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In Reply Refer To:

AESO/SE
AZ File No. 2-21-02-F-0509
NV File No. 1-5-04-F-519

September 22, 2004

Memorandum

To: Superintendent, Lake Mead National Recreation Area, National Park Service, Boulder City, Nevada

From: Field Supervisor

Subject: Biological Opinion for the Lake Mead National Recreation Area Fire Management Plan

Thank you for your December 23, 2003, memorandum and accompanying revised biological assessment requesting initiation of formal section 7 consultation under the Endangered Species Act (16 U.S.C. 1531-1544), as amended (ESA), which we received on January 2, 2004. At issue are impacts that may result from the National Park Service's (NPS) proposed Lake Mead National Recreation Area Fire Management Plan located in Mohave County, Arizona, and Clark County, Nevada, on the threatened Mojave desert tortoise (*Gopherus agassizii*), designated tortoise critical habitat, and the Mexican spotted owl (*Strix occidentalis lucida*).

In your memorandum and biological assessment, you requested our concurrence that the proposed action is not likely to adversely affect the endangered southwestern willow flycatcher (*Empidonax traillii extimus*), Yuma clapper rail (*Rallus longirostris yumanensis*), and California condor (*Gymnogyps californianus*), and the threatened bald eagle (*Haliaeetus leucocephalus*). We concur that the proposed action is not likely to adversely affect those species for the reasons stated in Appendix A of this biological opinion.

Your memorandum and biological assessment also requested our concurrence with your determination that the proposed action may affect, but is not likely to adversely affect, the relict leopard frog (*Rana onca*), American peregrine falcon (*Falco peregrinus anatum*), and northern goshawk (*Accipiter gentilis*). Federal agencies are not required to consult with us under section 7 of the ESA in the event activities they authorize, fund or carry out affect species of concern that are not listed or proposed for listing. However, at your request, we reviewed the proposed action for possible impacts to these species and provided voluntary recommendations in the form of technical assistance in a memorandum dated March 29, 2004. In order for us to be kept informed of actions minimizing or avoiding adverse impacts, or benefiting sensitive species or their habitats, we request notification of the implementation of any of the recommendations.

This biological opinion is based on information provided in your December 23, 2003, memorandum and accompanying biological assessment, your July 29, 2004, environmental assessment, telephone conversations, meetings, and other sources of information. Literature cited in this biological opinion does not represent a complete bibliography of literature available on the species involved, or on other subjects considered in this biological opinion. A complete administrative record of this consultation is on file at this office and the Southern Nevada Field Office.

Consultation History

- April 26, 2002 – We received your April 24, 2002, notice of upcoming consultation and request for a species list and fire reference information.

- May 30, 2002 – We provided the requested fire reference information.

- June 14, 2002 – We provided you a species list.

- July 26, 2002 – We received your July 24, 2002, request for designation of a lead U.S. Fish and Wildlife Service (FWS) office for consultation due to the involvement of lands in both Arizona and Nevada.

- October 21, 2002 – We responded indicating that our office will have the lead for consultation, and will coordinate with the Southern Nevada Field Office.

- June 26, 2003 – We received your June 24, 2003, BA and memorandum requesting initiation of formal consultation.

- August 4, 2003 – We requested additional information necessary for initiation of formal consultation.

- November 18, 2003 – We held an informational meeting between the Arizona and Nevada offices of the FWS and Lake Mead National Recreation Area (LMNRA) staff to discuss information needs.

- December 11, 2003 – We requested additional information necessary for initiation of formal consultation.

- December 17, 2003 – We received additional information by telephone and email responding to our earlier requests.

- January 2, 2004 – We received your December 23, 2003 revised BA and memorandum requesting initiation of formal consultation.

- February 4, 2004 – We requested additional information necessary for initiation of formal consultation.

- February 18, 2004 – We received additional information by telephone and email responding to our earlier request.

- March 29, 2004 – We issued a memorandum to you acknowledging initiation of formal consultation and provided recommendations for relict leopard frog, American peregrine falcon, and northern goshawk.

- June 14, 2004 – We contacted your staff requesting a 60-day extension of the consultation period.

- June 16, 2004 – Your staff concurred with our request for an extension.

- June 22, 2004 – We issued a memorandum documenting our request for an extension.

- September 9, 2004 – We provided you a draft of this biological opinion for review.

- September 15, 2004 – You provided comments on the draft opinion and requested that the opinion be finalized.

BIOLOGICAL OPINION

DESCRIPTION OF THE PROPOSED ACTION

Most of the information in this section is derived from the project description provided in the December 23, 2003, biological assessment (BA; NPS 2003a) and July 29, 2004, environmental assessment (NPS 2004). The goal of the proposed 10-year Lake Mead National Recreation Area Fire Management Plan (FMP) is to restore fire to the ecosystem, where appropriate, through hazardous fuels reduction treatments, prescribed fires, and prescribed natural fire or fire for resource benefit (herein referred to as "wildland fire use," as opposed to "wildfire"). Wildland fire use is the practice of determining whether to allow naturally ignited fires to continue to burn in order to meet resource management objectives. Human-caused wildfires would not be considered for wildland fire use and would be suppressed. Naturally-ignited wildfires would also be suppressed in areas of LMNRA where fire would not meet resource management objectives. Suppression responses may include deployment of ground personnel with hand tools, staging of personnel at temporary sites or camps, use of fire engines and other motorized vehicles on or off roads, aerial application of retardant or water, setting of backfires, and use of heavy equipment to construct fire lines, where appropriate.

Until 1992, when a prescribed fire program was initiated, all wildfires that occurred within LMNRA (Figure 1) were suppressed whenever possible. Since that time the LMNRA fire program has grown and today includes wildfire suppression, prescribed fire, wildland fire use, and mechanical and chemical hazardous fuels treatments.

The FMP would designate fire management units (FMUs) within LMNRA including the interface unit (FMU1), the desert below 6,000 feet (FMU2), and the Shivwits Plateau (FMU3). These units are differentiated by management objectives, fuels, political boundaries, and values

to protect. Table 1 contains a summary of actions proposed within each FMU.

FMU1

FMU1 contains approximately 60,000 acres in 23 separate interface areas that encompass residential areas, mobile home parks, commercial buildings, administrative sites and developed campgrounds, that are within or directly adjacent to the LMNRA boundary. The habitat in these areas is generally comprised of non-native vegetation, such as eucalyptus, oleander, and tamarisk.

All wildfires occurring in this FMU would be suppressed and wildland fire use would not occur. The suppression strategy would match that of the shared boundary administrator. Mechanical hazardous fuels reduction techniques would be applied in this FMU and may occur at any time of the year. Mechanical hazardous fuels reduction may be followed by prescribed fires or slash burns to reduce fire intensity and severity to lesser levels. Prescribed fires or slash burns could occur any time of year but would primarily be conducted between April and November, during periods of time or under prescriptions that minimize escape possibilities. Suppression actions would be taken on all escaped prescribed fires. Selective herbicide treatments would occur between October and May and would be conducted in accordance with label instructions.

Conservation Measures – FMU1

LMNRA has proposed the following conservation measures to minimize effects to listed and sensitive species from the proposed action within FMU1:

1. Low-level aircraft and retardant/surfactant use would be prohibited unless approved by the LMNRA Superintendent, and may not be allowed if listed or sensitive species are near the site.
2. Buffers would be established around known locations of listed or sensitive species.

FMU2

FMU2 contains approximately 890,000 acres and includes all desert lands below 6,000 feet excluding areas designated as FMU1. FMU2 is divided into two zones; the desert habitat zone and the tamarisk zone. Separate acreages for these two zones have not been determined. All wildfires would be suppressed in this FMU and wildland fire use would not occur.

A. Desert Habitat Zone

This habitat zone comprises the vast majority of FMU2 and consists mostly of flats and slopes throughout the park up to 6000 feet. This zone is established primarily to encompass habitat of the Mojave desert tortoise. Prescribed burning, mechanical hazardous fuels reduction, and herbicide use would not occur within this zone. Due to the extreme terrain in the Newberry Mountains, wildfires in this area would be suppressed using indirect attacks by aerial support as much as possible.

Conservation Measures – FMU2A

LMNRA has proposed the following conservation measures to minimize effects to listed and sensitive species from the proposed action within FMU2A:

1. Low-level aircraft and retardant/surfactant use are authorized in this zone, but may not be allowed if listed or sensitive species are near the site.

2. Buffers would be established around known locations of listed or sensitive species.

B. Tamarisk Zone

This zone is found in the canyon bottomlands, riparian washes, springs, and arroyos throughout the park with the exception of the Shivwits Plateau (FMU3), and encompasses stands of tamarisk around the lake and inflow areas. Tamarisk control activities are proposed within this FMU and could also occur within the interface unit (FMU1) at the Overton Wildlife Management Area. All conservation measures regarding tamarisk control activities would be implemented for treatments at the Overton Wildlife Management Area.

Tamarisk control activities may include the use of prescribed fires, mechanical hazardous fuels reduction, and selective herbicide treatments, and may be followed by planting of native vegetation. Prescribed fire treatments would be conducted in mostly monotypic stands of tamarisk and would occur between April and November. Suppression actions would be taken on all escaped prescribed fires. Mechanical hazardous fuels reduction would usually occur in the fall, winter, and spring, but may occur at any time of year. These activities would involve the use of chain saws, hand saws, and hand tools. No wildland fire use would occur within this FMU.

Herbicide treatments would occur between October and May and would be conducted in accordance with label instructions. All herbicides would be applied by hand via spot treatment by a trained applicator. There would be no broadcast treatments. Cut stump and low volume basal spray methods would be used. Herbicides include Remedy (Triclopyr, DOW) in non-aquatic areas, and aquatic approved Habitat (Imazapyr, BASF) or Rodeo (Glyphosate, Monsanto) in areas where surface water contact may occur. No herbicides would be intentionally sprayed in water.

Helicopters may be used to assist with prescribed fire treatments on sites larger than 10 acres. They would be used for aerial ignition, cargo delivery (i.e. supplies to support ground crews), and water bucket drops for fire control purposes if necessary. They would not be used for herbicide treatments or to drop retardant or surfactant. Low-level airplanes may be used to drop water and may not be allowed if listed or sensitive species are near the site. Buffers would be established around known locations of listed or sensitive species.

Approximately 90 percent of the areas proposed for tamarisk control are located in ephemeral springs where little or no surface water is present. The remaining areas proposed for tamarisk control have perennial water flow.

<u>Conservation Measures – FMU2B</u>

LMNRA has proposed the following conservation measures to minimize effects to listed and

sensitive species from the proposed action within FMU2B:

1. A 500-foot buffer zone would be established around spring and riparian areas and retardants/surfactants would not be used within this zone.

2. Access would be by existing road. Off-road vehicle use would be prohibited unless approved by the Superintendent.

3. All treatment areas would be surveyed for listed and sensitive species and migratory birds prior to treatment activities.

4. No excavation or earthmoving would occur.

5. On large-scale tamarisk thickets (>10 acres), treatment blocks would be identified and prioritized.

6. Slash piles, if used, would be located outside the riparian zones.

7. No native vegetation would be cut or treated with herbicide.

8. All chemicals, containers, and equipment would be handled in accordance with the label instructions.

9. Mixing of herbicide would occur off-site, in accordance with label instructions and in a contained area for spill mitigation.

10. Prior to applying herbicide to selected sites, the weather, wind speed, air temperature, and surface water flows would be considered. Herbicide applications would not occur within 24-hours of forecasted precipitation or when ground level wind speeds are in excess of 10 mph.

11. Herbicide would not be applied directly into water. Selective application using backpack sprayers to spot apply to specific plants and cut stumps can normally avoid application into water sources.

12. If, even with the above methods, application into water cannot be avoided, an aquatic approved herbicide (Rodeo, Aqua-Master) would be used.

13. Use of Garlon would not occur if temperatures exceed 90º F.

14. Monitoring would be conducted to detect initial presence or post-treatment recruitment of invasive or noxious weed species and control efforts would be applied as necessary.

15. Restoration, including planting of native vegetation and seeding, would occur on selected sites based on the recommendations of the LMNRA restoration specialist.

FMU3

FMU3 contains approximately 168,000 acres in a remote area within the Arizona Strip located on the northwest rim of the Grand Canyon known as the Shivwits Plateau. The nearest community is St. George, Utah, located 90 miles to the north. Most of the area is without roads; access to the area is via unpaved dirt roads of varying conditions. The area is bounded on the north by lands administered by the Bureau of Land Management (BLM), and to the south, east, and west by Grand Canyon National Park. The area is part of Grand Canyon-Parashant National Monument, but is still managed by LMNRA. There are three main habitat types on the Shivwits Plateau, including pinyon-juniper, ponderosa pine, and sagebrush. There are several administrative sites, historical sites, and two sensitive plant populations that would receive full suppression. The interface areas within this FMU are separate from FMU1.

Herbicide use would not occur within this FMU. Although prescribed burning and mechanical hazardous fuels reduction treatments in FMU3 are described in the BA for the proposed action, these treatments previously underwent informal consultation under the LMNRA 5-Year Vegetation Treatment and Hazardous Fuels Reduction Plan (02-21-02-I-0210) and are not considered in this biological opinion (BO). LMNRA staff confirmed that these actions are not to be considered in this consultation in a June 24, 2004, electronic mail correspondence.

This is the only FMU where wildland fire use fires would occur. The entire area within FMU3 (excluding areas identified for suppression) would be considered for wildland fire use. Wildland fire use fires would most likely occur between May and November but could occur at any time of the year. Human-caused wildfires would not be considered candidates for wildland fire use and would be suppressed. The greatest number of potential wildland fire use ignitions will be due to lightning strikes during the monsoon season of July and August. Likely ignition locations are well-distributed, but starts may be more common at the southern tips of the plateau. LMNRA expects that most wildland fire use fires would occur in the pinyon-juniper and ponderosa pine areas and would remain relatively small due to the precipitation that usually accompanies them. In the pinyon-juniper habitat, extreme weather conditions would be needed to create a large fire due to the lack of fine fuels.

Naturally ignited fires would be allowed to burn when burn conditions meet resource management objectives and desired future conditions. The decision to let a fire burn is made by the Superintendent or Fire Management Officer with input from the Resource Advisors. Factors considered when determining whether to manage a fire for wildland fire use include fire location (proximity to sensitive resources, values at risk), short-and long-term weather forecasts and whether the fire will spread, fuel characteristics, and whether land management objectives would be met. The desired fire intensity would vary according to vegetation type and desired future conditions (for example, high intensity is allowable for pinyon juniper and sagebrush habitats). The desired resource benefits of wildland fire use include creating natural habitat/vegetation mosaics, promoting different age classes and seral stages, and allowing for grasses and other herbaceous cover to establish.

Wildland fire use fires would be allowed to burn over the LMNRA boundary if the shared-boundary administrator accepts management of the fire on their lands. Much of the southern, eastern, and western boundaries of LMNRA on the Shivwits Plateau occur along the rim of the Grand Canyon, with lands below the rim managed by Grand Canyon National Park. LMNRA

will coordinate with Grand Canyon National Park to determine whether they would accept management of the fire on their lands through their wildland fire use program and allow the fire to burn over the rim.

Management of wildland fire use fires would involve personnel visiting the fire on a regular basis to monitor its behavior and progress. Suppression of a wildland fire use fire would be triggered when the fire is not meeting resource management objectives; values are determined to be at risk; life or property is threatened; listed or sensitive species or their habitats are threatened; cultural resources are threatened; air quality standards are exceeded; there is a lack of funds, personnel, or resources to manage the fire for resource benefits; there is a high level of national and/or regional fire suppression activity; or the fire approaches the LMNRA boundary and the shared-boundary administrator cannot accept management of the wildland fire use fire on their lands. The fire may be suppressed in whole or in part. If suppression actions become necessary, greater levels of activity and habitat disturbance will also be necessary. Suppression activities could include fire line construction, aerial application of retardant, setting of backfires, or other activities used to contain or control wildfires.

The maximum acreage a wildland fire use fire would be allowed to burn per fire or per year (maximum allowable perimeter) is established by the Fire Management Officer and/or Superintendent. This acreage is not a set number and depends on resources available, air quality, and social variables. Maximum acreage per vegetation type is being considered in the Grand Canyon-Parashant National Monument Management Plan and will be incorporated into the decision criteria.

Conservation Measures – FMU3

LMNRA has proposed the following conservation measures to minimize effects to listed and sensitive species from the proposed action within FMU3:

1. Springs would be designated as suppression zones, and a 500-foot buffer would be established around spring and riparian areas where retardants and surfactants would not be used.

2. Low-level aircraft and retardant/surfactant use are authorized in this zone, and may not be allowed if listed or sensitive species are near the site.

3. Any potential wildland fire use fire would receive an evaluation from a resource advisor.

4. The effects of fire on the ecosystem would be monitored.

Management - All FMUs

Smoke management reporting procedures for burning in Arizona and Nevada would be followed for all prescribed fire and wildland fire use operations.

Maps of suitable habitat would be consulted when planning and implementing fire management activities. Suppression and non-treatment zones would be designated around suitable habitat for

listed and sensitive species. Surveys would continue in LMNRA as directed by staff biologists. If more suitable habitat is located, these areas would also be designated as non-treatment zones.

A soil monitoring program would be initiated in cooperation with the U.S. Geological Survey to determine the effects of treatment activities, or lack of activities, on soil erosion. Treatment methods would be re-evaluated based on the findings of the monitoring program.

Seeding of native species may be used to assist in the recovery of treatment areas, prevent soil erosion and runoff, and reduce the potential for non-native plant invasions. Only certified "weed-free" seed will be used as per the LMNRA Seeding Guidelines. If necessary, non-native plant control would occur as a follow-up action.

Vegetation treatment and seeding activities would be monitored and evaluated on an annual basis. Vegetation plots, photo monitoring, and observations would be compiled for analysis to determine treatment effectiveness. Adaptive management principles would be applied throughout all phases of restoration treatments.

The effects of fire on the ecosystem would be monitored at tamarisk prescribed burn areas within FMU1, and throughout FMU2 and FMU3. All NPS units using prescribed fire must implement a standardized vegetation monitoring program to track fire effects and to ensure that fire management resource objectives are met. The LMNRA fire monitoring program has been implemented for the past 11 years and is described in the NPS Fire Monitoring Handbook (NPS 2003b). The information provided in this document is included herein by reference.

Conservation Measures - All FMUs

LMNRA has proposed the following conservation measures to minimize effects to listed and sensitive species from the proposed action throughout the action area:

1. LMNRA wildlife biologists would be consulted when making decisions regarding wildland fire use and suppression in listed or sensitive species habitat.

2. A resource monitor would be on-site as determined necessary by pre-project surveys.

3. Minimum impact tactics would be employed for all fire management activities where possible.

4. Fire lines and other soil scars would be restored after the completion of fire management activities.

5. All personnel involved in fire management operations would be briefed on listed and sensitive species mitigation actions prior to initiation of fire management operations.

6. For wildfire suppression in riparian areas, natural barriers or openings in riparian vegetation would be used where possible as the easiest, safest method to manage a riparian wildfire. Where possible and practical, wet firebreaks in sandy overflow channels would be used rather than constructing fire lines by hand or with heavy equipment.

7. In undeveloped areas of LMNRA, fire engines and other fire-related vehicles would not be driven off paved or unpaved roadways.

8. Use of bulldozers, graders, and off-road vehicle travel would be prohibited unless approved by the LMNRA Superintendent.

9. Permanent road construction would not occur during wildfire suppression activities in habitat occupied by listed or sensitive species. Construction of temporary roads would occur only if necessary for safety or the protection of property or resources, including listed or sensitive species habitat. Temporary road construction would be coordinated with the FWS, through the Resource Advisor.

10. Treatment units would be surveyed for rare and exotic plants prior to any fire management activities. With the exception of tamarisk, areas containing rare plants or those identified as problem areas for exotic plants will be mapped and designated as full suppression zones. To protect LMNRA from the spread of exotic plants, no personnel or equipment would be permitted in designated exotic plant problem areas, except in emergency situations. If crews are required to travel into a problem area for emergencies or otherwise, appropriate mitigation, including washing vehicles and equipment, would be implemented.

11. During wildfire suppression activities, Resource Advisors would be designated to coordinate natural resource concerns, including listed and sensitive species. They would also serve as a field contact representative (FCR) responsible for coordination with the FWS. Duties would include identifying protective measures endorsed by the Superintendent and delivering these measures to the Incident Commander; surveying prospective campsites and aircraft landing and fueling sites; and performing other duties necessary to ensure adverse effects to listed and sensitive species and their habitats are minimized. On-the-ground monitors would be designated and used when wildfire suppression activities occur within identified occupied or suitable habitat for listed and sensitive species.

12. By February 1 of each year, LMNRA will submit a report to the FWS detailing the previous calendar year's actions involving prescribed fires and slash burns, tamarisk control treatments, wildland fire use fires, wildfire suppression, and mechanical hazardous fuels reduction treatments. The report will describe the fires, treatments, and associated actions; impacts on listed and sensitive species; implementation and effectiveness of any conservation measures and terms and conditions in this BO and Appendix A; quantification of any incidental take as defined in this BO; rehabilitation completed for this and previous year's fire, suppression actions, and treatments under this consultation; and planned activities for the current year. All deaths, injuries, and illnesses of listed species, whether associated with project activities or not, will be summarized in the report. LMNRA will work with the FWS in determining the specific information necessary and the format.

Conservation Measures – Mojave desert tortoise

LMNRA has proposed the following conservation measures to minimize effects to the Mojave desert tortoise (tortoise) from the proposed action:

1. All personnel on the fire shall be informed and educated about desert tortoises and the importance of protecting habitat and minimizing take. Fire crews shall be briefed on the desert tortoise.

2. Fire-related vehicles shall drive slow enough to ensure that tortoises on the roads can be identified and avoided.

3. Resource Advisors shall be designated to coordinate desert tortoise and other resource concerns and serve as a liaison between the Area Manager and the Incident Commander. Monitors shall be designated to monitor wildfire suppression activities; to ensure protective measures endorsed by the Incident Commander are implemented; to survey prospective campsites and aircraft landing and fueling sites; and to perform other duties necessary to ensure adverse effects to desert tortoises and their habitat are minimized. Resource Advisors and monitors shall be on call 24 hours during the fire season.

4. Off-road vehicle activity shall be kept to a minimum. Vehicles will be parked as close to roads as possible, and vehicles shall use wide spots in roads to turn around. If off-road travel is necessary, a biologist or crew person shall walk in front of the vehicle to direct the driver around tortoises and tortoise burrows. Whenever possible, local fire-fighting units should go off-road first because of their prior knowledge of the area.

5. Prior to moving a vehicle, personnel shall inspect under the vehicle for tortoises.

6. Campsites should be located outside of desert tortoise habitat or in locations that are previously disturbed. If camps are located in desert tortoise habitat, surveys of the site should be conducted.
7. All aircraft landing and fueling areas within desert tortoise habitat must be surveyed and monitored for presence of desert tortoise prior to use to reduce chances of tortoises being killed.

8. A litter-control program will be implemented to reduce the attractiveness of the area to opportunistic predators such as desert kit fox, coyotes, and common ravens. Trash and food items will be disposed of properly in predator-proof containers with re-sealing lids. Trash containers will be emptied when needed, and removed from the project area during clean-up operations following wildfire suppression activities, and disposed of in an approved landfill.

9. Use of tracked vehicles in desert tortoise habitat shall be restricted to improving roads or constructing lines where a short distance of line might save a large area from wildfire. Monitors shall walk in front of tracked vehicles to ensure minimal impacts to tortoises and their burrows. Equipment staging areas shall be surveyed for desert tortoises prior to use.

10. Fingers or patches of unburned vegetation within burned areas shall not be burned out as a wildfire suppression measure.

11. Fire crews shall, to the extent possible, obliterate vehicle tracks made during the wildfire, especially those of tracked vehicles.

12. Rehabilitation of the burned areas shall be considered, including seeding and planting of perennial species.

13. Recovery of vegetation shall be monitored, including establishment and monitoring of paired plots, inside and outside of the burned area.

14. The effectiveness of suppression activities and desert tortoise conservation measures shall be evaluated after a wildfire. Procedures shall be revised as needed.

Conservation Measures – Mexican spotted owl

LMNRA has proposed the following conservation measures to minimize effects to the Mexican spotted owl (MSO) from the proposed action:

1. Applicable recommendations in the Recovery Plan for the Mexican Spotted Owl (USDI 1995) would be followed.

2. Maps of protected MSO habitat would be consulted when planning and implementing fire management activities.

3. Protected MSO habitat would receive full suppression and would not be considered for wildland fire use.

4. Surveys would be conducted in accordance with the FWS recommended protocol.

5. Wildland fire use fires would be managed to ensure unsurveyed MSO habitat is more than ½ mile from downwind smoke effects.

6. Crew camps, staging areas, fire lines, and any other areas of disturbance created for wildfire suppression or wildland fire use activities would be located outside of MSO protected habitat, and preferably in locations that are disturbed whenever possible. If camps and staging areas must be located in MSO protected habitat, the Resource Advisor would be consulted to ensure habitat damage and other effects to MSO are minimized and documented. The Resource Advisor should also consider the potential for indirect effects to MSO or their habitat from the siting of camps and staging areas.

7. Restricted habitat for MSO would be surveyed prior to implementing wildland fire use fires on LMNRA-administered lands to determine MSO presence and breeding status. Wildland fire use fires would only be allowed to burn within restricted habitat if birds are not present. If a spotted owl is discovered during these surveys, LMNRA would notify the FWS to determine the need to reinitiate consultation and would determine any

additional Conservation Measures necessary to minimize or eliminate impacts to the MSO.

8. If a MSO is discovered during wildfire suppression or wildland fire use activities, the Resource Advisor or a qualified wildlife biologist would document the find, assess potential harm to the owl, and advise the Incident Commander or project crew boss of methods to prevent harm. The information for each owl would include for each owl the location, date, and time of observation and the general condition of the owl. The Resource Advisor or biologist would contact the FWS as soon as possible, and LMNRA would reinitiate consultation for the wildfire suppression or wildland fire use activities following control of the incident.

9. To minimize negative effects on restricted MSO habitat, wildland fire use fires would be managed primarily as low-intensity fires, with only scattered high-intensity patches.

10. If fire line construction is necessary during wildfire suppression in protected habitat, LMNRA would minimize the cutting of trees and snags larger than 18 inches dbh, and no trees or snags larger than 24 inches dbh would be cut unless absolutely necessary for safety reasons.

11. Protected habitat disturbed during wildfire suppression activities such as fire lines, crew camps, and staging areas, would be rehabilitated to prevent their use by vehicles or hikers. Fire line rehabilitation would include pulling soil, duff, litter, woody debris, and rocks back onto the line to bring it up to grade and to make it blend in with the surrounding area. Such rehabilitation would be inspected one year after the event to ensure effectiveness.

12. The effects of wildfire suppression on MSO and their habitat, and the effectiveness of these Conservation Measures, would be assessed after each fire event by the Resource Advisor or local biologist to allow evaluation of these guidelines and to allow the FWS to track the species environmental baseline.

STATUS OF THE SPECIES

Mojave desert tortoise

On August 4, 1989, the FWS published an emergency rule listing the Mojave population of the desert tortoise as endangered (54 FR 42270). On April 2, 1990, the FWS determined the Mojave population of the desert tortoise to be threatened (55 FR 12178). Reasons for the determination included significant population declines, loss of habitat from construction projects such as roads, housing and energy developments, and conversion of native habitat to agriculture. Grazing and off-highway vehicle (OHV) activity have degraded additional habitat. Also cited as threatening the desert tortoise's continuing existence were illegal collection by humans for pets or consumption, upper respiratory tract disease (URTD), predation on juvenile desert tortoises by common ravens (*Corvus corax*) and kit foxes (*Vulpes macrotis*), wildfire, and collisions with vehicles on paved and unpaved roads.

The desert tortoise is a large, herbivorous reptile found in portions of California, Arizona, Nevada, and Utah. It also occurs in Sonora and Sinaloa, Mexico. The Mojave population of the desert tortoise includes those animals living north and west of the Colorado River in the Mojave Desert of California, Nevada, Arizona, southwestern Utah, and in the Sonoran Desert in California. Desert tortoises reach 8 to 15 inches in carapace length. Adults have a domed carapace and relatively flat, unhinged plastron. Shell color is brownish, with yellow to tan scute centers. The forelimbs are flattened and adapted for digging and burrowing. Optimal habitat has been characterized as creosote bush scrub where precipitation ranges from 2 to 8 inches, the diversity of perennial plants is relatively high, and production of ephemerals is high (Luckenbach 1982, Turner 1982, Turner and Brown 1982). Soils must be friable enough for digging of burrows, but firm enough so that burrows do not collapse. Desert tortoises occur from below sea level to an elevation of 7,300 feet, but the most favorable habitat occurs at elevations of approximately 1,000 to 3,000 feet (Luckenbach 1982).

Desert tortoises are most active during the spring and early summer when annual plants are most common. Additional activity occurs during warmer fall months and occasionally after summer rainstorms. Desert tortoises spend the remainder of the year in burrows, escaping the extreme conditions of the desert. The size of desert tortoise home ranges vary with respect to location and year. Females have long-term home ranges that are approximately half that of the average male, which range from 25 to 200 acres (Berry 1986). Over its lifetime, each desert tortoise may require more than 1.5 square miles of habitat and make forays of more than 7 miles at a time (Berry 1986). In drought years, the ability of tortoises to drink while surface water is available following rains may be crucial for tortoise survival. During droughts, tortoises forage over larger areas, increasing the likelihood of encounters with sources of injury or mortality including humans and other predators. Desert tortoises possess a combination of life history and reproductive characteristics that affect the ability of populations to survive external threats. Tortoises may require 20 years to reach sexual maturity (Turner *et al*. 1984, Bury 1987).

The desert tortoise is most commonly found within the desert scrub vegetation type, primarily in creosote bush scrub. In addition, it is found in succulent scrub, cheesebush scrub, blackbrush scrub, hopsage scrub, shadscale scrub, microphyll woodland, Mojave saltbush-allscale scrub, and scrub-steppe vegetation types of the desert and semidesert grassland complex (USFWS 1994). Within these vegetation types, desert tortoises potentially can survive and reproduce where their basic habitat requirements are met. These requirements include a sufficient amount and quality of forage species; shelter sites for protection from predators and environmental extremes; suitable substrates for burrowing, nesting, and overwintering; various plants for shelter; and adequate area for movement, dispersal, and gene flow. Throughout most of the Mojave Region, tortoises occur most commonly on gently sloping terrain with soils ranging from sand to sandy-gravel and with scattered shrubs, and where there is abundant inter-shrub space for growth of herbaceous plants. Throughout their range, however, tortoises can be found in steeper, rockier areas. In Nevada and Arizona, tortoises are considered to be active from approximately March 15 through October 15. Further information on the range, biology, and ecology of the desert tortoise can be found in Berry and Burge (1984), Burge (1978), Burge and Bradley (1976), Bury *et al*. (1994), Germano *et al*. 1994, Hovik and Hardenbrook (1989), Karl (1981, 1983a, 1983b), Luckenbach (1982), USFWS (1994), and Weinstein *et al*. (1987).

On February 8, 1994, the FWS designated approximately 6.4 million acres of critical habitat for the Mojave population of the desert tortoise in portions of California, Nevada, Arizona, and Utah

(59 FR 5820-5846, also see corrections at 59 FR 9032-9036), which became effective on March 10, 1994. Critical habitat is designated by the FWS to identify the key biological and physical needs of the species and key areas for recovery, and focuses conservation actions on those areas. Critical habitat is composed of specific geographic areas that contain the primary constituent elements of critical habitat, consisting of the biological and physical attributes essential to the species' conservation within those areas, such as space, food, water, nutrition, cover, shelter, reproductive sites, and special habitats. The specific primary constituent elements of desert tortoise critical habitat are: Sufficient space to support viable populations within each of the six recovery units, and to provide for movement, dispersal, and gene flow; sufficient quality and quantity of forage species and the proper soil conditions to provide for the growth of these species; suitable substrates for burrowing, nesting, and overwintering; burrows, caliche caves, and other shelter sites; sufficient vegetation for shelter from temperature extremes and predators; and habitat protected from disturbance and human-caused mortality. Critical habitat units were based on recommendations for Desert Wildlife Management Areas (DWMAs) outlined in the *Draft Recovery Plan for the Desert Tortoise (Mojave Population)* (USFWS 1993a). These DWMAs are also identified as desert tortoise areas of critical environmental concern (ACECs) by BLM. Because the critical habitat boundaries were drawn to optimize reserve design, the critical habitat unit may contain both "suitable" and "unsuitable" habitat. Suitable habitat can be generally defined as areas that provide the primary constituent elements.

On June 28, 1994, the FWS approved the final Desert Tortoise Recovery Plan (USFWS 1994). The Desert Tortoise Recovery Plan divides the range of the desert tortoise into 6 recovery units and recommends establishment of 14 DWMAs throughout the recovery units. Within each DWMA, the Desert Tortoise Recovery Plan recommends implementation of reserve-level protection of desert tortoise populations and habitat, while maintaining and protecting other sensitive species and ecosystem functions. The design of DWMAs should follow accepted concepts of reserve design. As part of the actions needed to accomplish recovery, the Desert Tortoise Recovery Plan recommends that land management within all DWMAs should restrict human activities that negatively impact desert tortoises (USFWS 1994). DWMAs/ACECs have been designated by BLM through development or modification of their land use plans in Arizona, Nevada, Utah, and parts of California.

The California Desert Conservation Area Plan (BLM 1980) is the primary plan that guides the overall management of desert tortoise habitat in California. Land use planning activities are underway in California to complete designation of DWMAs/ACECs. Desert tortoise habitat management in Arizona is covered primarily by the Mojave Amendment to BLM's Arizona Strip Resource Management Plan, which was prepared to implement the Desert Tortoise Recovery Plan. BLM Arizona Strip Field Office designated 167,065 acres of desert tortoise habitat as ACECs. In Nevada, BLM's Las Vegas, Ely, and Battle Mountain Field Offices manage desert tortoise habitat; 941,800 acres of desert tortoise habitat were designated as ACECs by the Las Vegas and Ely field offices. No desert tortoise critical habitat or proposed ACECs occur within the jurisdiction of the Battle Mountain Field Office. The regulation of activities within critical habitat through section 7 consultation is based on recommendations in the Desert Tortoise Recovery Plan.

Long-term monitoring of desert tortoise populations is a high priority recovery task as identified in the Desert Tortoise Recovery Plan. From 1995 to 1998, pilot field studies and workshops were conducted to develop a monitoring program for desert tortoise. In 1998, the Desert

Tortoise Management Oversight Group chose line distance sampling as the appropriate method to determine rangewide desert tortoise population densities and trends. Monitoring of populations using this method is underway across the range of the desert tortoise. Successful rangewide monitoring will enable managers to evaluate the overall effectiveness of recovery actions and population responses to these actions, thus guiding recovery of the Mojave desert tortoise. Rangewide tortoise population monitoring began in 2001 and is conducted annually. A population baseline is anticipated to be established in 2005.

Although recovery of the tortoise will focus on DWMAs/ACECs, section II.A.6. of the Recovery Plan and section 2(b) of the ESA provide for protection and conservation of ecosystems on which federally-listed threatened and endangered species depend, which includes both recovery and non-recovery areas. The Mojave Desert ecosystem, of which the desert tortoise and its habitat are an integral part, consists of a dynamic complex of plant, animal, fungal, and microorganism communities and their associated nonliving environment interacting as an ecological unit (Noss and Cooperrider 1994). Actions that adversely affect components of the Mojave Desert ecosystem may directly or indirectly affect the desert tortoise. The Recovery Plan further states that desert tortoises and habitat outside recovery areas may be important in recovery of the tortoise. Healthy, isolated tortoise populations outside recovery areas may have a better chance of surviving catastrophic effects such as disease than large contiguous populations (USFWS 1994).

The General Accounting Office (GAO) Report *Endangered Species: Research Strategy and Long-Term Monitoring Needed for the Mojave Desert Tortoise Recovery Program* (U.S. General Accounting Office 2002) directed the FWS to periodically reassess the Recovery Plan to determine whether scientific information developed since its publication could alter implementation actions or allay some of the uncertainties about its recommendations. In response to the GAO report, Interior Appropriation Congressional Committee directed language, and new information, the FWS initiated a review of the current Recovery Plan.

In March 2003, the FWS impaneled a committee to assess the Recovery Plan. The committee was selected to represent several important characteristics with particular emphasis on commitment to solid science. The charge to the committee was to review the entire Recovery Plan in relation to contemporary knowledge to determine what parts of the recovery plan will need updating. The recommendations of the Committee were presented to the FWS and Desert Tortoise Management Oversight Group on March 24, 2004. The recommendations will be used as a guide by a recovery team of scientists and stakeholders to modify the 1994 recovery plan. The new recovery team would then focus on areas where new data are available, and create any needed revisions to the recovery plan. A revised recovery plan is anticipated by mid-2005.

Demographics

Data collected on 1-square-mile permanent study plots indicate that tortoise populations have declined both in numbers of tortoises found during surveys and in densities of live tortoises at most sites since the plots were first established 20-30 years ago (Brown *et al*. 1999, Berry *et al*. 2002). Declines of greater than 50 percent and up to 96 percent have occurred regardless of initial tortoise densities. Increases in the occurrence of shell-skeletal remains have been found to correspond with declines in numbers and densities of live tortoises, with the exception of certain plots where poaching has been documented (Berry 2003).

Declines in tortoise abundance appear to correspond with increased incidence of disease in tortoise populations. The Goffs permanent study plot in Ivanpah Valley, California suffered 92-96 percent decreases in tortoise density between 1994 and 2000 (Berry 2003). The high prevalence of disease in Goffs tortoises likely contributed to this decline (Christopher *et al*. 2003). URTD has not yet been detected at permanent study plots in the Sonoran Desert of California, but is prevalent at study plots across the rest of the species' range (Berry 2003) and has been shown to be a contributing factor in population declines in the western Mojave Desert (Brown *et al.* 1999, Christopher *et al*. 2003). High mortality rates at permanent study plots in the northeastern and eastern Mojave and Sonoran Deserts appear to be associated with incidence of shell diseases in tortoises (Jacobson *et al.* 1994). Low levels of shell diseases were detected in many populations when the plots were first established, but were found to increase during the 1980s and 1990s (Jacobson *et al*. 1994, Christopher *et al*. 2003). A herpesvirus has recently been discovered in desert tortoises, but little is known about its effects on tortoise populations at this time (Berry *et al*. 2002, Origgi *et al*. 2002).

Disease is a natural phenomenon in wild populations of animals and can contribute to population declines by increasing mortality and reducing reproduction. However, the effects of disease may be enhanced by natural and/or anthropogenic changes in habitat. For example, the proliferation of non-native plants within the range of the tortoise has had far-reaching impacts on tortoise populations. Tortoises prefer native vegetation over non-native vegetation (Jennings 1993). Non-native annual plants in desert tortoise critical habitat in the western Mojave Desert compose over 60 percent of the annual biomass (Brooks 1998). The reduction in quantity and quality of forage may stress tortoises and make them more susceptible to drought- and disease-related mortality (Jacobson *et al*. 1991, Brown *et al*. 1994). Malnutrition has been associated with several disease outbreaks in both humans and turtles (Borysenko and Lewis 1979).

Surveys conducted among land managers and field scientists identified 116 species of alien plants in the Mojave and Colorado deserts (Brooks and Esque 2002). The proliferation of non-native plant species has also contributed to an increase in wildfire frequency in tortoise habitat by providing sufficient fuel to carry fires, especially in the intershrub spaces that are mostly devoid of native vegetation (USFWS 1994, Brooks 1998, Brown and Minnich 1986). Changes in plant communities caused by alien plants and recurrent wildfire may negatively affect the desert tortoise by altering habitat structure and species composition of their food plants (Brooks and Esque 2002).

Results of surveys at three survey plots in Arizona indicate that all three sites have experienced significant die-offs. Six live tortoises were located in a 2001 survey of the Beaver Dam Slope Exclosure Plot (Walker and Woodman 2002). Three had definitive signs of URTD, and two of those also had lesions indicative of cutaneous dyskeratosis. Previous surveys of this plot detected 31 live tortoises in 1996, 20 live tortoises in 1989, and 19 live tortoises in 1980. The 2001 survey report indicated that it is likely that there is no longer a reproductively viable population of tortoises on this study plot. Thirty-seven live tortoises were located in a 2002 survey of the Littlefield Plot (Young *et al*. 2002). None had definitive signs of URTD. Twenty-three tortoises had lesions indicative of cutaneous dyskeratosis. Previous surveys of this plot detected 80 live tortoises in 1998 and 46 live tortoises in 1993. The survey report indicated that the site may be in the middle of a die-off due to the high number of carcasses found since the site was last surveyed in 1998. Nine live tortoises were located during the mark phase of a

2003 survey of the Virgin Slope Plot (Goodlett and Woodman 2003). The surveyors determined that the confidence intervals of the population estimate would be excessively wide and not lead to an accurate population estimate, so the recapture phase was not conducted. One tortoise had definitive signs of URTD. Seven tortoises had lesions indicative of cutaneous dyskeratosis. Previous surveys of this plot detected 41 live tortoises in 1997 and 15 live tortoises in 1992. The survey report indicated that the site may be at the end of a die-off that began around 1996-1997.

Recovery Units

The Northeastern Mojave Recovery Unit occurs primarily in Nevada, but it also extends into California along the Ivanpah Valley and into extreme southwestern Utah and northwestern Arizona. Vegetation within this unit is characterized by creosote bush scrub, big galleta-scrub steppe, desert needlegrass scrub-steppe, and blackbrush scrub (in higher elevations). Topography is varied, with flats, valleys, alluvial fans, washes, and rocky slopes. Much of the northern portion of the Northeastern Mojave Recovery Unit is characterized as basin and range, with elevations from 2,500 to 12,000 feet. Desert tortoises typically eat summer and winter annuals, cacti, and perennial grasses. Desert tortoises in this recovery unit, the northern portion of which represents the northernmost distribution of the species, are typically found in low densities (about 10 to 20 adults per square mile).

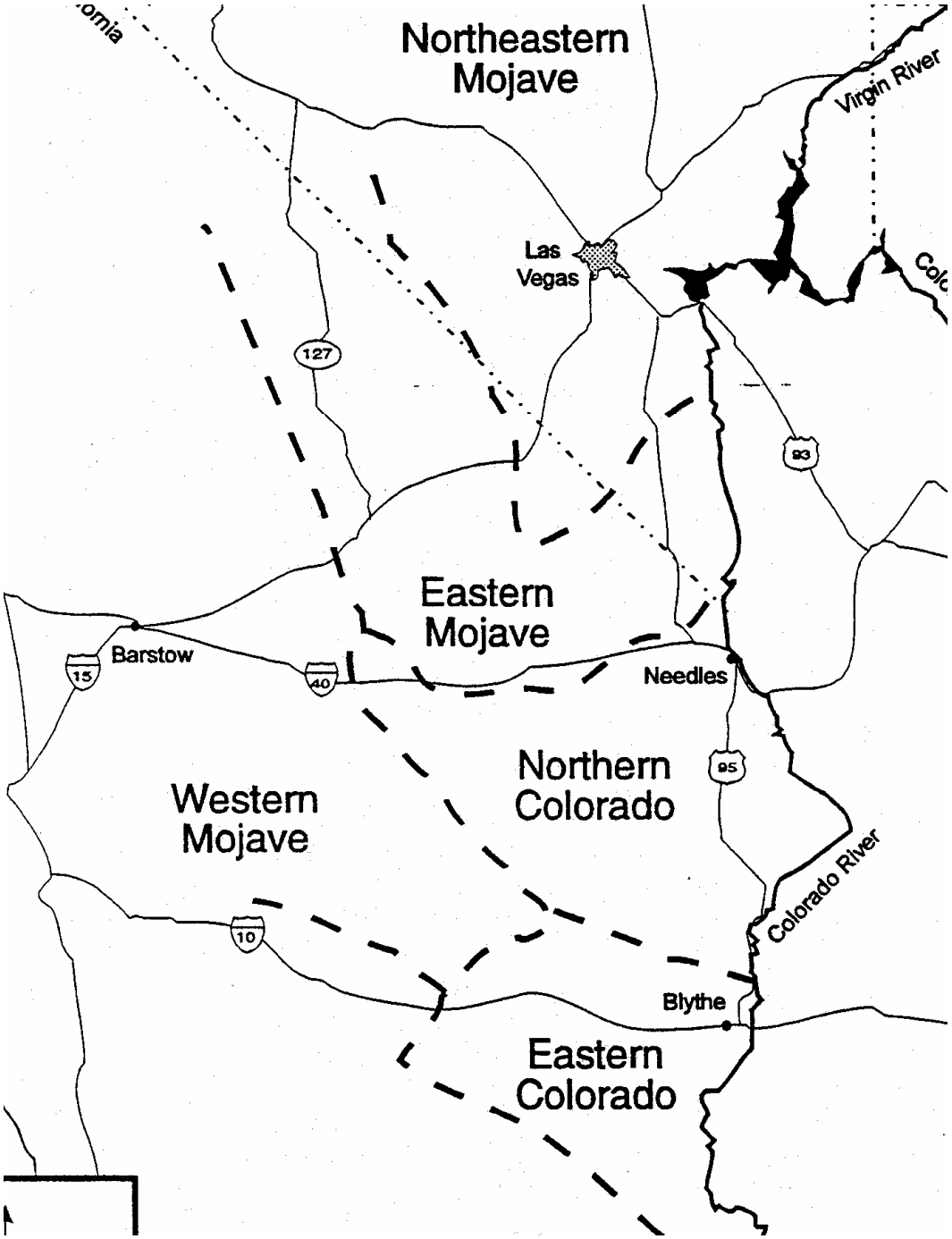
The Eastern Mojave Recovery Unit is situated primarily in California, but also extends into Nevada in the Amargosa, Pahrump, and Piute valleys. In the Eastern Mojave Recovery Unit, desert tortoises are often active in late summer and early autumn in addition to spring because this region receives both winter and summer rains and supports two distinct annual floras on which they can feed. Desert tortoises in the Eastern Mojave Recovery Unit occupy a variety of vegetation types and feed on summer and winter annuals, cacti, perennial grasses, and herbaceous perennials. They den singly in caliche caves, bajadas, and washes. This recovery unit is isolated from the Western Mojave Recovery Unit by the Baker Sink, a low-elevation, extremely hot and arid strip that extends from Death Valley to Bristol Dry Lake. The Baker Sink area is generally not considered suitable for desert tortoises. Desert tortoise densities in the Eastern Mojave Recovery Unit can vary dramatically, ranging from 5 to as much as 350 adults per square mile (USFWS 1994).

The Northern Colorado Recovery Unit is located completely in California. Here desert tortoises are found in the valleys, on bajadas and desert pavements, and to a lesser extent in the broad, well-developed washes. They feed on both summer and winter annuals and den singly in burrows under shrubs, in intershrub spaces, and rarely in washes. The climate is somewhat warmer than in other recovery units, with only 2 to 12 freezing days per year. The tortoises have the California mtDNA haplotype and phenotype. Allozyme frequencies differ significantly between this recovery unit and the Western Mojave, indicating some degree of reproductive isolation between the two.

Desert tortoises in the Eastern Colorado Recovery Unit, also located completely in California, occupy well-developed washes, desert pavements, piedmonts, and rocky slopes characterized by relatively species-rich Succulent Scrub, Creosote Bush Scrub, and Blue Palo Verde-Ironwood-Smoke Tree communities. Winter burrows are generally shorter in length and activity periods are longer than elsewhere due to mild winters and substantial summer precipitation. The

tortoises feed on summer and winter annuals and some cacti; they den singly. They also have the California mtDNA haplotype and shell type.

The Upper Virgin River Recovery Unit encompasses all desert tortoise habitat in Washington County, Utah, except the Beaver Dam Slope, Utah population. The desert tortoise population in the area of St. George, Utah, is at the extreme northeastern edge of the species' range and experiences long, cold winters (about 100 freezing days) and mild summers, during which the tortoises are continually active. Here the animals live in a complex topography consisting of canyons, mesas, sand dunes, and sandstone outcrops where the vegetation is a transitional mixture of Sagebrush Scrub, Creosote Bush Scrub, Blackbush Scrub, and a psammophytic community. Desert tortoises use sandstone and lava caves instead of burrows, travel to sand dunes for egg laying, and use still other habitats for foraging. Two or more desert tortoises often use the same burrow. Shell morphology and mtDNA have not been studied in this recovery unit, but allozyme variation is similar to that found in the Northeastern Mojave Recovery Unit.


Northeastern
Mojave
Virgin River
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Vegas
127
93
Eastern
Mojave
Barstow
15
40
Needles
Northern
Colorado
95
Western
Mojave
Colorado River
10
Blythe
Eastern
Colorado

The Western Mojave Recovery Unit occurs completely in California and is exceptionally heterogeneous and large. It is composed of the Western Mojave, Southern Mojave, and Central Mojave regions, each of which has distinct climatic and vegetational characteristics. The most pronounced difference between the Western Mojave and other recovery units is in timing of rainfall and the resulting vegetation. Most rainfall occurs in fall and winter and produces winter annuals, which are the primary food source of tortoises. Above ground activity occurs primarily in spring, associated with winter annual production. Thus, tortoises are adapted to a regime of winter rains and rare summer storms. Here, desert tortoises occur primarily in valleys, on alluvial fans, bajadas, and rolling hills in saltbrush, creosote bush, and scrub steppe communities. Tortoises dig deep burrows (usually located under shrubs on bajadas) for winter hibernation and summer estivation. These desert tortoises generally den singly. They have a California mtDNA haplotype and a California shell type. Please refer to the Desert Tortoise Recovery Plan for more information on desert tortoise recovery units.

Mexican spotted owl

We listed the MSO as a threatened species in 1993 (USFWS 1993b). 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. The FWS appointed the Mexican Spotted Owl Recovery Team in 1993, which produced the Recovery Plan for the Mexican Spotted Owl (Recovery Plan) in 1995 (USFWS 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 (USFWS 1993b) and in the Recovery Plan (USFWS 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, multi-canopied forest, and the species is known to inhabit a physically diverse landscape in the southwestern United States and Mexico.

Since the owl was listed, we have completed or have in draft form a total of 135 formal consultations for the MSO. These formal consultations have resulted in a total anticipated incidental take of 326 MSO protected activity centers (PACs) plus an additional unknown number of MSOs. 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, NPS, and Federal Highway Administration. These proposals have included timber sales, road construction, fire/ecosystem management projects (including wildland fire use and prescribed fires), livestock grazing, recreation activities, utility corridors, military and sightseeing overflights, and other activities. Only two of these projects (implementation of the Region 3 Forest Plans without adopting the Recovery Plan and the release of site-specific owl location information) have resulted in BOs that the proposed action would likely jeopardize the continued existence of the MSO.

The U.S. range of the MSO has been divided into six recovery units (RU), as discussed in the Recovery Plan. The primary administrator of lands supporting the MSO in the United States is the Forest Service. Most owls have been found within Forest Service Region 3 (including 11 National Forests in Arizona and New Mexico). Forest Service Regions 2 and 4 (including 2 National Forests in Colorado and 3 in Utah) support fewer owls. According to the Recovery Plan, 91% of MSO known to exist in the United States between 1990 and 1993 occurred on lands administered by the Region 3 of the Forest Service.

A reliable estimate of the numbers of owls throughout its entire range is not currently available (USFWS 1995) and the quality and quantity of information regarding numbers of MSO vary by source. FWS (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 987 protected activity centers (PACs) established on National Forest lands in Arizona and New Mexico (USDA Forest Service, Southwestern Region, December 1, 2003). Based on this number of MSO sites, total numbers in the United States may range from 987 individuals, assuming each known site was occupied by a single MSO, to 1,960 individuals, assuming each known site was occupied by a pair of MSOs. The Forest Service Region 3 data are the most current compiled information available to us; however, surveys efforts in areas other than National Forest system lands have likely resulted in additional sites being located in all RUs.

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) 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.

The current condition of MSO habitat within Arizona is a result of historical and recent human use, as well as climate change, vegetative species conversion, and wildfires. As stated in the 1996 Forest Plan Amendments BO, a precise assessment of baseline owl habitat is difficult to assemble. Based on a regional habitat mapping exercise conducted in 2001, there is an approximate total of 6.6 million acres of MSO habitat on National Forest Lands in the Southwestern Region. This figure included approximately 935 PACs (588,000 acres), other protected habitat (2.1 million acres), and restricted habitat (3.9 million acres) (USFWS, April 2001). Though we have received more current information regarding PAC delineation and

occupancy (987 PACs have been delineated on Region 3 National Forest lands as of December 1, 2003), we consider the estimate of PAC acres and habitat to be fairly accurate for Forest Service lands, but deficient in accounting for habitat and PACs on other public lands.

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 public lands, especially in meadow and riparian areas. There is anecdotal information and research that indicates 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 affects to MSO through habitat modification and disturbance. As the population grows, especially in Arizona, small communities within and adjacent to public 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 document in Arizona, New Mexico, and Colorado and preliminary information suggests that owls may be highly vulnerable to this disease. Unfortunately, due the secretive nature of owls and the lack of intensive monitoring of banded individual birds, we will most likely not know when owls contract the disease or the extent of its impact to MSO range-wide.

Currently, high intensity, stand-replacing fires are influencing ponderosa pine and mixed conifer forest types in Arizona and New Mexico. Mexican spotted owl habitat in the southwestern United States has been shaped over thousands of years by fire. Since MSO occupy a variety of habitats, the influence and role of fire has most likely varied throughout the owl's range. In 1994, at least 40,000 acres of nesting and roosting habitat were impacted to some degree by catastrophic fire in the Southwestern Region (Sheppard and Farnsworth 1995). Between 1991 and 1996, the Forest Service estimated that approximately 50,000 acres of owl habitat has undergone stand-replacing wildfires (G. Sheppard, Forest Service, 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 wildfire 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).

LMNRA manages MSO habitat in the Colorado Plateau RU. This RU is the largest of the six, extending from southwestern Utah, through northern Arizona into northwestern New Mexico, and a small portion of the southwestern corner of Colorado. In northern Arizona and New Mexico, owls have been reported in both canyon and montane habitats. Owl habitat in this RU appears to be in the form of isolated, geographically segregated patches. Recent records of MSO

exist for the Grand Canyon and Kaibab Plateau in Arizona; the Chuska Mountains, Black Mesa, and Fort Defiance Plateau on the Navajo Reservation; and, the Zuni Mountains and Mount Taylor in New Mexico. Currently, the Forest Service has designated 22 MSO PACs in this RU on the Mount Taylor Ranger District, Cibola National Forest. Suitable habitat on public lands managed by LMNRA is within the Colorado Plateau RU.

The distribution of MSO within this RU appears to be highly fragmented. The disjunct owl distribution may be a natural occurrence due to the spatial arrangement of habitat, the result of past management, a reflection of inadequate survey efforts, or a combination of all three. Potential threats in the southeastern portion of this RU (Arizona and New Mexico) include timber harvest and/or intensive fuels reduction treatments; overgrazing; catastrophic fire; and oil, gas, and mining development.

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

Mojave desert tortoise and Critical Habitat

The majority of LMNRA is characterized by generally north-south trending mountain ranges and shallow valleys. Desert tortoise habitat is most often associated with well-drained sandy loam soils of plains, alluvial fans, and bajadas. Soils in the area are gravelly with desert pavement with patches of gypsiferous soils. Most Mojave desert tortoise burrows are dug under creosote bush (*Larrea tridentata*) or white bursage (*Ambrosia dumosa*) shrubs, which are the dominant vegetation identified in the BA.

Desert tortoise surveys were conducted along Lakeshore Road in support of the biological assessment prepared for improvements to the road in 1991 (NPS 1991). The proposed alignment for the River Mountains Loop Trail occurs within 0.75 mile of Lakeshore Road. From 1995 to 1997, additional desert tortoise transects were walked between the Lake Mead Marina and the park boundary with the City of Henderson by LMNRA biologists yielding population estimates of low density. One-square kilometer study plots located north and south of Northshore Road yielded observations of four to eight live tortoises and 24 to 86 desert tortoise burrows.

Desert tortoises and tortoise critical habitat occur within FMU2. The proposed FMP on LMNRA would involve both the Northeastern and Eastern Mojave recovery units. A total of 338,700 acres in Arizona and 1.2 million acres in Nevada were designated as critical habitat. A total of 151,200 acres of desert tortoise critical habitat occur within the Piute-Eldorado and Gold Butte-Pakoon DWMAs in LMNRA (59 FR 5820-5846, also see corrections at 59 FR 9032-9036).

Under the Natural Resources Preservation Program, the following actions have been implemented within LMNRA (NPS 2003a):

- Over 400 1.5-mile triangular strip transects have been conducted, exceeding one transect per 2,500 acres.
- A total of 14 square-kilometer study plots have been established throughout LMNRA.
- 20 miles of burro exclusion fence are proposed for construction, which would eliminate burros from desert tortoise critical habitat.
- 10 miles of roads are proposed for closure and rehabilitation in desert tortoise habitat.
- Interpretive outreach and environmental education programs have been implemented.

Based on the information collected in the activities described above, LMNRA determined that the overall abundance of desert tortoise on LMNRA-administered lands is low (less than 45 tortoises per square mile).

Mexican spotted owl

Forested MSO habitat within LMNRA includes minimal riparian and mixed conifer and approximately 3,150 acres of ponderosa pine. Most of the potential MSO habitat within the action area consists of canyon areas that may contain the constituent elements of MSO habitat. Total acreage of MSO habitat within LMNRA was not given in the BA but all habitat occurs within FMU3. MSO critical habitat has not been proposed for designation on LMNRA-managed lands.

MSO surveys have been conducted prior to prescribed burns and hazardous fuels reduction treatments in ponderosa pine and pinyon juniper habitat at Pine Valley, Pleasant Valley, Green Springs, Fire Camp, Yellow John, and Halfway treatment units. Surveys were conducted in 2002 using the 1996 MSO survey protocol, and in 2003 and 2004 using the 2003 FWS recommended protocol. No MSO were detected during surveys and no PACs have been established on LMNRA-administered lands.

Dr. David Willey and Dan Spotskey modeled MSO habitat based on vegetation type, slope, elevation, aspect, and other factors in 1997 and 2000 (Willey and Spotskey 1997, 2000). Their 2000 model indicated some of the canyon and forested areas within LMNRA had the potential to support nesting or roosting owls including Parashant Canyon, Whitmore Canyon, and the east slope of the Shivwits Plateau facing Andrus Canyon. In addition, several areas on the eastern sides of the plateau fingers below the rim adjacent to LMNRA were identified as having potential to support nesting or roosting owls. Surveys conducted in 2002 in a few of these areas that were accessible from the Colorado River resulted in the designation of two MSO Protected Activity Centers (PACs) in Grand Canyon National Park approximately two miles from the LMNRA boundary. These PACs were designated after a single visit and contain relatively little habitat identified in the 2000 model as having potential to support nesting or roosting owls relative to other areas within and adjacent to LMNRA.

Surveys conducted within LMNRA to date have been project-related, and the majority of the areas within and adjacent to LMNRA identified in the 2000 model as having potential to support nesting or roosting owls have yet to be surveyed, partly due to the remote and steep topography of the area.

Based on the survey results and habitat types present, LMNRA believes that MSO do not currently nest on LMNRA-administered lands. However, LMNRA believes that MSO do occasionally use these areas for wintering and dispersal habitat. We believe that although surveys in some areas are sufficient to infer absence, the lack of or insufficient surveys in additional habitat provide reasonable certainty that MSO may occur on LMNRA-administered lands during the timeframe of this action.

B. FACTORS AFFECTING SPECIES ENVIRONMENT WITHIN THE ACTION AREA

Mojave desert tortoise and Critical Habitat

LMNRA staff are actively working with Clark County, the University of Nevada, the Nevada Department of Wildlife, Arizona Game and Fish Department, BLM, and U.S. Geological Survey- Biological Resources Division to increase knowledge of the desert tortoise in the action area, LMNRA, and rangewide. Population surveys and monitoring are currently underway, as well as demographic studies to determine longevity and causes of mortality. Livestock grazing has been removed from LMNRA. Non-native plants occur largely in disturbed areas included the edges of Northshore Road, parking lots, and Boxcar Wash.

Visitor Use at LMNRA

LMNRA is the premiere inland water recreation area in the West with 1.5 million surface acres, including 700 miles of shoreline on Lakes Mead and Mohave. LMNRA provides outdoor recreation opportunities ranging from warm-water recreation to back-country exploration. The area is within an hour's drive for 20 million people in southern California, and a 20 minute drive for 1.6 million people in the Las Vegas Valley.

Habitat Conservation Plans (HCPs) Involving LMNRA

Since the Mojave population of the desert tortoise was listed under the ESA in 1989, three regional-level HCPs have been implemented for development of desert tortoise habitat in Clark County, Nevada. Because approximately 89 percent of Clark County consists of Federally-administered lands, there is little opportunity to purchase private lands as mitigation under an HCP for the loss of desert tortoise habitat. Alternatively, funds are collected and spent to implement conservation and recovery actions on Federal lands as mitigation for impacts that occur on non-Federal lands. LMNRA lands are included in these areas where mitigation funds are used to promote recovery of the desert tortoise.

On May 23, 1991, the FWS issued a BO on the issuance of incidental take permit PRT-756260 (File No. 1-5-91-FW-40) under section 10(a)(1)(B) of the ESA. The FWS concluded that incidental take of 3,710 desert tortoises on up to 22,352 acres of habitat within the Las Vegas Valley and Boulder City in Clark County, Nevada, was not likely to jeopardize the continued existence of the desert tortoise. The permit application was accompanied by the *Short-Term Habitat Conservation Plan for the Desert Tortoise in the Las Vegas Valley, Clark County,*

Nevada (Regional Environmental Consultants 1991) (Short-term HCP) and an implementation agreement that identified specific measures to minimize and mitigate the effects of the action on desert tortoises.

On July 29, 1994, the FWS issued a non-jeopardy BO on the issuance of an amendment to incidental take permit PRT-756260 (File No. 1-5-94-FW-237) to extend the expiration date of the existing permit by one year (to July 31, 1995) and include an additional disturbance of 8,000 acres of desert tortoise habitat within the existing permit area. The amendment did not authorize an increase in the number of desert tortoises allowed to be taken under the existing permit. Additional measures to minimize and mitigate the effects of the amendment were also identified. Approximately 1,300 desert tortoises were taken under the authority of PRT-756260, as amended. In addition, during the Short-term HCP, as amended, approximately 541,000 acres of desert tortoise habitat have been conserved in Clark County on lands administered by BLM and LMNRA.

On July 11, 1995, the FWS issued an incidental take permit (PRT-801045) to Clark County, Nevada, including cities within the county and the Nevada Department of Transportation (NDOT), under the authority of section 10(a)(1)(B) of the ESA. The permit became effective August 1, 1995, and allowed the "incidental take" of desert tortoises for a period of 30 years on 111,000 acres of non-Federal land in Clark County, and approximately 2,900 acres associated with NDOT activities in Clark, Lincoln, Esmeralda, Mineral, and Nye counties, Nevada. The Clark County Desert Conservation Plan (DCP) served as the permittees' HCP and detailed their proposed measures to minimize, monitor, and mitigate the effects of the proposed take on the desert tortoise (Regional Environmental Consultants 1995). The permittees imposed, and NDOT paid, a fee of $550 per acre of habitat disturbance to fund these measures. The permittees expended approximately $1.65 million per year to minimize and mitigate the potential loss of desert tortoise habitat. The majority of these funds were used to implement minimization and mitigation measures, such as increased law enforcement; construction of highway barriers; road designation, signing, closure, and rehabilitation; and tortoise inventory and monitoring within the lands initially conserved during the Short-term HCP and other areas being managed for tortoise recovery (e.g., ACECs or DWMAs). The benefit to the species, as provided by the DCP, substantially minimized and mitigated those effects that occurred through development within the permit area and aided in recovery of the desert tortoise.

On November 22, 2000, the FWS issued an incidental take permit (TE-034927-0) to Clark County, Nevada, including cities within the county and NDOT, under the authority of section 10(a)(1)(B) of the ESA. The permit supersedes the incidental take permit for the DCP. In the biological/conference opinion (File No. 1-5-00-FW-575), the FWS determined that issuance of the incidental take permit to Clark County would not jeopardize the listed desert tortoise or southwestern willow flycatcher, or any of the 76 unlisted, un-proposed species covered under the permit. The incidental take permit allows incidental take of covered species for a period of 30 years on 145,000 acres of non-Federal land in Clark County, and within NDOT rights-of-way, south of the 38th parallel in Nevada. The Clark County Multiple Species Habitat Conservation Plan and Environmental Impact Statement (MSHCP) (Regional Environmental Consultants 2000), serves as the permittees' HCP and details their proposed measures to minimize, mitigate, and monitor the effects of covered activities on the 78 species.

Mexican spotted owl

Current activities within the action area include recreation and vehicle use. Recreation and vehicle use activities generally occur on established roads and trails, though some off-trail hiking may occur. Recreation use is relatively low on the Shivwits Plateau due to the remote and steep topography of the area.

The "Status of the Species" section of this BO provides a general discussion of the effects that fire exclusion during the 20th century has had on MSO habitat, including those within the action area.

EFFECTS OF THE ACTION

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

Both general and species-specific conservation measures have been developed as part of the proposed action to minimize effects. In the case of wildfire suppression, these conservation measures will be followed unless the protection of human health and safety outweighs the need to protect other resources. Our analysis of effects for wildfire suppression activities assumes the conservation measures will be implemented. If a situation warrants suppression actions outside of the scope of these measures and a Federally-listed species is affected, LMNRA will consult on their actions on an emergency basis.

Mojave desert tortoise and Critical Habitat

The proposed action includes wildfire suppression activities that could directly and indirectly affect the desert tortoise and its suitable and designated critical habitat. These activities are limited by implementation of conservation measures. Other fire management activities would not occur in or near desert tortoise habitat, and would not affect the species.

Effects of Wildfire and Wildfire Suppression on the Desert Tortoise and Critical Habitat

Wildfire is an increasingly important threat to desert tortoise suitable and designated critical habitat. Over 500,000 acres of desert lands burned in the Mojave Desert in the 1980s (Appendix D of USFWS 1994). Neither desert tortoises nor their habitat are ecologically adapted to wildfire; tortoises are killed by wildfires if trapped above ground (Lovich and Bainbridge 1999). Wildfires can eliminate the shrubs on which desert tortoises depend for shelter and convert tortoise habitat into non-native grasslands that do not contain the necessary diversity of plant species to support viable populations of desert tortoises. BLM's California Desert District averaged 175 wildfires per year in the 10 years prior to 1992 (Lovich and Bainbridge 1999). The area affected by these wildfires annually ranged from 1,500 to 85,000 acres, with an average of approximately 27,000 acres per year. Although at least portions of the areas that burned were

not desert tortoise habitat, wildfires have affected some areas of suitable habitat. Within the Northern and Eastern Colorado planning area, approximately 920 acres of critical habitat have burned (BLM and California Department of Fish and Game 2002).

Wildfires have the potential to drastically alter landscapes, reduce the ability of habitats to support wildlife, and kill wildlife directly by exposure to smoke and excessive heat. Mojave Desert shrubs burn readily and may take years to recover. The loss of shrubs can stress desert tortoises because shrubs protect tortoises from excessive exposure to sunlight and predators. Desert wildfires may be followed by an invasion of alien annual grasses, which burn more easily and, therefore, more frequently than desert shrub communities. Wildfire in desert tortoise habitat may remove dry and live forage plants, and cause short-term fragmentation of habitat by creating patches of unsuitable areas. Soils may become less stable and result in increased erosion following a wildfire. Wildfire suppression is intended to safely and effectively minimize wildfire size and impacts of wildfires to desert tortoises from suppression activities (Duck *et al*. 1994). Failure to implement wildfire suppression or unsuccessful suppression efforts may adversely affect the desert tortoise and its suitable and critical habitat burned by a wildfire.

The effects of chemical fire retardants on the desert tortoise and its suitable and critical habitat have not been well-studied. Retardant may be dropped on desert tortoises and their habitat that are in immediate danger of burning. Some fire retardants degrade into harmful substances such as cyanide, which may be harmful to amphibians (Ingalsbee 2004). Common components of fire retardant include clay and fertilizer (L. Nelson, FWS, pers. comm. 2004). Retardant can persist in the environment following the wildfire and may facilitate establishment of alien plant species that are harmful to desert tortoises. Alien annual species have altered plant communities throughout the Mojave desert by reducing the abundance of native annuals and perennials and increasing that of alien annual grasses. These alien species, which often persist in a more woody form than many natives, have increased the ability of desert communities to carry fire. Consequently, at least some desert plant communities are now more capable of carrying fire than they were previously. In prehistoric desert plant communities, the limited biomass and large distances between shrubs were factors that reduced the frequency of wildfire (Humphrey 1974, O'Leary and Minnich 1981, Minnich 1983, Brown and Minnich 1986 in Lovich and Bainbridge 1999).

Negative effects to the desert tortoise and its suitable and critical habitat associated with wildfire suppression activities include tortoise-vehicle encounters and creation of vehicle tracks that persist and become OHV trails. The use of motorized vehicles within habitat of the desert tortoise may result in the crushing of animals, disturbance of annual and perennial plants that were not directly affected by wildfire, and disturbance of soils that may later facilitate the colonization of invasive, alien plant species. Construction of fire lines could impact desert tortoise habitat and potentially any desert tortoises present in the area. Further, both vegetation removal and soil disturbance by wildfire and suppression activities may create ideal conditions for the spread of invasive weeds, which can significantly alter the native species composition of ecosystems, and in some cases can change the natural fire regime to a more fire-prone condition. Wildfire in desert tortoise habitat may remove dry and live forage plants and cause short-term fragmentation of habitat by creating patches of unsuitable areas. Soils may become less stable and result in increased erosion following a wildfire. Firefighters' activities and their vehicles can be vectors for transporting invasive weed seeds deep into uninfested areas.

Backfires may ultimately minimize the extent of a fire, however they have the potential to degrade or destroy tortoise habitat and kill or injure tortoises in the path of the backfire. Tortoises may be killed or injured due to direct contact with flames, exposure to high temperatures, and smoke inhalation.

Trash accumulation at crew camps or staging areas may attract and concentrate predators such as ravens, coyotes, and kit fox, which may result in increased predation of desert tortoises. Natural predation in undisturbed, healthy ecosystems is generally not an issue of concern. However, predation rates may be altered when natural habitats are disturbed or modified. Raven populations in the California deserts have increased ten-fold from 1968 to 1992 in response to expanding human use of the desert (Boarman and Berry 1995). Because ravens make frequent use of food, water, and nest site structures provided by humans, their population increases can be tied to this increase in food and water sources, such as landfills and septic ponds (Boarman 2002; USFWS 1994). Ravens may be attracted to landfills or project sites if trash is accessible by scavengers (Berry 1985; BLM 1990; Boarman 2002). Considering that ravens were very scarce in the Mojave Desert prior to 1940, it is assumed that the current level of raven predation on juvenile desert tortoises is an unnatural occurrence (BLM 1990).

Wildfire suppression likely results in some low level deleterious effects to the desert tortoise and its suitable and critical habitat. However, the suppression of wildfires in tortoise habitat should benefit the species because it can slow or prevent the conversion of desert scrub communities into grasslands and minimize habitat loss and tortoise mortality, which are direct impacts of wildfire.

Measures proposed by LMNRA should minimize many of the effects of wildfire suppression on the desert tortoise and its suitable and critical habitat that include: (1) implementing a tortoise awareness program, (2) limiting the speed of fire vehicles, (3) assigning resource advisors and tortoise monitors to wildfires to ensure compliance and survey impact areas before they are used, (4) minimizing OHV travel and use of tracked vehicles (*e.g.,* bulldozers), (5) checking underneath vehicles for tortoises before vehicles are moved, (6) not burning out or blacklining fingers of habitat, (7) obliterating tracks created by fire equipment, (8) rehabilitating and monitoring burned areas, and (9) implementing a litter-control program to reduce the attractiveness of the area to opportunistic predators.

Mexican spotted owl

The proposed action includes wildfire suppression and wildland fire use activities that could directly and indirectly affect the MSO and its habitat. These activities may occur anytime during the year, including during the MSO breeding season, but they are limited by implementation of conservation measures and by appropriate prescriptions for wildland fire use. Other fire management activities would not occur in or near MSO habitat, and would not affect the species.

Effects of Wildland Fire Use on the Mexican spotted owl

The use of wildland fire as a management tool is a discretionary action. As such, the effects of the proposed action include the effects of the managed fire itself, as well as any suppression or rehabilitation that may accompany it. This differs from the effects associated with wildfire suppression, where the wildfire is considered a baseline-level effect and only the effects of

suppression activities and general effects of rehabilitation are considered. It is possible that a wildland fire use fire could escape. We understand that this is not the intent of such projects and that an escaped fire situation will trigger immediate suppression decisions and activities. In this case, coordination with the FWS and any subsequent emergency consultation will be conducted under the fire suppression procedures outlined in this BO.

Wildland fire use activities are unlikely to result in direct death of an adult MSO or juveniles because these activities would not occur within protected or occupied MSO habitat, surveys would occur in restricted MSO habitat prior to wildland fire use activities, and MSO surveys completed to date have not located resident MSOs on LMNRA-administered lands.

Wildland fire use activities may occur in restricted MSO habitat where surveys have not located resident MSO. These activities may result in temporary indirect effects to non-resident (dispersing/wintering) MSO from (1) a reduction in MSO prey species due to changes in prey species habitat and (2) changes in MSO habitat structure.

The effects of fire on the prey base of the spotted owl are complex and are dependent on the variations in fire characteristics and in prey habitat. Fire intensity, size, and behavior are influenced by numerous factors such as vegetation type, moisture, fuel loads, weather, season, and topography. Fire can effectively alter vegetation structure and composition thereby affecting small mammal habitat. A reduction in prey species may occur in burned areas for the first growing season after a burn. Prey species composition may change slightly in burned areas due to changes in vegetation characteristics and composition, but prey availability will likely return to similar conditions during and after the next growing season. Canopy closure in the forested areas is not expected to measurably change. Ground, herbaceous, and shrub cover may be decreased substantially in scattered, high-intensity burn patches. These changes will alter habitat characteristics for some prey species, with some species' numbers likely increasing and some decreasing. Wildland fire use activities may result in changes to MSO habitat structure (snags, downed logs, woody debris, multi-storied canopies, dense canopy cover, etc.), and potentially result in relocation of owls. However, because wildland fire use fires would be managed primarily as low-intensity fires with only scattered high-intensity patches, and would occur only in unoccupied restricted habitat, indirect effects are unlikely to adversely affect the survival and reproduction of any owls that may be in the area.

Effects of Wildfire Suppression on the Mexican spotted owl

Wildfire suppression actions could occur in areas that may be occupied by MSO. These actions are unlikely to result in the direct death of an adult MSO or juveniles late in the breeding season because of their mobility during wildfire suppression actions. Wildfire suppression actions could result in the death of nestlings or juveniles early in the breeding season due to their lack of mobility (as compared to adults) if owls are present and reproduction occurs. Nestlings or juveniles could be killed by management actions to suppress the fire, such as fire line construction and aerial retardant drops. The likelihood of this mortality is low; MSO have not yet been detected on LMNRA-administered lands and LMNRA has included conservation measures in the proposed action that would limit or avoid actions that may affect MSO survival or reproduction (measures 2, 3, 6, 8, 10, 11, and 12).

Wildfire suppression actions may result in temporary indirect effects to resident and/or non-resident (wintering/dispersing) MSO within LMNRA from noise or visual disturbance, smoke, heat, changes to MSO habitat structure, and a reduction in MSO prey species due to changes in prey species habitat.

Visual or noise disturbance, smoke, or heat in or near occupied habitat within the action area may result in adult MSO or juveniles (late breeding season) moving away from the disturbance, or in other temporary changes in their activities to avoid these impacts; however, impacts would be minimal and likely to occur only during suppression actions. These disturbances may impact nestlings or juveniles early in the breeding season because of their lack of mobility. These disturbances may result in additional stress and disruption of activities (including feeding), but these effects would be temporary, and stress and activities would return to pre-disturbance levels once suppression actions in the immediate vicinity of owls end. See the "Wildland Fire Use" section above for a discussion on the effects of fire on MSO habitat structure and prey species. Because MSO have not yet been detected on LMNRA-administered lands, these indirect effects are unlikely to adversely affect the MSO.

In summary, we believe that direct effects of wildfire suppression actions could result in the death of MSO nestlings or juveniles early in the breeding season, however the likelihood of this mortality is low. We further believe that indirect effects resulting from wildfire suppression and wildland fire use activities are unlikely to adversely affect the survival and reproduction of any owls that may be in the action 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 BO. 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 ESA.

Mojave desert tortoise

As the human population continues to grow in Las Vegas and surrounding areas, recreation at LMNRA and associated impacts will continue to increase.

Mexican spotted owl

MSO habitat within the action area occurs entirely on Federal land, and therefore non-Federal actions are likely to be minimal. Private actions that are likely to occur within the action area include various forms of recreation in MSO habitat. Such recreation can result in a variety of effects to MSO, primarily through disturbance to owls. However, recreation effects are likely minimal to nonexistent given the remote and inaccessible nature of MSO habitat. We do not consider cumulative effects to be a significant factor in the overall effects analysis.

CONCLUSION

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

Mojave desert tortoise

After reviewing the current status of the Mojave desert tortoise, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, it is our biological opinion that the action, as proposed, is not likely to jeopardize the continued existence of the Mojave desert tortoise and is not likely to destroy or adversely modify desert tortoise critical habitat. We base these conclusions on the following:

1. Wildfire suppression would provide a net conservation benefit to the desert tortoise.

2. Desert tortoise densities are generally low in LMNRA.

3. Measures have been proposed by LMNRA to substantially minimize the effects of the proposed action.

4. Only a small number of desert tortoises are anticipated to be adversely affected by the proposed action.

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

action, as proposed, is not likely to jeopardize the continued existence of the MSO. We base this conclusion on the following:

1. Though surveys across LMNRA-administered lands have not been completed in all MSO habitats that may be occupied, surveys completed to date have not located resident MSOs.

2. The proposed action is intended to protect MSO habitat from damage resulting from a severe crown fire, preserving its use by nesting, dispersing and/or foraging MSOs.

3. Measures have been proposed by LMNRA to substantially minimize the effects of the proposed action.

INCIDENTAL TAKE STATEMENT

Section 9 of the ESA and Federal regulation pursuant to section 4(d) of the ESA 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 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 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 ESA 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 agency so that they become binding conditions of any future action proposed under the aegis of the proposed FMP, as appropriate, for the exemption in section 7(o)(2) to apply. The NPS has a continuing duty to regulate the activity covered by this incidental take statement. If the NPS: (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 agency must report through the progress of the action and its impact on the species to the FWS as specified in the incidental take statement (50 CFR §402.14(i)(3)).

AMOUNT OR EXTENT OF TAKE

Mojave desert tortoise

We anticipate that incidental take of tortoises could occur as a result of wildfire suppression activities. Although the specifics and details of future wildfires are unknown, based on protective measures proposed by LMNRA and the previous history of wildfire suppression activities in desert tortoise habitat, we estimate that no more than one desert tortoise per calendar

year may be incidentally injured or killed by the following activities: (1) operation of vehicles and equipment, (2) construction of fire lines, (3) use of retardants, and (4) setting of backfires. If two or more desert tortoises are found dead or injured during any calendar year due to fire suppression actions, activities should proceed, however LMNRA shall contact the FWS once the wildfire is under control to reinitiate consultation. This threshold is intended to determine whether certain activities or circumstances may be affecting desert tortoises more than we anticipated.

All desert tortoises found in harm's way during fire suppression activities may be harassed by capture and removal. Based on encounter rates on previous wildfires on LMNRA, we estimate that no more than five desert tortoises may be harassed by capture and removal during fire suppression activities, per calendar year.

No desert tortoise eggs are anticipated to be destroyed during project activities.

We do not anticipate the proposed wildland fire use, prescribed fire, or vegetation treatments will incidentally take any Mojave desert tortoises. These activities will not be conducted within suitable, occupied, or designated desert tortoise critical habitat.

To ensure that the protective measures are effective and are being properly implemented, LMNRA shall contact the FWS immediately if a desert tortoise is killed or injured as a result of wildfire suppression activities. Upon locating a dead or injured desert tortoise within the action area, notification must be made to the Ecological Services Division of the FWS at the following numbers: In Nevada, contact the Southern Nevada Field Office at (702) 515-5230; and in Arizona contact the Arizona Ecological Services Flagstaff Suboffice at (928) 226-0614. At that time, the FWS and LMNRA shall review the circumstances surrounding the incident to determine whether additional protective measures are required.

Mexican spotted owl

We do not anticipate that the proposed action will incidentally take MSO.

EFFECT OF THE TAKE

In this biological opinion we determined that this level of anticipated take is not likely to result in jeopardy to the Mojave desert tortoise or result in destruction or adverse modification of critical habitat for the Mojave desert tortoise.

REASONABLE AND PRUDENT MEASURES WITH TERMS AND CONDITIONS

The FWS believes that the following reasonable and prudent measures (RPMs), which are implemented by their accompanying terms and conditions (T&Cs), are necessary and appropriate to minimize take of Mojave desert tortoise. In order to be exempt from the prohibitions of section 9 of the ESA, you must comply with the RPMs and their accompanying T&Cs. These T&Cs are non-discretionary.

Mojave desert tortoise

1. LMNRA shall implement desert tortoise education and monitoring programs.

    A. Before the beginning of each fire season, a desert tortoise education program will be presented to all personnel anticipated to be onsite during wildfire suppression activities. This program will contain information concerning the biology and distribution of the desert tortoise, its legal status and occurrence in the proposed project area, the definition of take and associated penalties, measures designed to minimize the effects of construction activities, the means by which employees can facilitate this process, and reporting requirements to be implemented when tortoises are encountered. Following training of project staff, each trained individual will sign a completion sheet to be placed on file at LMNRA.

    B. Resource Advisors designated to coordinate desert tortoise and other resource concerns during wildfire suppression activities shall be trained as monitors. Both Resource Advisors and monitors shall be designated to oversee wildfire suppression activities; to ensure protective measures endorsed by the Incident Commander are implemented; to survey prospective campsites, aircraft landing and fueling sites; and to perform other duties necessary to ensure adverse effects to desert tortoises and their habitat are minimized.

    C. LMNRA shall conduct post-wildfire suppression surveys to identify desert tortoise mortalities along the vehicle travel routes. The Resource Advisor will record each observation of desert tortoise handled. Information will include the following: Location, date and time of observation, whether tortoise was handled, general health and whether it voided its bladder, location tortoise was moved from and location moved to, and unique physical characteristics of each tortoise.

2. LMNRA shall move tortoises out of harm's way as needed to avoid injury or mortality to tortoises.

    A. If a desert tortoise is found in harm's way, it shall be moved by an authorized biologist and released in the closest suitable habitat that removes the tortoise from potential harm, but within 2 miles from the point of collection. The tortoise shall be handled in accordance with FWS-approved protocol (Desert Tortoise Council 1994, revised 1999). If the tortoise cannot be released safely, the Resource Advisor shall contact the FWS's Arizona Ecological Services Flagstaff Suboffice if in Arizona at (928) 226-0614 or if in Nevada, the FWS's Southern Nevada Field Office at (702) 515-5230, for instructions.

    B. Any tortoise found within one hour before nightfall or under circumstances that would not allow the tortoise to be safely moved and released, will be placed in a separate clean cardboard box and held in a cool, predator-free location. The box will be covered and kept upright at all times to minimize stress to the tortoise. Each box will be used once and then disposed of properly. The tortoise will be released the next day in a safe location nearest to the point of capture as possible. Each tortoise will be handled with new disposable latex gloves. After use, the gloves will be properly discarded and a fresh set used for each subsequent tortoise handling. All desert tortoises will be handled in accordance with FWS-approved protocol, which

was prepared by the Desert Tortoise Council (1994, revised 1999).

3. To the degree possible, LMNRA shall locate activities away from desert tortoises and their burrows.

A. To the maximum extent practicable, campsites, aircraft landing and fueling areas, and staging areas shall be located outside of desert tortoise habitat, or in locations that are previously disturbed, in consultation with the designated Resource Advisor. If areas of such activity must be located in desert tortoise habitat, 100-percent coverage surveys of the site shall be conducted by an authorized biologist or qualified Resource Advisor. Any tortoise found shall be handled and moved in accordance with T&C 2.B. above.

B. If a desert tortoise burrow is found in a potential impact area, efforts shall be taken to avoid the burrow. If disturbance to the burrow is unavoidable, it shall be excavated. If a desert tortoise or nest is found, it shall be relocated by an authorized biologist in accordance with FWS approved protocol (Desert Tortoise Council 1994, as revised).

C. If off-road vehicle travel in tortoise habitat is necessary, potential impacts to the desert tortoise shall be avoided to the maximum extent possible by directing vehicles around tortoise burrows. If impacts cannot be avoided, any desert tortoise in the path of the vehicle shall be moved from harm's way in accordance with T&C 2.B.

D. Fire-related vehicles shall drive slow enough to ensure that tortoises on the roads or in the path of the vehicle can be identified and avoided.

4. LMNRA shall reduce desert tortoise habitat destruction and/or modification.

A. The Resource Advisor may authorize the limited use of tracked vehicles or similar equipment in desert tortoise habitat if he/she believes that the wildfire is serious enough that direct mortality of desert tortoise and habitat loss would result from the wildfire, and other means of control will not effectively prevent spread of wildfire.

B. LMNRA shall ensure that, to the extent possible, vehicle tracks made during wildfire suppression activities, especially those of tracked vehicles, are obliterated and appropriate measures are taken to minimize the potential access and use of these tracks by the public, which may include placement of large material at potential entry points.

C. Revegetation conducted during any burned area rehabilitation shall occur using native species from genetic stocks originating in LMNRA, which would replace plants lost as a result of the wildfire or are representative of plant species adjacent to the burned area. Revegetation shall attempt to reconstruct the natural spacing, abundance, and diversity of native plant species. No imported topsoil or hay bales shall be used during revegetation, in an effort to avoid introduction of non-native plant species or inappropriate genetic stock of native plant species.

D. All firefighting vehicles and equipment shall be pressure washed and/or steam cleaned to ensure that they are free of alien plant materials before entering LMNRA, except where doing so would slow the response to a wildfire.

Review Requirement

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

Disposition of dead or injured listed species

Arizona

Upon locating a dead, injured, or sick listed species, initial notification must be made to the FWS's Law Enforcement Office, 2450 W. Broadway Rd., Suite113, 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.

Nevada

Upon locating a dead, injured, or sick listed species, initial notification must be made to the FWS's Division of Law Enforcement in Las Vegas, Nevada, at (702) 388-6380.

Care must be taken in handling sick or injured animals to ensure effective treatment and care, and in handling dead specimens to preserve biological material in the best possible state for later analysis of cause of death. In conjunction with the care of sick or injured listed species or preservation of biological materials from a dead animal, the finder has the responsibility to carry out instructions provided by FWS Law Enforcement to ensure that evidence intrinsic to the specimen is not unnecessarily disturbed. All deaths, injuries, and illnesses of listed species, whether associated with project activities or not, will be summarized in the annual report.

The following actions should be taken for injured or dead tortoises if directed by FWS Law Enforcement:

> Injured desert tortoises shall be delivered to any qualified veterinarian for appropriate treatment or disposal. Dead desert tortoises suitable for preparation as museum specimens shall be frozen immediately and provided to an institution holding appropriate Federal and State permits per their instructions. Should no institutions want the desert tortoise specimens, or if it is determined that they are too damaged (crushed, spoiled, etc.) for preparation as a museum specimen, then they may be buried away from the project area or cremated, upon authorization by FWS Law Enforcement. LMNRA or the project proponent shall bear the cost of any required treatment of injured desert tortoises, euthanasia of sick desert tortoises, or cremation of dead desert

tortoises. Should sick or injured desert tortoises be treated by a veterinarian and survive, they may be transferred as directed by the FWS.

CONSERVATION RECOMMENDATIONS

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

We recommend that you:

1. Collect data on the effects of fire retardant on the desert tortoise and its habitat if retardant is used on LMNRA.

2. Coordinate with Grand Canyon National Park to survey canyon areas within and adjacent to LMNRA that may contain suitable MSO habitat.

3. Coordinate all fire management activities that may affect the relict leopard frog (*Rana onca*) with the Relict Leopard Frog Conservation Team to avoid adverse impacts to current and future relict leopard frog sites.

4. Work towards restoring native riparian vegetation in sites that have the potential to support future breeding habitat for the southwestern willow flycatcher.

5. Consider recommendations included in Appendix K of the Southwestern Willow Flycatcher Recovery Plan (USFWS 2002) when conducting habitat restoration at tamarisk treatment sites.

6. Protect and improve potential and existing habitat for bald eagle population maintenance and expansion.

7. Determine essential habitat needed for the continued existence of the southwestern bald eagle; including non-nesting habitat, maintain suitable habitat, and upgrade potential habitat.

8. Continue supporting and participating in listed and sensitive species survey and monitoring efforts on LMNRA-administered lands.

9. Continue to actively participate in the recovery of listed species.

10. Educate employees and your public users about listed and sensitive species.

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

REINITIATION NOTICE

This concludes formal consultation on the action(s) outlined in your 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 and sensitive species from this project. For further information please contact Allen Taylor (x105) or Brenda Smith (x101) of my staff at (928) 226-0614, or Cynthia Martinez of the FWS Southern Nevada Field Office at (702) 515-5230. Please refer to the consultation number in future correspondence concerning this project; Arizona file number 02-21-02-F-0509, Nevada file number 1-5-04-F-519.

/s/ Steven L. Spangle

Attachment

cc: Regional Director, Fish and Wildlife Service, Albuquerque, NM (ARD-ES) (w/attachment)
Assistant Regional Director, Ecological Services, Fish and Wildlife Service, Portland, OR
Field Supervisor, Fish and Wildlife Service, Reno, NV
Assistant Field Supervisor, Fish and Wildlife Service, Las Vegas, NV
Senior Resident Agent, Division of Law Enforcement, Fish and Wildlife Service, Boise, ID
Shaula Hedwall, Fish and Wildlife Service, Flagstaff, AZ
Superintendent, Grand Canyon-Parashant National Monument, St. George, UT
Superintendent, Grand Canyon National Park, Grand Canyon, AZ
Field Manager, Arizona Strip District, BLM, St. George, UT
Field Manager, Las Vegas Field Office, BLM, Las Vegas, NV
State Director, BLM, Phoenix, AZ
State Director, BLM, Reno, NV

Habitat Branch Chief, Arizona Game and Fish Department, Phoenix, AZ
Director, Nevada Department of Wildlife, Reno, NV
Supervisory Biologist – Habitat, Nevada Department of Wildlife, Las Vegas, NV

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APPENDIX A – CONCURRENCE

This appendix contains our concurrences with your "may affect, not likely to adversely affect" determinations for southwestern willow flycatcher, Yuma clapper rail, California condor, and bald eagle. If, in the future, new information is discovered on effects to listed species or their habitat not considered here, including changes in habitat distribution or condition, species distribution, or fire occurrence and the need for suppression actions, these findings may need to be revisited. If new information is discovered such as suppression activities occurring within either suitable listed species habitat or potential unsurveyed listed species habitat when listed species are present, LMNRA should contact the FWS immediately to determine whether emergency consultation and/or reinitiation should occur.

Southwestern willow flycatcher (*Empidonax traillii extimus*)

Because much of Lake Mead and Lake Mohave shorelines lack suitable amounts of riparian vegetation with the proper structural and hydrological characteristics needed by the southwestern willow flycatcher (WIFL), suitable habitat is limited to inflow areas of the Colorado River and other tributaries and major washes. The actual amount of suitable habitat within LMNRA changes over time in response to changes in lake elevation, high flow events at inflow areas, and other factors. LMNRA staff does not currently consider any areas within LMNRA as suitable WIFL habitat.

Surveys for the WIFL within LMNRA have been conducted since 1997. On Lake Mead, surveys have been conducted along the Virgin and Muddy river inflows, at the Overton Wildlife Management Area, and at the Lake Mead Delta. On Lake Mohave, surveys have been conducted at Waterwheel and Rockefeller coves and adjacent areas. Springs at LMNRA generally do not meet habitat requirements for WIFLs and have not been surveyed. Nesting by WIFLs has been documented within and adjacent to LMNRA at the Overton Wildlife Management Area, the Lake Mead Delta, and on the Virgin and Muddy rivers. Occupancy of these areas has been variable from year to year due to floods and other habitat disturbances. No nesting has been documented on Lake Mohave, although birds have been found in the area on dates extending beyond the typical migrating season. Migrating or dispersing WIFLs may use areas not suitable for nesting during spring and fall.

LMNRA has kept records of fire occurrence since 1976 and have no records of wildfires occurring on LMNRA-administered lands in WIFL habitat. The fires that have occurred (estimated at 1 fire per year at Lake Mohave averaging 0.5 acre; less than that at Lake Mead) have been in small, narrow, patchy areas of low shrubby tamarisk. These fires usually burn themselves out or are suppressed using minor suppression actions.

The risk of human-caused wildfires in the inflow areas of LMNRA is low due to limited recreational activity. The amount of use is these areas is not known, however motorized watercraft restrictions and remoteness of the areas reduce recreational use. In addition, the Bureau of Reclamation is currently managing the lake level of Lake Mead at lower surface elevations. There is currently little water in the inflow areas and these areas are not currently suitable for recreational boating or camping (N. Hendricks, NPS, pers. comm. 2003). Lake

levels may rise over the life of the proposed action; however, recreational use of inflow areas is expected to continue at low levels.

Tamarisk treatment areas consist of small isolated patches that form narrow thickets, usually only one tree in width, along linear stream courses. Most, if not all, tamarisk treatments would occur in areas that have no potential breeding habitat for the WIFL.

In addition to measures included in the "Description of the Proposed Action" section to prevent impacts to listed and sensitive species from tamarisk control treatments, LMNRA proposes the measures listed below to minimize effects of the proposed action on the WIFL.

1. Any suitable WIFL habitat that may develop during the life of the FMP would not be treated and would be designated for fire suppression.

2. Treatment activities would not occur in or around potential WIFL habitat during the nesting period (April 1 – September 30) or when WIFLs are present.

3. Surveys for WIFL in accordance with FWS recommended protocol would occur prior to any treatment activities in potential WIFL habitat.

4. If nests or WIFLs are found, these areas would be designated as non-treatment sites.

5. Buffers would be established around known nest sites. LMNRA wildlife biologists would work with FWS on a case-by-case basis to determine appropriate buffers.

6. Prescribed burns would be managed to ensure occupied or suitable unsurveyed WIFL habitat is more than ½ mile from downwind smoke effects during the breeding season (April 1 – September 30).

7. Restoration including planting of native vegetation and seeding would occur on selected tamarisk control treatment sites based on recommendations of the LMNRA restoration specialist.

8. Except where fires are active in occupied habitat, unnecessary low-level aircraft flights would be minimized during the breeding season (April 1 – September 30). Helicopters would approach bucket dip sites at a 90-degree direction to linear habitat to minimize flight time over the habitat corridor and occupied riparian habitats. Helicopter landing sites would be located at least ¼ mile from occupied sites to avoid impacts to WIFLs and their habitat.

9. A 500-foot buffer zone would be established around springs and riparian areas and chemical fire retardants and surfactants would not be used within this zone.

10. Native riparian habitat would be protected and restored.

11. Cowbird populations would be controlled.

12. Known nesting and breeding areas would be closed to recreational use during nesting season.

We concur with your determination that the proposed action may affect, but is not likely to adversely affect, the southwestern willow flycatcher. Our concurrence is based on: 1) the conservation measures that minimize effects of the proposed action; 2) wildfires and associated suppression actions are unlikely to occur within suitable WIFL habitat that may develop within the life of the FMP; 3) suitable WIFL habitat is not currently known to exist within LMNRA.

Yuma clapper rail (*Rallus longirostris yumanensis*)

Yuma clapper rails have been found in cattail marshes in the vicinity of Las Vegas Wash, the Virgin and Muddy rivers above LMNRA, below Davis Dam, and in the lower Grand Canyon. No records exist for LMNRA; however suitable habitat may exist along the upper end of the Overton Arm and the lower portion of Las Vegas Wash.

LMNRA has kept records of fire occurrence since 1976 and have no records of wildfires occurring on LMNRA-administered lands in habitat capable of supporting Yuma clapper rails. The risk of human-caused wildfires in areas of LMNRA where suitable habitat may exist is low due to limited recreational activity. In the Overton Arm, motorized watercraft restrictions and remoteness of the areas reduce recreational use. Las Vegas Wash and adjacent areas in Las Vegas Bay receive little recreational use due to water quality issues and heavy siltation. In addition, the Bureau of Reclamation is currently managing the lake level of Lake Mead at lower surface elevations. There is currently little water in the inflow areas and these areas are not currently suitable for recreational boating or camping (as stated above). Water surface elevations may rise over the life of the proposed action; however, recreational use of inflow areas is expected to continue at low levels. Under these conditions, wildfires and associated suppression actions are unlikely to occur within suitable rail habitat that may be present on LMNRA.

In addition to measures included in the "Description of the Proposed Action" section to prevent impacts to listed and sensitive species from tamarisk control treatments, LMNRA proposes the measures listed below to minimize effects of the proposed action on the Yuma clapper rail.

1. A 500-foot buffer zone would be established around springs and riparian areas and no chemical fire retardants or surfactants would be used within this zone.

2. Rail surveys would occur prior to treatment activities according to the FWS recommended protocol.

3. If nests or rails are found, these areas would be designated as non-treatment sites.

4. Treatments would not occur in or adjacent to potential rail habitat between March 15 and September 1 to avoid rail breeding and molting seasons or when rails are present.
5. Any suitable rail habitat that may develop during the life of the FMP would not be treated and would be designated for fire suppression.

6. Protect and restore native riparian habitat.

7. Monitor potential rail habitat in accordance with FWS protocol.

8. Close known nesting and breeding areas to recreational use during nesting season.

9. Use fire with caution as a habitat management tool.

We concur with your determination that the proposed action may affect, but is not likely to adversely affect, the Yuma clapper rail. Our concurrence is based on: 1) the conservation measures that minimize effects of the proposed action; 2) rails are not known to occur within LMNRA; 3) it is uncertain that suitable rail habitat exists in LMNRA; and 4) wildfires and associated suppression actions are unlikely to occur within suitable rail habitat that may be present or develop within the life of the FMP.

California condor (*Gymnogyps californianus*)

The California condor is a rare visitor to LMNRA. Condors are known to have perched overnight within LMNRA, however they have no established roosts there and the area is not considered part of their home range (C. Parish, The Peregrine Fund, pers. comm. 2004).

LMNRA proposes the measures listed below to minimize effects of the proposed action on any condors that may occur within the action area.

1. If condors are found roosting in portions of the Shivwits region, those areas would not be considered for wildland fire use and would be designated for fire suppression.

2. If condors arrive at any area of human activity associated with fire activities, the birds would be avoided. The assigned Resource Advisor or a qualified wildlife biologist approved by LMNRA would be notified, and only permitted personnel would haze the birds from the area.

3. All camp areas would be kept free from trash.

4. Smoke from wildland fire use or prescribed fires would be managed to minimize negative effects to condors. A potential wildland fire use or prescribed fire event would not be initiated, or an existing event would be modified or terminated, to prevent or stop significant amounts of smoke, or smoke that would remain in place for an extended period of time, or chronic smoke events, from occurring in area(s) where condors are attempting to roost.

5. The Resource Advisor would contact the Peregrine Fund to check on locations of condors during fire activities involving aviation. This information would be communicated to the Incident Commander and aviation personnel.

6. All helicopter dip tanks containing water would be covered when not in use or personnel would be stationed nearby until a cover is in place.

7. Aircraft use at sites where condors are attempting to roost would be minimized.

8. Aircraft would remain 437 yards (400 meters) from condors in the air or on the ground unless safety concerns override this restriction.

9. If airborne condors approach aircraft, aircraft would give up airspace to the extent possible, as long as this action does not jeopardize safety.

10. If any fire retardant or surfactant chemicals must be used in areas where condors are in the vicinity, the application area would be surveyed and any contaminated carcasses would be removed as soon as practical to prevent them from becoming condor food sources.

11. The LMNRA fluid leakage and spill prevention guidelines will be followed at all times.

We concur with your determination that the proposed action may affect, but is not likely to adversely affect, the California condor. Our concurrence is based on: 1) the conservation measures that minimize effects of the proposed action; and 2) condors are known to only rarely occur within LMNRA.

Bald eagle (*Haliaeetus leucocephalus*)

Bald eagles are found on LMNRA near the lakeshore during the winter months and are not known to nest in the vicinity. They are rare winter visitors to the Shivwits Plateau. Because of the lack of large riparian trees around most of the lakeshores, cliffs are the primary available habitat for eagles. These areas would not be treated under the proposed action. Eagle food sources would not likely be affected by the proposed action. Wildfires and associated wildfire suppression actions are rare during the winter months and are not likely to occur on LMNRA when eagles are present.

LMNRA proposes the measures listed below to minimize effects of the proposed action on eagles.

1. Surveys would continue each winter.

2. Suitable eagle habitat would be not be treated and would be designated for fire suppression.

3. Temporary closures to human access and project implementation would occur within ¼ mile of known bald eagle winter roost areas between October 15 and April 15.
4. No helicopter or aircraft activity or aerial retardant/surfactant application would occur within ½ mile of bald eagle winter roost sites between October 15 and April 15.

5. Prescribed burns would be managed to ensure winter roost sites are more than ½ mile from downwind smoke effects.

6. Except where fires are active in occupied habitat, unnecessary low-level aircraft flights would be minimized between October 15 and April 15 to protect wintering bald eagles. Helicopters would approach bucket dip sites at a 90-degree direction to linear habitat to minimize flight time over the habitat corridor and occupied riparian habitats. Helicopter

landing sites would be located at least ¼ mile from occupied sites to avoid impacts to wintering bald eagles.

We concur with your determination that the proposed action may affect, but is not likely to adversely affect, the bald eagle. Our concurrence is based on: 1) the conservation measures that minimize effects of the proposed action; and 2) wildfires and associated wildfire suppression actions are rare during the winter months and are not likely to occur on LMNRA when eagles are present.

Figure 1. Lake Mead National Recreation Area

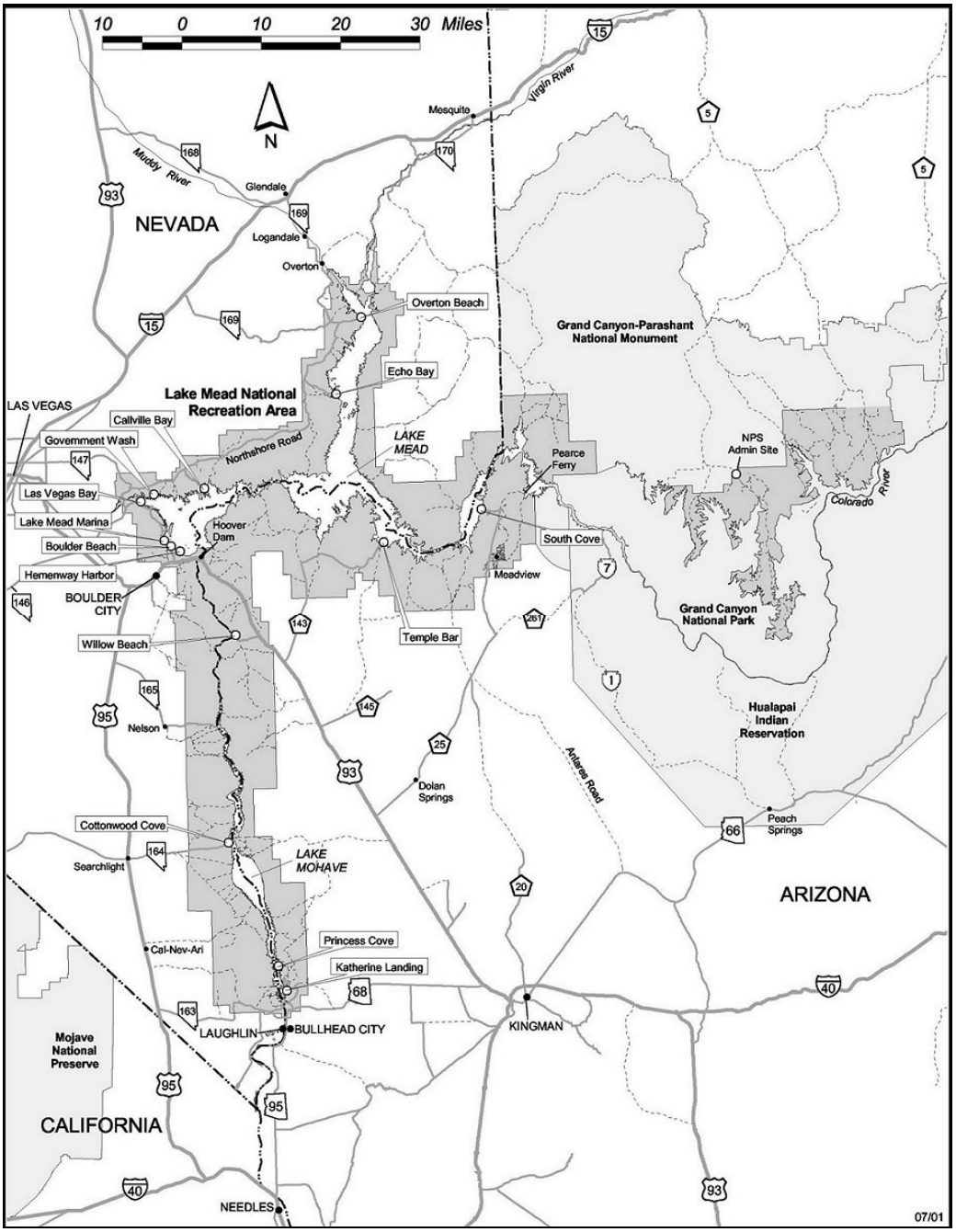

Table 1. Summary of Proposed Action by FMU.

	FMU1	**FMU2A**	**FMU2B**	**FMU3**
Description	Interface Areas Excluding FMU3	Desert Below 6000 ft. Excluding FMU1 and FMU2B	Tamarisk Below 6000 ft. Near Lakeshores	Shivwits Plateau
Size In Acres	60,000	890,000 (separate acreage not determined for FMU2A and FMU2B)		168,000
Vegetation Type	Non-natives including tamarisk, eucalyptus, and oleander	Desert scrub	Tamarisk	Pinyon-juniper, sagebrush, ponderosa pine
Listed Species/Habitat Present And Considered In This BO		Mojave desert tortoise		Mexican spotted owl
Wildfire Suppression	Yes	Yes	Yes	Yes
Fire Retardant	On Approval Only	Yes	On Approval Only	Yes
Wildland Fire Use	No	No	No	Yes, Usually May-Nov.
Prescribed Fire	Yes, Usually April-Nov.	No	Yes, Usually April-Nov.	No
Mechanical Hazardous Fuels Reduction	Yes	No	Yes, Usually Oct.-May	No
Herbicide Treatments	Yes, Oct.-May	No	Yes, Oct.-May	No

DESERT TORTOISE MONITOR AND BIOLOGIST RESPONSIBILITIES AND QUALIFICATIONS

Below is a form that we suggest you complete which would provide necessary information that will allow us to review your qualifications to work with desert tortoise. Please submit this completed form to the requesting agency instead of your resume. The responsibilities and general skills required for *desert tortoise monitors* and *authorized biologists* are identified below.

DESERT TORTOISE MONITOR - Approved by the Fish and Wildlife Service or other agency as designated by the Fish and Wildlife Service to monitor project activities within desert tortoise habitat, ensure proper implementation of protective measures, and report incidents of non-compliance in accordance with biological opinions or permit. Monitors should have sufficient desert tortoise training and field experience to detect the presence of desert tortoises through observations of animals and sign including scat and burrows. A monitor is typically not authorized to handle desert tortoises, or determine presence/absence of desert tortoises or conduct clearance surveys.

AUTHORIZED BIOLOGIST - Approved by the Fish and Wildlife Service or other agency as designated by the Fish and Wildlife Service to conduct activities that may result in "take" of the desert tortoise including locating tortoises and their sign, recording and reporting tortoise and sign observations in accordance with approved protocol, and ensuring that the effects of the project on the desert tortoise and its habitat are minimized in accordance with a biological opinion or permit. "Take" has been defined as actions which "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." An authorized biologist should have thorough knowledge of desert tortoise behavior, natural history, and ecology, and demonstrate substantial field experience and training to successfully:

-handle desert tortoises
-excavate burrows to locate desert tortoise or eggs
-relocate desert tortoises
-reconstruct desert tortoise burrows
-unearth and relocate desert tortoise eggs
-locate, identify, and record all forms of desert tortoise sign
-follow Service-approved protocols.

DESERT TORTOISE BIOLOGIST QUALIFICATIONS STATEMENT

1. Name:	
Address:	
City, State, zip code:	
Phone number:	
Email address:	

2. Date of Statement:

3. States in which authorization is requested (circle all that apply):
   California Nevada Utah Arizona

   If authorization is sought for desert tortoise work under a Biological Opinion, provide the following:
   Biological Opinion File No. (USFWS): _____ Date: _____
   Project Name: _____
   Federal Agency: _____
   Proponent or Contractor: _____

4. Desert tortoise training:
   Dates (dd/mm/year): _____
   Location: _____
   Instructor/sponsor: _____

5. Education: Provide up to three:

Institution	1.	2.	3.
Dates attended			
Major/minor			
Degree			

6. Specify project and/or activities anticipated that require authorization (*e.g.,* capture/release, weigh, measure, attach and remove telemetry devices and other hardware, withdraw blood, etc.). Complete pages 4-5 of this form if you seek approval to attach/remove/insert any devices or equipment to/into tortoises, withdraw blood, or conduct other procedures on desert tortoises.
   _____
   _____
   _____

7. If you hold, or have you held, any state or federal wildlife permits, provide the following:
   Dates: _____
   Species: _____
   State (specify) or Federal Permit and number: _____
   Authorized activities: _____

8. Experience. Complete for each position held. Include **only** those positions that involved desert tortoise experience. Distinguish between Mojave and Sonoran desert tortoise experience. Include only **your** experience, not information for the project you worked on (*e.g.,* if 100 desert tortoises were handled on a project and you handled 5 of those desert tortoises, include only those 5).

a. General Field Experience:

Project Name: _____

Your Position: _____

Responsibilities and skills used or acquired:

_____

_____

_____

_____

_____

_____

Dates (dd/mm/year): From: To:

Total field experience: For all projects and activities provide the following information. Provide experience involving attachment/removal/insertion of any devices or equipment to/into tortoises, or withdrawal of blood from desert tortoises on pages 4-5 of this form.

- No. of hours _____ or 8-hr. days _____ conducting desert tortoise-related activities.
- *No. of wild, free-ranging desert tortoises you encountered: <100 mm carapace length _____
  >100 mm carapace length _____
- *No. of wild, free-ranging desert tortoises you personally handled: _____
- No. of transect miles/kilometers walked: _____
- Prior authorizations for desert tortoise under Biological Opinions (specify number, date, and project and location if known):

*Do not include numbers of captive-held tortoises encountered or held.

b. References that can verify your field qualifications and skills. Provide information on the right for up to 3.

Name:
Employer/Position:
Address/location:
Phone no.:
Email:

Name:
Employer/Position:
Address/location:
Phone no.:
Email:

Name:
Employer/Position:
Address/location:
Phone no.:
Email:

9. Other Experience. Provide your experience with the following procedures involving desert tortoises. You may include experience with other tortoises; if so, specify species.

a. Experience Attaching and removing of telemetry devices.

- No. of telemetry devices observed attached to, or removed (specify) from desert tortoise(s) and size class of desert tortoise, as part of a training effort by a qualified individual:
  Wild, free-ranging _____ Captive _____ Size class (see note below) _____
- No. of telemetry devices you assisted in attaching to, or removing (specify) from and size class of desert tortoise(s), as part of a training effort by a qualified (supervising) individual:
  Wild, free-ranging _____ Captive _____ Size class (see note below) _____
- No. of telemetry devices you attached to, or removed (specify) from desert tortoise(s) and size class of desert tortoise(s), unsupervised or not part of a training effort.
  Wild, free-ranging _____ Captive _____ Size class (see note below) _____

NOTE: Size classes based on mid-carapace length: A = <100 mm; B = 100-180 mm; C = >180 mm

Dates (dd/mm/year): From: To:

Identify permit or Biological Opinion that authorized the above activities.

Reference that can verify your experience and skills.	Reference that can verify your experience and skills.
Name:	Name:
Employer/Position:	Employer/Position:
Address/location:	Address/location:
Phone no.:	Phone no.:
Email:	Email:

b. Experience Withdrawing Blood from Desert Tortoises.

- No. of observations of the blood-withdrawal process on desert tortoises and size class of desert tortoise(s), as part of a training effort by a qualified individual:
  Wild, free-ranging _____ Captive _____ Size class (see note below) _____
- No. of blood-withdrawal processes during which you assisted, and size class of desert tortoise(s), as part of a training effort by a qualified (supervising) individual:
  Wild, free-ranging _____ Captive _____ Size class (see note below) _____
- No. of blood-withdrawal events that you conducted, and size class of desert tortoise(s), in an

unsupervised setting which was not part of a training effort. Wild, free-ranging _____ Captive _____ Size class (see note below) _____ NOTE: Size classes based on mid-carapace length: A = <100 mm; B = 100-180 mm; C = >180 mm
Dates (dd/mm/year): From: To:
Identify permit that authorized the above activities.

Reference that can verify your experience and skills. Name: Employer/Position: Address/location: Phone no.: Email:	Reference that can verify your experience and skills. Name: Employer/Position: Address/location: Phone no.: Email:

c. Experience Implanting Identification Tags into Tortoises.

- No. of observations of the tag-insertion process on desert tortoises and size class of desert tortoise(s), as part of a training effort by a qualified individual:
  Wild, free-ranging _____ Captive _____ Size class (see note below) _____
- No. of tag-insertion events during which you assisted, and size class of desert tortoise(s), as part of a training effort by a qualified (supervising) individual:
  Wild, free-ranging _____ Captive _____ Size class (see note below) _____
- No. of tag-insertion events that you conducted, and size class of tortoise(s), in an unsupervised setting which was not part of a training effort.
  Wild, free-ranging _____ Captive _____ Size class (see note below) _____

NOTE: Size classes based on mid-carapace length: A = <100 mm; B = 100-180 mm; C = >180 mm

Dates (dd/mm/year): From: To:

Identify permit that authorized the above activities.

Reference that can verify your experience and skills.	Reference that can verify your experience and skills.
Name:	Name:
Employer/Position:	Employer/Position:
Address/location:	Address/location:
Phone no.:	Phone no.:
Email:	Email:

d. Experience Conducting Other Procedures on Desert Tortoises. Specify the following:

- No. of observations of procedure and size class of desert tortoise(s), as part of a training effort by a qualified individual:
  Wild, free-ranging _____ Captive _____ Size class (see note below) _____
- No. of procedures in which you assisted, and size of desert tortoise(s), as part of a training effort by a qualified (supervising) individual:
  Wild, free-ranging _____ Captive _____ Size class (see note below) _____
- No. of procedures that you conducted, and size of desert tortoise(s), in an unsupervised setting which was not part of a training effort.
  Wild, free-ranging _____ Captive _____ Size class (see note below) _____

NOTE: Size classes based on mid-carapace length: A = <100 mm; B = 100-180 mm; C = >180 mm

Dates (dd/mm/year): From: To:

Identify permit that authorized the above activities.	
Reference that can verify your experience and skills. Name: Employer/Position: Address/location: Phone no.: Email:	Reference that can verify your experience and skills. Name: Employer/Position: Address/location: Phone no.: Email:

I certify that the information submitted in this form is complete and accurate to the best of my knowledge and belief. I understand that any false statement herein may subject me to the criminal penalties of 18 U.S.C. 1001.

Signed: _____ Date: _____