United States Department of the Interior
U.S. Fish and Wildlife Service
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In Reply Refer To:

AESO/SE
02-21-04-F-0432

September 30, 2004

E-Mail Transmission

Mr. M. Stephen Best
District Ranger
Williams Ranger District
742 South Clover Road
Williams, Arizona 86046-9122

Dear Mr. Best:

We received a September 22, 2004, email message from your staff regarding the Morgan Wildland Fire Use Fire on the Williams Ranger District. The message was a request to continue implementation of the fire into Mexican spotted owl (MSO) (*Strix occidentalis lucida*) habitat, which will be designated on the effective date of September 30, 2004. The email included a table outlining the effects of the action on the primary constituent elements of MSO critical habitat, results of monitoring of MSO key habitat components in similar actions in the area, and conservation measures that would be part of the proposed action.

The effects of wildland fire use on MSO critical habitat has not been previously addressed either programmatically or for the Morgan Fire. However, a programmatic formal consultation (02-21-98-F-246) was completed for the effects of prescribed natural fire (now referred to as wildland fire use) on the MSO for most of the Kaibab National Forest with issuance of a biological opinion on April 30, 1999. In addition, the Williams Ranger District requested a formal conference on the effects of wildland fire use on proposed MSO critical habitat on August 17, 2004.

We consider your request to be a request for formal consultation on the Morgan Fire. We are conducting this consultation in relation to the 1999 biological opinion referred to above, for this fire only. The 1999 biological opinion is incorporated by reference. We consider this request to be appropriate only for the Morgan Fire. For instance, this does not mean that your request for formal conference (or for formal consultation, if you modify your request) is not necessary. That conference (or consultation) must be completed. This biological opinion only addresses the Morgan Fire and its effects on designated MSO critical habitat.

Consultation History

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

Table 1. Consultation History for the Morgan Fire.

Date	*Event*
September 22, 2004	We were notified of the Morgan Fire by telephone.
September 22, 2004	We received additional information regarding the fire and its potential effects on designated MSO critical habitat.
October XX, 2004	We issued the final biological opinion

BIOLOGICAL OPINION

DESCRIPTION OF THE PROPOSED ACTION

The proposed action is to allow the Morgan Wildland Fire Use Fire to enter into MSO critical habitat. The fire could encompass up to 2,165 acres of MSO critical habitat, although up to 1,500 acres is more likely. Otherwise, the description of the proposed action is the same as that in the 1999 biological opinion, except that the proposed action focuses on the effects of the Morgan Fire on designated MSO critical habitat. In addition, all conservation measures and reasonable and prudent measures of the 1999 biological opinion will be incorporated and implemented for the Morgan Fire, and they are incorporated herein by reference.

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 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). The Kaibab, Coconino, Apache-Sitgreaves, Tonto, Cibola, and Gila National Forests administer most habitat within this RU. The north 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 MSO.

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, USDI 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 (USDI 1995).

Historical and current anthropogenic uses of MSO habitat include both domestic and wild ungulate grazing, recreation, fuels reduction treatments, resource extraction (e.g., timber, oil, gas), and development. These activities have the potential to reduce the quality of MSO nesting, roosting, and foraging habitat, and may cause disturbance during the breeding season. Livestock and wild ungulate grazing is prevalent throughout Region 3 National Forest lands and is thought to have a negative effect on the availability of grass cover for prey species. Recreation impacts are increasing on all forests, especially in meadow and riparian areas. There is anecdotal information and research that indicates that owls in heavily used recreation areas are much more erratic in their movement patterns and behavior. Fuels reduction treatments, though critical to reducing the risk of catastrophic wildfire, can have short-term adverse effects to MSO through habitat modification and disturbance. As the population grows, especially in Arizona, small communities within and adjacent to National Forest System lands are being developed. This

trend may have detrimental effects to MSO by further fragmenting habitat and increasing disturbance during the breeding season. West Nile Virus also has the potential to adversely impact the MSO. The virus has been documented in Arizona, New Mexico, and Colorado and preliminary information suggests that owls may be highly vulnerable to this disease. Unfortunately, due the secretive nature of owls and the lack of intensive monitoring of banded individual birds, we will most likely not know when owls contract the disease or the extent of its impact to MSO range-wide.

Currently, high-intensity, stand-replacing fires are influencing ponderosa pine and mixed conifer forest types in Arizona and New Mexico. MSO in the southwestern United States has been shaped over thousands of years by fire. Since MSO occupy a variety of habitats, the influence and role of fire has most likely varied throughout the owl's range. In 1994, at least 40,000 acres of nesting and roosting habitat were impacted to some degree by catastrophic fire in the Southwestern Region (Sheppard and Farnsworth 1995). Between 1991 and 1996, the Forest Service estimated that approximately 50,000 acres of owl habitat has undergone stand-replacing wildfires (G. Sheppard, Forest Service, Kaibab National Forest, Arizona, pers. comm.). However, since 1996, fire has become catastrophic on a landscape scale and has resulted in hundreds of thousands of acres of habitat lost to stand-replacing fires. This is thought to be a result of unnatural fuel loadings, past grazing and timber practices, and a century of fire suppression efforts. The 2002 Rodeo-Chediski fire, at 462,384 acres, burned through approximately 55 PACs on the Tonto and Apache-Sitgreaves National Forests and the White Mountain Apache Reservation. Of the 11,986 acres of PAC habitat that burned on National Forest lands, approximately 55% burned at moderate to high severity. Based on the fire severity maps for the fire perimeter, tribal and private lands likely burned in a similar fashion. We define moderate severity burn as high scorch (trees burned may still have some needles) and high severity burn as completely scorching all trees (trees completely dead).

Currently, catastrophic wildfire is probably the greatest threat to MSO within the Upper Gila Mountains RU. As throughout the West, fire intensity and size have been increasing within this geographic area. Table 2 shows several high-intensity fires that have had a large influence on MSO habitat in this RU in the last decade. Obviously the information in Table 2 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 seven years.

Table 2. Some recent influential fires within the Upper Gila Mountains Recovery Unit, approximate acres burned, number of PACs affected, and PAC acres burned.

Fire Name	Year	Total Acres Burned	# PACs Burned	# PAC Acres Burned
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
TOTAL		525,894	84	~43,645

A reliable estimate of the numbers of owls throughout its entire range is not currently available (USDI 1995) and the quality and quantity of information regarding numbers of MSO vary by source. USDI (1991) reported a total of 2,160 owls throughout the United States. Fletcher (1990) calculated that 2,074 owls existed in Arizona and New Mexico. However, Ganey *et al.* (2000) estimates approximately 2,950 ± 1,067 (SE) MSOs in the Upper Gila Mountains RU alone. The Forest Service Region 3 most recently reported a total of approximately 980 protected activity centers (PACs) established on National Forest lands in Arizona and New Mexico (USDA 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, survey efforts in areas other than National Forest System lands have likely resulted in additional sites being located in all Recovery Units. Currently, we estimate that there are likely 12 PACs in Colorado (not all currently designated) and 105 PACs in Utah.

Researchers studied MSO population dynamics on one study site in Arizona (n = 63 territories) and one study site in New Mexico (n = 47 territories) from 1991 through 2002. The initial publication of the findings reported that both study populations were declining at ≥10% a year and that owl survival rates in Arizona may be declining over time (Seamans et al. 1999). The authors noted two possible reasons for the population decline were declines in habitat quality and regional trends in climate. The Final Report, titled "Temporal and Spatial Variation in the Demographic Rates of Two Mexican Spotted Owl Populations," (*in press*) found that reproduction varied greatly over time, while survival varied little. The estimates of the population rate of change (Λ=Lamda) indicated that the Arizona population was stable (mean Λ from 1993 to 2000 = 0.995; 95% Confidence Interval = 0.836, 1.155) while the New Mexico population declined at an annual rate of about 6% (mean Λ from 1993 to 2000 = 0.937; 95% Confidence Interval = 0.895, 0.979). The study concludes that spotted owl populations could

experience great (>20%) fluctuations in numbers from year to year due to the high annual variation in recruitment. However, due to the high annual variation in recruitment, the MSO is then likely very vulnerable to actions that impact adult survival (e.g., habitat alteration, drought, etc.) during years of low recruitment.

Since the owl was listed, we have completed or have in draft form a total of 137 formal consultations for the MSO. These formal consultations have identified incidences of anticipated incidental take of MSO in 327 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 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, 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. To date, consultation on individual actions under the amended Forest Plans has resulted in 233 PACs adversely affected, with 126 of those in the Upper Gila Mountains RU. Region 3 of the Forest Service reinitiated consultation on the Forest Plans on April 8, 2004.

Mexican spotted owl Critical Habitat

The final MSO critical habitat rule (USDI 2004) designated approximately 8.6 million acres of critical habitat in Arizona, Colorado, New Mexico, and Utah, mostly on Federal lands (USDI 2004). Within this larger area, proposed critical habitat is limited to areas that meet the definition of protected and restricted habitat, as described in the Recovery Plan. Protected habitat includes all known owl sites and all areas within mixed conifer or pine-oak habitat with slopes greater than 40 percent where timber harvest has not occurred in the past 20 years. Restricted habitat includes mixed conifer forest, pine-oak forest, and riparian areas outside of protected habitat.

The primary constituent elements for proposed MSO critical habitat were determined from studies of their habitat requirements and information provided in the Recovery Plan (USDI 1995). Since owl habitat can include both canyon and forested areas, primary constituent elements were identified in both areas. The primary constituent elements which occur for the

MSO within mixed-conifer, pine-oak, and riparian forest types that provide for one or more of the MSO's habitat needs for nesting, roosting, foraging, and dispersing are in areas defined by the following features for forest structure and prey species habitat:

Primary constituent elements related to forest structure include:

- A range of tree species, including mixed conifer, pine-oak, and riparian forest types, composed of different tree sizes reflecting different ages of trees, 30% to 45% of which are large trees with dbh of 12 inches or more;
- A shade canopy created by the tree branches covering 40% or more of the ground; and,
- Large, dead trees (snags) with a dbh of at least 12 inches.

Primary constituent elements related to the maintenance of adequate prey species include:

- High volumes of fallen trees and other woody debris;
- A wide range of tree and plant species, including hardwoods; and
- Adequate levels of residual plant cover to maintain fruits and seeds, and allow plant regeneration.

The forest habitat attributes listed above usually are present with increasing forest age, but their occurrence may vary by location, past forest management practices or natural disturbance events, forest-type productivity, and plant succession. These characteristics may also be observed in younger stands, especially when the stands contain remnant large trees or patches of large trees. Certain forest management practices may also enhance tree growth and mature stand characteristics where the older, larger trees are allowed to persist.

There are 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 remains the same as described in the 1999 biological opinion. The Morgan Fire is located in critical habitat unit UGM-13 in the Kaibab National Forest. The project area contains pine-oak restricted habitat.

EFFECTS OF THE ACTION

Effects of the action refer to the direct and indirect effects of an action on the species or critical habitat, together with the effects of other activities that are interrelated and interdependent with that action, that will be added to the environmental baseline. Interrelated actions are those that are part of a larger action and depend on the larger action for their justification. Interdependent actions are those that have no independent utility apart from the action under consideration.

Indirect effects are those that are caused by the proposed action and are later in time, but are still reasonably certain to occur.

Primary constituent elements of Mexican spotted owl habitat are anticipated to be affected by the proposed action. The Forest Service provided information regarding the expected effects of the Morgan Fire on the primary constituent elements of MSO critical habitat.

Large Diameter Trees

No, or very slight, loss of large diameter trees.

Measures to promote low to moderate intensity burns and to protect large diameter trees will eliminate or reduce loss.

Canopy Closure

Small, localized effects to canopy closure are anticipated.

Measures to limit gap creation in MSO habitat will reduce impacts.

Range of Tree Sizes

The Morgan Fire may decrease the number of small trees, but the range of size classes will remain unaffected.

Multi-Layered Canopy; Large Overstory Trees

No, or very slight, loss of large trees.

Slight, localized loss of canopy layers will result from the Morgan Fire.

Snag Basal Area

Some mosaic burning of snags will result from the Morgan Fire.

Measures to protect snags from fire, when feasible, will reduce loss of these features.

Volumes of Fallen Trees and Woody Debris

Some mosaic reduction in volumes of fallen trees and other woody debris will result from the Morgan Fire.

Measures to protect large down logs and limitations on loss will reduce loss of these features.

Plant Species Richness, including hardwoods

Plant species richness, including hardwoods, will increase due the fire and created small, localized canopy gaps.

Residual Plant Cover for Prey Species

Short-term decrease in plant cover will result from the Morgan Fire.

Long-term increase in residual plant cover will result from fire and small, localized canopy gaps.

. Measures to rest burned areas from livestock grazing for one growing season will reduce short-term loss of herbaceous plant cover.

. Measures to reduce and rehabilitate suppression impacts will reduce short-term loss.

The Forest Service also provided some preliminary results from microhabitat and transect monitoring in MSO habitat associated with the Wild Steer Wildland Fire Use Fire. The Wild Steer Fire was recently conducted near the Morgan Fire.

Three microhabitat plots were placed in MSO critical and restricted pine-oak habitat of the Wild Steer Fire within areas that were expected to, and did, burn. The average pre- and post-fire results from these three plots are summarized in Tables 3 and 4.

Table 3. Pre-fire Key Habitat Components within MSO habitat in the Wild Steer Wildland Fire Use Management Area.

snags/acre >12"	logs/acre >12"	trees/acre >24"	trees/acre > 18-24"	hardwoods/ acre >5"	total basal area >5"
2.6	2.3	0	0	240	138.9

Table 4. Post-fire Key Habitat Components within MSO habitat in the Wild Steer Wildand Fire Use Management Area.

snags/acre >12"	logs/acre>12"	trees/acre >24"	trees/acre > 18-24"	hardwoods/ acre >5"	total basal area >5"
2.3	0.7	0	0	240	136.1

The plots sustained a loss of 70 percent of large logs. The Forest Service suggests that though these three plots may represent the burned portions of the Wild Steer Fire, they do not represent the effects of the fire across the landscape. In most areas, the fire burned in a mosaic, with intermittent areas with no burning and no consumption of logs. They estimated that approximately 15 percent of the area within the Wild Steer Fire perimeter within MSO habitat did not burn.

The Forest Service believes that wildland fire use effects are better represented by transect monitoring. Their preliminary analyses suggest six percent mortality in large conifers (total sample = 94), two percent mortality in large oaks (total sample = 62), zero loss of snags (total sample = 25), and 28 percent loss of logs, with an additional partial consumption of 38 percent of the logs, but retention of the logs as per the 8-foot definition (total sample = 25).

In summary, several primary constituent elements of Mexican spotted owl habitat will be affected. The volume of fallen trees and woody debris will be the element affected most by the action.

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 analysis of cumulative effects remains unchanged from the 1999 biological opinion.

CONCLUSION

After reviewing the current status of the MSO, the environmental baseline for the action area, the effects of the proposed project and the cumulative effects, it is our biological opinion that the Morgan Wildland Fire Use Fire is not likely to adversely modify MSO critical habitat. This conclusion is based on the relatively small portion of critical habitat that will be affected in the Upper Gila Mountains Recovery Unit and the low intensity of the fire.

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

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. "Take" is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. "Harm" is defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering (50 CFR 17.3). "Harass" is defined as intentional or negligent actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding or sheltering (50 CFR 17.3). "Incidental take" is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this Incidental Take Statement.

AMOUNT OR EXTENT OF TAKE

Except as described in the 1999 biological opinion, we do not anticipate the proposed action regarding critical habitat will result in the incidental take of Mexican spotted owls.

Disposition of Dead or Injured Listed Species

Upon locating a dead, injured, or sick listed species, initial notification must be made to our Law Enforcement Office, 2450 West Broadway Road, Suite 113, Mesa, Arizona 85202 (telephone: 480/967-7900) within three working days of its finding. Written notification must be made within five calendar days and include the date, time, and location of the animal, a photograph if possible, and any other pertinent information. The notification shall be sent to the Law Enforcement Office with a copy to this office. Care must be taken in handling sick or injured animals to ensure effective treatment and care, and in handling dead specimens to preserve the biological material in the best possible state.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information.

1. Although all measures of the 1999 biological opinion will be implemented for the proposed action, we are concerned about the high loss of large logs measured after the Wild Steer Fire. We recommend that any additional measures that can be taken to reduce that loss be developed and implemented.

2. The Morgan Fire is the first large wildland fire use event on the Williams Ranger District. Until better information resulting from monitoring the loss of large logs is available and better protective measures are developed, we recommend limiting the acreage of MSO critical habitat burned to the extent practicable while meeting your management objectives.

REINITIATION NOTICE

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

cease pending reinitiation.

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

Sincerely,

/s/ Steven L. Spangle
Field Supervisor

cc: Field Supervisor, Fish and Wildlife Service, Albuquerque NM
Forest Supervisor, Kaibab National Forest, Williams AZ

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

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