

## VOLUME 2, NO. 4 Winter 1985

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Joint Effort Saves Vital Bat Cave  
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by *Dr. Merlin Tuttle*

Hubbards Cave, located in the Cumberland Mountains of central Tennessee, contains one of the world's largest bat hibernation populations. It ranks among the three most important hibernating sites in America, drawing migrants from an area covering roughly 100,000 square miles in at least six states. Hubbards, and just two other caves, contain more than three quarters of the entire known species population of endangered Gray Bats (*Myotis grisescens*). It is also a winter home for at least seven other species, including the endangered Indiana Bat (*Myotis sodalis*).

In the summer of 1985, the Tennessee National Guard, Mid-State Steel Corporation, the Tennessee Nature Conservancy, the Nashville Grotto of the National Speleological Society, and the Cave Conservation Institute joined forces to construct the largest gate ever built to protect cavedwelling bats. The Richmond Area Speleological Society provided much of the funding, and volunteers spent five weekends building a gate more than 30 feet tall and 35 feet wide, containing nearly 130 tons of steel and concrete.

Hubbards Cave had suffered from human disturbance dating back at least as far as the Civil War, when troops mined bat guano to produce nitrates for gun powder. Thereafter, the cave's several thousand feet of spacious passages increasingly attracted exploration by amateur spelunkers. Some, ignorant of bat values or needs, intentionally killed thousands of the helpless hibernators before they could arouse, and others filled bags with them for local pranks. Many more inadvertently disturbed tens of thousands, causing them to starve when winter fat reserves were prematurely exhausted.

I first visited the cave in 1962 and found only a small fraction of the number that had been reported in the 1950's. In subsequent visits, I found hundreds of bats dead and dying from deliberate human attacks, and wondered how any survived. I hypothesized that a remnant population might have escaped into a lower section of the cave that remained undiscovered by people.

For eight years I returned once a year, searching for the hypothesized bat sanctuary. My escapades included nearly being shot by a moonshiner, a narrow miss by a falling boulder, and being trapped for two hours when a small passage collapsed, pinning me against a wall. On January 21, 1970 in a near state of hypothermia, after having climbed 20 feet down a cliff through an icy waterfall, I was about to give up on another dead end when the sound of a bat caused me to look beneath a ledge near the cave floor. I was astonished to peer into a new passage, solidly covered with bats, hundreds of thousands of them, as far as I could see.

In previous years I had banded more than 40,000 young Gray Bats as they first emerged from summer nursery caves throughout the southeastern United States. I was ecstatic to discover that many thousands of these were present, some having traveled more than 350 miles north from Florida, a totally unexpected event. These bats require uniquely contoured

hibernation caves, capable of trapping enormous quantities of cold air without freezing. I later learned that less than 0.1% of the area's caves are suitable, and that Hubbards Cave, with its ideal contours, is critical to the survival of Gray Bats over a vast area.

Although many bats in Hubbards Cave had escaped direct human threats, they still faced serious danger. They had been forced back into a low area where overcrowding had caused thousands to roost within a foot of the floor. Some 10,000 bats lay dead, victims of a recent flood, while discarded wings indicated that thousands more had fallen prey to opportunistic raccoons.

I soon realized the importance of providing the kind of protection that would enable the bats to return to their original roosts. Gray Bats were declining rapidly throughout their range. My censuses documented a more than 50% decline in just six years. At my request the U.S. Fish and Wildlife Service listed them as endangered in 1976. Repeatedly, I lobbied private and government organizations on behalf of the bats in Hubbards Cave, but in those days bat conservation remained unpopular. By 1981, bats in Hubbards Cave had declined to fewer than half of the number I had seen in 1970.

That summer, I presented a slide lecture at an annual meeting of the Tennessee Nature Conservancy, leaving them enthusiastic about bats. The next year they agreed to purchase Hubbards Cave if an adequate means of protection could be found. In the most ambitious cooperative effort yet undertaken on behalf of bats, the Cave Conservation Institute developed a plan for a massive gate that would be virtually impenetrable to people, yet would not substantially interfere with the movement of air or bats.

The Nature Conservancy organized and coordinated volunteers from all over the southeastern U.S., mostly members of the National Speleological Society and the U.S. Fish and Wildlife Service. The National Guard originally had hoped to use the area as a target practice range. Yet when the local commanding officer viewed our "National Geographic Explorers" program on April 14, 1985, he was so favorably impressed that he immediately offered National Guard assistance to the project. They constructed almost a mile of road through extremely difficult terrain, transporting all the construction materials to Hubbards Cave.

The most interesting part of the cave is still open to cavers year-round. The bat section will be open to exploration only from mid-May through mid-August when the bats are not present. For information on visiting Hubbards Cave, contact: Tennessee Nature Conservancy, P.O. Box 3017, Nashville, TN 37219.

Poorly designed gates can be very harmful to bats. For information on proper use of gates to protect bats, contact: Robert C. Currie, U.S. Fish and Wildlife Service, 100 Otis Street, Room 224, Asheville, NC 28801.

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*The gaping entrance to Hubbards Cave demonstrates the enormity of the project to protect it. The gate is the largest of its kind in the world. Photo courtesy Dr. Merlin Tuttle.*



*Volunteers construct the giant gate to protect hibernating bats in Hubbards Cave. Photo courtesy Dr. Merlin Tuttle.*

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