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Former Home of More Than a Million Endangered Indiana Bats Protected
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Tuttle, Merlin D.

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By Merlin D. Tuttle

I'll never forget the excitement, or the disappointment, of my first visit to Virginia's Rocky Hollow Cave in the winter of 1969. The previous summer, local cavers had enthusiastically informed me that they had discovered the "mother of all bat caves," with large areas covered in tightly packed clusters up to 100 feet or more across. On a cold winter morning, they led me up a steep mountain through snow-covered rhododendron, then into a large cave that indeed appeared to have just the right conditions to shelter one of the largest populations of hibernating bats ever discovered by a biologist. Cold air was pouring into a maze of interconnecting passages and deep pits, where it was then trapped. The resulting temperature ranged from below freezing to above 50 degrees Fahrenheit, with large areas remaining between 45 and 47 degrees Fahrenheit year-round. Such near-perfect hibernation roosts are extremely rare.

I could hardly contain my excitement as I rappelled to the bottom of the first 75-foot pit and crawled through a tight tunnel into the reported bat chambers. A glance at the continuous reddish staining on the limestone walls confirmed past use by an enormous bat population spanning hundreds, probably thousands, of years. It is difficult to express my disappointment when, after hours of scrambling, climbing, and literally running down reddened passages, I had to conclude that the bats might no longer exist.

Careful questioning revealed that whole groups of cavers had spent weekend after weekend camping in and exploring the cave during the previous winter, unaware that hibernating bats might not survive such disturbance. Repeated searches in subsequent years revealed only 500-1,200 surviving bats of some five species, mostly endangered Indiana bats (*Myotis sodalis*). Given that this species clusters at densities of 300 to 484 individuals per square foot, their former numbers in Rocky Hollow Cave must have been truly amazing, possibly reaching millions.

In the 1800s, there were more than 10 million Indiana bats in Mammoth Cave, Kentucky, alone (*BATS*, Winter 1997). By 1980, the estimated total for this species had plummeted to 550,000, then fell to just 353,000 by 1997.

Winter survival demands that bats lower their metabolic rates to conserve limited fat supplies for six months at a time. To reach the rare caves that provide the conditions I found in Rocky Hollow, they often must migrate hundreds of miles and aggregate in very large and vulnerable groups. Wide ranges of roost temperatures ensure survival during weather extremes, which is essential for species that rear just one young per year. Since caves large and complex enough to meet bat needs are also those most sought after for human exploration and commercialization, it should not be surprising that Indiana bats have declined rapidly since the arrival of European settlers in America.

Today, it is critically important to bat conservation efforts that, wherever possible, such caves be identified, restored and protected. For this reason, I have personally worked for close to 30 years to gain protection for Rocky Hollow Cave. Thanks to a partnership effort with the U.S. Forest Service and the U.S. Fish and Wildlife Service, data collected by BCI and a team of collaborators over the past winter now documents why Rocky Hollow Cave once harbored one of America's largest aggregations of hibernating bats.

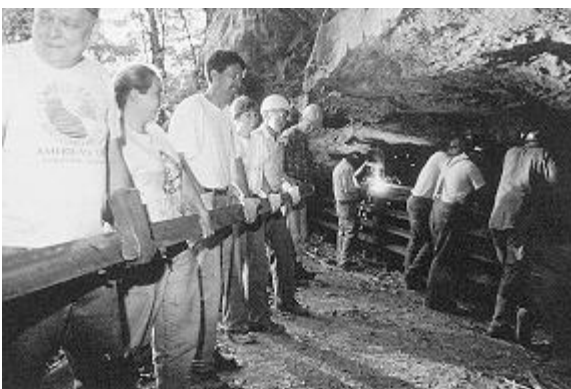
Protecting this key site has been extraordinarily difficult. Area land ownership and jurisdiction have presented legal nightmares sufficient to preclude Forest Service action under any but the most extreme circumstances. Yet last spring, armed with new data on the cave's unique value, the Indiana bat's further decline, and a new era of partnership and respect for bats, perseverance paid off. Forest Service biologist Lisa Nutt, a deeply concerned and persuasive graduate of BCI's Bat Conservation and Management Workshop, led the way in arranging an agreement to gate and eventually purchase Rocky Hollow Cave. She then worked with engineer Roy Powers of the American Cave Conservation Association to design a gate and supervise construction in May. Tons of steel and equipment were helicoptered to the remote mountaintop site, and a 23-person team built the roughly 25-foot-long gate in three days. Volunteers from the following partners are deeply appreciated: the Nature Conservancy; the U.S. Fish and Wildlife Service, the U.S. Forest Service; and the Virginia Department of Game and Inland Fisheries.

Field data recently collected by BCI and a team of collaborators from federal and state agencies documents that this species is capable of recovery when caves or mines that meet its requirements are protected. The Forest Service hopes to complete a land swap with the cave's private owners in the year ahead, ensuring long-term protection. This is a giant step for bats, one in which Lisa Nutt, the Forest Service, and all our other members and partners can take great pride!

Merlin D. Tuttle is Founder and Executive Director of BCI.



The fact that only a few caves meet their narrow hibernation requirements makes Indiana bats extremely vulnerable. Clusters such as this sometimes contain up to 484 bats per square foot.



After steel was flown in by helicopter, professionals and volunteers from six organizations joined in the three-day effort to build the 25-foot-long protective gate.



U.S. Forest Service biologist Lisa Nutt, a BCI workshop graduate and longtime colleague, observes a lone pipistrelle (*Pipistrellus subflavus*) that slept through the gate construction. In the background is the completed gate, which will keep vandals from further degrading the bats' habitat.

All articles in this issue:

- ▶ [On the Cover](#)
- ▶ [Young Ambassadors of BCI](#)
- ▶ [Former Home of More Than a Million Endangered Indiana Bats Protected](#)
- ▶ [The Tale of a Giant Sponge, A Hot Chili Pepper, and a Bat](#)
- ▶ [Where the Bats Are - Part II: Other Animals' Shelters](#)
- ▶ [2000 Field Study Workshops](#)
- ▶ [Invitation to BCI's Legacy Circle](#)
- ▶ [Member Alert: *BATS* Movie is a True Horror](#)
- ▶ [Look for "Masters of the Night: The True Story of Bats" at these locations:](#)
- ▶ ["Highlights" Report Moved](#)
- ▶ [Founder's Circle Trip to Botswana and Zambia](#)
- ▶ [Join us in the Wilds of Venezuela](#)