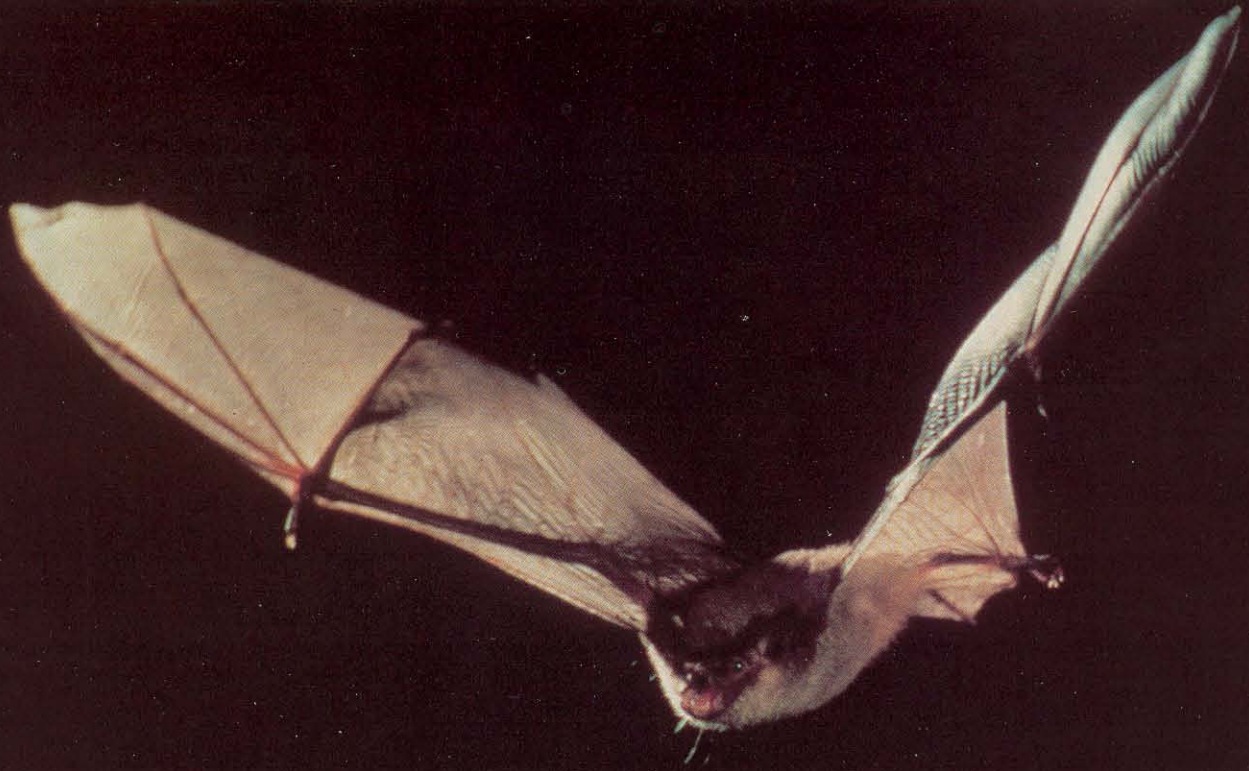


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Bats Of South Alabama

The gray bat in flight. (Photo by Merlin D. Tuttle)

By Troy L. Best & Travis Hill Henry
Zoology & Wildlife Department &
Agricultural Experiment Station
Auburn University

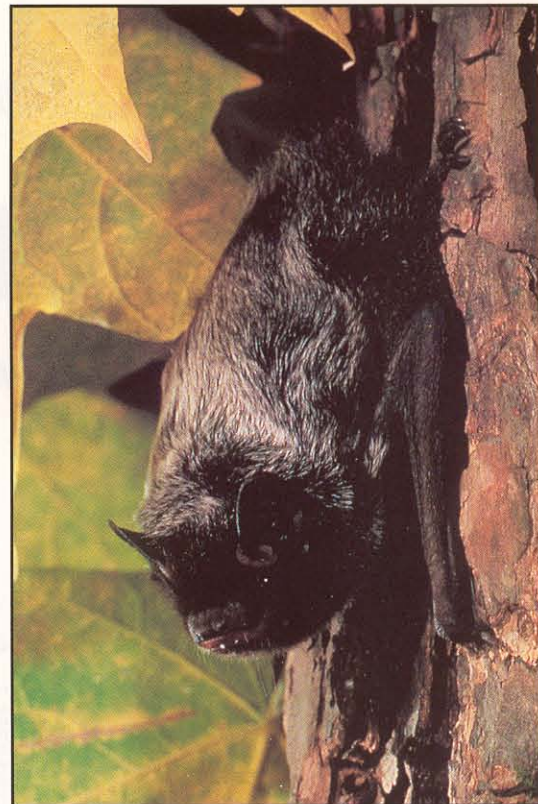
Alabama has about 3,000 caves, most in the northeastern part of the state. Some may have yet to be discovered, others such as Cathedral Caverns, Russell Cave and Blowing Wind Cave are well known. Many possess distinctive geologic features and are part of complex ecosystems containing a variety of organisms—spiders, fish, salamanders, frogs, snakes, woodrats, raccoons, field mice, owls, vultures... and bats. Many of the caves contain endangered species. Blowing Wind Cave in Jackson County contains one of the largest colonies of endangered gray bats (*Myotis grisescens*) in North America.

Although hundreds of caves in north Alabama provide essential habitat for many wildlife species, there are only about 50 caves in the coastal plain of south Alabama. The small number of southern caves made their significance as habitat for bats and other

wildlife unknown until recently, when studies were initiated by Auburn University in cooperation with the Conservation Department. Researchers from Auburn University examined coastal plain caves to evaluate their use by potentially threatened and endangered bat species.

Northern and southern caves have striking differences in size and complexity. Caves in the north often contain thousands of feet of complex passageways, huge rooms and deep pits. Caves in the south are often small, containing only one passage, and may be little more than an indentation in a cliff face. None are more than 2,000 feet long. Exploration of many caves in south Alabama requires elbow, knee or belly-crawling through water, mud and tight passages. Though not hospitable to humans, these caves are important habitat for bats and other cave-dwelling organisms.

Bats take advantage of a variety of environmental conditions available in caves. They squeeze into cracks and between stalactites for protection against predators. They use domes in



*The silver-haired bat (*Lasiurus noctivagus*) is widely distributed in North America but uncommon in Alabama. (Photo by Merlin D. Tuttle)*



A gray bat (*Myotis grisescens*). This endangered bat can eat 3,000 mosquitoes a night. (Photo by Merlin D. Tuttle)

cave ceilings to collect body heat, allowing them to maintain a constant environment and provide places for their young to be born and develop. Domes too close to the ground may expose bats to predators, such as raccoons that make regular trips into caves in search of food.

Bats are well adapted to detect predators and locate cave formations. When disturbed, they fly through the darkness with amazing agility.

Bats have excellent eyesight, but because they live in almost total darkness and are active at night, their eyesight is supplemented by sonar. A bat sends sounds out by mouth. The sounds strike objects (rocks, trees, insects) and bounce back to the bat's ears. Reflected sounds tell the bat the distance, size and shape of objects. If the bat detects a mosquito it wants to eat, it sends out sounds more frequently as it approaches the insect. The clos-

er the bat gets to the insect, the faster it sends out sounds. Within milliseconds of locating the insect, the bat is receiving a nearly constant flow of reflected sound. When it captures the insect, the bat resumes a slower rate of sending sounds.

Why don't we hear bats? In summer, the night-time sky has many of these agile and beneficial little mammals—all calling into the night in search of food and "watching" where they're going. We rarely hear bats because their sounds are usually beyond our range of hearing.

A "bat detector," which looks and works like a transistor radio, receives bat sounds and converts them into sounds humans can hear. We then hear most of the sounds as buzzes, beeps and clicks. Though scientists can't understand what the bats are saying, some facts can be determined.

First, each species transmits a unique range of sounds, so it's possible to identify most bats in Alabama just by their sounds. Second, it's generally possible to determine what the bat is doing. When flying from one place to another, it sends out a rather regular series of beeps and clicks. When in pursuit of an insect it sends out a "feeding buzz." Third, we can learn how many bats are in an area.

Some bat species occur in Alabama all year, but all 16 species known to occur in the state are here during warmer months, when they capture mosquitoes, corn-borer moths and other insects considered pests to humans and agricultural crops.

Two factors are critical for bat survival. The first is a place for young bats to be born, fed, raised and fledged—a maternity colony. The second is a place to spend the winter that provides proper climatic conditions and protection from predators—a hibernaculum.

Numerous north Alabama caverns serve as maternity caves, but only one coastal plain cave contains a bat maternity colony, which is the only Alabama maternity colony of the threatened southeastern myotis (*Myotis austroriparius*). In fact, all recent records of southeastern myotis in Alabama are from coastal plain caves. Efforts are underway to determine if this species should be federally listed as threatened or endangered. Action to preserve the habitat of this beneficial



The hoary bat (*Lasiurus cinereus*) is a tree-dwelling species widely distributed in North America but not common in Alabama. (Photo by Merlin D. Tuttle)



The northern small-footed myotis (*Myotis septentrionalis*) is rare in Alabama. (Photo by Roger W. Barbour)

species is imperative.

A hibernaculum is critical to the survival of all Alabama bat species. Many of the 16 species found in Alabama (including free-tailed bats, red bats and big brown bats) are able to find such sites outside caves, but some must have the climatic stability and protection from predation caves provide.

In summer, most coastal plain caves have few or no bats, but in winter bats regularly occur in those caves. In winter, researchers often found it difficult to squeeze through tight passages without brushing against hibernating bats. Caves that may be of little significance as habitat for bats in summer are critically important hibernating sites in winter. For example, one of the smaller caves that contains no bats in summer has several hundred hibernating in winter.

In the past, several rare, threatened or endangered bat species were reported from coastal plain caves. Other than occurrence of the southeastern myotis and discovery of one big-eared bat (*Plecotus rafinesqueii*), no previously-reported species were

located. Notably, the northern small-footed myotis (*Myotis septentrionalis*) and the gray bat (*Myotis grisescens*) were not observed during investigation.

Gray bats may not occur in large numbers in coastal plain caves, but are important parts of ecosystems elsewhere in Alabama. For example, one gray bat can consume about 3,000 mosquitoes a night. Our state is fortunate to possess the two largest colonies of this species (a total of about 500,000) in eastern North America. Gray bats are known to hibernate in less than 10 caves in the southeastern United States, and more than 50 percent of the entire population hibernates in one of these caves. Destruction of one or more of these winter roosts could bring the species back to the verge of extinction. That's where it was about 20 years ago when it was put on the U.S. Fish & Wildlife Service endangered species list.

Bats are among the most misunderstood of Alabama wildlife. Often the target of habitat destruction, poisoning, vandalism, wanton killing and a myriad of other harmful acts, many



The big brown bat (Eptesicus fuscus) is a common resident of buildings and caves throughout Alabama. Like all other bats in Alabama, it consumes large numbers of insects each night. (Photo by Roger W. Barbour)



The Seminole bat (Lasiurus seminolus) is a colorful tree-dwelling species that often roosts in trees with Spanish moss. (Photo by Roger W. Barbour)



The eastern pipistrelle (Pipistrellus subflavus), the smallest bat in North America, is a common winter resident in Alabama coastal plain caves. (Photo by Roger W. Barbour)

bats are on the brink of extinction. We hear many stories about bats, but bats are not blind (they have keen eyesight), they don't build nests, and they don't get tangled in your hair.

Bats can carry the virus that causes rabies, but usually an infected bat is not active and simply dies. The incidence of rabies virus in bats is extremely low. Humans are seven times as likely to get rabies from a pet dog or a cat. In fact, the chance of getting any kind of disease from a bat is about 40 times less than getting struck by lightning. But caution is always in order. Never pick up or handle any sick wildlife. Usually, wildlife that allows you to approach close enough to touch it is sick, so it's a good idea to avoid it.

Bats are the primary predators of

night-flying insects. Bats also consume moths and other pest species. A colony of 300,000 gray bats (each of which can consume 3,000 mosquitoes a night), if active about 200 nights a year, can consume 180,000,000,000 mosquitoes annually. That's a lot of mosquitoes—and those figures point out one of the major contributions of bats.

Many Alabama residents have purchased or constructed bat houses to attract insect-eating bats to their property. Plans for a bat house were published in the Winter 1992 issue of Alabama Conservation. (Call 1-800-262-3151 for free single copies of the plans.) Additional information is available from Bat Conservation International, P.O. Box 162603, Austin, TX 78616. ■