

## VOLUME 24, NO. 2 Summer 2006

### Military Bats

U.S. armed forces are looking out for bats

Jim Kennedy

I was hacking my way through the thick Central Texas brush toward a cave once favored by a colony of cave myotis when my foot came down very close to an arm-length metallic tube on the ground. “Don’t touch that!” warned my guide, Charles Pekins. I paid strict attention: Charles has what’s probably a unique credential among wildlife biologists – he’s had UXO training. That stands for unexploded ordinance, so you should listen when he speaks.

Scattered about the rugged landscape were a lot of other strange devices that I also should not touch. That’s the way it is on a live-fire range where soldiers train for war with real ammo. Bat conservation involves special challenges on a military base, but armed-forces installations around the country are making the effort. And they are scoring some significant successes.

The U.S. Department of Defense controls some 13 million acres (5.25 million hectares) of land in the United States, vast swatches of it mostly undeveloped and home to a great variety of wildlife. Protecting animals and habitats becomes a complex undertaking when the land must also fulfill the military’s training missions, which can involve such things as 68-ton battle tanks rumbling across the landscape at 40 miles (64 kilometers) per hour. It’s even harder when the tanks and troops are firing live ammo. Civilian bat biologists, including graduates of BCI’s Bat Conservation and Management Workshops, are learning to balance the needs of bats and soldiers.

Fort Hood, Texas, is home to the largest armored force in the U.S. Army. Tanks and other armored vehicles have 337 square miles (873 square kilometers) to race across, with much of it used for live-fire training. On this cool April day, we parked our truck in a shallow bomb crater and started out. We followed an eroded tank track across the hill toward the entrance to Egypt Cave, which I still couldn’t see. I had no idea how a bat could see it, either. When we finally reached the tiny opening, we found it almost totally blocked with a non-native fern and surrounded by M-16 cartridge casings and spent smoke grenades. “Not a very bat-friendly site,” I noted. Charles assured me that several thousand cave myotis (*Myotis velifer*) had been using the cave as recently as the 1970s.

We cleared brush and ferns away from the entrance and slipped into the cool underground. Down the short entrance passage and around a corner, we discovered what we sought: an old guano pile beneath a stained ceiling. Bats had obviously roosted in the cave at one time, but none of the guano was fresh. Our problem now was to figure out how to manage the cave better so the bats could return. That’s where Pekins comes in.

Pekins, Wildlife Biologist for Fort Hood, served in the Army from 1989 to 1995, then earned a degree in conservation biology from the University of Texas at Austin. He worked with The Nature Conservancy before joining Fort Hood’s Natural Resources Branch in 2003. “My interest in bats is a fairly new aspect to my life,” Pekins says, but it is a natural outgrowth of a long interest in caves. One thing “that galvanized my interest enough to include bats in my professional career” was attending a BCI Workshop in Arizona. Now, Pekins says, “everything about bat life, history and evolution has me fascinated. The



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more I learn about and study these creatures, the more I realize how well they occupy their niche. I incorporate caves and bats into landscape-management decisions at Fort Hood, which was not done in the past, and I try to educate the public about the benefits and uniqueness of bats.”

Much of his effort has gone into Shell Mountain Bat Cave, where a major maternity colony of 10,000 to 12,000 cave myotis gives birth and raises pups. This is a species of concern that seems to be declining across its range in the Southwestern United States and Mexico. Accurate population data are hard to come by, however – a shortcoming BCI is working to resolve. The Shell Mountain Bat Cave colony on Fort Hood is an important population, and one that apparently has declined significantly since the 1980s.

The cave entrance was cleared in 1995, when an A-frame tent gate was installed for use by bats. That gate was woefully inadequate – and dangerous – to emerging bats. In 2004, it was replaced with a larger, appropriately designed cupola-style gate that increased the bats’ exit space by 900 percent. Although it allows much faster and safer emergences, the gate seems to have had no impact yet on the size of the colony. Temperature and humidity conditions within the cave-roosting area are being monitored.

The cave, unfortunately, is within an area of mesas and valleys needed by armor and infantry units for developing and training in war-fighting tactics. It is not, however, used for live-fire exercises. To protect the cave colony from excessive noise, Pekins’ team diverted the main access route into the area, creating a new route around the cave. Large rocks and brush piles now keep traffic at least 280 feet (85 meters) from the bats. They also built a rock barrier, 33 feet (10 meters) across, around the cupola gate. The idea is to ensure that military units still have access to the general area, while the bats are protected by “natural” barriers.

Among the more than 200 known caves on Fort Hood are two others – Egypt and Tippet – that apparently once gave refuge to thousands of cave myotis. Although it is uncertain why bats first abandoned these caves, the entrances to both were blocked by trees and shrubs. The fort’s Natural Resources Branch cleared all woody vegetation within 25 feet (7.5 meters) of each entrance. Pekins is monitoring temperature conditions within the caves, as well as checking for returning bats. “By having these abandoned caves suitable for and available to bats, we hope to increase our population and have ‘back-up’ roosts should disaster befall the Shell Mountain Bat Cave colony,” Pekins said.

Another workshop graduate, Conservation Biologist John Lamb, is working on conservation efforts at Arnold Air Force Base in Tennessee. Endangered gray myotis (*Myotis grisescens*) roost during the summer in the Woods Reservoir Dam at the Air Force base.

The dam is important to Arnold AFB’s military mission because the reservoir provides cooling water for its aerospace testing facilities. The bats find snug roosts in expansion joints in the dam’s ceiling. Lamb’s Conservation Department works with base civil engineers to schedule routine inspections and maintenance after the bats have left for the winter. “Guano guards” protect machinery beneath the roosting space.

The maternity colony at the dam, however, has been declining since monitoring began in 1998, falling from an estimated 18,300 bats to 6,100 in 2005, according to Lamb’s latest annual report. The physical environment of the dam is unchanged, and the reason for the decline is unclear. But radio-tracking data and the presence of gray myotis foraging in areas throughout the base suggest many of the bats may have moved to more suitable roost sites in the region, probably a result of increased protection of Tennessee caves.

Lamb said a radiotelemetry study in 2004 indicated that gray myotis captured while foraging on the base were not roosting in the dam, and no caves exist on the base. To determine the roost sites and their links to foraging habitat on base, Arnold AFB's Conservation Department initiated a long-term banding project, both at Arnold and at three gray myotis caves within 15.5 miles (25 kilometers) of the base.

More than 800 gray myotis have so far been banded in the two years this project has been active. "Two of our bats were recaptured by other researchers," Lamb said. "One had traveled 45 miles (72 kilometers), but stayed in Tennessee, and the other traveled 110 miles (177 kilometers) into Kentucky.

"These findings reinforce the need for partnerships when attempting to conserve far-ranging species like the gray myotis," he said. "Arnold AFB demonstrated its commitment to partnerships and bat conservation by initiating the formation of the Tennessee Bat Working Group."

Bat-conservation projects large and small are being undertaken at a number of military bases around the country. Camp Shelby in Mississippi not only allowed bats to move into some abandoned bunkers, but installed bat-friendly gates to protect them. Bases in Arkansas, California and elsewhere coupled bat-house installations with humane exclusions from base buildings. The National Military Fish & Wildlife Association includes an active Bat Working Group, and the U.S. Army Corps of Engineers' Environmental Laboratory has conducted bat-population surveys on at least five military installations and helped set up sampling programs and conservation-management plans at many others. Bats are well on their way to finding a home with the military.

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