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In Reply Refer To:
AESO/SE
02-21-05-F-0772

April 28, 2006

Memorandum

To: District Manager, Arizona Strip District, Bureau of Land Management, St. George, Utah

From: Field Supervisor

Subject: Biological Opinion for Fire Rehabilitation Plans in Mojave Desert Tortoise Habitat

Thank you for your request for formal consultation with the U.S. Fish and Wildlife Service (FWS) pursuant to section 7 of the Endangered Species Act of 1973 (16 U.S.C. 1531-1544), as amended (Act). Your request was dated March 8, 2006, and received by us on March 13, 2006. At issue are impacts that may result from the proposed Fire Rehabilitation Plans in Mojave Desert Tortoise Habitat, located in Mohave County, Arizona. The proposed action may affect the threatened Mojave desert tortoise (*Gopherus agassizii xerobates*) and its designated critical habitat.

This biological opinion is based on information provided in the March 2006 biological assessment, the December 2005 environmental assessment (EA-AZ-130-2006-0008), Finding of No Significant Impact, telephone conversations, literature, and other sources of information. Literature cited in this biological opinion is not a complete bibliography of all literature available on the species of concern, stabilization and rehabilitation activities and their effects, or on other subjects considered in this opinion. A complete administrative record of this consultation is on file at this office.

CONSULTATION HISTORY

This section summarizes important steps in this consultation process. Additional correspondence, email transmissions, telephone conversation records, and conference calls that occurred between August 2005 and January 2006 are documented in the administrative record for this consultation.

August 23, 2005: You contacted us about plans to reseed desert tortoise habitat burned by wildfires.

August 2005 to March 2006: We participated in telephone calls and exchanged emails to develop the proposed action and conservation measures.

March 13, 2006: We received the biological assessment and request for formal consultation.

March 30, 2006: We sent you a draft biological opinion.

April 25, 2006: We received your comments on the draft biological opinion.

April 28, 2006: We sent you the final biological opinion.

BIOLOGICAL OPINION

DESCRIPTION OF THE PROPOSED ACTION

The Bureau of Land Management (BLM) proposes to stabilize soils in five wildfire areas and initiate vegetative recovery of burned Mojave desert tortoise habitat through a variety of treatments. Wildfires during summer 2005 burned approximately 89,444 acres within the Pakoon Basin of the Grand Canyon Parashant National Monument. Approximately 36,057 acres are located within the Gold Butte-Pakoon desert tortoise critical habitat unit. Four of the rehabilitation project areas contain suitable habitat for desert tortoise (Table 1). Cedar Wash, Cockscomb, and Jacob fires are located in the northwestern portion of the Pakoon Basin, each one to three miles apart. The Brumley Fire, although located in the same vicinity, does not contain suitable desert tortoise habitat; however, approximately 0.5 mile of cross-country access to the fire is within desert tortoise habitat. The Nevershine Fire is approximately 20 miles south and slightly east, near Lake Mead National Recreation Area, and is totally contained within the Pakoon Area of Critical Environmental Concern (ACEC).

BLM will use a combination of treatments, including aerial seed application, mechanical seed incorporation, and grazing exclusion (fencing) for rehabilitation of each fire. A portion of each fire will not be treated and will serve as a control. Individual treatment locations have been delineated and mapped (Figures 1-5), and acres for each treatment and combination of treatments are included in Table 2.

Access to Cedar Wash, Cockscomb, and Jacob Fires will be by existing roads. Access to the Brumley Fire will be by existing roads and 0.5 miles of new access trail from the west. Access to Nevershine Fire will be by existing roads and approximately 0.75 miles of new trail from the north. New trails will be accessed only with all-terrain vehicles (ATVs), will be visually obscured from existing roads to discourage use, and will be rehabilitated following implementation of all treatments.

Fence Construction

In order to protect the treatments from grazing pressure by livestock and burros while plants are becoming established, the BLM proposes to construct a total of 14 miles of fence, excluding grazing from each fire (Table 2). Fences will be constructed as soon as possible to protect vegetation that is sprouting in these areas. Fence construction will occur during the desert

tortoise period of activity (March 15 to October 15). ATVs will be used to transport fence materials; tracks will be obliterated following construction. The fence around each fire will remain in place until treatment objectives are met, or until BLM determines that objectives cannot be met.

Seeding

BLM proposes to apply a seed mix of native species to each of the fires (Table 2), totaling 1,217 acres. Seed will be applied by helicopter or manually between October 15 and November 1, 2006. The seed mix will include native indigenous plant species, but may vary depending on seed availability. The mix, as currently planned, will include:

Sand dropseed (*Sporobolus cryptandrus*)
 Indian ricegrass (*Oryzopsis hymenoides*)
 Western wheatgrass (*Agropyron smithii*)
 Desert needlegrass (*Stipa speciosa*)
 Desert marigold (*Baileya multiradiata*)
 Palmer's penstemon (*Penstemon palmeri*)
 White evening primrose (*Oenothera caespitosa*)
 Arizona lupine (*Lupinus arizonicus*)
 Creosotebush (*Larrea tridentata*)
 Nevada ephedra (*Ephedra nevadensis*)

Seed Incorporation

Portions of the reseeded areas will be disturbed in order to test seed incorporation as a means to improve the germination and establishment success of the seeded species. Seed will be incorporated by dragging small bushy trees or shrubs behind ATVs on each of the fires. Seed will be incorporated on about one-half of the area seeded, a total of 671.7 acres (Table 2). Seed will be incorporated between November 1 and December 15, 2006.

Monitoring

Treatments in each fire will be monitored at either existing or new monitoring sites. Vegetation objectives for each monitoring location will be developed based on the applicable ecological site potentials, considering the effects of the wildfires and treatments. Vegetation parameters that will be monitored include frequency, species composition, basal cover, and canopy cover. Success of the treatments will be measured using the following components: seedling survival; perennial native plant frequency; species composition; percent bare ground and effective ground cover (rock, litter, and vegetation); and invasive or noxious plant occurrence. Generally, the treatment will be considered successful by achieving 40% or greater perennial plant frequency and/or 15% or greater total perennial plant cover, by the fall of 2009.

Data collection will begin in summer of 2007 and will be repeated in 2008 and 2009. BLM will produce a summary of these data each year. In addition to the monitoring outlined above, the

U.S. Geological Survey (USGS) proposes to intensively monitor each treatment and the controls for each fire.

Noxious Weed Management

BLM will evaluate any proposed treatments of noxious weed infestations through site-specific National Environmental Policy Act (NEPA) analysis. Potential impacts from these treatments have not been considered in this opinion and may require consultation in the future.

Conservation Measures

1. An authorized biologist or desert tortoise monitor¹ will present a desert tortoise education program to all project personnel who may encounter tortoises during project activities, prior to initiation of activities that may result in disturbance of desert tortoise habitat or death or injury of tortoises. The program instructor will sign the attendance roster for this program, as well as those in attendance, and the roster will be submitted with the annual report documentation. The education program will include the following:
 - Legal protection of the desert tortoise and sensitivity of the species to human activities;
 - A brief discussion of desert tortoise distribution and ecology;
 - The conservation measures and terms and conditions of this biological opinion;
 - Project features designed to reduce adverse effects to desert tortoises and their habitat, and to promote the species' long-term survival;
 - Protocols to use during encounters with desert tortoises and associated reporting requirements. Currently, the FWS-approved protocol is the Desert Tortoise Council document *Guidelines for handling desert tortoises during construction projects*; and
 - The definition of take and penalties for violations of Federal and State laws.
2. Areas that will be disturbed due to ATV use during access, seed incorporation, and fence construction will be flagged or marked on the ground prior to these activities.
3. The BLM will ensure that tortoise burrows are avoided whenever possible and that disturbance is limited to the minimum necessary. If a tortoise is found onsite during project activities and is in harm's way, the tortoise shall be moved by a desert tortoise monitor or authorized biologist. If a qualified individual is not onsite, all activities that could create harm to the tortoise will cease until the tortoise moves out of harm's way on its own volition.

¹ Responsibilities and qualifications for desert tortoise monitors and authorized biologists are found in Appendix A.

4. Seed will be incorporated when tortoises are most likely to be inactive (October 15 through March 15).
5. Portions of the Nevershine Fire project area that will be subjected to off-road ATV use will be surveyed by an authorized biologist prior to seed incorporation and fence construction. Surveys will be for the purpose of identifying tortoise burrows. Any burrows located will be flagged and avoided during surface-based project activities.
6. During ATV use on all portions of the project areas that are within desert tortoise habitat, a desert tortoise monitor or authorized biologist will walk ahead of the equipment to watch for any tortoises. If a tortoise is encountered, it will be allowed to move out of harm's way on its own or will be moved by the monitor or authorized biologist. The monitor will maintain a record of all desert tortoises encountered during project activities that includes:
 - Locations and dates of observation
 - General condition and health of the tortoise
 - Whether the animal voided its bladder
 - If moved, location moved from and to
 - Any diagnostic markings
7. During seed incorporation and fence construction, ATVs and seed incorporation devices will avoid existing live native shrubs.
8. Prior to moving any vehicle, personnel will inspect under the vehicle for tortoises. If a tortoise is found under the vehicle, the tortoise will be allowed to move away from the vehicle on its own accord, if possible. Otherwise a desert tortoise monitor or authorized biologist will move the tortoise to a safe locality.
9. A litter-control program will be implemented to reduce the attractiveness of the area to opportunistic predators such as desert kit fox (*Vulpes macrotis*), coyotes (*Canis latrans*), and common ravens (*Corvus corax*). Trash and food items will be disposed of properly in predator-proof containers with re-sealing lids. Trash containers will be emptied and removed from the area and disposed of in an approved landfill at the conclusion of the activity.

Action Area

The action area is defined as that portion of the Pakoon Basin including the Cedar Wash, Cockscomb, Jacob, and Nevershine project boundaries and the access routes to the Brumley and Nevershine fires.

STATUS OF THE SPECIES

MOJAVE DESERT TORTOISE

Status of the Species

The desert tortoise populations north and west of the Colorado River in Arizona and Utah (excluding the Beaver Dam slope population) were listed as endangered under an emergency rule on August 4, 1989 (54 FR 42270). Subsequently, the entire Mojave population of the desert tortoise west of the Colorado River in California and Nevada, and north of the river in Arizona and Utah, including the Beaver Dam slope, was listed as a threatened species on April 2, 1990 (55 FR 12178). Critical habitat was designated in 1994 (59 FR 5820-5846, also see corrections at 59 FR 9032-9036). The Desert Tortoise (Mojave Population) Recovery Plan (Recovery Plan) (USFWS 1994) was signed on June 28, 1994.

The desert tortoise is an arid land reptile associated with desert scrub vegetation types, primarily creosote bush (*Larrea tridentata*) flats, washes, and hillside slopes or bajadas. A robust herbaceous component to the shrubs and cacti of the creosote bush vegetation type is an important component of suitable habitat. Within these vegetation types, desert tortoises potentially can survive and reproduce where their basic habitat requirements are met: a sufficient amount and quality of forage species; shelter sites for protection from predators and environmental extremes; suitable substrates for burrowing, nesting, and over-wintering; various plants for shelter; and adequate area for movement, dispersal, and gene flow. Further information on the range, biology, and ecology of the desert tortoise can be found in the Recovery Plan (USFWS 1994).

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 rain storms. In Arizona, tortoises are considered to be active from approximately March 15 through October 15. Desert tortoises spend the remainder of the year in burrows, escaping the extreme conditions of the desert.

Desert tortoise home range sizes vary with respect to location and year. Over its lifetime, each desert tortoise may require more than 1.5 square miles of habitat and make forays of more than seven miles at a time (Berry 1986). During droughts, tortoises forage over larger areas, increasing the likelihood of injury or mortality through encounters with humans and predators.

Direct loss of tortoises has occurred from 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*), and collisions with vehicles on paved and unpaved roads. Other threats affecting the desert tortoise include 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. Fire is an increasingly important threat because it degrades or eliminates habitat (Appendix D of USFWS 1994). Following wildfire, native plant species are often replaced by

invasive species such as red brome (*Bromus rubens*), resulting in long-term habitat degradation or loss. Over 500,000 acres of desert lands burned in the Mojave Desert in the 1980s and about 500,000 acres burned in the northeastern Mojave Desert in 2005.

The Recovery Plan divides the range of the desert tortoise into six recovery units (RUs) and recommends establishment of 14 Desert Wildlife Management Areas (DWMAs) throughout the RUs. Twelve DWMAs have been designated as ACECs by the BLM through development or modification of their land use plans in Arizona, Nevada, Utah, and parts of California; designation is still underway in the West Mohave planning area in California. Recovery of the desert tortoise may occur at the RU level, which allows populations within each of the six RUs to be recovered and delisted individually. Similarly, the jeopardy and adverse modification standards may be applied within or across RUs. Thus, proposals to implement the Desert Tortoise Recovery Plan in portions of a RU cannot be evaluated with regard to jeopardy or adverse modification in a section 7 consultation without an understanding of proposed or existing management prescriptions occurring elsewhere in the RU.

Permanent plots were established in the 1970s to monitor tortoise populations, and some of these plots were surveyed through 2002. However, surveys in the Northeastern Mojave RU (Nevada, Utah, and Arizona) and some other RUs detected too few live tortoises to determine a population trend. Line distance sampling was used to monitor populations across the range of the desert tortoise from 2001 through 2005. Tortoise populations have declined significantly in the Western Mojave and appear to be declining in the Eastern Mojave RUs in California (Tracy et al. 2004).

In 2003, the U.S. Fish and Wildlife Service convened the Desert Tortoise Recovery Plan Assessment Committee (DTRPAC) to scientifically assess the Desert Tortoise Recovery Plan. The DTRPAC Report (Tracy et al. 2004) produced a number of findings and recommendations that will serve as the basis for revision of the 1994 Recovery Plan. In particular, this report recognizes that threats to the desert tortoise have cumulative, synergistic, and interactive effects, and that tortoise recovery depends on managing multiple threats. Threats facing desert tortoises have been increasing since the 1994 Recovery Plan, including in the Northeastern Mojave RU, and recovery actions have not been fully implemented. The DTRPAC Report also recognizes that tortoise populations may be distributed in metapopulations rather than single, large populations in RUs. In addition to reducing multiple threats within management areas, it is important to protect the corridors among habitat patches. For recovery, tortoise metapopulations require areas of suitable habitat, but these areas may be periodically vacant of tortoises.

Critical Habitat

Twelve areas in Arizona, California, Nevada, and Utah were designated as critical habitat in 1994. Critical habitat units (CHUs) were based on recommendations for DWMAs outlined in the draft Recovery Plan (USFWS 1993). These DWMAs are also identified as “desert tortoise areas of critical environmental concern (ACECs)” by the BLM. Some critical habitat units extend across state lines and are listed below for each state in which they occur. The units are:

- Arizona: Beaver Dam Slope, Gold Butte-Pakoon

- California: Fremont-Kramer, Superior-Cronese, Ord-Rodman, Chuckwalla, Pinto Mountain, Chemehuevi, Ivanpah, Piute-Eldorado
- Nevada: Piute-Eldorado, Mormon Mesa, Gold Butte-Pakoon, Beaver Dam Slope
- Utah: Beaver Dam Slope, Upper Virgin River

Because the CHU boundaries were drawn to optimize reserve design, the CHU may contain both "suitable" and "unsuitable" habitat. Suitable habitat can be generally defined as areas that provide the primary constituent elements of desert tortoise critical habitat:

- Sufficient space to support viable populations within each of the six recovery units and provide for movements, dispersal, and gene flow;
- Sufficient quantity and quality of forage species and the proper soil conditions to provide for the growth of such 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.

At the time of CHU designation, all lands in the CHUs had been impacted by past land management activities to some degree. Appendix D of the Recovery Plan (USFWS 1994) discusses the types of human actions that occurred in desert tortoise habitat before and after the designation of critical habitat that have had effects to the physical habitat components of critical habitat. Designation of most CHUs as DWMAs/ACECs has aided in protection of these areas, particularly by limiting off-highway vehicle use and other ground-disturbing activities, and reducing or eliminating wild burros and livestock grazing in many units.

In 2005, much of the Southwest received nearly twice the average annual winter-spring precipitation. This resulted in lush vegetative growth during spring and summer. Large wildfires occurred across southwestern Utah, southern Nevada, and northwestern Arizona during summer 2005. In the Northeastern Mojave RU, wildfires burned 124,782 acres of critical habitat, approximately 11 percent of the critical habitat in this unit. Most vegetation was burned off during these fires, with a loss of forage available for desert tortoises and loss of shrubs to provide shelter from temperature extremes and predators.

Section 7 consultations since 1994 on various human actions have addressed the effects of those actions on the conservation value of the critical habitat units. The most recent major consultation on the tortoise in California was on the California Desert Conservation Area Plan (USFWS 2002), which contained a summary of the status of the species and its critical habitat in

California. In Nevada, consultations with three BLM offices (Las Vegas, Ely, and Battle Mountain) addressed most impacts to tortoises and designated critical habitat from land management practices. Desert tortoise management in Arizona is covered primarily by the Mohave Amendment to the Arizona Strip Resource Management Plan for BLM lands in northern Arizona (USFWS 1998), which also considered the effects of BLM actions on the conservation value of critical habitat. The desert tortoise is the primary species covered by the Clark County Multiple Species Habitat Conservation Plan (HCP) in Clark County, Nevada (Regional Environmental Consultants 2000) and critical habitat units in Clark County were evaluated in the analysis for that permit. The Washington County HCP in Utah was completed prior to critical habitat designation; however, consultations for Federal actions in that area consider the effects to critical habitat. Effects to critical habitat areas for the desert tortoise are fully included either by existing section 7 consultations or by the existing HCPs. Conservation actions for the species include protection for individuals and habitat.

ENVIRONMENTAL BASELINE

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

A. STATUS OF THE SPECIES WITHIN THE ACTION AREA

Proposed stabilization and rehabilitation activities would occur in the Pakoon Basin, Grand Canyon-Parashant National Monument, in northwestern Mohave County, Arizona. Within this area, desert tortoise habitat occurs within the Mohave Desert scrub community. The most common native perennial plants in the creosote bush series of this community include creosote bush, white bursage (*Ambrosia dumosa*), range ratany (*Krameria parviflora*), and big galleta grass (*Hilaria rigida*). Annual grass and forb production is highly dependent on precipitation and varies from close to zero to as high as 4,000 pounds per acre. Currently, the Pakoon Basin is dominated by invasive, non-native brome species (*Bromus* spp.). These non-native species have increased the fire return interval and reduced the ability of native vegetation to recover from fire.

The action area is located within the Northeastern Mojave RU, which is primarily in Nevada but also extends into California along the Ivanpah Valley and into extreme southwestern Utah and northwestern Arizona. Desert tortoises in this RU, the northern portion of which represents the northernmost distribution of the species, are typically found in low densities (approximately 10 to 20 adults per square mile). The status of the desert tortoise in the action area is not currently known, but this area does not represent a significant portion of the RU.

A total of 338,700 acres were designated as critical habitat in Arizona. The Nevershine Fire is within critical habitat located in the Gold Butte-Pakoon DWMA and the Pakoon ACEC. The Pakoon ACEC (76,014 acres) is contained within that portion of the DWMA in Arizona. The Cedar Wash, Cockscomb, and Jacob Fires also contain critical habitat but are located outside of

the ACEC. Portions of the fires and proposed treatments include areas that did not contain the primary constituent elements of critical habitat for the desert tortoise prior to the wildfires and are not considered to be suitable habitat. Availability of shelter sites appears to be a primary limiting habitat factor (BLM 1995).

For the purposes of this consultation, we are defining desert tortoise habitat as those areas that BLM previously categorized as desert tortoise habitat (within the action area, these included categories 2 and 3 habitat). Although the DWMA and ACEC designations supersede habitat categories, these categories serve to identify, via on-the-ground inspections, those areas containing habitat features essential for desert tortoise survival.

Information on desert tortoise distribution and abundance in the action area is based mainly on line transect data and from one permanent study plot in the Pakoon Basin. The Pakoon Basin Plot (two square miles) was surveyed only once in 1991 and 10 live tortoises were found (six to eight tortoises on section 3 and 9 to 12 on section 4). According to the Recovery Plan, most of the Gold Butte-Pakoon DWMA had densities of 20 adult desert tortoises per square mile (USFWS 1994). The Pakoon Basin plot is the closest survey location to the action area and the most recent data available for this area. University of Nevada – Reno completed line distance sampling within the Northeast Mojave RU during 2001 to 2004. Draft results show density estimates for the RU ranging from 0.94 to 3.20 adult tortoises per square kilometer (2.44 to 8.32 tortoises per square mile) (Roy Averill-Murray, pers. comm., 2006). Based on these data and the lack of additional human-induced impacts over the last 15 years in the area, we estimate that tortoise densities in suitable habitat ranged from 2 to 10 tortoises per square mile through the action area, prior to the wildfires.

Within the Pakoon Basin, 23,918 acres burned in suitable desert tortoise habitat. As a result of last summer's wildfires, the condition of tortoise habitat has been severely degraded, with much of the perennial forb and shrub cover removed by the fires. Some re-sprouting of these plants occurred following monsoon rains. Although biological habitat conditions in the burned habitat have been severely degraded by these fires, we assume that through successful rehabilitation and appropriate management of other uses, such as livestock grazing and dispersed recreation, these areas can recover and reestablish the vegetative characteristics of suitable habitat and critical habitat.

B. FACTORS AFFECTING SPECIES ENVIRONMENT WITHIN THE ACTION AREA

Most of the land within the action area is administered by BLM and is largely protected from development. The Pakoon Basin, because of its remote nature and limited access, has been subjected to relatively few human intrusions that adversely affect desert tortoises and their habitat. The greatest human intrusion has been historic year-round livestock grazing and the development of livestock waters to support the grazing. In 1994, The Desert Tortoise Recovery Team rated the threats to tortoises in this area as level 2 (on a scale of 1 = low to 5 = high). However, this level of threats had increased to level 4 by 2003 (Tracy et al. 2004). The DTRPAC reported that through 2002, 80% of recovery actions had been at least partially implemented in the Gold Butte-Pakoon DWMA (Tracy et al. 2004).

The threat of wildfire is increasing in this area. From 1980 to 1990, 88,152 acres of desert tortoise habitat in the Pakoon Basin burned (USFWS 1994). During 2005, almost 43,000 acres of desert tortoise habitat in the Arizona portion of the DWMA burned (USFWS unpublished data, 2005). Desert perennials are poorly adapted to burning and are replaced by nonnative grasses and weeds following fire. Areas that have been burned by intense fires or that burn repeatedly no longer support desert tortoises because essential habitat features (shrubs for sheltering and perennial plants for forage) have been removed. Other threats that have increased in this area include URTD, OHV use, and other recreational activities that attract predators.

On January 28, 1998, the Arizona Ecological Services Office issued a biological opinion for the proposed amendment to the Arizona Strip Resource Management Plan (RMP) (Mojave Amendment). The RMP amendment expanded the Beaver Dam Slope ACEC and designated the Virgin Slope and the Pakoon DWMA/ACECs, all of which would be managed primarily for recovery of the desert tortoise. The BLM established prescriptions to promote tortoise recovery within DWMA/ACECs and to continue current management outside DWMA/ACECs. These prescriptions included closure of portions of the Pakoon DWMA/ACEC to livestock grazing, removal of wild burros from the Pakoon DWMA/ACEC, additional requirements to reduce disturbance related to leaseable and locatable minerals extraction, closure and rehabilitation of certain routes, full fire suppression within desert tortoise habitat, and other measures. The Arizona Strip District is currently revising the RMP and issued a draft EIS in November 2005. The BLM is proposing to remove the ACEC designation for the Pakoon Basin and to continue to manage the area as a DWMA in accordance with the Recovery Plan, although portions of the area would remain open to fall and winter livestock grazing.

Livestock grazing is currently permitted on the Cottonwood Allotment, which includes the Brumley, Cedar Wash, and Jacob Fires; and a portion of the Mosby-Nay Allotment, which includes the Cockscomb Fire. The Nevershine Fire is located within the Tassi grazing allotment, which was closed to livestock grazing in 1998. However, a few unauthorized cattle remain in this area and have been seen within the Nevershine burned area. BLM reported that while delineating treatment areas in February 2006, some native plants were sprouting and cattle were grazing in these areas.

Wild burros also occur in this area. The Tassi Herd Management Area (HMA) includes the lower end of the Pakoon Basin. Although the allowable management level has been set to zero, some burros still occupy the HMA, and animals can also access the Pakoon Basin from the adjoining HMA in Nevada.

On September 3, 2004, we issued a programmatic biological opinion on BLM's Statewide Resource Management Plan Amendment for Fire, Fuels, and Air Quality Management (file number 02-21-03-F-0210). That opinion considered the effects of fire suppression activities on desert tortoise and its critical habitat within the Arizona Strip and encouraged the protection of occupied tortoise habitat during wildfires. During the June 29, 2005, MOG meeting, managers discussed concern about the effect of ongoing wildfires in desert tortoise habitat and encouraged an aggressive approach to fighting these fires. Because of the concern that burned areas would

be re-colonized with fire-adapted nonnative species, they also encouraged reseeding following the wildfires, depending upon native seed availability.

Other formal consultations have been completed with BLM within the action area on projects including an airstrip expansion and emergency fire suppression.

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.

This biological opinion does not rely on the regulatory definition of “destruction or adverse modification” of critical habitat at 50 CFR 402.2. Instead, we have relied upon the statutory provisions of the Act to complete the following analysis with respect to critical habitat.

The purpose of the project is to reduce competition from non-native invasive species and restore the native desert shrub community following the habitat degradation that resulted from the 2005 wildfires. Wildfires remove dry and many living forage plants. By removing this vegetation, fires alter the thermal environment, increasing the temperature extremes for seeds, residual plants, and tortoises. Fire-adapted species, such as cheatgrass (*Bromus tectorum*) and red brome (*Bromus rubens*), can alter the fire regime by increasing the flammability and continuity of fuels, leading to more frequent and extensive fires (Brooks et al. 2004). Repeated burning of brome grasses prevent the establishment of native shrubs, forbs, and perennial grass communities and increase the dominance of invasive annual species (Harrison et al. 2002). Fires alter the chemical environment by mineralizing nitrogen and making it more readily available for plant uptake, also favoring fire-adapted species such as *Bromus* sp. Overall effects on vegetation vary depending on the intensity of the fire, characteristics of the plants, and post-fire precipitation (Boarman 2002). The treatments are designed to improve the likelihood of success of native revegetation efforts. If successfully reestablished, native species would also restore habitat conditions for desert tortoise by restoring forage species and cover sites.

Project activities with the potential to directly and indirectly affect desert tortoises will occur in suitable and occupied desert tortoise habitat, and in designated critical habitat. Tortoises may be affected by aspects of the project associated with access to and travel within the project sites, and ground disturbance during seed incorporation and fence construction. Table 2 lists the acreage affected by each component of the project within each fire area.

Direct impacts to desert tortoises could occur from crushing of individuals above ground or in burrows by ATVs while traveling cross-country to the Brumley and Nevershine project sites, while using ATVs during seed incorporation on the Cedar Wash, Cockscomb, Jacob, and Nevershine Fires, and while using ATVs to construct fences around each fire. Pre-treatment

surveys of the Nevershine Fire (considered by BLM to be the highest quality desert tortoise habitat) will identify burrows and protect any sites occupied by tortoises and/or eggs through avoidance. This should eliminate loss of any tortoises or eggs in burrows by crushing within the Nevershine treatment area. Incorporating seed between October 15 and December 15 during the desert tortoise period of dormancy should reduce the likelihood of encountering a tortoise above ground. Biological monitors will walk in front of ATVs during fence construction and seed incorporation on all treatment areas, will check any unflagged burrows, and will move any tortoises encountered away from the path of the ATVs.

Tortoises may occasionally emerge from burrows, depending on weather conditions, for short periods during the dormant season. Although the conservation measures should effectively minimize any risk of injury to tortoises, there is a possibility that a tortoise, particularly a hatchling, could be missed by the biological monitor and could be injured or killed by an ATV or by a tree or shrub being dragged during seed incorporation.

Tortoises that are physically moved out of project areas to prevent mortality or injury could be inadvertently harmed if not handled properly. Urine and large amounts of urates are frequently voided during handling and may represent a severe water loss, particularly to juveniles (Luckenbach 1982). Overheating can occur if tortoises are not placed in the shade when ambient temperatures equal or exceed temperature maximums for the species (Desert Tortoise Council 1994, revised 1999). BLM will implement a tortoise education program and protocol for handling desert tortoise, ensuring that only qualified individuals handle tortoises and that tortoises would only be handled if necessary, which should reduce these potential effects.

Loss of burrows and shelter sites could result from ATV travel along the two new access routes and during seed incorporation. Additional loss of forage could occur from dragging trees or shrubs across small live shrubs and perennial vegetation. These actions may temporarily degrade habitat used by tortoises for foraging and sheltering. Since the purpose of the project is to restore native shrub habitat, successful rehabilitation of these areas should restore these habitat features. If rehabilitation efforts are not effective, there may be a longer-term degradation of tortoise habitat in the treatment areas where vegetation is disturbed during seed incorporation.

Because the current vegetation cover in the burned areas is depauperate, we do not expect an increase in predation or loss of additional cover sites for tortoises as a result of ground disturbance associated with the project. Measures to control and properly dispose of waste should minimize the attraction of predatory species to the project areas.

Critical Habitat

Primary constituent elements that would be affected by the treatments are: sufficient quality and quantity of forage species and proper soil conditions to provide for the growth of these species; sufficient vegetation for shelter from temperature extremes and predators; and habitat protected from disturbance and human-caused mortality.

Quality and quantity of forage species may be slightly reduced on about 675 acres where existing vegetation is disturbed during seed incorporation, until reseeded species grow. There is currently

little suitable forage left in these areas following the wildfires. By covering seed and protecting it during germination and establishment, the likelihood of a successful reseeded should be improved, and quality and quantity of desert tortoise forage species should increase in these areas over the long term.

Surface soils will be disturbed both by ATV travel and dragging trees or shrubs during seed incorporation. However, new access trails to these areas will be closed following treatments, and boundaries will be fenced to prevent grazing, limiting further soil compaction. Therefore, the ability of these soils to support vegetation will not be adversely affected by these treatments.

Because there is little vegetative cover left in the burned areas, we do not expect an increase in predation of tortoises or additional loss of cover sites as a result of the treatments.

The habitat will be subjected to short-term ground disturbance. Since access to the treatments will not be maintained and the area is remote, there should not be any additional OHV use or other recreational activity attracted to the area. Fences will be constructed to exclude cattle grazing from treated areas until treatment objectives are met. Livestock grazing is currently permitted within desert tortoise habitat in the Cedar Wash, Cockscomb, and Jacob Fires (Cottonwood and Mosby-Nay allotments). Once the fences are removed, grazing could alter the vegetation community structure and reduce the amount of reestablished forage available for tortoises.

In summary, there may be effects that directly impact tortoises and their habitat, including possible injury and/or mortality. Short-term disturbance to desert tortoise critical habitat will also occur. Over the long-term, we expect the condition of critical habitat to remain stable or improve due to the treatments.

CUMULATIVE EFFECTS

Cumulative effects include the effects of future State, tribal, local or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act.

A small portion of the Jacob Fire is located on Arizona State Trust land; the rest of the sites are located on BLM-administered lands. Livestock grazing is administered by the Arizona State Land Department on state lands within this area and is expected to continue. A few trespass cattle continue to occur in areas closed to livestock grazing. BLM limits off-highway vehicle travel to existing roads, trails, and washes, but occasionally travel occurs off of these existing routes. Because of the remote location of these lands, there is little other human activity occurring or expected in the future other than fire suppression, and little potential for future development.

CONCLUSION

After reviewing the current status of Mojave desert tortoise, the environmental baseline for the action area, the effects of the proposed fire rehabilitation plans, and the cumulative effects, it is the FWS's biological opinion that the fire rehabilitation plans, as proposed, are not likely to jeopardize the continued existence of the Mojave desert tortoise, and is not likely to destroy or adversely modify designated critical habitat. We present these conclusions for the following reasons:

- Desert tortoise density in the action area is very low. Timing and duration of ground-disturbing activities will minimize direct impacts to desert tortoise. Following disturbance resulting from the treatment activities, we anticipate that the proactive revegetation efforts will eventually result in improved habitat condition for desert tortoise at these sites.
- The proposed project would result in approximately 675 acres of short-term disturbance within desert tortoise critical habitat, which would involve less than 0.01 percent of the 6.4 million acres of designated critical habitat for the desert tortoise across its range. Because the physical constituent elements of critical habitat will persist in the project area, biological constituent elements were previously impacted by wildfires, and the purpose of the project is to restore native vegetation, we anticipate that critical habitat will continue to serve its role in recovery of the desert tortoise following completion of the project.

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

INCIDENTAL TAKE STATEMENT

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

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

AMOUNT OR EXTENT OF TAKE

The FWS anticipates that the following incidental take of desert tortoises could occur as a result of treatment activities during implementation of the fire rehabilitation plans. This incidental take is expected to be in the form of harassment (moving tortoises out of harm's way), harm (injury from ATVs during fence construction and/or seed incorporation), or mortality (crushing by ATVs).

1. All desert tortoises found in harm's way may be captured and moved. We estimate that no more than five tortoises will be harassed by project activities.
2. We anticipate that one tortoise may be injured or killed during seed incorporation or fence construction.

This estimate of incidental take is based on the small number of desert tortoises likely to occur in the action area, the ability of approved biological monitors to detect and move adult tortoises, the chance that active immature tortoises will not be detected because of their small size, and the short duration but high intensity of the ground-based activity during fence construction and seed incorporation treatments.

The Fish and Wildlife Service will not refer the incidental take of any migratory bird or bald eagle for prosecution under the Migratory Bird Treaty Act of 1918, as amended (16 U.S.C. §§ 703-712), or the Bald and Golden Eagle Protection Act of 1940, as amended (16 U.S.C. §§ 668-668d), if such take is in compliance with the terms and conditions (including amount and/or number) specified herein.

EFFECT OF THE TAKE

In the accompanying biological opinion, the FWS determined that this level of anticipated take is not likely to result in jeopardy to the species or destruction or adverse modification of critical habitat.

REASONABLE AND PRUDENT MEASURES AND TERMS AND CONDITIONS

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

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

1. The following personnel are approved to conduct tortoise monitor and authorized biologist activities, as described in the proposed action and in Appendix A:

Desert tortoise monitor: Kathleen Harcksen (BLM)

Authorized biologist: Mike Herder (BLM)

- A. To ensure that qualified individuals are conducting tortoise-related activities in conjunction with this project (education program, surveys to locate tortoises and/or burrows prior to surface-disturbing activities, moving tortoises out of harm's way), the above approved personnel have submitted qualifications statements to FWS. If these activities will continue beyond January 1, 2007, these individuals must submit updates to these statements to FWS by December 15, 2006, and annually thereafter.
 - B. BLM shall submit an annual report of the tortoise-related activities conducted in conjunction with this project (see conservation measures 1 and 6 and term and condition 2.B., below).
2. The BLM shall monitor incidental take and habitat recovery resulting from the proposed action and report to the FWS the findings of that monitoring.
 - A. To ensure that the protective measures are effective and are being properly implemented, BLM shall contact FWS immediately if a desert tortoise is killed or injured by project activities. Contact the Arizona Ecological Services, Flagstaff Suboffice at (928) 226-0614. At that time, FWS and BLM shall review the circumstances surrounding the incident to determine whether additional protective measures are required. Project activities may continue pending the outcome of this review, provided that the protective measures and any appropriate terms and conditions of this biological opinion have been and continue to be implemented.
 - B. The BLM shall monitor the project area and access routes that could be affected by the proposed action to ascertain take of desert tortoise and/or loss of its habitat that causes harm or harassment to the species, and submit annual monitoring reports to the Arizona Ecological Services Office (AESO) by January 1 of each year, beginning in 2007.
 - i. For calendar year 2006, the report shall document the implementation of conservation measures intended to avoid incidental take, any instances of

incidental take, and recommendations for modifying or refining the conservation measures to enhance listed species protection or reduce unnecessary survey requirements.

- ii. For subsequent years until a final report on the rehabilitation effort is produced, these annual reports shall briefly document for the previous calendar year a summary of that year's vegetation monitoring studies, any observations of tortoises or tortoise sign in the monitoring locations, and, if any tortoises are found dead, suspected cause of mortality.

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. The BLM must immediately provide an explanation of the causes of the taking and review with the AESO the need for possible modification of the reasonable and prudent measures.

Disposition of Dead or Injured Listed Species

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

CONSERVATION RECOMMENDATIONS

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

We recommend that the BLM:

1. Fund, aid, or establish research studies to determine methods for reducing alien annual grasses in desert tortoise habitat.
2. Fund, aid, or establish research studies to determine the effects of herbicide applications on the desert tortoise and its habitat.
3. Actively participate in the revision of the Desert Tortoise Recovery Plan.

4. Ensure livestock grazing does not occur within recently burned areas of critical habitat for the desert tortoise until the native vegetative community has fully recovered.
5. Participate in implementation of recovery actions for the desert tortoise.

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

REINITIATION NOTICE

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

We encourage you to coordinate the review of this project with the Arizona Game and Fish Department. In keeping with our trust responsibilities to American Indian Tribes, we have provided for participation of the Bureau of Indian Affairs (BIA) in this consultation and are providing them with a copy of this final biological opinion.

The FWS appreciates the Bureau of Land Management's efforts to identify and minimize effects to listed species from this project. For further information please contact Brenda Smith (x101) at (928) 226-0614. Please refer to the consultation number, 02-21-05-F-0772, in future correspondence concerning this project.

/s/ Steven L. Spangle

cc: Regional Director, Fish and Wildlife Service, Albuquerque, NM (ARD-ES)
 Assistant Field Supervisor, Fish and Wildlife Service, Phoenix, AZ (Attn: Jeff Servoss)
 Roy Averill-Murray, Fish and Wildlife Service, Desert Tortoise Recovery Office, Reno, NV
 Regional Director, Bureau of Indian Affairs, Phoenix, AZ
 Chairperson, Kaibab Band of Paiute Indians, Fredonia, AZ (Attn: Danny Bullets)

Chief, Habitat Branch, Arizona Game and Fish Department, Phoenix, AZ
Regional Supervisor, Arizona Game and Fish Department, Flagstaff, AZ

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TABLES

Table 1. Desert tortoise habitat and critical habitat acres within 2005 wildfires, Grand Canyon-Parashant National Monument, Mohave County, Arizona

Fire Name	Total Acres Burned	Acres within the Critical Habitat Unit²	Acres Suitable Desert Tortoise Habitat
Brumley	578	578	0
Cedar Wash	540	540	540
Cockscomb	183	183	66
Jacob	2,680	2,480	1,449
Nevershine	624	624	624
Total	4,605	4,405	2,679

Table 2. Proposed treatments and treatment combinations within 2005 wildfires, Grand Canyon-Parashant National Monument, Mohave County, Arizona.

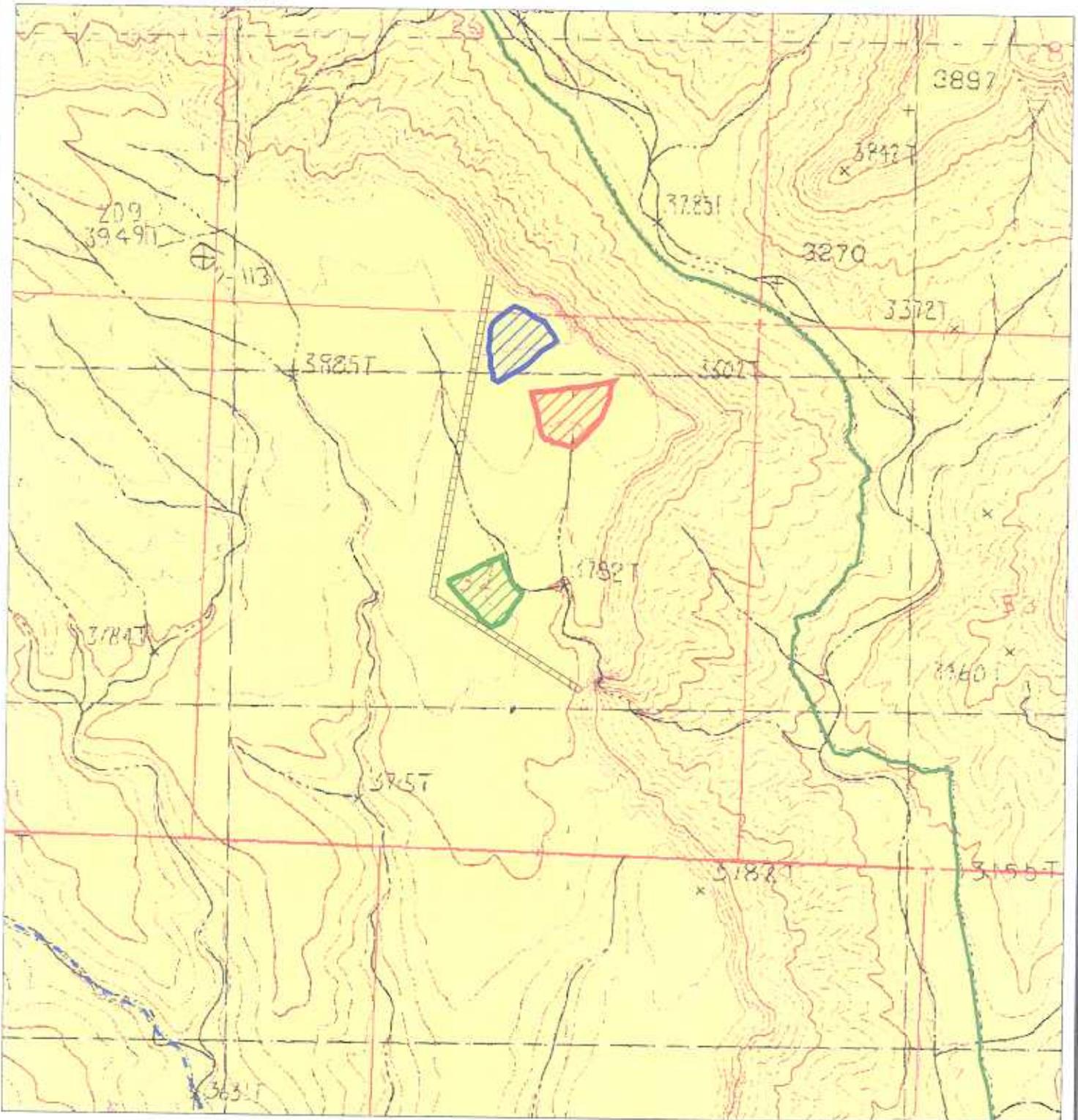
Fire Name	Control (acres)	Seeding (acres)	Incorporate Seed (acres)	Fencing (miles)
Brumley	96	13.0	6.2	0.9
Cedar Wash	92	123.8	62.8	1.4
Cockscomb	30	66.0	22.0	2.2
Jacob	310	991.8	568.8	6.7
Nevershine	125	22.4	11.9	2.8
Total	653	1217.0	671.7	14.0

² Acres that burned within the critical habitat unit. 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 of desert tortoise critical habitat.

FIGURES

Figure 1. Brumley Fire treatment areas and fence construction.

BRUMLEY Tortoise Rehab



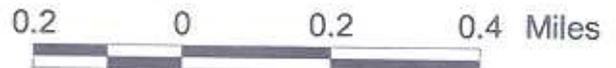
BRUMLEY Treatment Areas & Fence Construction

Legal Land Description
 BLM-Arizona Strip Field Office
 T37 N R 15 W, Sec 29 & 32
 T36 N R 15 W, Sec 5 & 6
 Gila & Salt Meridian

- New Fence line = 0.9 miles
- Seed only = 6.8 acres
- Control = 7.5 acres
- Seed & Stir = 6.2 acres
- Surface Ownership**
- Bureau of Land Management
- Private
- State
- Transportation**
- Primary Road Unpaved
- Secondary Road Unpaved
- Access Road

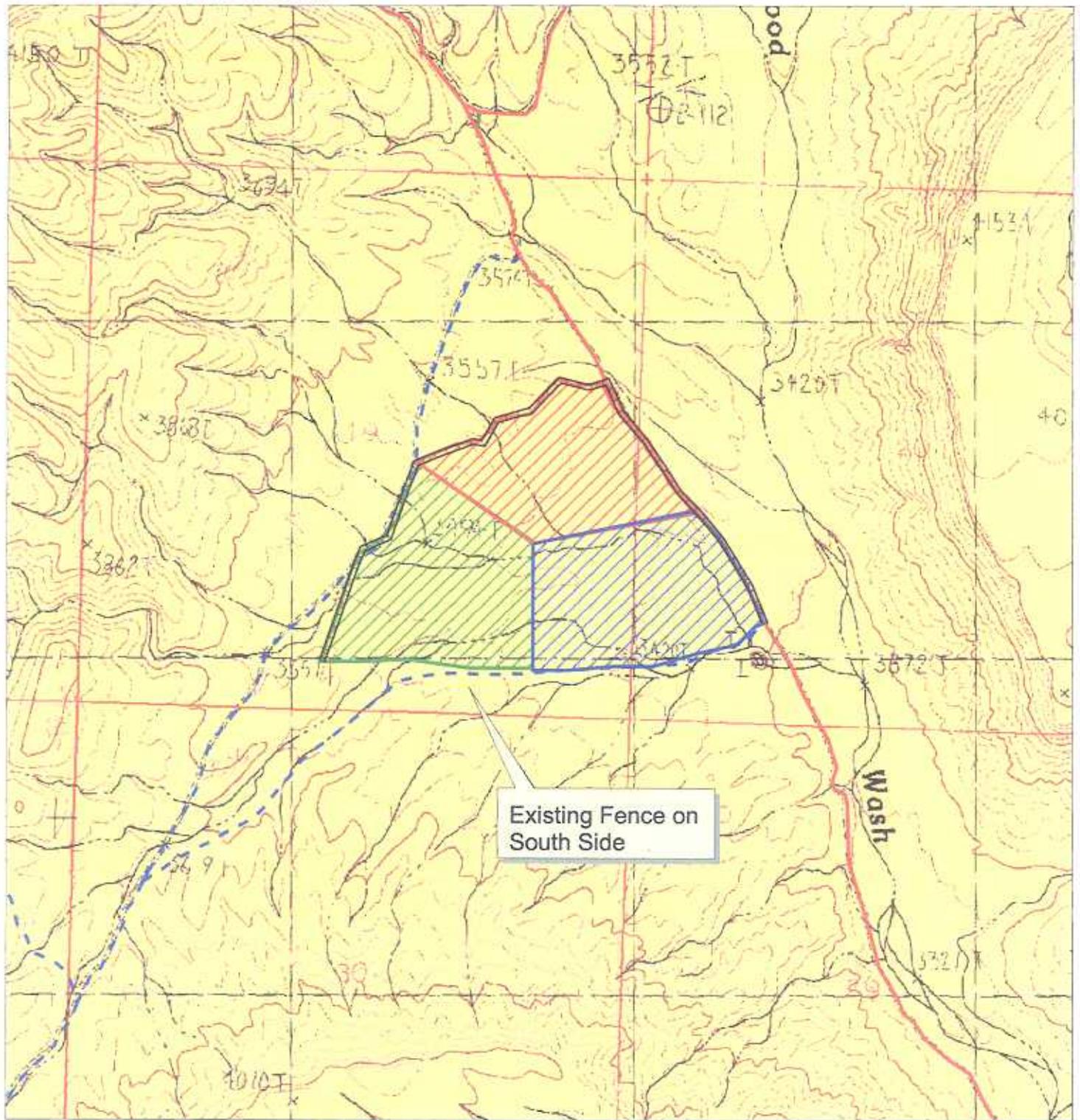


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 Feb. 27, 2006

Figure 2. Cedar Wash Fire treatment areas and fence construction.



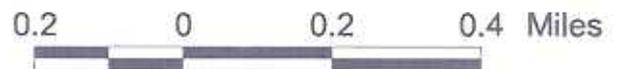
CEDAR WASH Treatment Areas & Fence Construction

Legal Land Description
BLM-Arizona Strip Field Office
T37 N R 15 W, Sec 18, 19, 20 & 30
Gila & Salt Meridian

-  New Fence line = 1.4 miles
-  Seed only = 61 acres
-  Control = 53.4 acres
-  Seed & Stir = 62.8 acres
- Surface Ownership**
-  Bureau of Land Management
-  Private
-  State
- Transportation**
-  Primary Road Unpaved
-  Secondary Road Unpaved
-  Access Road

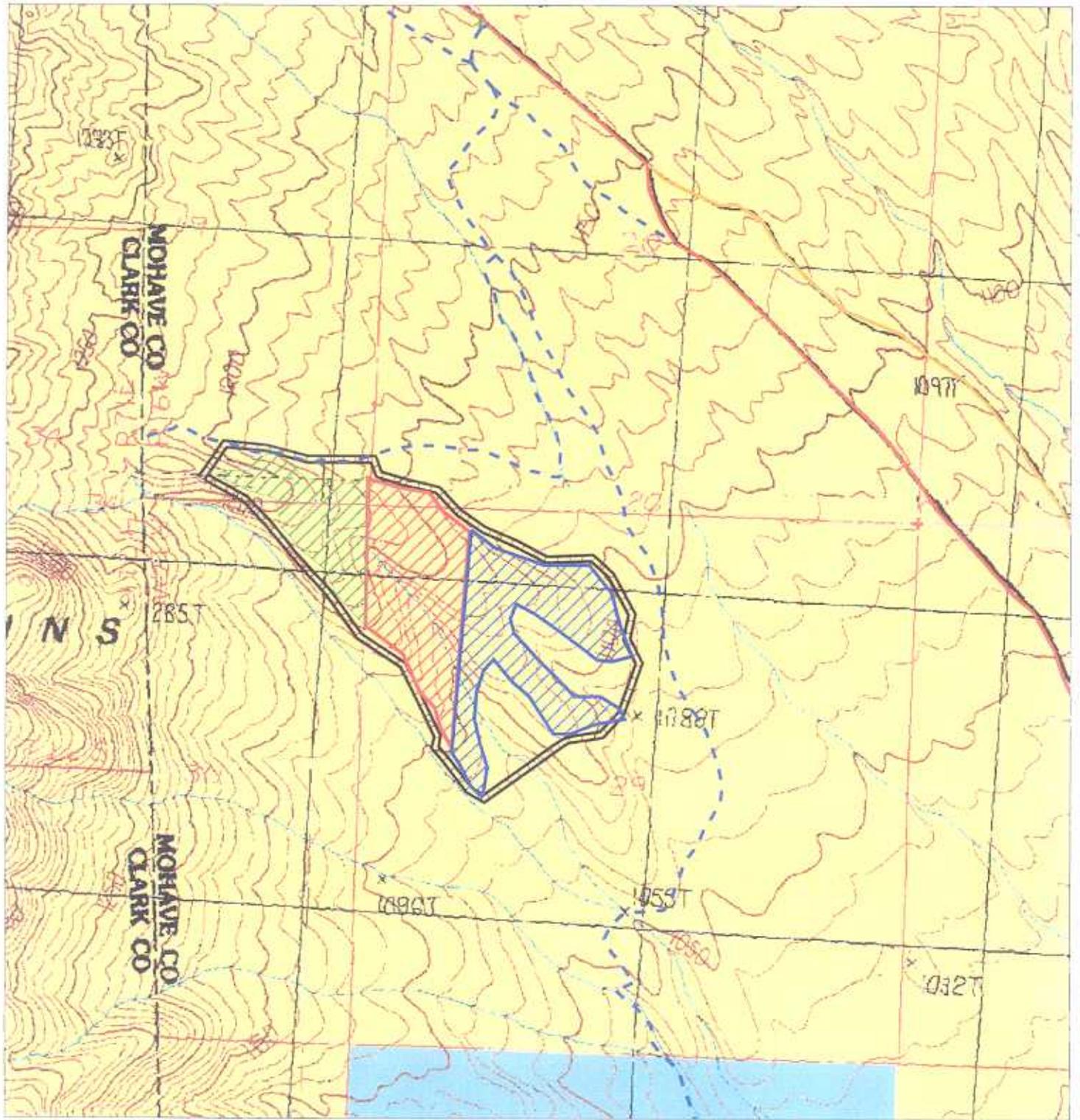


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Figure 3. Cockscomb Fire treatment areas and fence construction.



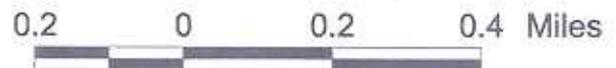
COCKSCOMB Treatment Areas & Fence Construction

Legal Land Description
 BLM-Arizona Strip Field Office
 T36 N R 16 W, Sec 20,19,29&30
 Gila & Salt Meridian

-  New Fence line = 2.24 miles
-  Seed only = 44 acres
-  Control = 38 acres
-  Seed & Stir = 22 acres
- Surface Ownership
 -  Bureau of Land Management
 -  Private
 -  State
- Transportation
 -  Primary Road Unpaved
 -  Secondary Road Unpaved
 -  Access Road



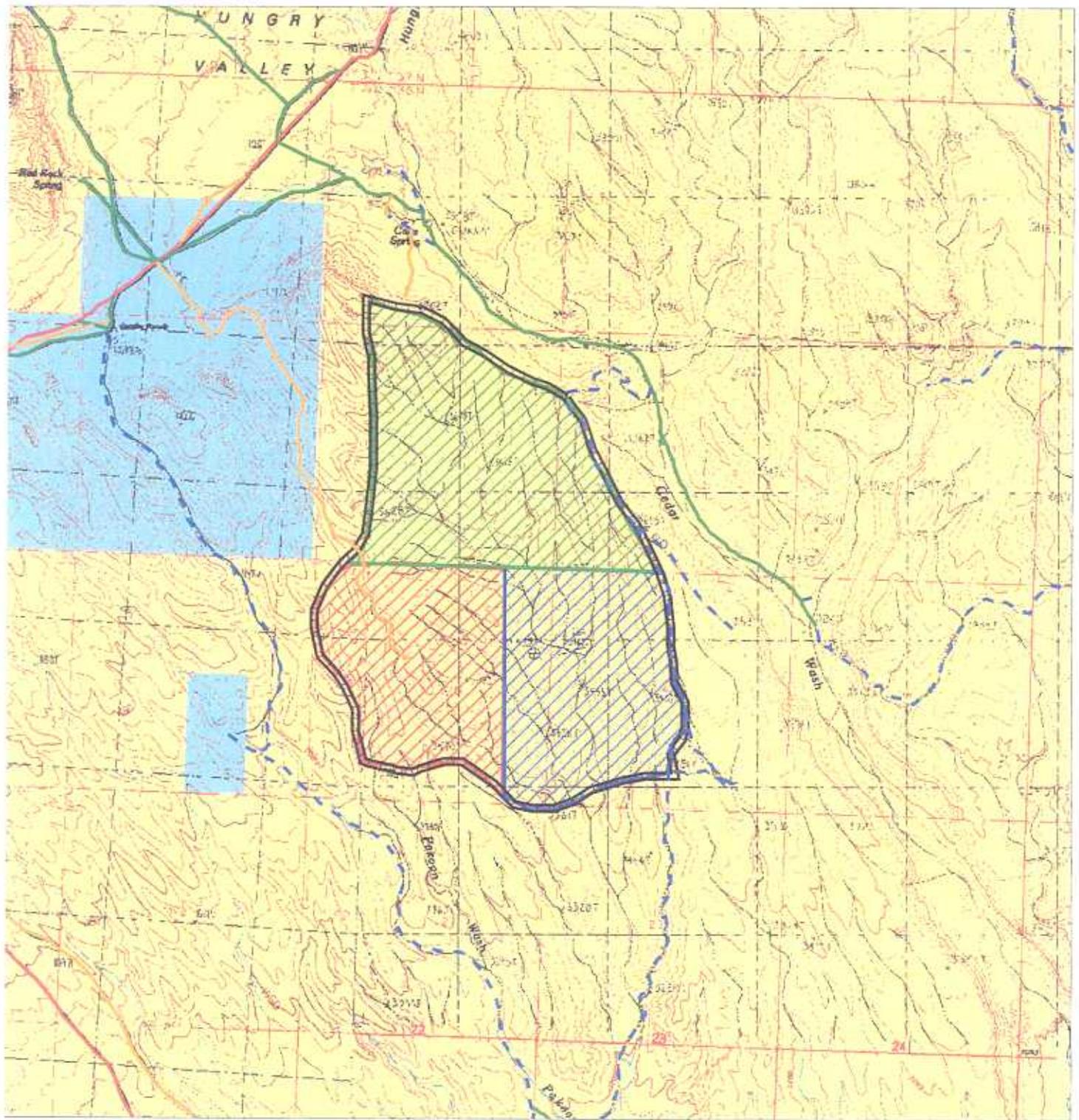
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 Feb. 27, 2006

Figure 4. Jacob Fire treatment areas and fence construction.

JACOBS Tortoise Rehab



Jacobs Treatment Areas & Fence Construction

Legal Land Description
 BLM-Arizona Strip Field Office
 T36 N R 16 W, Sec 10 & 15
 Gila & Salt Meridian

-  New Fence line = 6.7 miles
 -  Seed only = 423 acres
 -  Control = 373.9 acres
 -  Seed & Stir = 568.8 acres
- Surface Ownership
-  Bureau of Land Management
 -  Private
 -  State
- Transportation
-  Primary Road Unpaved
 -  Secondary Road Unpaved
 -  Access Road



0.2 0 0.2 0.4 0.6 0.8 1 Miles

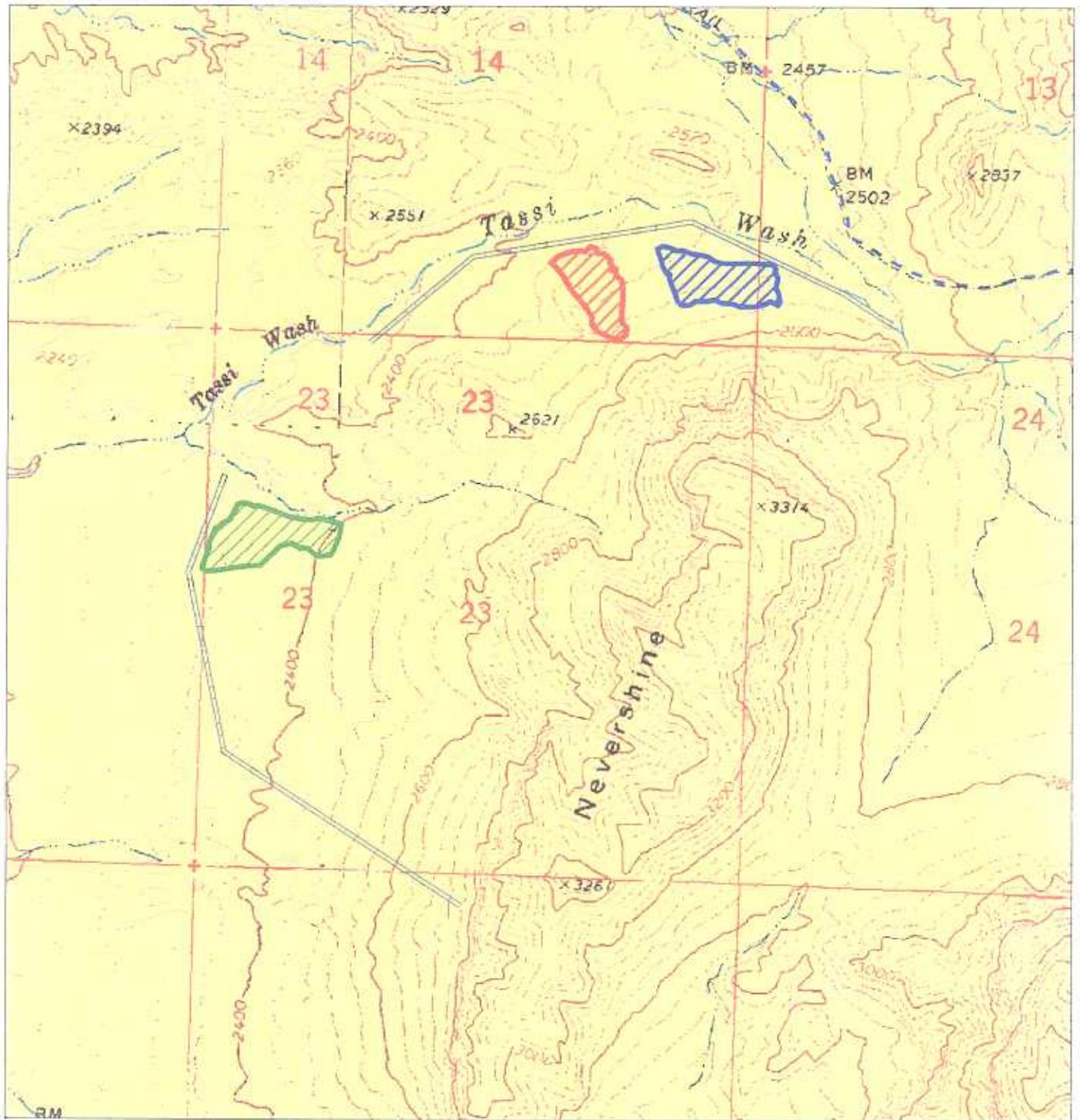


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 Feb. 27, 2006

Figure 5. Nevershine Fire treatment areas and fence construction.

NEVERSHINE Tortoise Rehab



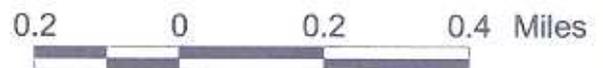
**NEVERSHINE
Treatment Areas &
Fence Construction**

Legal Land Description
BLM-Arizona Strip Field Office
T33 N R 15 W, Sec 14 & 23
Gila & Salt Meridian

-  New Fence line = 2.75 miles
-  Seed only = 10.5 acres
-  Control = 8.5 acres
-  Seed & Stir = 11.9 acres
- Surface Ownership
 -  Bureau of Land Management
 -  Private
 -  State
- Transportation
 -  Primary Road Unpaved
 -  Secondary Road Unpaved
 -  Access Road



Scale = 1:16,000



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Arizona Strip GIS Team
Feb. 27, 2006

APPENDIX A

DESERT TORTOISE MONITOR AND BIOLOGIST RESPONSIBILITIES AND QUALIFICATIONS

DESERT TORTOISE MONITOR -- Approved by the Fish and Wildlife Service to monitor project activities within desert tortoise habitat, ensure proper implementation of protective measures, and record and report desert tortoise and sign observations in accordance with approved protocol, report incidents of noncompliance in accordance with a biological opinion or permit, move desert tortoises from harm's way when desert tortoises enter project sites and place these animals in "safe areas" pre-selected by Authorized Biologists or maintain the desert tortoises in their immediate possession until an Authorized Biologist assumes care of the animal. Monitors assist Authorized Biologists during surveys and often serve as "apprentices" to acquire experience. Monitors are not authorized to conduct presence/absence or clearance surveys unless directly supervised by an Authorized Biologist; "directly supervised" means the Authorized Biologist is direct voice and sight contact with the Monitor.

AUTHORIZED BIOLOGIST – Approved by the Fish and Wildlife Service to conduct all activities described in the previous section for Desert Tortoise Monitors, and to locate desert tortoises and their sign (i.e., conduct presence/absence and clearance surveys) and ensure that the effects of the project on the desert tortoise and its habitat are minimized in accordance with a biological opinion incidental take permit. Authorized Biologists must keep current with the latest information on U.S. Fish and Wildlife Service protocols and guidelines. An Authorized Biologist must have thorough and current knowledge of desert tortoise behavior, natural history, and ecology, physiology, and demonstrated substantial field experience and training to safely and successfully:

- handle and temporarily hold desert tortoises
- excavate burrows to locate desert tortoise or eggs
- relocate/translocate desert tortoises
- reconstruct desert tortoise burrows
- unearth and relocate desert tortoise eggs
- locate, identify, and record all forms of desert tortoise sign

The qualifications statements submitted by BLM and approved by FWS for the following individuals for this project are available in the administrative record for this consultation:

Desert Tortoise Monitor: Kathleen Harcksen

Authorized Biologist: Michael Herder