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AESO/SE  
02-21-02-F-101 R1

July 2, 2003

Ms. J. Elaine Zieroth  
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P.O. Box 640  
Springerville, Arizona 85938-6357

Subject: Apache Trout Enhancement Project Reinitiation

Dear Ms. Zieroth:

Thank you for your request for reinitiation of formal consultation pursuant to section 7 of the Endangered Species Act of 1973 (16 U.S.C. 1531-1544), as amended (Act). Your request for reinitiation of formal consultation was dated May 1, 2003, and received by us on May 2, 2003. The original opinion was dated April 19, 2002, and addressed potential impacts that may result from the proposed Apache Trout Enhancement Project on Apache trout (*Oncorhynchus apache*), Little Colorado spinedace (*Lepidomeda vittata*), loach minnow (*Tiaroga cobitis*) and its critical habitat, bald eagle (*Haliaeetus leucocephalus*), and Mexican spotted owl (MSO; *Strix occidentalis lucida*), located on the Apache-Sitgreaves National Forests (A-S) in Apache and Greenlee counties, Arizona.

A modification of this project is proposed that would rescind timing restrictions for certain actions during the breeding season of the MSO. The Forest has determined that the elimination of timing restrictions may adversely affect Mexican spotted owls. These effects were not considered in the previous biological opinion and therefore require reinitiation of formal consultation (50 CFR 402.16[c]).

A new breeding pair of bald eagles has also been located at Crescent Lake (within 5 mi of some project activities). This pair likely forages within the action area. This new information was not considered in the previous opinion and also triggers a need for reinitiation (50 CFR 402.16[b]).

This opinion will only address effects to Mexican spotted owls and bald eagles from the proposed action. The April 19, 2002, opinion remains in effect for all other species (Apache

trout, Little Colorado spinedace, and loach minnow and its critical habitat). We are unaware of any changes in the species' status or changes in the proposed action that will affect those species in a manner or to an extent not previously considered.

This biological opinion is based on information provided with your request for reinitiation, information provided during the previous consultations on this action, new information on the status of the Mexican spotted owl and bald eagle, telephone conversations with Jerry Ward and Terry Myers 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, fish reintroductions including barrier constructions and use of fish toxicant Antimycin-A, and its effects, or on other subjects considered in this opinion. A complete administrative record of this consultation is on file at this office.

### **Consultation History**

The consultation history from the beginning of informal consultation through April 2002 is detailed in our April 19, 2002, reinitiated biological opinion. The following information is added to the consultation history:

- On May 2, 2003, we received the Forest Service's request for reinitiation of consultation.
- Since no barrier construction occurred during 2002 as proposed in the April 19, 2002 the amount of anticipated take for Mexican spotted owls has been readjusted to reflect this change. This opinion contains a new incidental take statement with reasonable and prudent measures and terms and conditions for Mexican spotted owls.
- This draft biological opinion was sent to the Forest on June 19, 2003.
- On June 24, 2003 Jerry Ward, Fishery Biologist for the Forest, called to discuss concerns about the draft biological opinion. Jerry was concerned with time of day restrictions placed on barrier work around PACs in the Little Colorado River system. Due to contracts that are already in place he did not believe that this could be implemented. Jerry thought that time of day restrictions would be acceptable for the work on the Black River system around PACs.
- On June 30, 2003 we received an email from Deb Bumpus indicating that we could finalize the opinion with Jerry's incorporated comments.

## **BIOLOGICAL OPINION**

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

The project as formerly consulted on applied timing restrictions to certain actions of the project to minimize or eliminate the likelihood and magnitude of adverse effects to MSOs associated with those actions. Specifically, the project had deferred actions associated with the salvage of fish, the application of antimycin (a piscicide), the monitoring of fish-kill, and the reconstruction

or maintenance of fish barriers from March 1 through August 31 at all project sites in the Black River watershed. A modification to the project is now proposed which would rescind these timing restrictions for certain actions. The actions will not change from the original project, only the timing of implementation. All work will occur in 2003 or 2004. The project now proposes to implement the following actions during the MSO breeding season:

1. The reconstruction or maintenance of existing fish barriers in Hayground, Fish, and Centerfire creeks.
2. The salvage of native fish upstream of the existing fish barriers in Hayground and Stinky creeks, and between the two existing barriers in West Fork Black River.
3. The application of Antimycin-A in Hayground and Stinky creeks upstream of the existing barriers, and in the West Fork Black River between the two existing barriers.
4. The monitoring of fish-kill associated with the application of antimycin in Hayground and Stinky creeks and the West Fork Black River.

Table 1 contains an updated schedule of proposed activities. For further information regarding the proposed action refer to our April 19, 2002, biological opinion, the biological assessment and evaluation (Dorum and Ward 2002), and the environmental assessment (U.S Forest Service 2002).

Table 1: Updated Schedule of Proposed Activities

<b>Water System</b>	<b>Barrier Activities</b>	<b>Stream Renovation</b>
<b>BLACK RIVER WATERSHED</b>		
West Fork Black River	2004	2005
Bear Wallow Creek	N/A	2003 (Sept.-Oct.)
Centerfire Creek	2003 (Summer)	N/A
Fish Creek	2003 (Summer)	2004 (Sept.)
Snake Creek	N/A	2003 (Sept.- Oct.)
Hayground (Hay) Creek	2003 (Summer)	2004 (Summer)
Stinky Creek	N/A	2003 (Aug.)
<b>LITTLE COLORADO RIVER WATERSHED</b>		
East Fork Little Colorado River	2003 - Lower 2003 - Upper	2004 (June - July) 2003 (June)
Lee Valley Creek	N/A	2003 (June - July)

South Fork Little Colorado River	2003 - Lower 2003 - Upper	2004 (June - July)
West Fork Little Colorado River	2003 - Lower 2003 - Upper	2004 (June - July)

The action area means all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action. Thus, the action area is often larger than the boundaries of the proposed project because impacts may be carried further than the immediate area involved. The Recovery Plan for MSO states that Protected Activity Centers (PACs) should be established at all MSO sites (U.S. Department of Interior 1995). The area should be no less than 600 acres and enclose the best possible owl habitat. The area should enclose as much roost/nest habitat as is reasonable, supplemented by foraging habitat. Since this is the best habitat around known owl locations, any activities within the PAC may affect owls in the area. Therefore, the action area for this biological opinion is defined as all PACs that are within 1/4 mi of project activities (Table 2), plus all rivers being renovated and stocked with Apache trout (Table 1 and Appendix A, Map 1 and 2). In addition, the Forest Service is notifying the public three miles downstream of Antimycin-A application. Therefore, we are considering three miles downstream of Antimycin-A application within the action area since the effects of the project may occur this far downstream.

## **STATUS OF THE SPECIES**

### BALD EAGLE

The rangewide status of the species for bald eagle has not changed since the April 19, 2002, biological opinion. Refer to the April 2002 opinion for detailed information.

### MEXICAN SPOTTED OWL

The MSO was listed as a threatened species in 1993 (U.S. Department of the Interior 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 (U.S. Department of the Interior 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 (U.S. Department of the Interior 1993) and in the Recovery Plan (U.S. Department of the Interior 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 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 the proposed action exists, 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. The eastern boundary extends to the Black, Mimbres, San Mateo, and Magdalena mountain ranges of New Mexico. The northern and western boundaries extend to the San Francisco Peaks and Bill Williams Mountain north and west of Flagstaff, Arizona. This is a topographically complex area consisting of steep foothills and high plateaus dissected by deep forested drainages. This RU can be considered a "transition zone" because it is an interface between two major biotic regions: the Colorado Plateau and Basin and Range Provinces (Wilson 1969). Most habitat within this RU is administered by the Kaibab, Coconino, Apache-Sitgreaves, Tonto, Cibola, and Gila National Forests. The northern half of the Fort Apache and northeastern corner of the San Carlos Indian reservations are located in the center of this RU and also support MSOs.

The Upper Gila Mountains RU consists of pinyon/juniper woodland, ponderosa pine/mixed conifer forest, some spruce/fir forest, and deciduous riparian forest in mid- and lower-elevation canyon habitat. Climate is characterized by cold winters and over half the precipitation falls during the growing season. Much of the mature stand component on the gentle slopes surrounding the canyons had been partially or completely harvested prior to the species' listing as threatened in 1993; however, MSO nesting habitat remains in steeper areas. MSO are widely distributed and use a variety of habitats within this RU. Owls most commonly nest and roost in mixed-conifer forests dominated by Douglas fir and/or white fir, and canyons with varying degrees of forest cover (Ganey and Balda 1989, U.S. Department of the Interior 1995). Owls also nest and roost in ponderosa pine-Gambel oak forest, where they are typically found in stands containing well-developed understories of Gambel oak (U.S. Department of the Interior 1995).

A reliable estimate of the numbers of owls throughout its entire range is not currently available (U.S. Department of the Interior 1995) and the quality and quantity of information regarding numbers of MSO vary by source. U.S. Department of the Interior (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) estimate 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 980 PACs established on National Forest lands in Arizona and New Mexico (U.S. Forest Service, Southwestern Region, December 19, 2002). Based on this number of MSO sites, total numbers in the United States may range from 980 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, surveys efforts in areas other than National Forest system lands have 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 107 formal consultations for the MSO. These formal consultations have identified incidences of anticipated incidental take of MSO in 281 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 one of these projects (release of site-specific owl location information) has resulted in a biological opinion that the proposed action would likely jeopardize the continued existence of the MSO.

In 1996, we issued a biological opinion on Forest Service Region 3's adoption of the Recovery Plan recommendations through an amendment of their Forest Plans. 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, we completed a reinitiation of the 1996 Forest Plan Amendments biological opinion that anticipated an 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. To date, consultation on individual actions under the amended Forest Plans have resulted in 198 PACs adversely affected, with 87 of those in the Upper Gila Mountains RU.

## **ENVIRONMENTAL BASELINE**

The environmental baseline includes past and present impacts of all Federal, State, or private actions in the action area, the anticipated impacts of all proposed Federal actions in the action area that have undergone formal or early section 7 consultation, and the impact of State and private actions which are contemporaneous with the consultation process. The environmental baseline defines the current status of the species and its habitat in the action area to provide a platform to assess the effects of the action now under consultation.

A.) Status of the species within the action area

BALD EAGLE

The following is added to the Environmental Baseline section for the bald eagle in the 2002 opinion.

A new nesting bald eagle pair was discovered in 2003 that likely uses the action area. This pair is located at Crescent Lake and is the closest known pair in the area (approximately 5 mi away). Little is known about these eagles breeding at Crescent Lake since this is their first year breeding there.

MEXICAN SPOTTED OWL

The action area of the proposed project includes portions of twenty PACs. However only eight PACs occur at barrier sites (Table 2). Four of the seven sites proposed for barrier construction or reconstruction are either in a PAC or within ¼ mi of a PAC. Reaches of 9 of 10 streams that will be treated with Antimycin-A and restocked with fish occur within PACs. Suitable habitat for nesting MSO (i.e. mixed-conifer forests) that is neither in a PAC, nor inventoried for spotted owls, occurs in 7 of the 10 drainages that will be treated with Antimycin-A and restocked with fish (U.S. Forest Service 2002b).

Table 2: Relationship of the proposed actions to MSO PACs and suitable habitat.

Project Site	Affected PACs (ID#) <sup>1</sup>	Within 1/4 Mile of Barrier		Walk-through <sup>2</sup> within 1/4 mile of Barrier		MSO Timing Restrictions applied <sup>3</sup>
		PAC	Unsurveyed suitable habitat <sup>4</sup>	PAC	Unsurveyed suitable habitat	
<b>BLACK RIVER SYSTEM</b>						
Centerfire	09	Yes	No	n/a <sup>5</sup>	n/a	No: B <sup>6</sup>
Fish	(a): 01, 09 (b): 01, 02	Yes (a)	No	Yes (b)	Yes	No: R, B No: S
Hayground	None	No	No	No	Yes	No: R, B
Stinky	07	n/a	n/a	Yes	Yes	No: R
West Fork Black River	07	No	No	Yes	Yes	No: R
<b>LITTLE COLORADO SYSTEM</b>						
East Fork Little Colorado <sup>7</sup>	(a & b): 12	Yes (a)	No	Yes (b)	No	No: R, S, B
South Fork Little Colorado <sup>8</sup>	04	No	No	Yes	Yes	No: R, S, B
West Fork Little Colorado	05, 13	Yes	No	Yes	No	No: R, S, B

- 1 PACs in Black River system are on Alpine Ranger District except for PAC 07 associated with the West Fork Black River and Stinky Creek which is on Springerville Ranger District; PACs in Little Colorado system are all on the Springerville Ranger District
- 2 Includes activities associated with fish salvage, Antimycin-A application, fish-kill monitoring, fish stocking
- 3 R = salvage, Antimycin-A application, fish-kill monitoring; B = barrier (re)construction;  
S = stocking/restocking native fish
- 4 Includes mixed-conifer not in PACs that has not been surveyed within the last 2 years
- 5 Not applicable to this project site; described activity will not occur.
- 6 Actions associated with modification of project are in bold lettering. The stocking/restocking of fish has previously been considered as occurring during the breeding season on Fish, Hayground, Stinky, and West Fork Black River. The construction of a fish barrier on the West Fork Black River has previously been considered as occurring during the owl breeding season.
- 7 Includes Lee Valley
- 8 Includes Bill Riley and Joe Baca Draw

## **B. Factors affecting species environment within the action area**

The baseline factors affecting species within the action area has not changed since the April 19, 2002, biological opinion. Refer to the opinion for detailed information.

## **EFFECTS OF THE PROPOSED 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.

### BALD EAGLE

The following replaces the Effects of the Proposed Action section for the bald eagle in the April 19, 2002, opinion.

The closest known bald eagle nesting site is at Crescent Lake (approximately 5 mi away). This nesting pair was discovered in 2003; a new breeding pair to the area. Little is known about the bald eagles at Crescent Lake since this is their first year breeding. The bald eagles breeding at nearby Luna Lake (approximately 20 mi away) are known to forage primarily at Luna Lake but have been detected at other smaller bodies of water up to 10 mi away from Luna Lake including Sierra Blanca Lake (J. Driscoll, AGFD pers. com). It is likely that the pair at Crescent Lake are foraging at Crescent Lake, but also visiting other streams and smaller bodies of water in the Crescent Lake area. Hunt *et al.* (1992) found eagles foraging on the East Verde River approximately 14 mi away from its nest area. Eagles at the Dupont nest area in the Sierra Ancha mountains are believed to forage 14.0 mi south of the nest area at Roosevelt Lake (Driscoll *et al.*



1997). As a result of the ability for nesting bald eagles to fly long distances to forage, the portions of the Little Colorado River, its forks, and the West Fork of the Black River, where Antimycin-A is being applied, may be within the foraging range of the Crescent Lake and Luna Lake bald eagles.

Migrant, transient/floating, or summering breeding bald eagles could occur in the project at some time throughout the year. Wintering eagles (migrant or transient/floating) are expected to be in Arizona from September through March and, as a result, are not expected to be foraging on fish in these streams when Antimycin-A is being used. Wintering eagles likely use the project area, but in unknown abundance and distribution. Of the 115 standardized bald eagle winter count routes established statewide (Driscoll *et al.* 2002), no routes occurred along the streams in the project area as of 2002. Summering Arizona breeding bald eagles (Hunt *et al.* 1992) could use high elevation habitat in the project area during application of Antimycin-A, but the occurrence of these eagles using high elevation habitat in summer months is believed to be rare and of short duration. Bald eagles of unknown identity (possibly summering Arizona breeding eagles or transient/floating Arizona eagles) are infrequently detected at high elevation lakes and streams during the summer. The habits of these birds are unknown.

If breeding, migrant, or transient/floating bald eagles wander to these drainages, consumption of fish or water exposed to Antimycin-A may occur. Bald eagles will commonly eat carrion and can be attracted to food by other birds (ravens, crows, herons, etc.) (Stalmaster 1987). Therefore, bald eagles could be attracted to fish killed from the application of Antimycin-A. However, Antimycin-A is not known to effect birds (Schnick 1974). In addition, no effect was reported on turtles, salamanders, frogs (tadpoles and adults), snakes, herons, ducks, and or terns at concentrations toxic to fish (Walker *et al.* 1964, Gilderhus and Berger 1969).

Anticipated changes in the fishery as a result of the proposed action during the fall and winter of 2003 and early winter 2004 are not expected to measurably affect breeding, migrant, transient/floating, or summering breeding eagles that might use these streams. The drainages (Little Colorado River, its forks, and the West Fork of the Black River) where Antimycin-A is being used are not believed to be foraging areas that the Luna or Crescent eagles are dependent upon, because: 1) these drainages are a long distance from the known nest areas; and 2) eagles tend to nest in close proximity to important foraging areas (Hunt *et al.* 1992). Small and narrow stream channels such as Lee Valley Creek, are not expected to be prime foraging areas because small streams make flying and foraging difficult and small streams tend to hold few large fish. Future changes in fishery type or abundance are not expected to affect the ability of the Luna or Crescent eagles to successfully reproduce or inhibit the ability of migrant or transient/floating eagles to acquire food.

#### MEXICAN SPOTTED OWL

The action area of the proposed project includes portions of twenty PACs. All activities associated with the proposed action will occur during the daytime, greatly reducing the

likelihood of disrupting foraging activities of any MSO. These daytime activities; however, may affect roosting owls (during the breeding and non-breeding seasons), and owls tending nests (incubating, brooding young, etc.).

The revised proposed action removes all timing restrictions associated with barrier construction within the Black River watershed. The Forest could not meet the MSO breeding season timing restrictions as originally proposed due to complications with timing of project events. Walk-through activities associated with salvaging fish, applying Antimycin-A, and stocking fish are of very short duration and are not likely to disturb owls during the breeding season in a manner that would affect their breeding success or health. However, effects from barrier construction are likely to be much noisier and of much longer duration than the “walk-through” type activities.

The Forest is renovating streams and doing barrier work in the Black River and Little Colorado River watersheds. The Centerfire and Fish creek barriers within the Black River watershed will be constructed within 1/4 mi of a PAC. Additionally, on the Black River watershed walk-through activities associated with barrier construction and renovation of streams will occur within 1/4 mi of suitable habitat or PACs on Hayground and Stinky creeks and the West Fork of the Black River.

Barrier reconstruction in the lower Black River watershed on Centerfire and Fish creeks during the MSO breeding season may result in effects to MSOs in PACs 10101 (Hoodoo Knoll) and 10109 (Wildcat Point). Barrier reconstruction at Centerfire and Fish creeks will generate noise and commotion by humans and possibly machinery during the daytime for the duration of the action. The proximity of owls to potential disturbance influences both the magnitude of the effects and the probability of the effects occurring. Effects could include awakening owls from daytime sleep, flushing them from one perch to another, avoidance of the area during construction activities, or even abandonment of these areas. Increased activity of MSO during the daytime may expose individuals to diurnal predators such as northern goshawks. The location of the core nest areas of the owls in PACs 10101 and 10109 in relation to the barrier reconstruction is not known. PAC 10109 was last formally monitored in 1998 and PAC 10101 was last monitored in 1993 (informally).

Activities may occur in the MSO breeding season during the construction of the fish barrier on the West Fork Black River. Barrier construction at the West Fork Black River site will not occur within 1/4 mi of a PAC. There is vehicle access all the way to the barrier site, so heavy equipment and vehicles will be throughout the area. Vegetation along the river is not considered restricted or otherwise suitable for MSO breeding, although forested habitats in the vicinity of the project site have not been surveyed for the presence of owls. Constructing a barrier will likely take several weeks and cause increased noise levels. However, because of the lack of MSOs or, apparently, MSO habitat in the vicinity of the action, the construction is not expected to disturb owls during the breeding season in a manner that would affect their breeding success or their health, or otherwise significantly affect normal behavior patterns.

The subsequent stocking of fish within the Black River system may occur within the breeding season of MSOs. Except perhaps in very open situations (i.e. habitats that are not suitable for MSOs) where All Terrain Vehicles may be used (Centerfire and Fish creeks), fish stocking activities will involve small numbers of people, and perhaps horses, walking along the creeks and releasing fish into the water. These activities will be of very short-duration and are not likely to disturb owls during the breeding season in a manner that would affect their breeding success or their health, or otherwise significantly affect normal behavior patterns.

The construction of barriers on the East Fork and West Fork of the Little Colorado River during the breeding season will occur within three PACs (PACs 10605, 10612, and 10613) that have been occupied within the last two years. MSOs within these three PACs may be affected by activities associated with the construction of these barriers. Depending on the location of the MSOs during the construction, these effects may result in measurable impacts to the success of nesting owls.

The construction of barriers along the South Fork Little Colorado is less problematic. These barriers are not within PACs nor were MSOs detected during surveys of these areas during the last two years. There is vehicle access to the barrier site and heavy equipment will be used in this barrier construction. The destruction of some cottonwoods as a result of the barrier construction may alter the forest structure in the areas immediately surrounding the barrier sites. However, because the areas do not meet the definition of a “riparian forest” as presented in the Recovery Plan, these impacts will not conflict with the Recovery Plan.

Roosting non-breeding or dispersing MSOs may be briefly disturbed during the implementation of the various proposed actions. Presumably, these effects could include awakening from daytime sleep, flushing from one perch to another, or, in the case of sites at which barriers are being constructed, avoidance of these areas or temporarily leaving the area. The likelihood of non-breeding or dispersing owls being present in the action area is unknown, but the effects are not likely to disturb owls in a manner that would significantly disrupt normal behavior patterns.

Delaney *et al.* (1997) reviewed literature on the response of owls and other birds to noise and concluded: 1) raptors are more susceptible to disturbance-caused nest abandonment early in the nesting season, 2) birds generally flush in response to disturbance when distances to the source are less than approximately 200 ft and when sound levels are in excess of 95 dBA, and 3) the tendency to flush from a nest declines with experience or habituation to the noise, although the startle response cannot be completely eliminated by habituation. Swarthout and Steidl (2001) examined flush response of MSOs to recreationists, and found that if hikers are excluded from a 79-ft radius around roost sites that 95 percent of owl flush responses would be eliminated. At national parks in Utah, Swarthout and Steidl (2003) examined behavioral responses of nesting MSOs to individual hikes that passed within 36-210 ft of active nests every 15 minutes. Female behavior was much more affected than that of males. The sensitivity of females to hikers is especially important because females attend the nests almost exclusively and nestling survival depends largely on female behavior. They suggest that restrictions on hiking intensity near nests should be considered on a case by case basis, but should probably only be implemented in

canyons with use levels approximately or exceeding the use in their study (>45 hiking groups per day). Our policy is to recommend limiting disturbing activities within 1,320 ft of MSO nest sites during the breeding season (March 1-August 31). In addition, Delaney *et al.* (1997) found that ground-based disturbances elicited a greater flush response than aerial disturbances.

Owls have more sensitive hearing than other birds (Bowles 1995). The three PACs located immediately adjacent to barrier construction and associated activity will take place during the breeding season. If loud sound arouses an animal, it has the potential to affect its metabolic rate by making it more active. Increased activity can, in turn, deplete energetic reserves (Bowles 1995). Loud human activity can cause raptors to expand their home ranges, but often the birds return to normal use patterns when the humans are not present (Bowles 1995). Such expansions in home ranges could affect the fitness of the birds, and thus their ability to successfully reproduce and raise young. Species that are sensitive to the presence of people may be displaced permanently, which may be more detrimental to wildlife than recreation-induced habitat changes (Hammit and Cole 1987; Gutzwiller 1995; Knight and Cole 1995). If animals are denied access to areas that are essential for reproduction and survival, then that population will decline. Likewise, if animals are disturbed while performing essential behaviors such as foraging or breeding, that population will also likely decline (Knight and Cole 1995).

Birds may respond to disturbance during the breeding season by abandoning their nests or young, by altering their behavior such that they are less attentive to the young, which increases the risk of the young being preyed upon, by disrupting feeding patterns, or by exposing young to adverse environmental stress (Knight and Cole 1995). There is also evidence that disturbance during years of a diminished prey base can result in lost foraging time which, in turn, may cause some raptors to leave an area or not to breed at all (Knight and Cole 1995). Disturbances caused by the proposed action could effect the reproductive success of the three PACs in which construction will occur during the breeding season. The effects caused to MSOs by noise, as discussed above, could occur to some extent and cause reproductive failure for some of the owls in the area.

## **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 cumulative effects section has not changed since the April 19, 2002 biological opinion. Refer to the April 2002 opinion for detailed information.

## CONCLUSION

### **BALD EAGLE**

After reviewing the current status of the bald eagle, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, it is our biological opinion that the Apache trout reintroduction project, as proposed, is not likely to jeopardize the continued existence of the bald eagle. No critical habitat has been designated for this species, therefore, none will be affected. We present this conclusion for the following reasons:

1. The population status of the bald eagle continues to improve overall.
2. Breeding bald eagles are not known to forage in the action area.
3. The effects will be transitory and are expected to be of short duration.

### **MEXICAN SPOTTED OWL**

After reviewing the current status of the 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 Apache trout reintroduction project, as proposed, is not likely to jeopardize the continued existence of the MSO. Critical habitat for this species has been designated; however, this action does not affect any areas of critical habitat and no destruction or adverse modification of critical habitat is anticipated. We make these findings for the following reasons:

1. The proposed activity is a short-term disturbance (a disturbance that will occur during more than one, but less than three breeding seasons). Disturbance associated with the five PACs discussed in this biological opinion will be limited to a period of two years. Monitoring data will be gathered during this period for three of the five PACs, and the effects of the action will be reassessed at that time. The Forest will report on disturbances of the PACs that are not monitored. The disturbance should not impair the future reproductive ability of the affected PACs.
2. The barrier construction itself will not modify or remove any key MSO habitat components such as canopy closure, dead and down logs, snags, MSO prey species distribution, abundance, cover, or habitat.

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

## **INCIDENTAL TAKE STATEMENT**

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. "Take" is

defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. "Harm" is defined (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 Forest so that they become binding conditions of any grant or permit issued, as appropriate, for the exemption in section 7(o)(2) to apply. The Forest has a continuing duty to regulate the activity covered by this incidental take statement. If the Forest (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 Forest must report the progress of the action and its impact on the species to us as specified in the incidental take statement [50 CFR §402.14(i)(3)].

#### AMOUNT OR EXTENT OF TAKE

##### **BALD EAGLE**

We do not anticipate that the revised proposed action will incidentally take any bald eagles. We know that bald eagles are nesting by two lakes near the action area. Bald eagles tend to forage near where they nest, but are known to also travel long distances for food. The rivers within the proposed project will undergo a change in fisheries. Eagles may be attracted to these rivers due to the change in fisheries. However, we believe that the use of these river will be infrequent and that the bald eagles are not dependent on these areas for their needs.

##### **MEXICAN SPOTTED OWL**

This take statement replaces the take statement in the April 19, 2002, biological opinion. Since no barrier construction occurred during 2002 the amount of anticipated take for MSOs has been readjusted to reflect this change. The following take statement is for anticipate take during 2003 and 2004.

MSO habitat and designated PACs exist near portions of the project. MSO are known to inhabit five PACs (10101, 10109, 10605, 10612, 10613) in areas where construction of barriers will

occur during the breeding season. If MSO were determined to breed in any or all of the five PACs during project construction, we would anticipate take by harassment due to a significant disruption of normal behavior patterns, including those associated with breeding. Such disruption could result in loss of reproduction. We anticipate that take is reasonable certain to occur in five PACs for two years as a result of this proposed action. Therefore, up to 10 breeding efforts may be disrupted over two years.

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.

#### REASONABLE AND PRUDENT MEASURES WITH TERMS AND CONDITIONS

The Forest Service will implement the reasonable and prudent measures and corresponding terms and conditions for the PACs located on the Little Colorado River (PACs: 10605, 10612, 10613) in the April 19, 2002, biological opinion. Therefore, those reasonable and prudent measures and terms and conditions remain in effect for those PACs only (they are reproduced below). However, the Forest is unable to implement the same measures for the PACs located on the Black River System (PACs : 10101 and 10109) due to lack of funding and personnel. Therefore, we provide different reasonable and prudent measures and terms and conditions for those PACs.

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

##### Reasonable and Prudent Measure # 1:

The Forest shall monitor incidental take resulting from the proposed action and report to the FWS the findings of that monitoring.

The following terms and conditions implement reasonable and prudent measure #1 for MSO PACs (10605, 10612, and 10613) along the Little Colorado River:

- 1.1 The Forest shall monitor the project areas where construction of barriers in PACs takes place in order to ascertain effects on individuals. This monitoring will be accomplished using the following protocol during the years of construction of barriers in PACs:
  - 1.1.1 One survey in March and one survey in April with at least three weeks separating surveys.

- 1.1.2 Two surveys in May with at least two weeks separating the surveys.
- 1.1.3 A total of two more surveys during the months of June, July, or August with at least four weeks separating surveys.
- 1.1.4 If at any time the Forest finds a MSO the Forest shall coordinate with us so to re-evaluate these survey requirements and to coordinate ways to modify the proposed action as needed to minimize take of MSOs.

The following terms and conditions implement reasonable and prudent measure #1 for MSO PACs (10101 and 10109) within the Black River watershed:

- 1.1 The Forest shall maintain records of when project activities occur at each barrier. This will help determine if crews were within PACs during the breeding season.
- 1.2 The Forest shall immediately notify AESO if a MSO is located within a PAC during project activities.

The following terms and conditions implement reasonable and prudent measure #1 for all five MSO PACs (10605, 10612, 10613 on the Little Colorado River and 10109 and 10109 on the Black River watershed).

- 1.1 After every season, the Forest shall submit a report to the Arizona Ecological Services Field Office within 90 days of monitoring and activities within PACs. The report shall include results of MSO surveys and implementation of other terms and conditions herein, 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.

Reasonable and Prudent Measure #2:

Personnel education/information programs and well-defined operational procedures shall be implemented.

The following terms and conditions implement reasonable and prudent measure #2 for all five MSO PACs:

- 2.1 All field personnel who implement any portion of the proposed action shall be informed of regulations and protective measures for the MSO. Training shall include Forest Service best management practices, known information about listed species (MSO) habitat, MSO PACs, and information concerning the Act. In particular, emphasis should be placed on the importance of minimizing noise disturbance of MSOs during the breeding season.



- 2.2 The Forest shall ensure the project monitor(s) and/or supervisor, upon being informed of a listed species location within the project area, immediately notifies (by telephone, electronic transmission, or facsimile) our MSO biologist or Assistant Field Supervisor.

### Reasonable and Prudent Measure #3

The Forest shall minimize adverse effects of barrier construction and all associated activities.

The following terms and conditions implement reasonable and prudent measure #3 for all five MSO PACs:

- 3.1 Work conducted in association with barrier construction and maintenance shall only occur between the hours of 0600 to 1800 hours in areas adjacent to or within 1/4 mi of PACs along the Black River system during the breeding season.
- 3.2 Travel to and from the barrier sites shall occur along routes that will have the least impact to MSO habitat. Travel corridors/routes used that enter PACs should be obliterated following this project. This will discourage new user trails from being created within PACs or old trails re-opened permanently that would introduce a long-term disturbance (i.e., OHV use within the PAC) from the proposed action.

The reasonable and prudent measures, with their implementing terms and conditions, are designed to minimize the effects of incidental take that might result from the proposed action. If, during the course of the action, the authorized level of incidental take is exceeded, such incidental take would represent new information requiring review of the reasonable and prudent measures provided. The Forest 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 our Law Enforcement Office, 2450 West Broadway Road #113, Mesa, Arizona (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. If possible, the remains of intact owl(s) shall be provided to this office. If the remains of the owl(s) are not intact or are not collected, the information noted above shall be obtained and the carcass left in place. Injured animals should be transported to a

qualified veterinarian by an authorized biologist. Should the treated owl(s) survive, please contact our Law Enforcement office regarding the final disposition of the animal.

### **CONSERVATION RECOMMENDATIONS**

Section 7(a)(1) of the Act directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information. The following recommendations are in addition to those provided in our April 19, 2002, opinion. We have no additional conservation recommendations for the bald eagle.

#### **Mexican Spotted Owls**

1. To the extent possible, the Forest should consider timing construction for after the incubation period in active PACs (late March - early May).
2. To the extent possible, the Forest should consider monitoring the PACs along the Black River watershed to determine breeding status and location of owls within the PACs.

In order for us to be 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 reinitiation of formal consultation on the proposed action(s) as modified on May 2, 2003. As provided in 50 CFR §402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation.

We appreciate the Forest's efforts to identify and minimize effects to listed species from this project. For further information please contact Jennifer Graves (x232) or Debra Bills (x239). Please refer to the consultation number, 02-21-02-F-0101 R1, in future correspondence concerning this project.

Ms. J. Elaine Zieroth

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Sincerely,

/s/ Steven L. Spangle  
Field Supervisor

cc: Regional Director, Fish and Wildlife Service, Albuquerque, NM (ARD-ES)  
Project Leader, Fisheries Resources Office, Pinetop, AZ  
District Ranger, Springerville Ranger District, Springerville, AZ  
District Ranger, Alpine Ranger District, Alpine, AZ

John Kennedy, Habitat Branch, Game and Fish Department, Phoenix, AZ  
Scott Gurtin, Game and Fish Department, Phoenix, AZ

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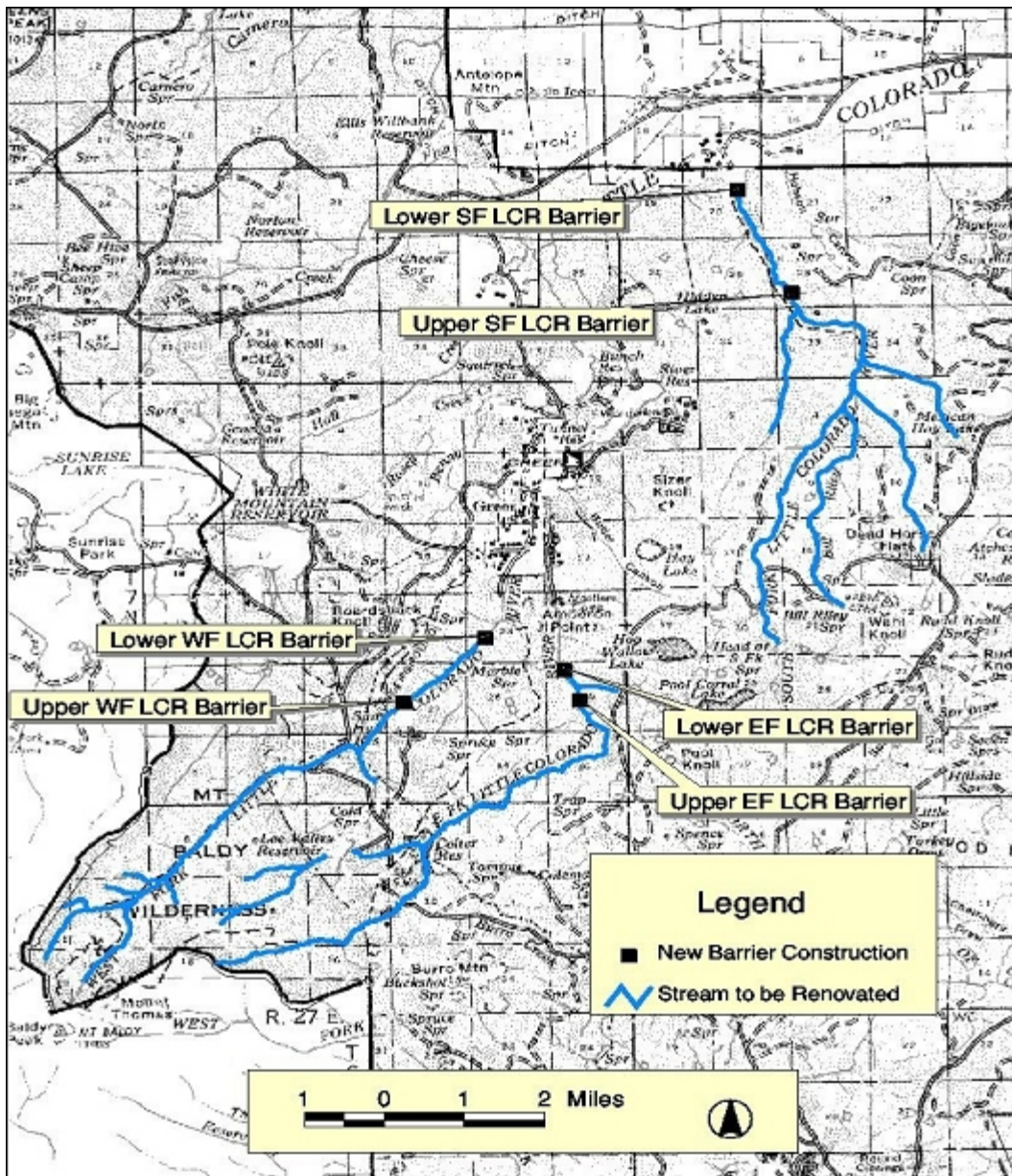
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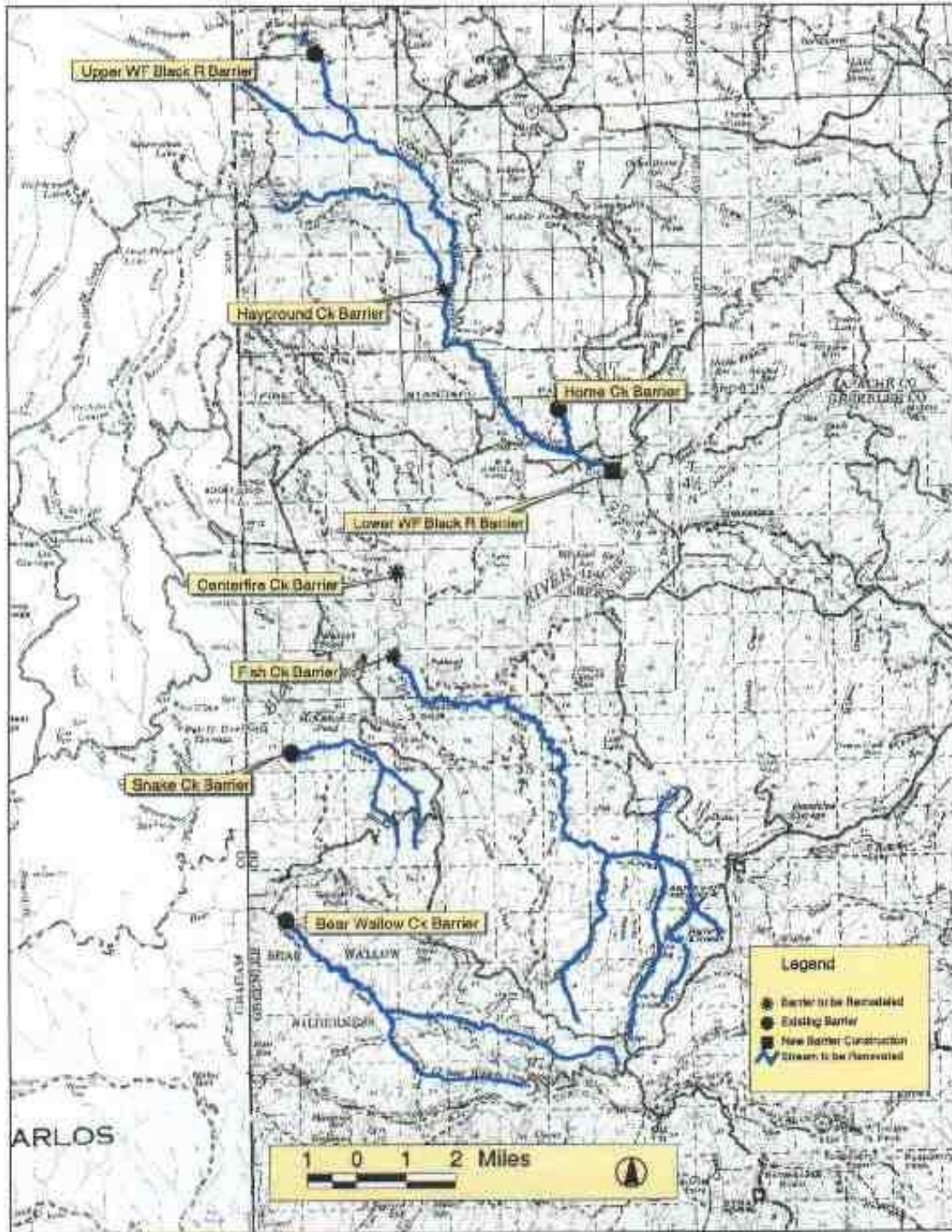
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### APPENDIX A



**Map 1:** Proposed Apache trout enhancement project locations within the LCR system on the A-SNFs. Stream renovation (removal of non-native salmonids species above barriers) would be accomplished by the use of Fintrol® (Antimycin-A) with neutralization by potassium permanganate (KMnO<sub>4</sub>).



**Map 2:** Apache trout enhancement project locations within the Black River system on the A-SNFs. Stream renovation (removal of non-native salmonids species above barriers) under would be accomplished by the use of Fintrol® (Antimycin-A) with neutralization by potassium permanganate (KMnO<sub>4</sub>).