

SUMMARY  
BIOLOGICAL OPINION FOR  
THE STATE OF TEXAS MINE EXPERIMENTAL BAT GATE PROJECT

**Date of opinion:** February 24, 1997

**Action agency:** National Park Service

**Project:** State of Texas Mine Experimental Bat Gate Project

**Location:** Cochise County, Arizona

**Listed species affected:** Endangered lesser long nosed bat (Leptonycteris curasoae yerbabuena).

**Biological opinion:** The proposed project is not likely to jeopardize the continued existence of the lesser long-nosed bat.

**Incidental take statement:**

**Anticipated take:** *Exceeding this level may require reinitiation of formal consultation. Anticipated take is based on the minimum known maximum number of bats using the project site. If that number falls below 7,000, then reinitiation of consultation is required.*

**Reasonable and prudent measures:** *Implementation of these measures through the terms and conditions is mandatory. Four reasonable and prudent measures cover installation, monitoring, protection of the project, and maintenance of current gating.*

**Terms and conditions:** *Terms and conditions implement reasonable and prudent measures and are mandatory requirements. Seven terms and conditions are included to implement the reasonable and prudent measures.*

**Conservation recommendations:** *Implementation of conservation recommendations is discretionary. One conservation recommendation to survey for presence of lesser long-nosed bats in other possible roosts on the Coronado National Memorial is included.*



In Reply Refer To:

AESO/SE  
2-21-96-F-346

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February 27, 1997

MEMORANDUM

TO: Director, Intermountain Field Area, National Park Service, Denver, Colorado

FROM: Field Supervisor

SUBJECT: Biological Opinion for the State of Texas Experimental Bat Gate Project on Coronado National Memorial

The U.S. Fish and Wildlife Service (Service) has reviewed the biological assessment and related documentation for the State of Texas Mine Experimental Bat Gate Project located in Cochise County, Arizona. Your May 29, 1996, request for formal consultation was received on May 31, 1996. This document represents the Service's biological opinion on the effects of that action on the endangered lesser long-nosed bat (Leptonycteris curasoae verbabuenae) in accordance with section 7 of the Endangered Species Act of 1973, as amended, (16 U.S.C. 1531 et seq.).

This biological opinion is based on information provided in the May 24, 1996, biological assessment, telephone conversations, field investigations, site visits, meetings, 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, bat gates and their effects, or on other subjects considered in this opinion. A complete administrative record of this consultation is on file in this office.

In this biological opinion the Service finds that the effects of the proposed project are not likely to jeopardize the continued existence of the lesser long-nosed bat. Seven terms and conditions are described to reduce or eliminate take anticipated for the proposed action.

CONSULTATION HISTORY

Informal consultation was initiated on this project on April 17, 1996 with a telephone call with National Park Service personnel. A site visit was conducted on May 6, 1996. Formal consultation was requested by the National Park Service on May 29, 1996, and received by the Service on May 31, 1996. The Service acknowledged the request with a letter dated July 23, 1996. A meeting regarding the proposal was conducted in Tucson on September 19, 1996. A draft biological opinion was provided for review to the National Park Service on December 20, 1996. Minor changes to the biological opinion were suggested by the Park Service and subsequently made by the Service.

## BIOLOGICAL OPINION

### DESCRIPTION OF PROPOSED ACTION

The State of Texas Mine is an abandoned mine at the Coronado National Memorial in Cochise County, Arizona. The State of Texas Mine has three separate openings that are each covered with cable mesh. The cable is approximately 0.375 inches in diameter and in an arrangement of 6 inch by 6 inch square openings. The middle opening of the mine is the largest and is used by lesser long-nosed bats as the primary entrance/exit. The opening immediately to the east of the middle opening is rarely used by the bats. The third opening, approximately 50 feet west of the main entrance, is sometimes used but not by a great number of bats. Although the west opening is smaller than the other two, bats do hang on the cable mesh and come through in low numbers.

With the proposed action, the west opening would be gated experimentally. An assortment of gate configurations would be placed at this opening. To facilitate the presentation of different gate configurations, a 6 feet by 6 feet by 3 feet high box would be placed over the west entrance. This box would consist of six 3 feet by 6 feet panels (four sides, each consisting of a single panel and two panels for the roof). Each panel would be of a different configuration and could be interchanged with any other panel. The box of panels would be bolted together and the entire structure bolted to two cement corners (east side) and two corners anchored into the bedrock with steel base plates (west side). The panels will be prefabricated off-site and then bolted together at the site. A standard opening height of 6 inches will be use on all panels. Width of opening and panel material will vary among the panels. Panels will be constructed from round steel pipe (1.5 inch diameter), angle iron (2 and 4 inch), and square tubular steel (0.5 and 2 inch square). Some panels will have a 0.375 inch bar attached to one-half of the length of the panel.

An all terrain vehicle (ATV) will be used to transport materials to the site. At the west opening, the debris pile on the east and south sides will be dug down and back to allow for placement of two small concrete pads on which the gate frame columns on the east side of the gate will rest. This will also allow for clearance of the lower removable panels on the east and south sides. Areas will be chiseled flat for steel mount pads for the columns on the southwest corner and northwest corner. One to two holes will be drilled into rock for rebar placement to anchor the pads in place. On-site construction will require a maximum of five days to complete. The gate will be constructed so as to facilitate quick removal if it is determined the project be discontinued.

The panels will be changed at two-week intervals. After the panels have been in place for a week, several nights of observation would follow noting the number of bats using the gate and the panels that seem to be preferred. Because the bats are at the site for only 6-8 weeks, the project will be conducted for two years. Modifications may be made between years. During installation of the gate box, the cable mesh across the opening will be removed in a fashion that will allow easy replacement of the mesh if needed at the end of the experiment. Beginning

approximately July 10 of the season of construction, the site will be checked daily to determine arrival date of lesser long-nosed bats at the mine. The site will be monitored nightly for the first seven days after the arrival date. Exit and entrance observations of lesser long-nosed bats will be made at the site. After the first five nights of monitoring, use of the site will be assessed for possible termination based on observations of bat behavior. Further assessments will occur at 14 day intervals to determine if panels will be interchanged based on usage by bats. After the first seven days, observations will be obtained for three consecutive nights, with three days between observation periods. This schedule will continue until bats leave the roost in late September.

The project will be terminated at anytime if mortality of bats occurs due to use of the experimental gate. If lesser long-nosed bats do not appear at the site by August 6, the gate box will be removed. Termination will also occur if predation of lesser long-nosed bats is observed to be facilitated by the gate box.

Data collection will include exit and entrance counts of lesser long-nosed bats at both the main adit and through the adit with the experimental gate, rates at which the bats use both adits, videotape and behavioral observations of use at both adits, and which panels of the experimental gate are used. Observations will be made using night vision binoculars.

The immediate area of the mine will be closed for use by park visitors from July 15 through September 30. Signs will be posted on the trail to the site and at the site stating the closure area and reason for the closure. Patrols of the area will be made by park rangers to the greatest extent possible.

## STATUS OF THE SPECIES

### Lesser long-nosed bat

The lesser long-nosed bat was listed (originally, as Sanborn's long-nosed bat) as endangered on September 30, 1988 (53 FR 38456). No critical habitat has been designated for this species. The lesser long-nosed bat is a small, leaf-nosed bat. It has a long muzzle and a long tongue. These features are adaptations to collect nectar from the flowers of columnar cactus, such as the saguaro and organ pipe, and from paniculate agaves (Hoffmeister, 1986). This migratory species is found throughout its historic range from southern Arizona, through western Mexico, and south to El Salvador. It occurs in southern Arizona from the Picacho Mountains southwest to the Agua Dulce Mountains and southeast to the Chiricahua Mountains and south to Mexico. Arizona roosts are occupied from late April to September (Cockrum and Petryszyn, 1991). Adult females, most of which are pregnant, and their recent young are the first to arrive, and they form maternity colonies at lower elevations near concentrations of flowering columnar cacti. After the young are weaned, these colonies disband in July and August; some females and young move to higher elevations, primarily in the southeastern parts of Arizona near concentrations of blooming paniculate agaves. Adult males are known mostly from the Chiricahua Mountains but also occur with adult females and young of the year at maternity sites (Fleming, 1994).

Loss of roost and foraging habitat, as well as direct taking of individual bats during animal control programs, particularly in Mexico, have contributed to the current status of the species. Suitable day roosts and suitable concentrations of food plants are the two resources that are critical for the lesser long-nosed bat (Fleming, 1994). As indicated above, the lesser long-nosed bat consumes nectar and pollen of paniculate Agave flowers and the nectar, pollen, and fruit produced by a variety of columnar cacti. Caves and mines are used as day roosts. The factors that make roost sites useable have not yet been identified. Whatever the factors are that determine selection of roost locations, the species appears to be sensitive to human disturbance. Instances are known where a single brief visit is sufficient to cause a high proportion of lesser long-nosed bats to temporarily abandon their day roost and move to another. Perhaps most disturbed bats return to their preferred roost in a few days. However, the sensitivity suggests that the presence of alternate roost sites may be critical when human disturbance occurs. Interspecific interactions with other bat species may also influence lesser long-nosed bat roost requirements.

Known major roost sites include 16 large roosts in Arizona and Mexico (Fleming, 1994). According to surveys conducted in 1992 and 1993, the number of bats estimated to occupy these sites was greater than 200,000. Twelve major maternity roost sites are known for Arizona and Mexico. According to the same surveys, the maternity roosts are occupied by over 150,000 lesser long-nosed bats. The numbers above indicate that although there may be relatively large numbers of these bats known to exist, the relative number of known large roosts is small. Disturbance of these roosts and the food plants associated with them could lead to the loss of the roosts. The limited numbers of maternity roosts may be the critical factor in the survival of this species.

## 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.

### Lesser long-nosed bat

Lesser long-nosed bats inhabit the State of Texas Mine at Coronado National Memorial. It is not known when the bats began using the mine. Surveys in 1977 and 1978 did not reveal signs of lesser long-nosed bats at the site. The mine was acquired by the National Park Service in 1986, and structures were removed in 1987. The existing mine closure (cable mesh) materials were installed in 1988, at which time there was no indication of lesser long-nosed bats at the site.

In late summer of 1993, a large colony of this species was discovered at the mine. Estimates at that time indicated that over 18,000 bats used the abandoned mine. Subsequent monitoring showed that these bats generally arrive during the latter part of July and typically leave by the end of September. During that time the bats feed on nectar and pollen of blooming agaves in the area. The site is a post-maternity roost. The bats probably move south into Mexico when they leave the site in late September.

The bats have been observed to maneuver through the cable mesh that covers the three entrances. Observations have revealed that the bats can fold their wings and swoop through the 6x6 inch mesh openings. They have also been observed to hang from the cable mesh and "trapeze" to the other side.

## EFFECTS OF THE ACTION

### Lesser long-nosed bat

The National Park Service believes the project will have a beneficial effect on the lesser long-nosed bat at Coronado National Memorial. If successful, the information obtained will provide needed information for the protection of lesser long-nosed bats at the Memorial and elsewhere. The project objectives are to: 1) enhance the State of Texas mine site as a viable roost for the lesser long-nosed bat, 2) determine if lesser long-nosed bats will use the State of Texas Mine with the experimental gate in place, 3) determine an acceptable opening configuration, 4) determine materials for gate construction, and 5) obtain entrance and exit observations of lesser long-nosed bats at the State of Texas Mine.

Installation of the experimental bat gate could affect the behavior of the bats using the mine site. This effect could range from absolute avoidance of the site to changes in the efficiency of how the site is accessed and used. Changes in efficiency could, for example, increase predation on the bats. Closure of the area and the accompanying signs may discourage activity in the area, but could also attract those wanting to view an endangered species. Known lesser long-nosed bat roosts are rare. Any loss of the use of this roost, for any reason, by lesser long-nosed bats could be a significant adverse affect.

## CUMULATIVE EFFECTS

Cumulative effects include the effects of future State, 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 ESA. The project site is on Federal land. Thus, no State or private actions are expected to occur at the site.

## CONCLUSION

After reviewing the current status of the lesser long-nosed bat, the environmental baseline for the action area, the effects of the proposed action and the cumulative effects, it is the Service's biological opinion that the State of Texas experimental bat gate, as proposed, is not likely to jeopardize the continued existence of the lesser long-nosed bat, and is not likely to destroy or adversely modify designated critical habitat. No critical habitat has been designated for this species, therefore, none will be affected.

## INCIDENTAL TAKE STATEMENT

Sections 4(d) and 9 of ESA, as amended, prohibit taking (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or attempt to engage in any such conduct) of listed species of fish or wildlife without a special exemption. Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, or sheltering. Harass is defined as 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 any take of listed animal species that results from, but is not the purpose of, carrying out an otherwise lawful activity conducted by the Federal agency or the applicant. 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 a prohibited taking 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 implemented by the agency so that they become binding conditions of any grant or permit issued to the applicant, as appropriate, in order for the exemption in section 7(o)(2) to apply. The National Park Service has a continuing duty to regulate the activity covered by this incidental take statement. If the National Park Service (1) fails to require the applicant to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, and/or (2) fails to retain oversight to ensure compliance with these terms and conditions, the protective coverage of section 7(o)(2) may lapse.

## AMOUNT OR EXTENT OF TAKE

The Service anticipates incidental take of lesser long-nosed bats will be difficult to detect for the following reason(s): the species is wide-ranging and may use more than one roost; it has small body size; finding a dead or impaired individual is unlikely; losses may be masked by seasonal use of the roost; and the species occurs in habitat that makes detection difficult. However, the following level of take of this species can be anticipated by monitoring the numbers of bats known to use the roost in a season. The largest maximum number of bats

known to be present in this roost during a season is 18,000 and the smallest maximum number is 7,000. Therefore, if the maximum number of bats known to use the mine falls below 7,000 in a given season, then reconsultation regarding this project is required.

If, during the course of the action, the amount or extent of the incidental take anticipated is exceeded, the National Park Service must reinitiate consultation with the Service immediately to avoid violation of section 9. Operations must be stopped in the interim period between the initiation and completion of the new consultation if it is determined that the impact of the additional taking will cause an irreversible and adverse impact on the species, as required by 50 CFR 402.14(i). An explanation of the causes of the taking should be provided to the Service.

### EFFECT OF THE TAKE

In the accompanying biological opinion, the Service 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

The Service believes the following reasonable and prudent measure(s) are necessary and appropriate to minimize take:

1. The experimental bat gate structure will be installed and sufficiently seasoned on site before the bats return to the roost in the first season of the experiment.
2. Sufficient monitoring of the experimental bat gate will be conducted to determine the results of the experiment and any incidental take that may occur.
3. The State of Texas Mine area will be patrolled sufficiently with the goal to prevent disturbance of the site and the experiment by unauthorized personnel.
4. As long as the cable netting remains in place, it will be maintained to ensure exclusion of unauthorized human entry.

The National Park Service (or designated applicant or contractor) as part of their action will provide a means to determine the level of incidental take that actually results from the project.

### TERMS AND CONDITIONS

In order to be exempt from the prohibitions of section 9 of ESA, the (agency) must comply with the following terms and conditions, which implement the reasonable and prudent measures described above. These terms and conditions are nondiscretionary.

1. Terms and conditions for reasonable and prudent measure 1:

The experimental bat gate structure will be installed by the end of March to guarantee seasoning of the structure before the expected return of the bats to the site in July.

2. Terms and conditions for reasonable and prudent measure 2:

a. The six panels of the experimental bat cage will be rotated each week to different positions to reduce the bias of flight direction, exposure and other factors. Determinations will be made as to the number of bats using any particular panel per unit time. To put the use in proper perspective, exit counts for the main exit will be conducted every other night or at least three times a week.

b. An infrared-sensitive video camera will be used to record the response of lesser long-nosed bats to the experimental configurations of the bat gate.

c. A report, fully covering all activities regarding this project including monitoring, incidental take, and implementation of reasonable and prudent measures, will be provided to the Arizona Ecological Services Office by November 1 of each year of the experiment. At the conclusion of the experiment and analysis of data, the Park Service will investigate the feasibility of incorporating any of the arrays as a permanent gate on the main opening of the mine. However, no gate will be installed without further consultation with the Service.

d. The National Park Service will make every effort to coordinate with other researchers and obtain information regarding use by lesser long-nosed bats of other nearby roosts. Such information may be valuable in interpreting the results of the proposed experiment.

3. Terms and conditions for reasonable and prudent measure 3:

The National Park Service will determine and implement at least the minimum amount of patrolling by Park personnel required to ensure that the State of Texas Mine will not sustain disturbance or vandalism during the entire course of the experiment.

4. Terms and conditions for reasonable and prudent measure 4:

The cable netting will be examined on a regular basis. Any necessary maintenance will be conducted promptly to ensure that the cable netting, as currently installed, continues to prohibit unauthorized entry of the roost.

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. With implementation of these measures the Service believes that the known maximum number of lesser long-nosed bats using the roost will not fall below 7,000 undetected. If, during the course of the action, this minimized level of incidental take is exceeded, such incidental take would represent new information requiring review of the reasonable and prudent measures provided. The Federal agency must immediately provide an explanation of the causes of the taking and review with the Service the need for possible modification of the reasonable and prudent measures.

### CONSERVATION RECOMMENDATIONS

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

If it has not already been done, the Service recommends that all additional possible lesser long-nosed bat roosts on the Coronado National Memorial be investigated for the presence of the species. The Service wishes to receive the results of any such investigations.

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

### REINITIATION - CLOSING STATEMENT

This concludes formal consultation on the action(s) outlined in the proposal for the State of Texas experimental bat gate project. 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 maintained (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 that was 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.

Thank you for your continuing efforts to conserve listed species. If we can be of further assistance, please contact Bill Austin or Bruce Palmer. Please refer to consultation number 2-21-96-F-346 in future correspondence concerning this project.



Sam F. Spiller

cc: Regional Director, Fish and Wildlife Service, Albuquerque NM (GM:AZ)  
Superintendent, Coronado National Memorial, Hereford AZ

Director, Arizona Game and Fish Department, Phoenix AZ

## LITERATURE CITED

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