



UNITED STATES  
DEPARTMENT OF THE INTERIOR  
FISH AND WILDLIFE SERVICE

ECOLOGICAL SERVICES  
3616 W. Thomas, Suite 6  
Phoenix, Arizona 85019

2-21-90-F-144

May 15, 1990

David F. Jolly  
USDA Forest Service  
517 Gold Avenue, SW.  
Albuquerque, New Mexico 87102-0084

Dear Mr. Jolly:

This responds to your request of April 17, 1990, to the Fish and Wildlife Service (FWS) for formal consultation pursuant to Section 7 of the Endangered Species Act (Act) of 1973 (as amended), on the placement of a gate over the entrance to Cave of the Bells on the Coronado National Forest, Santa Cruz County, Arizona. The species of concern is Sanborn's long-nosed bat (Leptonycteris sanborni).

The following biological opinion is based on data presented in the Forest Service assessment of impacts, supporting documents, data in our files, and other sources of information.

BIOLOGICAL OPINION

It is my biological opinion that construction and operation of this gate at Cave of the Bells is not likely to jeopardize the continued existence of the endangered Sanborn's long-nosed bat. If the gate design proves successful, it will benefit the species through roost habitat protection and corresponding decreases in human disturbance.

BACKGROUND INFORMATION

Species Description

Sanborn's long-nosed bat was listed as an endangered species on September 30, 1988. Critical habitat was not designated. Historic range is likely similar to present range. Sanborn's bat annually arrives in Arizona from Mexico or Central America in late May although some individuals were present in mid-April 1990. Maternity colonies have been recorded from Pima, Pinal, and Santa Cruz Counties with transient roosts also recorded from Cochise and Graham Counties in Arizona. Sanborn's bat leaves Arizona in late September (Cockrum. In press). Nectar feeders, Sanborn's bat utilizes columnar cactus and some paniculate agaves for food, their seasonal movements likely cued to flowering and fruiting of its forage species (Cockrum. In press). Loss of roosting habitat and destruction of forage plants are primary threats.

Sanborn's bat has been reported from Cave of the Bells since 1960. Numbers of bats reported have varied over the years, but the occupancy period has remained stable at late August through September.

### Project Description

The project would install a gate made of two-inch tubular steel pipe over the entrance to Cave of the Bells. The gate would be closed from August 15 to September 31 each year to protect roosting Sanborn's bats from human disturbance. Outside the closure period, the gate would be locked open.

A prototype design for the gate was tested at Cave of the Bells in 1989. The modified design for the gate would be permanently installed prior to the arrival of Sanborn's bat in August. The gate door would remain open until after the second night the bats are detected in the cave. On that night the gate door would be half-closed, then completely closed on the third night. Evaluation of behavioral responses to the gate and evening counts of departing bats are included in the project protocol. If the bats do not seem to accept the gate and appear to be abandoning the cave, the gate would be opened until acceptance is observed.

A public information sign will also be erected at the cave to inform the public of the closure and the reason for it.

### EFFECTS OF THE ACTION

Installation of the gate itself would not affect Sanborn's bat as construction would be completed prior to the bat's arrival at Cave of the Bells. Operation of the gate may affect the bats in several ways.

The openings in the structure were shown to be acceptable in size during the prototype tests in 1989. Bats did hesitate passing through the gate in either direction, usually circling in front of the gate several times before going through. This behavior has also been noted in bat observations in previous years (1987 and 1988) at Cave of the Bells without a gate in place and may or may not be a response to human presence. Declines in the Sanborn's bat populations using the cave in 1989 paralleled observations from earlier years, thus the prototype gate did not cause early abandonment of the site. The prototype design has been modified based on 1989 observations to allow bats better access over the top bars as this seemed a favored point of departure during the study period.

Sanborn's bat may be able to traverse the gate safely most of the time, but there remains an opportunity for injury to individual bats from striking the bars. The gate may also alter the risk of predation by providing perches for potential predators or increasing the opportunity to catch a bat during the circling behavior at the gate. Neither of these events was observed in 1989, however, a ringtail cat (Bassariscus astutus) was observed leaving the cave entrance.

The public information sign outside the cave may discourage vandalism of the gate and allow the protection of the bats while in the cave. The information may also attract some people wishing to see an endangered species.

#### INCIDENTAL TAKE

Section 9 of the Act prohibits any taking (harass, harm, pursue, hurt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct) of listed species without a special exemption. Harm is further defined to include significant habitat modification or degradation that result in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, or sheltering. Under the terms of Section 7 (b)(4) and 7 (o)(2), taking that is incidental to, not intended as part of, the agency action is not considered taking within the bounds of the Act provided that such taking is in compliance with the incidental take statement.

As described under effects of the action, Sanborn's bats are not likely to experience a loss of roosting habitat due to the gate operation. However, mortalities caused by striking the gate or predation may occur. Strike mortalities could be simple to detect during observations, but predation or predation attempts would be more difficult, especially since human observers will be at the cave each night and their presence likely would influence potential predators. Harassment by visitors disregarding the protective closure is also a source of mortality.

The potential causes of mortality are highly random and thus, are difficult to quantify. The causes are also somewhat interconnected and providing a separate take level for each cause may not be possible. The number of bats in the cave varies tremendously from both year to year and over the period of occupancy. With these variables, setting a specific take number becomes unrealistic.

The FWS will therefore set a yearly incidental take level of 1% of the bat population in Cave of the Bells on the day the gate closes, or 5 animals if that population is below 500 animals. This level is set low enough to allow evaluation of the causes of mortality, yet not allow depletion of a small roosting population.

The following reasonable and prudent measures will help to reduce incidental take:

1. The gate structure should be designed and implaced such that it can be quickly removed in the event significant mortalities begin to occur because of its presence.
2. Use of Cave of the Bells by predators should be evaluated to determine if a high predation risk exists.

3. Responses of visitors to the cave to the informational material should be evaluated.

4. Amount and extent of vandalism to the gate monitored and its effects to the bat evaluated.

The following terms and conditions must be complied with in order to implement the above measures.

1. All Sanborn's bats killed, or injured in conjunction with this project shall be reported to the FWS, Phoenix Ecological Services Office. Disposition of carcasses will follow FWS procedures.

2. All significant acts of vandalism to the gate structure shall be reported to the FWS, Phoenix Field Office prior to any repairs being made. Decisions on repairing or removing the gate will be made at those times by the Forest Service and FWS.

If during the course of the action, the amount or extent of the incidental take is exceeded, the Forest Service must reinitiate formal consultation with the FWS. The Forest Service should provide an explanation of the causes of the taking.

#### 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 the endangered and threatened species. The term conservation recommendation has been defined as suggestions of the FWS regarding discretionary measures to minimize or avoid adverse effects of a proposed action on listed species or critical habitat or regarding the development of information.

1. Long term maintenance of the gate structure should include painting or treatments to maintain the high-contrast color of the structure for better visibility to the bats.

2. If the Cave of the Bells gate is successful, the design and protocol could be made available for use on other districts and by other agencies seeking protective gates for Sanborn's bat populations.

This concludes formal consultation on this action. Reinitiation of formal consultations is required if the amount or extent of incidental take is exceeded, if new information reveals effects of the action that may impact listed species or critical habitat in a manner or to an extent not considered in this opinion, if the 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 if a new species or critical habitat designated that may be affected by this action.

If we may be of further assistance, please contact Ms. Lesley Fitzpatrick or me (Telephone: 602/379-4720 or FTS 261-4720).

Sincerely,



Sam F. Spiller  
Field Supervisor

cc: Regional Director, Fish and Wildlife Service, Albuquerque, New Mexico  
(FWE/HC)  
Director, Arizona Game and Fish Department, Phoenix, Arizona  
Director, Fish and Wildlife Service, Washington, D.C. (EHC)

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LITERATURE CITED

Cockrum, E.L. Seasonal Distribution of Northwestern Populations of the Long-Nosed Bats, Genus Leptonycteris, Family Phyllostomidae. In Press.