the East Eagle Creek sub-watershed as a result of this activity.

Mexican gray wolf (*Canis lupus baileyi*)

Mexican gray wolves were extirpated from the wild in the U.S. by private and government control campaigns, but were later listed as an endangered species in 1976. A recovery plan was developed by the U.S. Fish and Wildlife Service in 1982 and wolves were reintroduced on the Apache National Forest in March 1998. Wolves have been released from the acclimation pen near Engineer Spring, approximately 3 miles east of the project area. Several packs (Saddle, Rim, and Bluestem) have been observed denning within and surrounding the action area. The ASNF will be in contact with the FWS personnel and the Arizona Game and Fish personnel working on the wolf recovery team to identify wolf den sites. If known den sites are within one mile of the burn area, firing operations and firefighter locations may be altered to provide a one-mile den buffer.

Based on information provided in the BAE, we concur with the ASNF determination that the proposed actions “are not likely to jeopardize” the Mexican gray wolf. We base this determination on the following:

1. Because of the wolves’ status as an experimental, non-essential population, wolves found in Arizona are treated as though they are proposed for listing for section 7 consultation purposes. By definition, an experimental non-essential population is not essential to the continued existence of the species. Thus, no proposed action impacting a population so designated could lead to a jeopardy determination for the entire species.

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