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### Adventures with Bats

Before BCI, Merlin Tuttle studied bats the hard way

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A chance meeting with Merlin Tuttle 35 years ago drew me into an unforgettable series of adventures and provided a unique insight into the early philosophy, research and conservation work that culminated – 12 years later – in the birth of Bat Conservation International. It also taught me just how much work goes into studying bats.

At the time of our meeting, Merlin was conducting his doctoral research on gray myotis (*Myotis grisescens*) and had banded more than 40,000 of them over a good portion of the southeastern United States. His research provided the documentation needed to list these imperiled bats as a federal Endangered Species in 1976. And I am delighted to see that his unstinting efforts have now led to a dramatic recovery.

In the fall of 1970, I was a recent high school graduate and an avid caver helping a biology team survey caves in Florida. One evening, as we sat around our campfire, we were joined by a person introduced as Merlin. He knew one of our team's biologists, and the conversation promptly shifted to – what else? – bats. As a caver, I had seen a lot of unique cave life but never really paid much attention to it, as I concentrated on the technical aspects of getting through the caves. Merlin mentioned that he was visiting a local cave the next day to capture and band bats, and I asked if I could tag along.

Fish Cave was filled with water that was often waist-deep and topped with cakes of floating guano. Carrying our nets, we waded in. We eventually reached the colony clinging to the ceiling, netted a number of them and made our soggy way back to the surface. This was my first close encounter with a lot of bats, and I was surprised at their complete lack of aggressiveness.

Having shown an interest in his work – and a willingness to risk disappearing into flooded, underground potholes – Merlin asked if I'd like to join him as he traveled around the Southeast conducting his research. I was waiting to enter the U.S. Navy and had no particular plans for the interim, so I accepted his invitation.

Returning home from Florida, I repacked my bags and climbed aboard a Greyhound bus bound for Rogersville, Tennessee, to meet up with Merlin. Our first stop of the day was at a Virginia cave that had once been an important roosting habitat for gray myotis. But by the time we arrived, the entrance to the cave had been demolished by a railroad to make room for additional tracks.

Crossing the tracks and scrambling through the debris, we found a narrow opening, all that remained of the original entrance. We climbed into the cave and, not surprisingly, soon discovered that no bats remained. Temperature readings confirmed that losing the natural entrance rendered the cave useless to bats. In 1970, of course, the notion of determining the presence of bats before altering a cave, much less taking them into consideration before demolition, was virtually unheard of.

Next we moved on to another Virginia cave, this one presenting some special challenges.

The entrance was in the middle of a pasture dotted with limestone outcroppings and rocks, and the pasture was patrolled by a large and apparently grouchy bull. Reaching the entrance safely required stealth, nerves of steel and, as a last, desperate resort, very quick feet.

Bat field-research in those days was rather crude by modern standards. Both equipment and our understanding of the needs of bats have improved dramatically since 1970. On this trip in late summer, we usually captured bats roosting where the ceiling was low enough for us to reach with hand nets. The nets resembled large basketball hoops stuck on the ends of eight-foot (2.4-meter) poles. The hoops held nets lined with plastic flaps to keep the bats from climbing out. Before we entered the cave, Merlin explained how to use the hand nets to sample the composition of the roost, while disturbing the bats as little as possible.

Wearing our caving coveralls and each of us loaded down with a hand net and backpack, we very carefully marked the bull's position relative to the cave entrance, then struck out across the field. It was a lucky day: By the time the bull spotted us sneaking along an outcropping, we had covered most of the distance. A quick sprint got us into the cave entrance and out of harm's way.

This was a vertical-fissure cave that required a great deal of free climbing to reach the area favored by bats. Negotiating the cave was a slow process of vertical climbs and passing equipment back and forth, all the while trying to be quiet so we could hear the bats and not spook them. In one section, we crossed a six-foot-wide (two-meter) clay bridge spanning a deep fissure. After we came down the other side, we noticed cracks on the bottom of the bridge that were so large and ominous that it's a wonder it had held our weight.

We finally reached our objective and, moving quickly, we captured about 600 bats. We recorded such crucial data as sex, age and the numbers of previously banded bats. When we finally left the cave, it was raining out and the bull was nowhere to be seen. Not wanting to miss a prime opportunity to catch bats, we headed back to Rogersville and nearby Pearson Cave in Tennessee. We arrived in time to set up a harp trap at the mouth of the cave before the dusk emergence. That night I began realizing just how smart these bats really are.

Merlin had invented this still-useful type of trap to help fill the void in available equipment for safely capturing large numbers of bats. The harp trap consists of vertical frames, each strung with monofilament fish line spaced three-quarters of an inch (1.9 centimeters) apart. A bat passes through one side and, finding itself with too little room to fly, falls into the cloth basket below.

As the emergence got under way, bats started falling into the trap. But a sense that something wasn't quite right apparently made it back to those bats that had yet to emerge from the cave. The emergence soon slowed to a near halt as bats simply re-roosted inside the mouth of the cave or climbed around the trap.

We removed the captured bats from inside the trap and placed them in small, mesh bags. We began weighing and recording the captured bats. Soon, we were joined by a group of local moonshiners who were passing by, saw our light and decided to be neighborly. To my surprise, they all knew Merlin, a frequent visitor not only to the cave but also to the home of one of the moonshiners. As the gentlemen continued on down the road, we finished sorting and releasing the bats before we called it a night.

In those days, gray myotis populations were declining nearly everywhere, and their extinction was feared. Pearson Cave – and Merlin's attention to it – demonstrates the main

reason this species is now recovering. Based on Merlin's early findings there, a bat-friendly gate was installed at the cave in 1989 through a combined effort by BCI, The Nature Conservancy and The American Cave Conservation Association. By 2002, its important gray myotis colony had tripled its size to some 366,000 bats.

Over the next few weeks, Merlin and I would travel through Virginia, Tennessee, Kentucky and Alabama, netting, trapping and banding bats. I was to learn a great deal, not only about bats, but also rural America. I would also learn that Merlin had little sense of time when it came to knowing how long we'd been working underground or when to eat.

He also sometimes seemed oblivious to potential dangers. As someone who had spent years camping and caving I had numerous unplanned – and invariably unpleasant – encounters with snakes. My deep unease regarding these creatures remains with me to this day.

Upon entering one particular cave, Merlin and I encountered a narrow entrance passage packed with rocky rubble and a few scrubby plants. It looked to me like an excellent rattlesnake den, but when I balked, Merlin insisted he'd never even seen a garter snake there. He badgered me into crawling with him on our bellies through the jumbled rocks. First, one small critter, then another flitted past. Merlin claimed they were just pack rats. As we were emerging, one stopped in some nearby ferns.

Wanting to reassure me, Merlin said "Look here. I'll run him out so you can get a look." He jiggled the ferns with his boot – and what immediately emerged was a very annoyed, venomous copperhead snake nearly three feet (one meter) long. The encounter ended without further incident, but I noted for future reference that Merlin apparently wasn't much of an expert on pack-rat identification.

DAVE WEAVER of Severna Park, Maryland, joined the Navy not long after his bat-chasing experiences with Merlin Tuttle. He retired as a lieutenant commander the Navy's submarine force in 1995 and currently is Manager of Marine Projects for Oceaneering International, Inc. He is a member of Bat Conservation International's Board of Trustees, where he serves as Treasurer.

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