

VOLUME 7, NO. 4 Winter 1989

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Colossal Cave A Year Later

The welcome sign is out again for bats at Colossal Cave--

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The welcome sign is out again for bats at Colossal Cave--

by Yar Petryszyn

In the foothills of the Rincon Mountains near Tucson, Arizona, Colossal Cave once housed between 3,000 and 5,000 lesser long-nosed bats (*Leptonycteris curasoae*)*, as well as colonies of four other species. It was one of the few maternity sites for long-nosed bats known in the United States. But bats were virtually eliminated from the cave in 1966 when a fan was installed to exhaust the odor of guano from the tourist section of the cave. The fan not only created a draft through the chamber where bats reared their young, but also blocked the entrance used by most of them. Last year, the efforts of University of Arizona student and BCI member Ronnie Sidner focused attention on the issue [BATS, Fall 1988], and as a result, solutions were sought to reestablish Colossal Cave as a maternity roost for lesser long-nosed bats.

The recent listing of these bats as an endangered species provided even more impetus to reestablish Colossal Cave as a bat roost. When the Pima County Parks and Recreation Commission became aware of the problem and learned about the importance of long-nosed bats to southwestern desert ecosystems, they quickly convened an ad hoc committee to study the issue and make recommendations.

The committee consisted of a broad range of experts: a bat biologist, a field expert from the Nature Conservancy, a member of the caving community, an expert on the structure of Colossal Cave, a representative from the Arizona Game and Fish Department, a member of the Pima County Health Department, a legal representative for Pima County, and myself a BCI member and an ecologist with a knowledge of bats. Gale Bundrick, superintendent of Parks and Recreation, chaired the committee.

Careful consideration was given to all possible solutions. After several months of gathering pertinent information, the committee recommended that the exhaust fan complex be moved to another area within the cave system. The selected site is a natural opening, sealed shut in the 1930's, which is closer to the commercial tour area. Moving the fan will, in theory, serve three purposes: 1) reopening the bat cave so bats can gain access to their traditional roost, 2) eliminating, or at least greatly reducing, the flow of air through the roost, and 3) continuing to exhaust the odor of bat guano from the tourist area of the cave, but with less impact on the bats' roost environment.

The committee also strongly recommended the establishment of a remote monitoring system to be in place and functional before the exhaust fan is moved so information about the cave environment could be recorded before and after. Through the volunteer efforts and expertise of Ginny and Dave Dalton, both bat researchers and BCI members, the monitoring system placed in the entrance tunnel and throughout the former bat chamber was functioning in June of 1989, recording temperatures relative humidity and air flow.

Moving the fan and reopening the entrance to the bat chamber is scheduled to take place sometime before March 1990-well before the seasonal arrival of long-nosed bats in the area.

The Daltons and I, with the help of personnel from Organ Pipe Cactus National Monument, the Cabaza Prieta Wildlife Refuge, and Luke Force Base plan to incorporate similar monitoring systems in two other large, currently active long-nosed maternity sites located elsewhere in southern Arizona. One of these colonies utilizes an abandoned mine tunnel open at both ends. A definite flow of air can be felt within the tunnel yet numerous baby bats are found roosting from the ceiling. The other maternity site is found within an adit (a horizontal mine shaft with only one opening) that has very little flow. The information obtained will give us some indication of the range of conditions that long-nosed bats tolerate in a maternity site. It will also be important in evaluating conditions in Colossal Cave before and after the relocation of the fan.

An added bonus of setting up the monitoring system for long-nosed bats will be the simultaneous monitoring of a California leaf-nosed bat (*Macrotus californicus*) maternity colony-about 400 individuals-in conjunction with the Cabaza Prieta long-nosed bat site. California leaf-nosed bats are recent candidates for endangered species listing. Although the long-nosed and leaf-nosed bats utilize separate adits, the sites are close enough to be monitored with the same recording system.

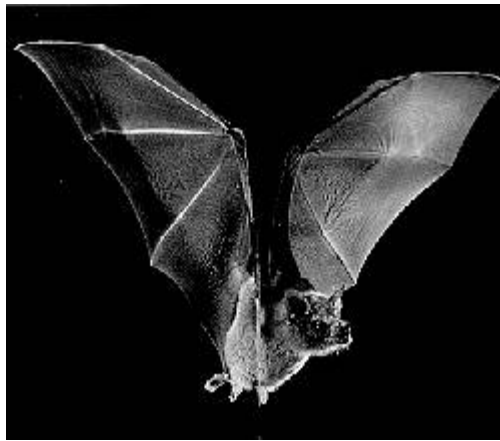
Around Colossal Cave, Joe Maierhauser, the lessee and operator of the cave, erected several large hummingbird feeders this past spring and summer in an attempt to begin luring long-nosed bats back to the area. These bats are known to visit hummingbird feeders at other locations throughout southern Arizona, sometimes emptying the contents during a single night.

Maierhauser has also requested the advice of both Bat Conservation International and noted University of Arizona bat biologist, E.L. Cockrum. He is investigating the possibility of experimental modification of a small mine adit on his personal property close to Colossal Cave. He hopes long-nosed bats will be attracted to this huge "bat house" and thus establish another maternity colony.

Environmental monitoring of Colossal Cave and the other maternity roosts will result in a greater understanding of the basic roosting requirements of long-nosed bats. With the reopening of their traditional roost, and the knowledge gathered from the monitoring systems, Colossal Cave may again be established as a major roost for this endangered bat.

(footnote 1)

**Formerly known as Sanborn's long-nosed bats (L. sanborni).*



When endangered lesser long-nosed bats return to the Tucson area this spring, they will find their traditional roost in Colossal Cave open to them once again after many years.

PHOTO BY MERLIN D. TUTTLE

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