United States Department of the Interior

Fish and Wildlife Service
Arizona Ecological Services Office
9828 North 31st Avenue, Suite C3
Phoenix, Arizona 85051
Telephone: (602) 242-0210 Fax: (602) 242-2513

In reply refer to:
AESO/SE
02EAAZ00-2020-F-0088

March 3, 2020

Ms. Heather Provencio, Forest Supervisor
Kaibab National Forest
800 South 6th Street
Williams, Arizona 86046

RE: Sale of National Forest System lands in Lost Canyon to Young Life

Dear Ms. Provencio:

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. *et seq.*), as amended (Act). We received your November 7, 2019, request for consultation, via electronic mail. At issue are effects that may result from the proposed National Forest System (NFS) land sale in Coconino County, Arizona to the threatened Mexican spotted owl (*Strix occidentalis lucida*, owl or MSO) and its designated critical habitat.

We based this biological opinion on information provided in the October 18, 2019 biological assessment (BA), November 7, 2019 email, telephone conversations, 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 or on other subjects considered in this opinion. A complete record of this consultation is on file at this office.

Consultation History

- September 6, 2019: The Forest Service submitted a draft BA for our review.
- October 2019: We provided comments to the Forest Service.
- October 18, 2019: The Forest Service submitted a BA and request to initiate informal consultation.
- November 5, 2019: We coordinated with the Forest Service on revision of the BA and effects determinations.
- November 7, 2019: The Forest Service provided an addendum to the BA and requested to initiate formal consultation.
- November 26, 2019: We issued a thirty-day letter initiating formal consultation.
- February 4, 2020: We sent the Draft BO to the Forest Service for review.

- March 3, 2020: The Forest Service responded that they have no comments on the BO and we can finalize the document.

BIOLOGICAL OPINION

DESCRIPTION OF THE PROPOSED ACTION

Regulations implementing the Act (50 CFR 402.02) define "action" as all activities or programs of any kind authorized, funded, or carried out, in whole or in part, by federal agencies of the United States or upon the high seas.

The following is a summary of the proposed action. A complete description of the proposed action and effects analysis are in your October 18, 2019 BA, amendments to the BA, and other supporting information in the administrative record. We include these documents herein by reference.

The proposed action is the sale of 237.5 acres of within Lost Canyon on the Williams Ranger District of the Kaibab National Forest to Young Life, an organization that currently owns property that functions as a camp in Lost Canyon. Although Young Life does not currently intend to develop the new parcel, once the Forest Service sells this land to Young Life, there will be no stipulations regarding the future disposition of the land. Since the Forest Service will no longer own or control the property, no conservation measures are included.

Action Area

The action area is defined as all areas to be affected directly or indirectly by the federal action and not merely the immediate area involved in the action (50 CFR § 402.02). In delineating the action area, we evaluated the farthest-reaching physical, chemical, and biotic effects of the action on the environment.

The action area consists of the entire 237.5-acre parcel. The land contains and pure ponderosa pine and ponderosa pine-Gambel oak forest and includes the western slopes of Wounded Ranger Knoll and the southeastern slopes of High School Hill. Slopes are mostly gentle, except at the western side of Wounded Ranger Knoll where elevation ranges from 7,100 to 7,600 feet. The action area surrounds (on three sides) the existing Young Life's Lost Canyon Camp, a youth camp offering housing and activities year round for up to 600 guests (Figure 1).

STATUS OF THE SPECIES AND CRITICAL HABITAT

Mexican spotted owl

In 1993, the Service listed the Mexican spotted owl (hereafter, referred to as Mexican spotted owl, spotted owl, and owl) as threatened under the Act (58 FR 14248) and designated critical habitat in 2004 (69 FR 53182). The Service appointed the Mexican spotted owl Recovery Team in 1993 (Service 1993), which produced the Recovery Plan for the Mexican spotted owl in 1995 (Service 1995). The Service released the final Mexican spotted owl Recovery Plan, First Revision (Recovery Plan) in December 2012 (Service 2012).

Description and Life History

The Mexican spotted owl is a medium-sized owl without ear tufts. Spotted owls have mottled feathers with irregular white spots on a brown abdomen, back, and head. Mexican spotted owls nest in caves, in stick nest built by other birds, on debris platforms in trees, and in tree cavities. Mexican spotted owls have distinct annual breeding periods, with courtship beginning in March. Owls typically lay eggs in late March or early April, with eggs hatching approximately 30 days later. Nestling owls generally fledge in early to mid-June. A detailed account of the taxonomy, biology, and reproductive characteristics of the Mexican spotted owl is found in the Final Rule listing the owl as a threatened species (58 FR 14248), the original Recovery Plan (Service 1995), and in the revised Recovery Plan (Service 2012). We include the information provided in those documents by reference.

Habitat Requirements and Distribution

The spotted owl occurs in forested mountains and canyonlands throughout the southwestern United States and Mexico (Figure B.1 *in* Service 2012). The owl ranges from Utah, Colorado, Arizona, New Mexico, and the western portions of Texas south into several states in Mexico. Although the owl's entire range covers a broad area of the southwestern United States and Mexico, it does not occur uniformly throughout its range. Instead, the owl occurs in disjunct localities that correspond to isolated forested mountain systems, canyons, and in some cases steep, rocky canyon lands. Known owl locations in forested habitats indicate that the species has an affinity for older, uneven-aged forests, and the species inhabits a physically diverse landscape in the southwestern United States and Mexico.

In the Recovery Plan (Service 2012), the Recovery Team defined specific forest cover types (mixed conifer and pine-oak) and rocky-canyon habitats that provide nesting, roosting, and foraging habitat for Mexican spotted owls (Service 2012). The availability of habitat used for nesting/roosting of Mexican spotted owls in forested and rocky-canyon environments limits owl distribution (meaning the nesting and roosting habitat is a limiting factor for spotted owls). Habitat used for nesting/roosting also provides adequate conditions for foraging and dispersal activities. Thus, sustaining nesting/roosting habitat meets other survival and recovery requirements. Based on the specific forest cover type and rocky-canyon definitions, the Recovery Plan (Service 2012) focuses management recommendations on two categories of owl habitat: PACs and "recovery habitat" (the Recovery Team previously called recovery habitat "restricted habitat" in the 1995 Recovery Plan; the terms are synonymous).

PACs are intended to sustain and enhance areas that are presently, recently, or historically occupied by breeding Mexican spotted owls (Service 2012). Minimum PAC area is 600 acres and is based on the median size of the adaptive kernel contour enclosing 75% of the foraging locations for 14 pairs of radio-marked owls (595 ac) (Ganey and Dick 1995). Thus, PACS protect activity centers used by owls rather than entire home ranges. Consequently, there is no upper limit for PAC sizes; managers may create larger PACs if appropriate. The Service and land managers establish PACs around owl sites (as defined in the Recovery Plan). All PACS should contain a designated 100-acre nest/roost core area, designed to offer additional protection to the nest or primary roost areas. The Recovery Plan (Service 2012) emphasizes protection of

habitat used for nesting and roosting within PACs because the owls are most selective for such habitat (Ganey and Dick 1995, Service 2012 [Appendix B]) and these forest conditions are most limited across the landscape. These areas also provide resources to meet other life-history needs of the owl. Therefore, designating PACs protects and maintains occupied owl habitat.

Recovery habitat occurs in forest types and rocky canyons used by owls for roosting, foraging, dispersal and other life history needs; however, recovery habitat occurs outside of PACs. Recovery habitat is intended to: 1) provide protection for areas that may be used by owls; 2) foster creation of nest/roost habitat; 3) simultaneously provide managers with greater management flexibility than is allowed in PACs; and, 4) facilitate development and testing of management strategies that could be applied in PACs (Service 2012). Areas not classified as either PACs or recovery habitats, are classified as "Other Forest and Woodland Types" and "Other Riparian Forest Types" (Service 2012). These areas, which nesting owls rarely use, but owls may use for foraging and dispersal, generally include pure ponderosa pine forest, pinyon-juniper woodland, or other habitat types. Given their relatively limited importance to nesting owls, the Recovery Plan (Service 2012) contains no owl-specific recommendations in "Other Forest and Woodland Types" and "Other Riparian Forest Types".

In addition to this natural variability in habitat influencing owl distribution, human activities also vary across the owl's range. The combination of natural habitat variability, human influences on owls, international boundaries, and logistics of implementation of the Recovery Plan necessitates subdivision of the owl's range into smaller management areas. The 1995 Recovery Plan subdivided the owl's range into 11 "Recovery Units" (RUs): six in the United States and five in Mexico. In the revision of the Recovery Plan (Service 2012), we renamed RUs as "Ecological Management Units" (EMUs) to be in accord with current Service guidelines. The Recovery Team divided the owl's range within the United States into five EMUs: Colorado Plateau (CP), Southern Rocky Mountains (SRM), Upper Gila Mountains (UGM), Basin and Range-West (BRW), and Basin and Range-East (BRE) (Service 2012). Within Mexico, the revised Recovery Plan delineated five EMUs: Sierra Madre Occidental Norte, Sierra Madre Occidental Sur, Sierra Madre Oriental Norte, Sierra Madre Oriental Sur, and Eje Neovolcanico.

Threats

The Service cited two primary reasons for the original listing of the Mexican spotted owl in 1993: (1) the historical alteration of its habitat as the result of timber-management practices; and, (2) the threat of these practices continuing. We also identified the danger of stand-replacing fire as a looming threat at that time. Since publication of the original Recovery Plan (Service 1995), the Service and Recovery Team acquired new information on the biology, threats, and habitat needs of the owl. Threats to its population in the U.S. (but likely not in Mexico) have transitioned from commercial-based timber harvest to the risk of stand-replacing wildland fire (Service 2012). Recent forest management has moved away from a commodity focus, such as commercial-based timber harvest, and now emphasizes sustainable ecological function and a return toward pre-settlement fire regimes, both of which have potential to benefit the spotted owl. However, as stated in the revised Recovery Plan (Service 2012), there is much uncertainty regarding thinning and burning treatment effects and the risks to owl habitat with or without forest treatment as well.

Southwestern forests have experienced larger and more severe wildland fires from 1995 to the present, than prior to 1995 (Westerling 2016). Climate variability combined with unhealthy forest conditions (i.e., too many trees; high levels of insects and disease; excessive fuel loads; etc.) also synergistically result in increased negative effects to habitat from fire (Fulé *et al.* 2004, Littell *et al.* 2009). The intensification of natural drought cycles and the ensuing stress placed upon overstocked forested habitats could result in even larger and more severe fires in owl habitat (Jones *et al.* 2016, Ganey *et al.* 2017). Currently, high-severity, stand-replacing fires are influencing the persistence of ponderosa pine and mixed conifer forest types in Arizona and New Mexico. Wildland fire is likely the greatest threat to the Mexican spotted owl within the action area and fire severity and size have been increasing (Service 2012). Landscape level wildland fires, such as the Rodeo-Chediski Fire (2002), the Wallow Fire (2011), and the Whitewater-Baldy Complex (2012) have resulted in the loss of tens of thousands of acres of occupied and potential nest/roost habitat across significant portions of the owl's range. Although owls will forage in severely burned areas, habitat is often lacking for nesting and roosting in these areas, particularly when high severity fire affects large patches of habitat (Jones *et al.* 2016).

Fuels reduction treatments, though critical to reducing the risk of severe wildland fire, can have short-term adverse effects to owls through habitat modification and disturbance. As the human population grows in the southwestern United States, small communities within and adjacent to wildlands are being developed. This trend may have detrimental effects to spotted owls by further fragmenting habitat and increasing disturbance during the breeding season.

Global climate variability may also be a threat to the owl. Changing climate conditions may interact with fire, management actions, and other factors discussed above, to increase affects to owl habitat. Studies have shown that since 1950, the snowmelt season in some watersheds of the western U.S. has advanced by about 10 days (Dettinger and Cayan 1995, Dettinger and Diaz 2000, Stewart *et al.* 2004). Researchers think such changes in the timing and amount of snowmelt are signals of climate-related change in high elevations (Smith *et al.* 2000, Reiners *et al.* 2003). The effect of climate change is the intensification of natural drought cycles and the ensuing stress placed upon high-elevation montane habitats (IPCC 2007, Cook *et al.* 2004, Breshears *et al*. 2005, and Mueller *et al.* 2005). The increased stress put on these habitats is likely to result in long-term changes to vegetation, and to invertebrate and vertebrate populations within coniferous forests and canyon habitats that affect ecosystem function and processes.

Historical and current anthropogenic uses of Mexican spotted owl 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 owl nesting, roosting, and foraging habitat, and may cause disturbance during the breeding season. Livestock and wild ungulate grazing is prevalent throughout the range of the owl and can have an adverse effect on the availability of grass cover for prey species. Recreation effects are increasing throughout the Southwest, 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.

Several fatality factors have been identified as particularly detrimental to the Mexican spotted owl, including predation, starvation, accidents, disease, and parasites. For example, West Nile Virus also has the potential to effect the owl. We have not documented the virus in spotted owls in Arizona, New Mexico, and Colorado, but preliminary information suggests that owls may be highly vulnerable to this disease (Courtney *et al.* 2004). Unfortunately, due to the secretive nature of spotted owls and the lack of intensive monitoring of birds that we have banded, we will most likely not know when owls contract the disease or the extent of its effect to the owl range-wide.

Population Status and Process of Delisting

The recovery objective stated in the Recovery Plan (Service 2012) is "to support the Mexican spotted owl throughout its range into the foreseeable future, and to maintain the habitat conditions necessary to provide roosting and nesting habitat for the Mexican spotted owl." In addition, the Service and Recovery Team developed two recovery (or delisting) criteria (addressing listing factors A, C, and E) that we must meet before the owl can be delisted. These criteria are:

1. Owl occupancy rates must show a stable or increasing trend after 10 years of monitoring.

2. Indicators of habitat conditions (key habitat variables) are stable or improving for 10 years in roosting and nesting habitat.

Once the Service can show that we have met these two criteria across the range of the owl, the Service would then review the regulations and known distribution (the spatial arrangement across its range) of Mexican spotted owls to determine if the delisting process should proceed. At this time, we cannot describe the future desired distribution of owls across their range because changes in the species' range may occur due to factors such as climate change, which could result in shifts in the owl population to the northern portion of its range. In addition to meeting the delisting criteria, to delist the Mexican spotted owl, the Service must be able to demonstrate, using the best scientific information, that Federal, state, and tribal land managers have moderated and/or regulated anthropogenic and non-anthropogenic threats to the Mexican spotted owl (Service 2012). We derive the best scientific information from research, management experiments, and monitoring conducted at the appropriate scales and intensity. The Service must also conduct an analysis of the five listing factors to verify that threat levels are acceptable for likely persistence of owl populations into the future.

In the Recovery Plan (Service 2012), the Recovery Team identified two types of monitoring recommended for the Mexican spotted owl. The first is surveying for individual owls by using the Service Mexican spotted owl survey protocol (Service 2012 [Appendix D]). These are surveys conducted to locate individual owls (which allows Service and land managers to designate PACs) and to monitor the status of owls associated with known PACs (to locate nests and roosts, and determine their reproductive status in a given year). Mexican spotted owl surveys conducted since the 1995 Recovery Plan have increased the Service's knowledge of owl distribution, but not necessarily of owl abundance. Population estimates, based upon owl

surveys, recorded 758 owl sites from 1990 to 1993, and 1,222 owl sites from 1990 to 2004 in the United States. The Recovery Plan (Service 2012) lists 1,324 known owl sites in the United States. An owl site is an area used by a single owl or a pair of adult or subadult owls for nesting, roosting, or foraging. The increase in number of known owl sites is mainly a product of agencies completing new owl surveys within previously unsurveyed areas (*e.g.*, several National Parks within southern Utah, Guadalupe National Park in West Texas; Guadalupe Mountains in southeastern New Mexico and West Texas; Dinosaur National Monument in Colorado; and the Cibola and Gila NFs in New Mexico). Thus, we cannot infer an increase in abundance in the species range-wide from these data (Service 2012). However, the Recovery Team and Service do assume that an increase in the number of occupied sites is a positive indicator regarding owl abundance.

In addition to this survey protocol for individual owls, the Recovery Team also developed and recommended a methodology for conducting Mexican spotted owl population monitoring, using an occupancy (presence/absence) model to determine the population trend (stable, increasing, decreasing) of owls range-wide (Service 2012 [Appendix E]). The Service is currently working with the Southwestern Region of the Forest Service to conduct the population monitoring recommended in the Recovery Plan (Service 2012 [Appendix E]) on National Forest System (NFS) lands in Arizona and New Mexico. The effort to conduct this work has occurred during the 2014-2019 breeding seasons (six years). The Recovery Team, Forest Service, Service, and the Bird Conservancy of the Rockies (BCR, contractor) are continuing to collect data on NFS lands. Of the 200 quadrats sampled on NFS lands in Arizona and New Mexico, 11 are located on the Carson NF. The Service is developing a strategy for incorporating additional lands (*e.g.*, National Park Service, Bureau of Land Management, and Department of Defense) into the monitoring. It is important to state that delisting criteria in the Recovery Plan (Service 2012) require that monitoring occur across the range of the owl, not just across an individual land management entity (*e.g.*, must include lands managed by all entities, *i.e.*, not just NFS lands). Currently, based on the work conducted by the Forest Service and BCR, we have further developed the process for conducting rangewide population monitoring as described in Appendix E of the Recovery Plan (Service 2012).

It is important to note that the entire range of Mexican spotted owls covers area in five U.S. states (Arizona, Colorado, New Mexico, Texas, and Utah) and a large area of Mexico. Within the United States, Region 3 (Southwestern) NFS lands are located in Arizona and New Mexico, which is only a portion of the range of the Mexican spotted owl. Occupancy monitoring conducted on NFs in Region 3 alone may not allow the Service to meet rangewide-delisting criteria, but it will allow the Service and Forest Service to assess population trends on Region 3 NFS lands in Arizona and New Mexico. The spatial scale at which this monitoring is occurring allows for interpretation of owl population trends for all Region 3 NFS lands. However, we (BCR, the Forest Service and the Service) did not design the current NFS occupancy sampling scheme to scale down to monitor owl occupancy trends on any individual NF within the Southwestern Region. We did not design it to meet this smaller scale objective because the objective is to develop a trend for all NFS lands in Region 3, not for each individual forest.

Mexican spotted owl Critical Habitat

The Service designated critical habitat for the Mexican spotted owl in 2004 on approximately 8.6 million acres (3.5 million hectares) of Federal lands in Arizona, Colorado, New Mexico, and Utah (69 FR 53182). Critical habitat includes only those areas in designated critical habitat units (CHUs) that meet the definition of protected (PAC and steep slopes, as defined) and restricted (now called "recovery") habitat (unoccupied owl foraging, dispersal, and future nest/roost habitat) as defined in the 1995 Recovery Plan (Service 1995). We determined the primary constituent elements (PCEs) for owl critical habitat from studies of their habitat requirements and information provided in the Recovery Plan (Service 1995). Since owl habitat can include both canyon and forested areas, we identified PCEs for both habitat types.

The PCEs identified for the owl within mixed-conifer, pine-oak, and riparian forest types that provide for one or more of the owl's habitat needs for nesting, roosting, foraging, and dispersing are:

- 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 percent of which are large trees with diameter at breast height (dbh) (4.5 feet above ground) of 12 inches or more;
- A shade canopy created by the tree branches covering 40 percent or more of the ground;
- Large, dead trees (snags) with a dbh of at least 12 inches.
- 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 PCEs 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 PCEs may occur 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 older, larger trees persist.

Steep-walled rocky canyonlands occur typically within the Colorado Plateau EMU, but also occur in other EMUs. Owls use canyon habitat for nesting, roosting, and foraging, and includes landscapes dominated by vertical-walled rocky cliffs within complex watersheds, including many tributary side canyons. These areas typically include parallel-walled canyons up to 1.2 miles (2 kilometers) in width (from rim to rim), with canyon reaches often 1.2 miles (2 kilometers) or greater, and with cool north-facing aspects. The PCEs related to canyon habitat include one or more of the following:

- Presence of water (often providing cooler and often higher humidity than the surrounding areas);
- Clumps or stringers of mixed-conifer, pine-oak, piñon-juniper, and/or riparian vegetation;

- Canyon walls containing crevices, ledges, or caves; and,
- High percent of ground litter and woody debris.

Mexican spotted owl and Critical Habitat status summary

Overall, the status of the Mexican spotted owl and its designated critical habitat has not changed significantly since listing range-wide in the U.S. (which includes Utah, Colorado, Arizona, New Mexico, and extreme southwestern Texas). This means the distribution of owls continues to cover the same area, and critical habitat is continuing to provide for the life history needs of the Mexican spotted owl throughout all of the EMUs located in the U.S. We know this because project-level surveys continue to find Mexican spotted owls in the same locations across the range of the owl, and we continue to conduct section 7 consultations on federal agency actions and receive section 10(a)(1)(b) recovery reports that provide rangewide updates regarding owl and habitat status. We do not have detailed information regarding the status of the owl in Mexico, so we cannot make inferences regarding its overall status.

However, this is not to say that changes have not occurred within the owl's U.S. range. Wildland fire has resulted in the greatest loss of PACs and critical habitat relative to other actions (e.g., such as forest management, livestock grazing, recreation, etc.) throughout the U.S. range of the Mexican spotted owl. These wildland fire effects have mainly affected Mexican spotted owls within the UGM EMU (*e.g.*, Slide and Schultz Fires on the Coconino NF, Rodeo-Chediski and Wallow Fires on the Apache-Sitgreaves NF and Whitewater-Baldy Complex on the Gila NF) and BRW EMU (e.g., Frye Fire and Horseshoe 2 Fire on the Coronado NF). However, wildfire effects have caused significant effects to owl habitat within other EMUs as well (e.g., SRM EMU by the Las Conchas Fire, CP EMU by the Warm Fire).

Previous Consultations

Given the wide-range of this species, several Federal actions affect this species every year. A complete list of all formal consultations affecting this in Arizona is located on our Arizona Ecological Services website.

ENVIRONMENTAL BASELINE

Regulations implementing the Act (50 CFR 402.02) define the environmental baseline as the condition of the listed species or its designated critical habitat in the action area, without the consequences to the listed species or designated critical habitat caused by the proposed action. The environmental baseline includes the past and present effects of all Federal, State, or private actions and other human activities in the action area, the anticipated effects of all proposed Federal projects in the action that have already undergone formal or early section 7 consultation, and the effect of State or private actions which are contemporaneous with the consultation in process. The consequences to listed species or designated critical habitat from ongoing agency activities or existing agency facilities that are not within the agency's discretion to modify are part of the environmental baseline.

Status of the species and critical habitat within the action area

There are no known Mexican spotted owls or designated PACs within the action area. The Forest Service did not detect Mexican spotted owls in project-level surveys conducted in the area in 2001, 2002, and 2004. Additionally, the Forest Service has not detected Mexican spotted owls in project-level surveys within similar habitats on the Williams Ranger District since surveys began in 1990. The closest Mexican spotted owl PACs to the action area are the Bixler and Cataract PACs on Bill Williams Mountain, both of which are approximately 1.5 miles to the southwest.

The Kaibab National Forest used its stand-level vegetation database to model potential MSO habitat, as defined in the first Recovery Plan for the Mexican Spotted Owl (USFWS 1995). The action area is primarily comprised of open ponderosa pine forest and ponderosa pine-Gambel oak vegetation, which Mexican spotted owls are unlikely to use for roosting or nesting habitat due to the openness and lack of topography (it is relatively flat), but which may use for dispersal and foraging. The action area includes 36 acres of modeled ponderosa pine-oak recovery (foraging, non-breeding) habitat (Figure 1).

Critical habitat

The action area includes 75 acres of designated critical habitat for the Mexican spotted owl within the UGM-CHU-13. The critical habitat designation only applies to actual Mexican spotted owl habitat within the modeled designated critical habitat boundary. Based upon modeling and site visits conducted by the Forest Service, 26 acres of the 36 acres of ponderosa pine-Gambel oak recovery habitat (foraging and non-breeding) are designated critical habitat. Designated critical habitat is limited to areas that meet the definition of protected and recovery habitat in the recovery plan and is within the established critical habitat units (USFWS 2004).

Factors affecting the species and critical habitat within the action area

The action area consists entirely of NFS lands. The action area is adjacent to, and surrounds, the Lost Canyon camp owned by Young Life. Currently, activities at the existing Lost Canyon Camp occur year-round and may result in noise disturbance to any Mexican spotted owls that may forage/disperse within the action area.

EFFECTS OF THE ACTION

In accordance with 50 CFR 402.02, effects of the action are all consequences to listed species or critical habitat that are caused by the proposed action, including the consequences of all other activities that are caused by the proposed action. A consequence is caused by the proposed action if it would not occur but for the proposed action and it is reasonably certain to occur. Effects of the action may occur later in time and may include consequences occurring outside the immediate area involved in the action (see §402.17).

Effects of the action on the Mexican spotted owl and its habitat

The project proposes to sell 237.5 acres of NFS lands, which includes 36 acres of Mexican spotted owl foraging/dispersal habitat. We do not anticipate that the new landowner will immediately develop the land; however, the new landowner is under no obligation to manage this area for the Mexican spotted owl. Therefore, we conclude that the 36 acres of recovery foraging/dispersal habitat within the project area will no longer contribute to the conservation of the species.

Effects of the action on Mexican spotted owl critical habitat

In our analysis of the effects of the action on critical habitat, we consider whether a proposed action will result in the destruction or adverse modification of critical habitat. In doing so, we must determine if the proposed action will result in effects that appreciably diminish the value of critical habitat for the recovery of a listed species. To determine this, we analyze whether the proposed action will adversely modify any of the PCEs that were the basis for determining the habitat to be critical. To determine if an action results in adverse modification of critical habitat, we must also evaluate the current condition of all designated CHUs, and the PCEs of those units, to determine the overall ability of all designated critical habitat to support recovery. Further, we must consider the functional role of each of the CHUs in recovery because, collectively, they represent the best available scientific information as to the recovery needs of the species.

There are 26 acres of designated critical habitat within the action area. The area is within CHU UGM-13, which is approximately 238,092 acres. Although these 26 acres will no longer contribute to the conservation and recovery of the owl, it will not affect the ability of the CHU to provide for the conservation and recovery of the owl.

CUMULATIVE EFFECTS

Cumulative effects are those effects of future State or private activities, not involving federal activities, that are reasonably certain to occur within the action area considered in this biological opinion (50 CFR 402.02).

Climate change, in combination with drought cycles, is likely to exacerbate existing threats to all these species' habitats in the southwestern U.S., now and into the near future. Increased and prolonged drought associated with changing climatic patterns will adversely affect streams and riparian habitat by reducing water availability and altering food availability and predation rates. The continued warming and drying of forested habitats will likely alter vegetation structure and composition and reduce the amount and quality of nesting and roosting habitat for Mexican spotted owls in the action area.

The main non-Federal activities that may affect the Mexican spotted owl habitat within the project area are the loss of habitat through development of private inholdings and related disturbance at these properties. Within these private lands, there is the potential for activities that create disturbance to owls or removal of key habitat components on private lands, through recreation or other activities.

JEOPARDY AND ADVERSE MODIFICATION ANALYSIS

Section 7(a)(2) of the ESA requires that federal agencies ensure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of designated critical habitat.

Jeopardy Analysis Framework

Our jeopardy analysis relies on the following:

"Jeopardize the continued existence of" means to engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species (50 CFR 402.02). The following analysis relies on four components: (1) Status of the Species, which evaluates the range-wide condition of the listed species addressed, the factors responsible for that condition, and the species' survival and recovery needs; (2) Environmental Baseline, which evaluates the condition of the species in the action area, the factors responsible for that condition, and the relationship of the action area to the survival and recovery of the species; (3) Effects of the Action (including those from conservation measures), which determines the direct and indirect impacts of the proposed federal action and the effects of any interrelated or interdependent activities on the species; and (4) Cumulative Effects, which evaluates the effects of future, non-federal activities in the action area on the species. The jeopardy analysis in this biological opinion emphasizes the range-wide survival and recovery needs of the listed species and the role of the action area in providing for those needs. We evaluate the significance of the proposed Federal action within this context, taken together with cumulative effects, for making the jeopardy determination.

Destruction/Adverse Modification Analysis Framework

The final rule revising the regulatory definition of "destruction or adverse modification of critical habitat" became effective on March 14, 2016 (81 FR 7214). The revised definition states: "Destruction or adverse modification means a direct or indirect alteration that appreciably diminishes the value of critical habitat for the conservation of a listed species. Such alterations may include, but are not limited to, those that alter the physical or biological features essential to the conservation of a species or that preclude or significantly delay development of such features."

Similar to our jeopardy analysis, our adverse modification analysis of critical habitat relies on the following four components: (1) the Status of Critical Habitat, which evaluates the range-wide condition of designated critical habitat in terms of PCEs], the factors responsible for that condition, and the intended recovery function of the critical habitat overall; (2) the Environmental Baseline, which evaluates the condition of the critical habitat in the action area, the factors responsible for that condition, and the recovery role of the critical habitat in the action

area; (3) the Effects of the Action, which determine the direct and indirect effects of the proposed federal action and the effects of any interrelated or interdependent activities on the PCEs and how they will influence the recovery role of affected critical habitat units; and (4) Cumulative Effects, which evaluate the effects of future, non-federal activities in the action area on the PCEs and how they will influence the recovery role of affected critical habitat units.

Conclusion

After reviewing the current status of the Mexican spotted owl and its critical habitat, the environmental baseline for the action area, the effects of the action, as proposed, and the cumulative effects, it is our biological opinion that the action, 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 for the owl.

We base this conclusion on the following:

- There are no known Mexican spotted owls or designated PACs within the action area. The two closest Mexican spotted owl PACs to the action area are approximately 1.5 miles to the southwest. Owls may use the forest within the action area for foraging and/or dispersal; however, we do not anticipate any direct effects to breeding Mexican spotted owls from this action.
- Though the 36 acres of recovery foraging/dispersal habitat within the action area will no longer contribute to the conservation of the species, this is a very small fraction of the total recovery habitat available to the species on the Kaibab NF and within the UGM EMU. Therefore, the loss of this area will not affect recovery of the Mexican spotted owl.
- Critical habitat within the action area comprises 0.0001 percent of the total critical habitat designated within the UGM-13 EMU. Therefore, the loss of this habitat would not result appreciably diminishes the conservation and recovery value of critical habitat within this critical habitat unit.

We based the conclusions of this biological opinion on full implementation of the project as presented in the Description of the Proposed Action section of this document.

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.

AMOUNT OR EXTENT OF TAKE

We do not anticipate the proposed action will incidentally take any Mexican spotted owls. The There is no potential breeding habitat within the action area and protocol surveys did not detect Mexican spotted owls using this area.

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. Due to the nature of the proposed action, namely the transfer of ownership from federal to private lands, there are no conservation recommendations identified.

REINITIATION NOTICE

This concludes formal consultation for the sale of forestlands in Lost Canyon to Young Life. 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.

In keeping with our trust responsibilities to American Indian Tribes, we encourage you to continue to coordinate with the Bureau of Indian Affairs in the implementation of this consultation and, by copy of this biological opinion, are notifying the Fort Mojave Indian Tribe, Hopi Tribe, Hualapai Tribe, Havasupai Tribe, Navajo Nation, and Zuni Tribe of its completion. We also encourage you to coordinate the review of this project with the Arizona Game and Fish Department.

We appreciate the Kaibab National Forest's efforts to identify and minimize effects to listed species from this project. Please refer to the consultation number, 02EAAZ00-2020-F-0088 in future correspondence concerning this project. Should you require further assistance or if you have any questions, please contact Rachel Williams (928-556-2050) or Shaula Hedwall (928-556-2118).

Sincerely,

Shaula J. Hedwall
for
Jeffrey A. Humphrey
Field Supervisor

cc (electronic):
Chief, Habitat Branch, Arizona Game and Fish Department, Phoenix, AZ
Regional Supervisor, Arizona Game and Fish Department, Flagstaff, AZ
Fish and Wildlife Biologist, U.S. Fish and Wildlife Service, Flagstaff AZ (Attn: Shaula Hedwall)
District Ranger, Williams Ranger District, Kaibab National Forest, Williams, AZ (Attn: Debra Mollet)
District Biologist, Kaibab National Forest, Williams, AZ (Attn: Travis Largent)
Director, Aha Makav Cultural Society, Fort Mojave Indian Tribe, Mohave Valley, AZ
Director, Hopi Cultural Preservation Office, Kykotsmovi, AZ
Director, Tribal Historic Preservation Office, Hualapai Tribe, Peach Springs, AZ
Tribal Secretary, Havasupai Tribe, Supai, AZ
Director, Historic Preservation Department, Navajo Nation, Window Rock, AZ
Director, Zuni Heritage and Historic Preservation Office, Zuni, NM
Environmental Protection Officer, Environmental Quality Services, Western Regional Office, Bureau of Indian Affairs, Phoenix, AZ

W:\SHedwall\Final Docs\FY 2020\LostCanyon BiOp 3-3-20.docx

TABLES AND FIGURES

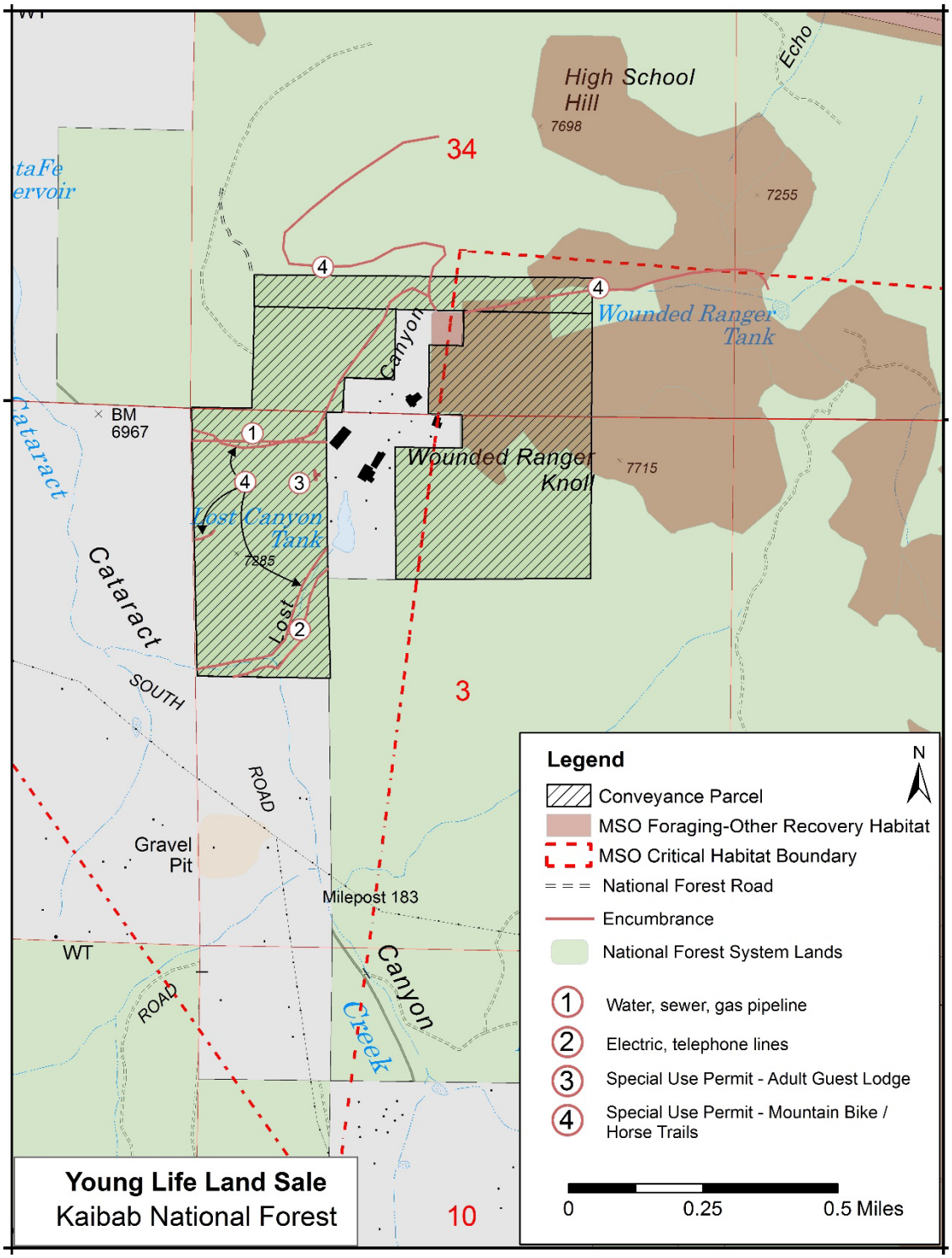

Figure 1. *The conveyance parcel proposed for sale to Young Life in relation to Mexican spotted owl recovery habitat and critical habitat.*

LITERATURE CITED

Breshears, D.D., N.S. Cobb, P.M. Rich, K.P. Price, C.D. Allen, R.G. Balice, W.H. Romme, J.H. Kastens, M.L. Floyd, J. Belnap, J.J. Anderson, O.B. Myers, and C.W. Meyers. 2005. Regional vegetation die-off in response to global-change-type drought. Proceedings of the National Academy of Sciences, USA (PNAS) 102(42): 15144-48.

Cook, E.R., C.A. Woodhouse, C.M. Eakin, D.M. Meko, and D.W. Stahle. 2004. Long-term aridity changes in the western United States. Science 306: 1015-1018.

Courtney, S.J., J.A. Blakesley, R.E. Bigley, M.L. Cody, J.P. Dumbacher, R.C. Fleischer, A.B. Franklin, J.F. Franklin, R.J. Guitierrez, J.M. Marzluff, and L. Sztukowski. 2004. Scientific Evaluation of the Status of the Northern Spotted Owl. Sustainable Ecosystems Institute, Portland, Oregon. 508 pp.

Delaney, D. K., T. G. Grubb, and P. Beier. 1999. Activity patterns of nesting Mexican spotted owls. Condor 101:42-49.

Dettinger, M.D. and D.R. Cayan. 1995. Large scale atmospheric forcing of recent trends toward early snowmelt runoff in California. Journal of Climate 8: 606-623.

Dettinger, M.D. and H.F. Diaz. 2000. Global characteristics of streamflow seasonality and variability. Journal of Hydrometeorology 1: 289-310.

Gutiérrez, R. J., A. B. Franklin, and W. S. LaHaye. 1995. Spotted Owl (*Strix occidentalis*). The birds of North America. The Academy of Natural Sciences Philadelphia, and American Ornithologists Union, Washington, D.C. No. 179. 28pp.

Intergovernmental Panel on Climate Change (IPCC). 2007. Summary for policy makers. In: Climate Change 2007: The physical science basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change [Solomon, S., D. Quin, M. Manning, Z. Chen, M. Marquis, K.B. Averyt, M. Tignor, and H.L. Miller (Eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA. Available at IPCC Webpage.

Jones, G.M., R.J. Gutiérrez, D.J. Tempel, S.A. Whitmore, W.J. Berigan, and M.Z. Peery. 2016. Megafires: an emerging threat to old-forest species. Front. Ecol. Environ. 14(6): 300–306.

Mueller, R.C., C.M. Scudder, M.E. Porter, R.T. Trotter III, C.A. Gehring and T.G. Whitham. 2005. Differential tree mortality in response to severe drought: Evidence for long-term vegetation shifts. Journal of Ecology 93(6): 1085-1093.

Reiners, W.A., W.L. Baker, J.S. Baron, D.M. Debinski, S.A. Elias, D.B. Fagre, J.S. Findlay, L.O. Mearns, D.W. Roberts, T.R. Seastedt, T.J. Stohlgren, T.T. Veblen, and F.H. Wagner. 2003. Natural Ecosystems 1: The Rocky Mountains (pp. 145-184). *In* Wagner, F.H. (Ed.), Preparing for Climate Change: Rocky Mountain/Great Basin Regional Assessment Team for the U.S. Global Change Research Program. Utah State University. 240pp.

Smith, S.J, T. Wigley, and J.A. Edmonds. 2000. A new route toward limiting climate change? Science 290 (5494): 1109-1110.

Stewart, I.T., D.R. Cayan, and M.D. Dettinger. 2004. Changes in snowmelt runoff timing in western North American under a "business as usual" climate change scenario. Climate Change 62: 217-232.

U.S. Department of Interior, Fish and Wildlife Service (USFWS). 1993. Endangered and threatened wildlife and plant: final rule to list the Mexican spotted owl as a threatened species. Federal Register 58:14248-14271.

_____. 1995. Recovery Plan for the Mexican Spotted Owl: Vol. I. Albuquerque, New Mexico. 172 pp.

_____. 1996. Conducting section 7 consultation on Mexican spotted owls and critical habitat - policy. Memorandum from Regional Director to Arizona and New Mexico Field Supervisors, July 1, 1996. Albuquerque, NM. 3pp.

_____. 2004. Endangered and threatened wildlife and plants; final designation of critical habitat for the Mexican Spotted Owl: final rule. Federal Register 69(168): 53182-53230.

_____. 2012. Recovery plan for the Mexican spotted owl (*Strix occidentalis lucida*), First Revision. Albuquerque, New Mexico. 414pp.