



Northern Long-Eared Bat

Myotis septentrionalis

The northern long-eared bat has been proposed to be federally listed as an endangered species under the Endangered Species Act. Endangered species are animals and plants that are in danger of becoming extinct. Identifying, protecting, and restoring endangered and threatened species are primary objectives of the U.S. Fish and Wildlife Service's endangered species program.

What is the northern long-eared bat?

Appearance: The northern long-eared bat is a medium-sized bat about 3 to 3.7 inches but with a wingspan of 9 to 10 inches. Its fur color can be medium to dark brown on the back and tawny to pale-brown on the underside. As its name suggests, this bat is distinguished by its long ears, particularly as compared to other bats in its genus, *Myotis*, which are actually bats noted for their small ears (*Myotis* means mouse-eared).

Winter Habitat: Northern long-eared bats spend winter hibernating in caves and mines, called hibernacula. They typically use large caves or mines with large passages and entrances; constant temperatures; and high humidity with no air currents. Specific areas where they hibernate have very high humidity, so much so that droplets of water are often seen on their fur. Within hibernacula, surveyors find them in small crevices or cracks, often with only the nose and ears visible.

Summer Habitat: During summer, northern long-eared bats roost singly or in colonies underneath bark, in cavities, or in crevices of



Photo by Steve Taylor, University of Illinois

This northern long-eared bat, observed during an Illinois mine survey, shows visible symptoms of white-nose syndrome.

both live and dead trees. Males and non-reproductive females may also roost in cooler places, like caves and mines. This bat seems opportunistic in selecting roosts, using tree species based on suitability to retain bark or provide cavities or crevices. It has also been found, rarely, roosting in structures like barns and sheds.

Reproduction: Breeding begins in late summer or early fall when males begin swarming near hibernacula. After copulation, females store sperm during hibernation until spring, when they emerge from their hibernacula, ovulate, and the stored sperm fertilizes an egg. This strategy is called delayed fertilization.

After fertilization, pregnant females migrate to summer areas where they roost in small colonies and give birth to a single pup. Maternity colonies, with young, generally have 30 to 60 bats, although larger maternity colonies have been observed. Most

females within a maternity colony give birth around the same time, which may occur from late May or early June to late July, depending where the colony is located within the species' range. Young bats start flying by 18 to 21 days after birth. Adult northern long-eared bats can live up to 19 years.

Feeding Habits: Northern long-eared bats emerge at dusk to fly through the understory of forested hillsides and ridges feeding on moths, flies, leafhoppers, caddisflies, and beetles, which they catch while in flight using echolocation. This bat also feeds by gleaning motionless insects from vegetation and water surfaces.

Range: The range of the northern long-eared bat includes much of the eastern and north central United States, and all Canadian provinces from the Atlantic Ocean west to the southern Yukon Territory and

eastern British Columbia. Within the United States, this area includes the following 39 States: Alabama, Arkansas, Connecticut, Delaware, the District of Columbia, Florida, Georgia, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, Montana, Nebraska, New Hampshire, New Jersey, New York, North Carolina, North Dakota, Ohio, Oklahoma, Pennsylvania, Rhode Island, South Carolina, South Dakota, Tennessee, Vermont, Virginia, West Virginia, Wisconsin, and Wyoming.

Why is the northern long-eared bat in danger of extinction?

White-nose Syndrome: No other threat is as severe and immediate as the disease, white-nose syndrome. If this disease had not emerged, it is unlikely the northern long-eared population would be declining so dramatically. Since symptoms were first observed in New York in 2006, white-nose syndrome has spread rapidly from the Northeast to the Midwest and Southeast; an area that includes the core of the northern long-eared bat's range where it was most common before this disease. Numbers have declined by 99 percent in the Northeast. Although there is uncertainty about the rate that white-nose syndrome will spread within the species' range, it is expected to spread throughout the United States.

Other Sources of Mortality:

Although significant population declines have not been observed due to the sources of mortality listed below, they may now be important factors affecting this bat's ability to persist while experiencing dramatic declines caused by white-nose syndrome.

Impacts to Hibernacula: Gates or other structures to exclude people from caves and mines restrict bat flight and movement and change airflow and internal cave and mine

microclimates. A few degrees change can make a cave unsuitable for hibernating bats. Also, cave-dwelling bats are vulnerable to human disturbance while hibernating. Bats use up their energy stores when aroused and may not survive the winter or females may not successfully give birth or rear young.

Loss or Degradation of Summer

Habitat: Highway and commercial development, surface mining, and wind facility construction permanently remove habitat and are prevalent in many areas of this bat's range. Timber harvest and forest management can remove or alter (improving or degrading) summer roosting and foraging habitat.

Wind Farm Operation: Wind turbines kill bats, including northern long-eared bats, although only a small number have been documented to date. However, there are many wind projects within a large portion of the bat's range and many more are planned.

What Is Being Done to Prevent Extinction of the Northern Long-Eared Bat?

Disease Management: Actions have been taken to slow the spread of white-nose syndrome through human transmission of the fungus into caves (e.g. cave and mine closures and advisories; national decontamination protocols). A national plan was prepared by the Service and other state and federal agencies that details actions needed to investigate and manage white-nose syndrome. Many state and federal agencies, universities and non-governmental organizations are researching this disease to try to control its spread and address its affect.

Addressing Wind Turbine

Mortality: The Service and others are working to minimize bat mortality from wind turbines on several fronts. We fund and conduct research to determine why bats are susceptible

to turbines, how to operate turbines to minimize mortality and where important bat migration routes are located. The Service, state natural resource agencies, and wind energy industry are developing a Midwest Wind Energy Multi-Species Habitat Conservation Plan that will provide wind farms a mechanism to continue operating legally while minimizing and mitigating listed bat mortality.

Listing: We are proposing to list the northern long-eared bat as an endangered species under the federal Endangered Species Act. Listing affords a species the protections of the Act and increases the priority of the species for funds, grants, and recovery opportunities.

Hibernacula Protection: Many agencies and organizations have protected caves and mines that are important hibernacula for cave-dwelling bats.

What Can I Do?

Do Not Disturb Hibernating Bats: Comply with all cave and mine closures, advisories, and regulations. In areas without a cave and mine closure policy, follow approved decontamination protocols (see whitenosesyndrome.org/topics/decontamination). Under no circumstances should clothing, footwear, or equipment that was used in a white-nose syndrome affected state or region be used in unaffected states or regions.

Leave Dead and Dying Trees

Standing: Where possible and not a safety hazard, leave dead or dying trees on your property. Northern long-eared bats and many other animals use these trees.

Install a Bat Box: Dead and dying trees are usually not left standing, so trees suitable for roosting may be in short supply and bat boxes can provide additional roost sites.