United States Department of the Interior

Fish and Wildlife Service
Arizona Ecological Services Field Office
2321 West Royal Palm Road, Suite 103
Phoenix, Arizona 85021-4951
Telephone: (602) 242-0210 Fax: (602) 242-2513

In Reply Refer to:
AESO/SE
22410-2009-F-0084
22410-2002-F-0207 R001

February 20, 2009

Memorandum

To: Refuge Manager, U.S. Fish and Wildlife Service, Buenos Aires National Wildlife Refuge, Sasabe, Arizona

From: Field Supervisor

Subject: Biological Opinion for the proposed Brown Canyon Prescribed Burn – 2009 and reinitiation of the Refuge Comprehensive Conservation Plan.

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 November 12, 2008, and received by us on November 17, 2008. At issue are impacts that may result from the proposed Brown Canyon Prescribed Burn located in Pima County, Arizona. This biological opinion is a reinitiation of the Biological Opinion for the Buenos Aires National Wildlife Refuge's (BANWR) Comprehensive Conservation Plan, which did not anticipate the proposed action at the time the plan was written. The proposed action may adversely affect the endangered Kearney's blue star (*Amsonia kearneyana*).

You further requested our concurrence that the proposed action is not likely to adversely affect the endangered southwestern willow flycatcher (*Empidonax traillii extimus*), endangered lesser long-nosed bat (*Leptonycteris curasoae yerbabuenae)*, endangered jaguar (*Panthera onca*), threatened Mexican spotted owl (*Strix occidentalis lucida*) and candidate yellow-billed cuckoo (*Coccyzus americanus*). We concur with your determinations, and our rationales are provided in Appendix A.

This biological opinion is based on information provided in the November 12, 2008, biological assessment, telephone conversations, field investigations, 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, fire management and its effects, or on other subjects considered in this opinion. A complete administrative record of this consultation is on file at this office.

Consultation History

- January 25, 2008 - Field visit to action area to assess potential habitat for Mexican spotted owl.
- November 17, 2008 – Received request to initiate formal consultation on burn plan and reinitiate consultation on the BANWR Comprehensive Conservation Plan.
- January 9, 2009 – Memorandum initiating formal consultation was sent to BANWR.
- January 23, 2009 – Draft Biological Opinion sent to BANWR for review.
- February 12, 2009 – Memorandum was received from the BANWR accepting the draft Biological Opinion.

BIOLOGICAL OPINION

DESCRIPTION OF THE PROPOSED ACTION

BANWR plans a prescribed burn in Brown Canyon for mid-April to mid-May 2009. Since there have been five wildfires within the Baboquivari Mountains in the past eight years, wildfire poses a threat to BANWR facilities in Brown Canyon and the canyon's unique natural resources. The purpose of the burn is to reduce hazardous fuel levels which would reduce the potential of effects of wildfires that could damage the structures located within the canyon and alter the nature of the canyon's natural resources.

The proposed burn area lies to the south of the main Brown Canyon road and encompasses 1,576 acres; 47 acres extend into the BLM wilderness area (Figure 1). An additional 7,358 acres surrounding the proposed burn area make up the Maximum Allowable Area (MAA). The MAA is the buffer area around the burn perimeter that provides tactical space in which a prescribed burn can be suppressed if it jumps the burn boundary before needing to declare it a wildland fire.

The proposed project will consist of pre-fire preparation and the actual ignition of the prescribed burn. The fire preparation will consist primarily of fire line construction with hand tools to protect buildings, resources, and contain the fire within the proposed boundaries. The boundary of the MAA will also be secured through fire line construction. Ignition of the prescribed burn will include both hand ignition methods and aerial ignition methods. Hand ignition methods will be used to reinforce fire lines and protective spaces around sensitive resources. Aerial ignition methods will be used to the light the main fire in the burn unit and control fire spread by igniting backing fires ahead of the main flame fronts.

Line Construction:

The north fire line follows the main Brown Canyon road. Elsewhere, fire line will be constructed along ridges where a road or other fire control feature does not currently exist. Fire lines will be constructed by crews using hand tools and chainsaws (Figure 2). Trees, shrubs, low hanging branches and dead and down logs that could increase potential for fire to escape outside of the intended boundary will also be cut and moved away from fire lines and roadways or pruned to prevent torching.

Types of vegetation (certain tree species, saguaros, etc.) or areas that must be excluded from the burn perimeter will have handline constructed around them. The handline will meet specifications for perimeter handline construction.

Hand Line (along ridgelines):
- Distance - 5.25 miles.
- 18-24" wide scraped down to mineral soil.

Saw Preparation (adjacent to handline)
- Remove all dead and down fuels >3" within 15' of handline.
- Remove or prune shrubs/trees within 15' of handline.
- Prune remaining shrubs/trees within 30' of handline with potential for torching.

Saw Preparation (along road corridor):
- Distance - 3.0 miles.
- Remove all dead and down fuels >3" within 15' of road.
- Remove or prune shrubs/trees within 15' of handline.
- Prune remaining shrubs/trees within 30' of handline with potential for torching.

Ignition:

Ignition in Brown Canyon will occur as two separate, but coordinated actions (Figure 2). A perimeter ignition will be conducted by hand to secure the burn unit perimeter while an interior ignition operation is conducted using a helicopter and an aerial sphere dispenser kit (ping-pong machine). Perimeter hand ignition will primarily have tactical objectives of preventing the burn from escaping the intended burn unit. Interior ignition from the helicopter will have fuels reduction and ecological objectives that seek to accomplish the primary objectives for the project.

Ignition techniques in areas adjacent to protected vegetation (significant trees, saguaros, etc.), endangered species, or otherwise significant features will seek to reduce fire spread rates, flame lengths, and intensities. Backing fires will be lit around these areas and fire will be permitted to back away from protected features. Fire behavior will also be reduced in and adjacent to riparian areas by using spot ignition and backing fires. A detailed description of the materials and methods used for hand ignitions and aerial ignitions is found in the proposed project's Biological Assessment, and is included herein by reference.

Fire in the MAA:

Fire outside of the prescribed burn perimeter will be subject to a full suppression response. The appropriate tactics and strategies employed to effectively and safely suppress fire outside of the primary prescribed burn perimeter will be dictated by the specifics of the situation. Generally speaking, suppression tactics can be broken down between direct and indirect suppression actions.

Direct actions will involve digging/constructing handline with handtools and saws directly adjacent to the fire's edge until it is fully surrounded. Indirect tactics would involve backing off

to defensible terrain features (drainages, barren areas, rock outcrops, ridgelines, etc.) or just away from the fire's edge. Handline would be constructed as before, and crews would burn-out fuels between the newly constructed line and fire's edge. Fire outside the primary burn perimeter will nearly always result in the additional use of aircraft to assist with bucket drops.

Conservation Measures
The following measures will be taken to reduce or eliminate effects from the proposed action. These measures will include:

Kearney Blue star:

- Biologists will survey the area of the 1988-89 transplants for existing plants.
- The locations of all Kearney's blue star plants within the burn boundary and the MAA will be mapped. Maps will be distributed to burn crews working on the burn so that trampling will be avoided. In addition, location coordinates will be loaded into GPS units for use by ground and aerial crews. By knowing the locations, detrimental activities in the vicinity of the plants can be avoided.
- All Kearney blue star plants within the burn area will be excluded from the burn by various techniques. Direct line or indirect line, as appropriate, will be used and combined with techniques of fuel reduction, modified ignition patterns, and black-lining to reduce fire near known locations and ensure direct flame impingement does not occur. If appropriate, continuous patches of Kearney blue star may be protected with sprinklers.

Lesser Long-nosed Bat

- Using ignition patterns which promote patchiness, burn crews will attempt to burn no more than 20 percent of agaves within the burn perimeter. Fire mortality will be reduced for agave plants by modifying ignition patterns in proximal areas. Spot ignition and burning out around continuous stands of agave plants will be used whenever possible.
- Crews will protect all known saguaros within or bordering upon the burn boundary. Currently, two saguaros exist within the boundary and another 10 exist along the site of the proposed fire break. Known saguaros will be excluded from the burn by direct line construction combined with nearby fuels reduction as appropriate. 'Nurse trees' will be left intact and protected as appropriate.
- All saguaros within or bordering on the burn area will be protected by clearing around the cactus from 3-13 ft. on average. The distance away from the cactus may be variable, dependent upon the situation. If the cactus is adult, the nurse tree may be cut away to protect the cactus from fire. But if the cactus is small (less than the height of the nurse tree), no cutting will take place, as the detrimental effect of loss of the nurse tree would outweigh the beneficial effect of fire protection. Saguaros outside the burn area, but within the MAA will be left untreated.

Mexican Spotted Owl

- The second year of surveys will be completed prior to the prescribed fire being ignited.
- If a Mexican spotted owl or nest is found, the Refuge will reevaluate the effects determination and reinitiate consultation, if appropriate.
- If a Mexican spotted owl or nest is found within the burn perimeter or near the burn perimeter, but within the MAA, a Protected Activity Center (PAC) of not less than 600 acres will be established in accordance with the Recovery Plan (USFWS 1995). The PAC will be subject to the restrictions delineated in the Recovery Plan including those related to fire. This means designating a 100-acre area around the nest which would be deferred from any sort of thinning or prescribed fire treatment. Light burning of ground fuels may be allowed within 500 acres surrounding the 100-acre PAC center. Prescribed fire would be allowed only during the non-breeding season (September 1st – February 28th) and the Refuge would attempt to retain or enhance important elements of the species' habitat. These include large diameter (>12 inches) downed logs, grass, forbs, and shrubs.

Southwestern Willow Flycatcher and Yellow-billed Cuckoo

- In areas of riparian vegetation, fire will either be excluded or fire behavior will be managed to prevent unacceptable levels of vegetation mortality. For important vegetation that is fire intolerant (sycamores, cottonwoods, walnut etc.), fire will be excluded using site appropriate strategies of direct line and/or black-lining and mop-up. Areas deemed somewhat fire tolerant will be protected through modified ignition patterns that spot ignite and back fire off of these areas seeking to consume fuels only where absolutely necessary to prevent fire from crossing outside of the intended burn unit.

Kearney's blue star

STATUS OF THE SPECIES AND CRITICAL HABITAT

Kearney's blue star was listed as endangered in January 1989 without critical habitat (54 FR 2131). An herbaceous perennial in the Dogbane family (Apocynaceae), it is a sub-shrub with a thickened woody root and many pubescent (hairy) stems that rarely branch. Habitat for the Kearney's blue star is within the Madrean oak woodland. Plants grow at 1,097 - 1,158 m (3,600-3,800 ft) elevation in stable, partially shaded, coarse alluvium along dry washes, but also on open, steep slopes, 20-30 degrees, of unconsolidated material. Threats to the species include heavy insect predation and watershed degradation associated with overgrazing and post-fire effects.

Kearney's blue star occurs naturally in the Baboquivari Mountains. of Arizona. Though originally thought to only occur in South Canyon, Donovan (1998) located 11 new populations comprised of 390 individuals. In 1996, a population of 300 individuals was discovered in upper portions of Brown Canyon.

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.

Description of the Action Area

Brown Canyon is located in the northwest portion of Buenos Aires National Wildlife Refuge, in the Baboquivari Mountains, Pima County, Arizona (Figure 1). At the upper reaches of the canyon the vegetation falls within the Madrean oak woodland habitat type. Vegetation consists of oaks (*Quercus* spp.), Border pinyon (*Pinus discolor*), alligator juniper (*Juniperus deppeana*), velvet mesquite (*Prosopis velutina*), catclaw acacia (*Acacia greggii*), *Mimosa* spp., Ocotillo (*Fouquieria splendens*). Saguaro (*Carnegiea gigantea*) dot the landscape at lower elevations below the Madrean oak woodland and on south facing slopes, as do Palmer agave (*Agave palmeri*) and shindagger (*Agave schottii*). A narrow riparian zone lies within the canyon bottom. The dominant riparian tree species are Arizona sycamore (*Platanus wrightii*) and Arizona walnut (*Juglans major*). At the lower end of the canyon, where it flattens out more in the foothills, the habitat become more of a Sonoran savannah grassland with various species of native grasses interspersed with velvet mesquite in the uplands.

The canyon is not actively managed with the exception of some tree and limb removal along the roadside, a negligible amount of clearing around the buildings, planting of the endangered Kearney's blue star in 1988-89, and removal of the exotic invasive buffelgrass along the roadside and in the parking area of the Environmental Education Center. In addition, road maintenance has been on-going especially after the monsoon rains. Hunting is allowed in the non-refuge portion of the canyon.

A. Status of the species and critical habitat within the action area

In 1988, a Kearney's blue star transplant project was conducted by Southwestern Field Biologists. Seventy-six plants were transplanted to a Brown Canyon site. Poor survivorship prompted another planting in 1989 when another 105 plants were planted. In late June, 1990, a flood decimated the site causing 75% mortality. Floods again occurred in 1992 and 1993 causing additional mortality. Out of a total of 245 plants originally transplanted, only 64 were alive post-flood (Donovan 1998).

Currently the area occupied by blue star within the burn area is in a drainage above Harm House (Figure 1). A recent survey located 16 individuals, seven of whom were within the burn boundary. The burn area does not include the area in upper Brown Canyon where 300 Kearney blue star plants were found in 1996; however the location of those plants falls within the MAA.

B. Factors affecting species environment within the action area

The occupied sites within the action area are protected from many of the disturbances these plants might receive if they were not on the BANWR, such as, grazing or livestock presence.

The only factors affecting this species in the action area are extremes in precipitation and potential for wildfire. Drought conditions likely result in reduced growth of individuals and the potential loss of plants too far away from the drainage bottom. Heavy rainfall events likely would result in loss of plants within the drainage or immediately adjacent to the drainage from high velocity flood flows. Ash and debris from wildfires, higher in the drainage, would increase the effects of heavy rainfall events. Post-fire rainfall events may also provide additional nutrients that could result in improved growth and reproduction following such events.

EFFECTS OF THE ACTION

Effects of the action mean 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.

The conservation measures to protect known Kearney's blue star plants within the primary burn perimeter should eliminate or reduce the potential for direct effects to individuals. However, plants that have not been detected, but also some known some known Kearney's blue star in the MAA, may be exposed to direct flames, which may result in the death or damage of individuals from exposure to heat or flames. Indirect effects from the drying out of soils as a result of heat exposure from the burn may also result in death or injury to some plants. Some plants could potentially be trampled or dug up during the implementation of conservation measures; however, this is unlikely for the known plants, but a possibility for plants not located during surveys. Indirect effects of the proposed action could include damage caused by rock fall from debris movement during or after the prescribed burn. Indirect effects could also occur from post-fire debris and ash flows, and increased sediment transport during post-fire rain events. These effects could also include physical damage to plants and changes in soil chemistry.

The effects of fire on Kearney's blue star have not been studied. The short-term effects discussed above are common to all plants. The long-term effects of fire may provide benefits for this species by reducing competition and allowing for colonization of new sites. Kearney's blue star produces new plants from underground runners and could possibly recover from fire by sending up new shoots.

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.

Illegal border activity has been reduced in the valley due to the construction of the pedestrian barrier along the international border, but activities in the mountains has continued and possibly increased, including the action area, as more traffic is pushed around the pedestrian barrier. The

effects of illegal immigration that have been documented in previous BANWR consultations have shifted into the Baboquivari Mountains and the action area.

The Arizona State Trust land within the action area is part of an active grazing lease, but is not used in Brown Canyon due to the steepness of the topography. All other activities that are likely to occur in the action area will be subject to future section 7 consultations, due to Federal land ownership.

CONCLUSION

After reviewing the current status of Kearney's blue star, the environmental baseline for the action area, the effects of the proposed Brown Canyon Prescribed Fire Plan and the cumulative effects, it is the FWS's biological opinion that the Brown Canyon Prescribed Fire Plan, as proposed, is not likely to jeopardize the continued existence of the Kearney's blue star. No critical habitat has been designated for this species, therefore, none will be affected.

We present this conclusion on Kearney's blue star for the following reasons:

- The locations of Kearney's blue star within the primary burn perimeter will be protected from direct effects of fire.
- The locations of Kearney's blue star within the MAA will be known to the fire crews and protected by appropriate means, if they are threatened by fire escaping the primary burn boundary.
- The proposed action does not threaten the 11 population sites located by Donovan (1998). The population of about 300 plants in upper Brown Canyon, although in the MAA, is outside the proposed burn area.

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.

Sections 7(b)(4) and 7(o)(2) of the Act generally do not apply to listed plant species. However, limited protection of listed plants from take is provided to the extent that the Act prohibits the removal and reduction to possession of federally listed endangered plants from areas under Federal jurisdiction, or for any act that would remove, cut, dig up, or damage or destroy any such species on any other area in knowing violation of any regulation of any State or in the course of any violation of a State criminal trespass law.

CONSERVATION RECOMMENDATIONS

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

1. We recommend that the known location of Kearney's blue star in the MAA be flagged to make them visible from the air to assist bucket drops placement if protective measures are needed.

2. We recommend that the BANWR consider establishing or supporting a research program on fire effects on Kearney's blue star.

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 appreciate the Refuge's efforts to identify and minimize effects to listed species from this project. For further information please contact Marty Tuegel, at 520.670.6150 ext. 232 or Sherry Barrett, at ext 223. Please refer to the consultation number, 22410-2009-F-0084 and 22410-2002-F-0207 R001 in future correspondence concerning this project.

/ s / Jim Rorabaugh for
Steven L. Spangle

cc: Assistant Field Supervisor, Fish and Wildlife Service, Tucson, AZ

Chief, Habitat Branch, Arizona Game and Fish, Phoenix, AZ
Regional Supervisor, Arizona Game and Fish Department, Tucson, AZ
(Attn: Joan Scott)

C:\Documents and Settings\mtuegel\My Documents\BANWR\Fire Plan Brown Canyon 2009\BO Brown Canyon BP 20090219.docx

LITERATURE CITED

Catron, J.H., S.H. Stoleson, P.L.L. Stoleson, and D.W. Shaw. 2000. Riparian Area. Pages 281-327 *in* R. Jemison and C. Raish, editors. Livestock management in the southwest: ecology, society, and economics. Amsterdam, Elsevier.

Corman, T.E. and R.T. Magill. 2000. Western yellow-billed Cuckoo in Arizona: 1998 and 1999 survey report. Arizona Game and Fish Department, Nongame and Endangered Wildlife Program Technical Report 150.

_____ . and C. Wise-Gervais. 2005. Arizona Breeding Bird Atlas. University of New Mexico Press. Albuquerque, New Mexico. 636 pp.

Donovan, J. 1998. Current distribution and status of Kearney's bluestar in the Baboquivari Mountains, Arizona. Final report submitted to BLM, Arizona State Office. Order No. A950P80317. Ref. No. A932Q80014.

Franzreb, K. 1987. Perspectives on managing riparian ecosystems for endangered bird species. Western Birds 18:10-13.

Gaines, D.A. and S.A. Laymon. 1984. Decline status and preservation of the yellow-billed cuckoo in California. Western Birds 15:49-80.

Halterman, M.D. 1991. Distribution and habitat use of the yellow-billed cuckoo (*Coccyzus americanus occidentalis*) on the Sacramento River, California, 1987-1990. MS Thesis, California State University, Chico, CA.

Hughes, J.M. 1999. Yellow billed cuckoo (*Coccyzus americanus*). *In* The Birds of North America, No. 418 (A. Poole and F. Gill, editors). The birds of North America, Philadelphia, Pennsylvania, USA.

Hunter, W.C., R.D. Ohmart, and B.W. Anderson. 1988. Use of exotic saltcedar (*Tamarix chinensis*) by birds in arid riparian systems. Condor 90:113-123.

Knopf, F.L., R.R. Johnson, T. Rich, F.B. Samson, and R.C. Szaro. 1988. Conservation of riparian ecosystems in the United States. Wilson Bulletin 100:272-284.

Laymon, S.A. and M.D. Halterman. 1986. Nesting ecology of the Yellow-billed Cuckoo on the Kern River: 1986 Nature Conservancy and California Department of Fish and Game Non-Game Wildlife Investigations, Endangered Species Section, 1416 9th St. Sacramento, CA 95814.

Phillips, A, J. Marshall, G. Monson. 1964. Birds of Arizona. University of Arizona Press, Tucson, AZ.

Powell, B.F. 1999. Nest site characteristics, selection and reproductive success of a

southwestern riparian bird community. Thesis. University of Arizona.

Rosenberg, K.V., R.D. Ohmart, W.C. Hunter, and B.W. Anderson. 1991. Birds of the lower Colorado River Valley. University of Arizona Press, Tucson, AZ.

U.S. Fish and Wildlife Service. 1994. Lesser Long-nosed Bat Recovery Plan. Phoenix, Arizona. i-v + 49 pp.

_____ . 1995. Recovery Plan for the Mexican Spotted Owl. Albuquerque, New Mexico.

_____ . 2000. Notice of 90-day finding on petition to list the yellow-billed cuckoo as endangered, with critical habitat. Federal Register 65(33):8104-8107.

_____ . 2002. Southwestern Willow Flycatcher Recovery Plan. Albuquerque, New Mexico. i-ix + 210 pp., Appendices A-O.

_____ . 2005a. U.S. Fish and Wildlife Service Species Assessment and Listing Priority Assignment Form. November 8, 2005.

_____ . 2005b. Programmatic Biological and Conference Opinion for the Continued Implementation of the Land and Resource Management Plans for the Eleven National Forests and National Grasslands of the Southwestern Region. Dated June 10, 2005. Arizona Ecological Services Field Office, Phoenix, Arizona. 830 pp. + Appendices.

_____ . 2007. Lesser Long-nosed Bat 5-year Status Review. Phoenix, Arizona. 43 pp.

FIGURES

Figure 1. Action Area for Brown Canyon prescribed burn.

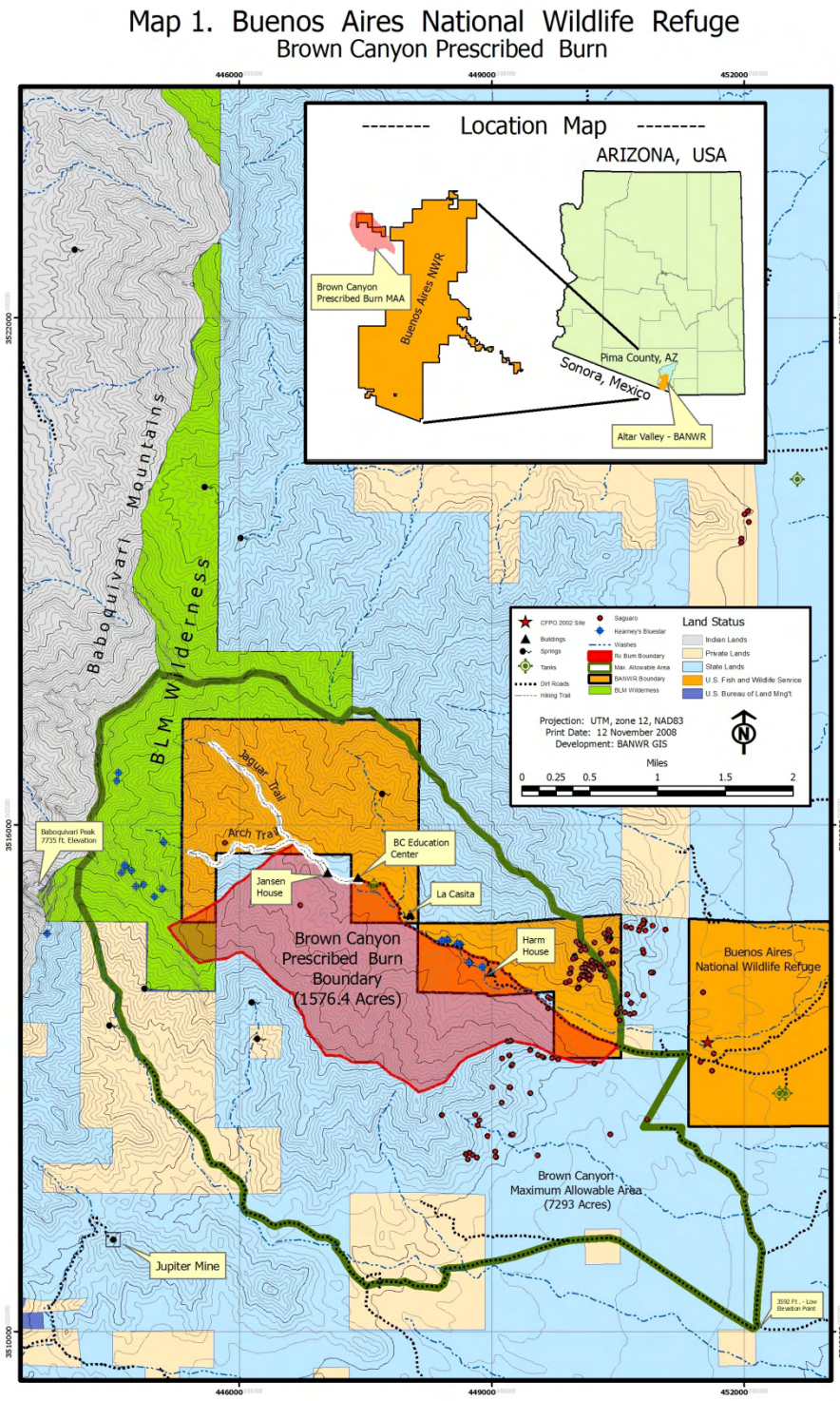
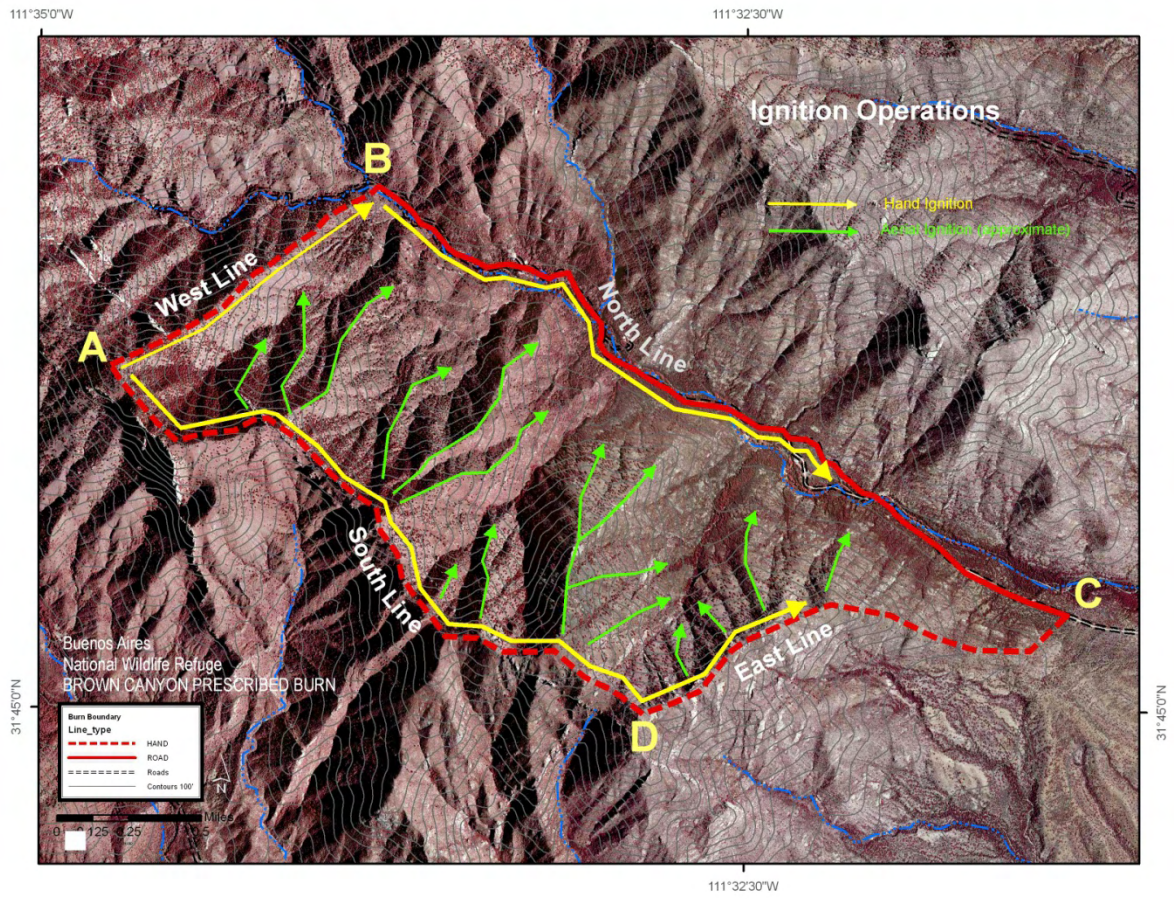


Figure 2. Prescribe burn area showing planned ignition operations for Brown Canyon prescribed burn.



Appendix A: Concurrences

This Appendix contains all concurrences with "may affect, not likely to adversely affect" determinations.

Jaguar (*Panthera onca*)

The non-U.S. population was listed as endangered in March 1972 (37 FR 6476). The geographic extent of the listing was expanded to include jaguars in the U.S. on July 22, 1997 (62 FR 39147). It is the largest species of cat native to the Western Hemisphere. Individuals in Arizona have been found in Sonoran desertscrub up through subalpine conifer forest. The loss and modification of habitat, shooting, and predator control have contributed to its decline.

Conclusion

We concur that the proposed action may affect, but is not likely to adversely affect the jaguar, based upon the following:

- Impacts to jaguar habitat from fire management are expected to be relatively small compared to the home range of a jaguar given its mobility and its ability to cover large areas in its normal activities.
- The proposed action avoids fires in riparian areas, which likely serve as movement corridors for the jaguar. The canopy cover will not be removed through the proposed action, and the prescribed fire should have little effect on the use of these areas by jaguars.
- The proposed action does not involve habitat type conversion or the fragmentation or blocking of movement corridors that jaguars may use between Mexico and the United States.
- The prey base for the jaguar (white-tail and mule deer) may be enhanced, in the short term, by the prescribed fire. Long-term changes in vegetation structure may also enhance the prey base.

Lesser Long-nosed Bat (*Leptonycteris curasoae yerbabuenae*)

The lesser long-nosed bat was listed as endangered without critical habitat on September 30, 1988 (53 FR 38456). The lesser long-nosed bat recovery plan was completed in 1994 (USFWS 1994). A 5-year status review of the species was completed in 2007 (USFWS 2007). No lesser long-nosed bat roosts are known within the action area. Suitable foraging habitat does exist sporadically in the action area. Isolated saguaros near the month of Brown Canyon and isolated Agaves are found on the grass covered slopes in the action area; however, no large Agave stands are known within the action area.

Conclusion

We concur with the determination that the action may affect, but is not likely to adversely affect the lesser long-nosed bat, based upon the following:

- There are no roosts within the action area; therefore no direct effects are likely to occur.
- Forage plants are found primarily outside the proposed burn area, but are within the MAA. The proposed burn area and MAA are relatively small relative to a lesser long-nosed bats foraging range. Prescribed fire is not likely to spread across the entire mountain range where other patches of forage plants exist.
- Ignition patterns will be used to avoid any areas where high mortality of forage plants is likely.
- Critical habitat is not designated for this species.

Mexican Spotted Owl (*Strix occidentalis lucida*)

The Mexican spotted owl was listed as threatened in 1993 (58 FR 14248) and critical habitat was designated in 2004 (69 FR 53182). We appointed the Mexican Spotted Owl Recovery Team in 1993, which produced the Recovery Plan for the Mexican Spotted Owl (Recovery Plan) in 1995 (U.S. Fish and Wildlife Service 1995).

Conclusion

After reviewing the status of the Mexican spotted owl, the environmental baseline for the action area, and the effects of the proposed action, we concur that the proposed action may affect, but is not likely to adversely affect, the Mexican spotted owl and designated critical habitat, based upon the following:

- The Mexican spotted owl habitat is only located in the higher elevations of the action area.
- Only a few locations in the action area are known from Baboquivari Mountains.
- The majority of the prescribed fires under this plan will be implemented at lower elevations, outside of Mexican spotted owl habitat.
- Surveys and conservation measures will be implemented to avoid adverse effects to Mexican spotted owl and its habitat.
- No designated critical habitat is within the action area.

Southwestern Willow Flycatcher (*Empidonax traillii extimus*)

The southwestern willow flycatcher was listed as endangered, without critical habitat on February 27, 1995 (60 FR 10694). On October 19, 2005, we designated critical habitat for the southwestern willow flycatcher (70 FR 60886). A total of 737 river miles across southern California, Arizona, New Mexico, southern Nevada, and southern Utah were included in the final designation.

A final recovery plan for the southwestern willow flycatcher was released in 2002 (USFWS

2002). The recovery plan describes the reasons for endangerment and the current status of the species, addresses important recovery actions, includes detailed issue papers on management issues, and provides recovery goals. Recovery is based on reaching numerical and habitat-related goals for each specific Management Unit established throughout the subspecies range and establishing long-term conservation plans (USFWS 2002).

Critical habitat for southwestern willow flycatcher in Arizona includes portions of the Virgin River Gorge, Verde River, Gila River, Salt River, Tonto Creek, San Pedro River, Little Colorado River, and Big Sandy River.

Conclusion

After reviewing the status of the southwestern willow flycatcher, the environmental baseline for the action area, and the effects of the proposed action, we concur that the proposed action may affect, but is not likely to adversely affect, the southwestern willow flycatcher or its designated critical habitat, based upon the following:

- No southwestern willow flycatcher breeding sites or suitable breeding habitat are currently known from within the action area.
- The only known sightings of willow flycatchers in the action area are of migrating individuals, which have not been confirmed as southwestern willow flycatchers and are not likely to be affected by the proposed action.
- No critical habitat is designated within or adjacent to the action area.

Yellow-billed Cuckoo

Yellow-billed cuckoos are a neotropical migrant, wintering primarily in South America and breeding primarily in the United States (but also in southern Canada and northern Mexico). As a migrant it is rarely detected but can occur outside of riparian areas. Yellow-billed cuckoos begin migration to Arizona during mid-May to mid-June and breed during mid-June to the end of August with the peak of breeding about June 15 to August 15 (USFWS 2005b).

Yellow-billed cuckoos are included on the candidate list as a distinct population segment across the western United States (USFWS 2000), but are not presently listed as threatened or endangered, and as a result, there is no designated critical habitat.

Threats to the distribution and population of the cuckoo can be attributed primarily to habitat loss, modification, and fragmentation (Franzreb 1987, Laymon and Halterman 1989, Hughes 1999); decreased water tables (Phillips *et al.* 1964); and possibly the use of pesticides (Gaines and Laymon 1984, Laymon and Halterman 1986, Rosenberg *et al*. 1991, Hughes 1999). However, the primary cause for the cuckoo's decline is the extensive loss of its riparian forest habitat throughout the west (USFWS 2000). Knopf *et al*. (1988) and Catron *et al*. (2000) suggest about 90 percent of the riparian habitat in the west has been lost or degraded due to urban and agricultural development, improper livestock grazing, and water impoundments (USFWS 2005b).

This candidate species is a summer resident and breeding has been documented in Brown Canyon. Arriving in June and leaving by mid-September, this species prefers dense cottonwood/willow stands (Rosenberg *et al*. 1991, Halterman 1991), though it is known to nest also in salt cedar and in mesquite (Hunter *et al*. 1988). Nests are often placed in willows, but they use cottonwoods for foraging. In Brown Canyon, they nest in the Arizona sycamores and walnuts (Powell 1999).

Conclusion

After reviewing the status of the yellow-billed cuckoo, the environmental baseline for the action area, and the effects of the proposed action, we concur that the proposed action may affect, but is not likely to adversely affect, the yellow-billed cuckoo, based upon the following:

- The proposed burn is scheduled for mid-April to mid-May, before western yellow-billed cuckoo arrive in Brown Canyon for the breeding season.
- The riparian vegetation that makes up the western yellow-billed cuckoo habitat is not part of the proposed burn area, and if fire crosses the fire boundary into the riparian vegetation, suppression actions will be taken to localize any effects to yellow-billed cuckoo habitat.
- The reduction in accumulated fuels in the oak woodlands will reduce the likelihood that an uncontrolled wildfire will remove riparian hardwood trees used for nesting.
- The yellow-billed cuckoo habitat in the action area makes up only a minor fraction of the available habitat within the range of this species.
- No critical habitat has been designated for this species.

BIOLOGICAL AND CONFERENCE OPINION SUMMARY

Date of Opinion:	February 20, 2009
Action Agency:	USFWS – Buenos Aires National Wildlife Refuge
Project:	Brown Canyon Prescribed Burn – 2009 and reinitiation of the Refuge Comprehensive Conservation Plan
Location:	Brown Canyon, Buenos Aires NWR, Pima County, AZ
Listed species affected:	Kearney's blue star, southwestern willow flycatcher, lesser long-nosed bat, jaguar, Mexican spotted owl, and yellow-billed cuckoo. No designated critical habitat
Biological Opinion:	May adversely affect: Kearney's blue star May affect, not likely to adversely affect: southwestern willow flycatcher, lesser long-nosed bat, jaguar, Mexican spotted owl, and yellow-billed cuckoo

Incidental Take Statement:

Level of take anticipated: Not Applicable – plant species
Reasonable and Prudent Measures: Not applicable
Terms and Conditions: Not applicable
Conservation Recommendations:

1. We recommend that the known location of Kearney's blue star in the Maximum Allowable Area be flagged to make them visible from the air to assist bucket drops placement if protective measures are needed.

2. We recommend that the BANWR consider establishing or supporting a research program on fire effects on Kearney's blue star.

Assistant Field Supervisor Comments:

Field Supervisor Comments: