



BATS

Bats comprise one-fourth of the world's 4,000 species of mammals and are most often found in forested areas near water, which are insect-rich areas. Fruit-eating bats are nature's most important seed-dispersing animals. Nectar bats pollinate many rain-forest trees, shrubs, and flowers and without their help the forest would be less diverse. The ability of insect-eating bats is phenomenal—one little brown bat can eat 600 to 1,000 mosquitoes in an hour. Over-sized ears and nostrils help bats to use a sonar system that experts believe is a thousand times more sophisticated than the best airport radar invented to date.

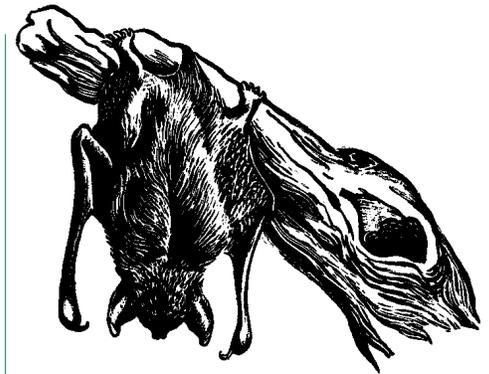
Bats are among the most fascinating of all wild creatures. Because they are also among



the least understood, myth and ignorance have caused many people to fear and hate them. For example, bats are not blind; in fact, they have good eyesight. Bats are actually very clean animals and they do not get caught in people's hair, nor do they eat through house attics or interfere with pets or backyard feeding birds. In addition, no bat species preys on humans. The non-aggressive vampire bats of South America and Central America have evolved to specialize in drinking small amounts of blood from cows, goats and chickens. There are no vampire bats in the United States.

Because bats are so distinctive, they have their own scientific order. Chiroptera is a Greek word that means "hand-wing" because the wing is similar to a human hand with a thumb and four long fingers. Also, they are our only true flying mammal.

Some bats are so small they weigh as little as a dime. Others have a wing span that may stretch to five or six feet. Another interesting fact: Bats have been known to migrate at cruising altitudes up to 10,000 feet, much higher than most birds. Of the 43 species of bats that live in the U.S., more than half are considered rare or uncommon. Nine insect-eating species of bats, including one classified as rare, live in



Michigan. All are nocturnal (active at night), and feed nearly exclusively on flying insects, including moths, beetles, and mosquitoes.

Bats in Michigan

The **hoary bat** is Michigan's largest with a wingspan of up to 15 inches. Heavily furred, the hoary's dark-colored hair is tipped with white giving it a frosted appearance. Its ears are short and rounded. It's rarely encountered by people and migrate south in winter. It is a solitary species that spends its summer months in forest trees near water throughout Michigan. Researchers know little about their feeding habits and predators.

The **red bat** also migrates south and is a solitary bat of forests near water. Its long, pointed wings may stretch 12 inches, and it has short, rounded ears, and a furred tail. Color varies from a bright orange to a yellow-brown, and the males are usually brighter in color than the



females. Like most other bat species, the red breeds in fall, but conception is delayed until spring when the female gives birth to one to four pups after a gestation period of 80 to 90 days. Blue jays prey heavily on the offspring. Other predators include opossums, sharp-shinned hawks, great-horned owls, and feral house cats.

The **silver-haired bat** lives in forested areas near streams and lakes. Similar in size to the red bat, the silver-haired species is black or dark brown with silver on the tips of its hairs. Considered scarce throughout their statewide range, the silver-haired bat is most easily identified by its slow flight, which is typically low to the ground. A solitary species, females are thought to establish nursing colonies in June and July when they give birth to two young. A southern migrant, the silver-haired is preyed upon by skunks and great-horned owls.

The **eastern pipistrelle bat** does not migrate as it hibernates in caves or abandoned mines through winter in the western Upper Peninsula where it lives year-round. This bat

occupies rock crevices and building ledges during the day, and leaves just before sunset to feed on insects. A tiny bat with a wingspan of 10 inches or less, the pipistrelle is often confused with a large moth. Ranging from a golden brown to reddish brown, the species has few known predators.

The **northern long-eared bat** until recently was also called the Keen's bat, which is now considered a separate species living in Canada. Very large ears make these bats easy to identify at close range. Similar in size to the silver-haired and red bat, the long-eared is brown in color. Although it typically roosts alone in buildings and under tree bark in the summer, small numbers hibernate together in caves, often with big brown bats. The species also forms small nursing colonies of about 30 bats in a tree hollow or under bark.

The **evening bat** lives in extreme southern Michigan and is easily confused with the little brown bat except the evening bat has a curved, rounded fleshy protrusion (tragus) on the ear instead of a pointed tragus. Their wings span 10 to 11 inches. The evening bat flies low to the ground and is sometimes seen swarming around caves, which it rarely enters. Young are born in summer in colonies that range from a few individuals to several hundred, and litter size is typically two pups.

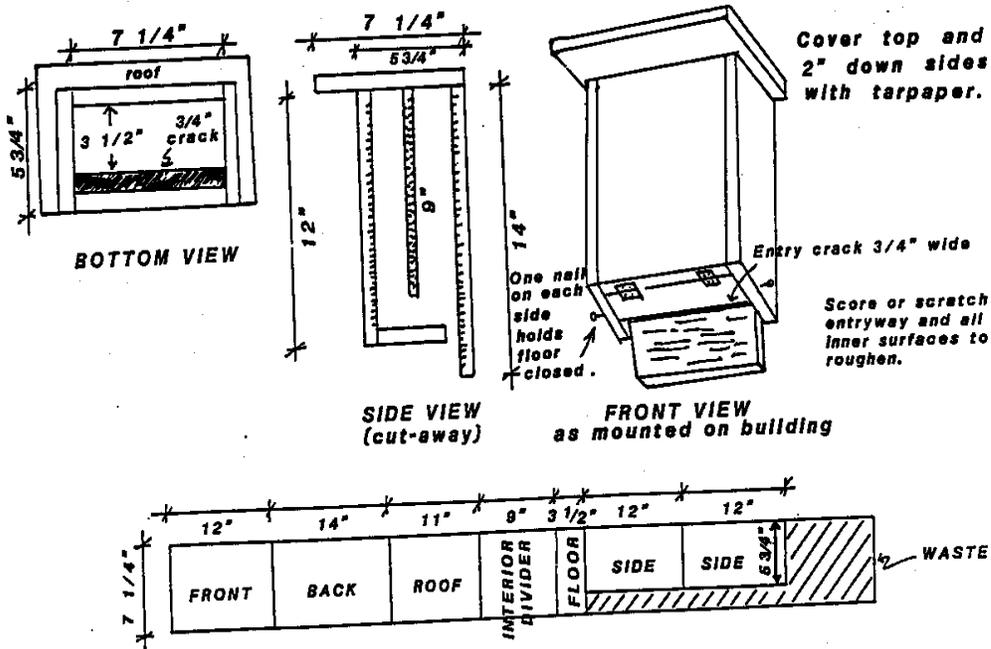
The **little brown bat** is especially abundant throughout the state and is the most seen species. A light brown to dark

brown in color, little browns are fairly small in size with a wingspan of 8 1/2 to 11 1/2 inches, small ears, and large feet. In summer, colonies of the species live in hot attics and under shingles and siding; in winter, they hibernate in caves, crevices, houses, hollow trees, or mines. Females form nursery colonies away from the males. Little brown bats like to feed on aquatic insects and are frequently seen dipping and diving over water but will also forage over lawns and pastures, among trees, and under street lights.

The **big brown bat** has a large nose, is reddish to dark brown in color, and sports a wingspan ranging from 12 1/2 to 13 1/2 inches. Its slow, steady flight, and large size make it fairly easy to identify. Beetles, wasps, mosquitoes and flies from pastures, lawns and vacant lots in the city make up its diet. They are late-dusk fliers that often swoop low to the ground. A colonizing species, big browns roost in buildings and under bridges in summer and hibernate in caves, mines, houses, hollow trees, and even storm sewers in winter. Efficient feeders, the species often roosts for



Bat House Instructions



a short nap after gorging itself. Porches, garages, and breezeways are good places to find them. The female gives birth to only one pup per year.

The Federally endangered **Indiana bat** is considered rare in southern Michigan, the only region in the state where it resides. A light brown in color, the Indiana bat closely resembles the little brown bat. A southern migrant, the species forms nursing colonies in tree cavities or under loose bark of trees along forested floodplains.

Habitat Management

The following are options to consider when managing habitat for bats:

- Retain trees with loose, scrappy bark. Cutting down shagbark hickory or other tree species with flaking bark reduces available habitat for some species to roost.

- Preserve and protect wooded corridors, riparian areas, and trees along streams, rivers, lakes, and ponds.

- Retain abandoned mines for hibernation. Twenty thousand bats have been found in a single mine. Destroying their winter "homes" would be detrimental to their survival. And, disturbing their sleep may even kill them because they expend valuable energy waking up and trying to go back to sleep. It may be beneficial to add

mine closures that will allow bats to enter, but keeps humans out.

- Minimize the use of insecticides. Their broad use can seriously impact bats. Although there may be an increase in insects near your home, maintaining natural conditions will increase food not only for bats, but for birds and even dragon flies.

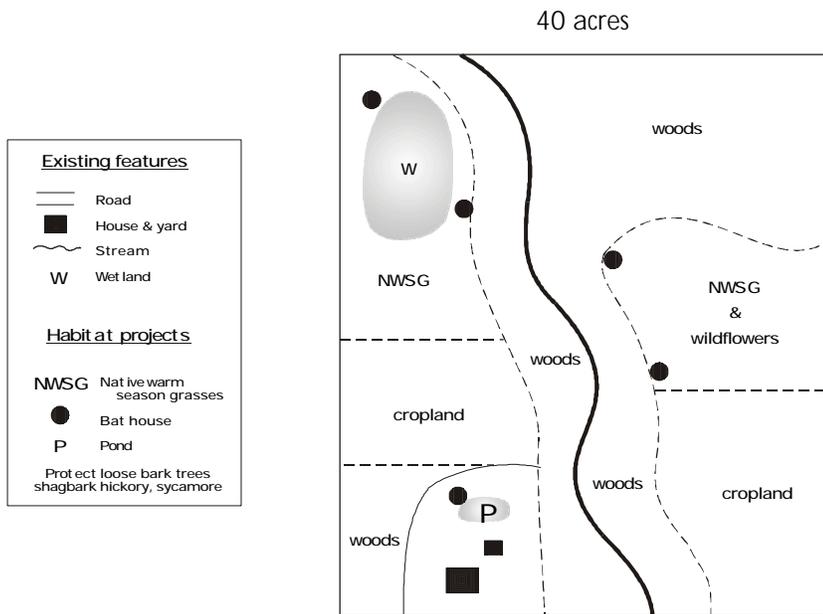
Concerns

Colonizing species that occupy human dwellings cause great alarm among fearful inhabitants. Rather than killing these beneficial mammals, prevent entry into your home by locating and plugging potential entrance holes. If bats are already present, plug the hole after sunset when they leave. Putting up a bat house nearby may discourage them from entering your home while keeping them in the area.

Building a Bat House

You can attract bats to your property by providing a bat house. You can make a simple structure by nailing the top of a





house on the east or southeast side of a pole, tree, or building at least 15 feet from the ground and out of the wind as much as possible. Be careful placing houses on trees, they may become feeders for cats or raccoons.

The best location is near water where insect populations are high. If bats must fly a half-mile or more to feed, they will most likely not use the structure. Once used, bat houses do not need to be cleaned.

Since bats are loyal nesters, putting up a bat house in an area they frequent is no guarantee they will use the structure. Solitary roosters (red, hoary and silver-haired bats) will likely ignore them, and one or two years might pass before the other species, all of which are colony roosters, may find them to their liking. In Michigan, little brown bats and big brown bats are the species most likely to use bat houses.

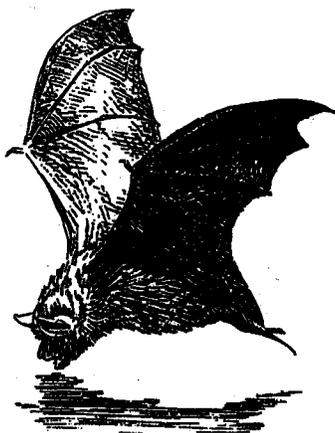
This map is an example that demonstrates the many management options discussed throughout this chapter. The option(s) you choose should depend not only on your goals, but the location, condition, and present use of your land.

two-foot wide piece of tar paper around a tree trunk so the tar paper will resemble a tight-fitting skirt. The idea is to keep water from leaking into the structure. Bats will enter from

below and cling to the tree bark. They can then move around the trunk as the sun rotates during the day.

To build a bat house from wood, refer to the diagram and directions above. Entry space should be about 3/4 inch wide, and all inner surfaces must be roughened to allow bats to climb on them with ease. Screen mesh also works well.

To bring the house to preferred daytime summer temperatures of 80 to 90 degrees, cover the house with tar paper or paint the structure black so it will absorb heat. Place the bat



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Private Land Partnerships: This partnership was formed between both private and public organizations in order to address private lands wildlife issues. Individuals share resources, information and expertise. This landowner's guide has been a combined effort between these groups working towards one goal: Natural Resources Education. We hope this guide provides you with the knowledge and the motivation to make positive changes for our environment.

FOR ADDITIONAL ASSISTANCE: CONTACT YOUR LOCAL CONSERVATION DISTRICT