



U.S. Fish & Wildlife Service

Indiana Bat

Description, Biology and Habitat

The Indiana bat is a small flying mammal (weighing three-tenths of ounce, about as much as a nickel), with fur that is brownish to grayish black above and buff to light brown below. It is less than two inches long but has a wingspan of nine to eleven inches.

This migratory species is found in 27 States in the Eastern United States. From October to April it hibernates in caves and a few abandoned mines in the central portion of its range. It usually hibernates in large, dense clusters of up to several thousand individuals and requires hibernation sites with stable temperatures between 38° and 43°F and high relative humidity. The bats may lose half their body weight during this long hibernation period.



Indiana bat

Mervin D. Tuttle, Bat Conservation International ©

Upon waking from hibernation the bats emerge and migrate to their summer roosting and feeding areas in eastern woodlands; most do not return to their winter hibernation sites until fall. During the summer, Indiana bat maternity colonies require dead or dying trees with loose bark, a nearby water source, and areas to hunt for insects. The bats congregate under the loose bark for warmth and protection from the weather and predators. Females gather in maternity colonies of 25 to 300 individuals and give birth to a single young bat between late June and early July. The young bats can fly within a month of birth. Males may roost in the vicinity of the maternity colony, but not with the females and young. The bats spend the latter part of summer building up fat reserves for their long winter hibernation.

Bats are the only mammals that have achieved true flight. Indiana bats and almost all of the bats in North America eat insects. In fact, bats are the only major predators, and the best natural controllers, of night-flying insects. One bat can eat 1,200 insects each hour! Indiana bats also feed on moths, beetles, flies, bees, wasps, flying ants, and mosquitos. Flying along fields, forest edges, streams, and through forests, they use their highly efficient sonar to detect insects in the air and on vegetation and capture them “on the wing.” Contrary to popular myth, bats are not blind; they have very good vision. Using their sonar navigation ability, bats can detect objects as fine as a human hair in complete darkness.

The Federal Endangered Species Act

The Endangered Species Act of 1973, as amended (Act), recognizes that many of our nation’s valuable plant and animal resources have been lost and that other species are close to extinction. The Act provides a means to help preserve these species and their habitats for future generations. To help secure the continued existence of the Indiana bat (*Myotis sodalis*), the U.S. Fish and Wildlife Service designated it as an endangered species on March 11, 1967, under the Endangered Species Preservation Act of 1966, a law that preceded the Act.

Why is the Indiana bat so rare?

The range and number of Indiana bats have likely always been limited by the amount of suitable winter hibernation sites and the number of summer roost sites surrounded by adequate foraging habitat. The Indiana bat has declined 60 percent since 1960. The major causes for the decline are loss of or changes to their habitat, vandalism, and increased human visitation to hibernation sites. During hibernation, Indiana bats are extremely sensitive to human disturbance. Even slight disturbances can wake bats from their deep sleep, forcing them to use valuable energy reserves they need to survive winter hibernation.

Why should we be concerned about the loss of species?

Although extinction is a natural process, scientists now estimate that man has increased the rate of extinction by approximately a thousand times the normal rate. Under normal conditions the rate of extinction would roughly correspond to the rate of speciation, the process through which new species develop to take the place of the species that disappear. Today, however, virtually all of the documented historical

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extinctions are due to direct or indirect environmental changes caused by humans. Most often these changes are too new, too rapid, and too destructive to allow species a chance to adapt to the changing conditions.

We depend on the diversity of plant and animal life for our recreation, nourishment, many of our life-saving medicines, products for our economy, and the ecological functions they provide. Bats, for instance, consume vast quantities of night-flying insects, including species that cost farmers and foresters billions of dollars annually in damages to their agricultural crops and forests. They also consume the insects that are pests to people, like mosquitos. In addition, scientists studying the sonar navigation ability of bats have been able to develop navigation systems for the blind. By studying hibernating bats, researchers have also learned new surgical techniques that involve lowering the temperature of the human body. There are numerous other ways bats are helping to advance human knowledge, and when a species like the Indiana bat is lost, the benefits it could have provided are gone forever.

Endangered species are indicators of the health of our environment—an early warning system. Their decline alerts us to the fact that the quality of some of the basic elements of our environment—air, land, and water—are being compromised. Bats may be more sensitive to chemicals such as pesticides, making them valuable indicators of these toxic substances in the environment.

What you can do to help

Follow rules regarding seasonal closures of caves. These measures protect the rare creatures and their delicate habitat. When entering caves be careful not to disturb other cave creatures or their habitat. Join a bat conservation group. Learn more; share your knowledge with others. Participate in the protection of our remaining wild lands and the restoration of damaged ecosystems. Be careful with the use and disposal of pesticides and other chemicals and the disposal of trash, especially near water sources, rivers, and streams. Many of these waterways enter caves carrying pollution that kills these rare species and pollutes our drinking water. Recycle as much as you can. As landfills become full, new ones are often placed in uninhabited areas, causing the destruction of hundreds of acres of wild habitat.

Wild lands and the plant and animal life that inhabit unique natural places are now dependent on us for survival. We can enjoy and benefit from these natural places with their diversity of life. With our help, they can be there for future generations.

For more information please contact

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