



Eastern Small-footed Bat

Myotis leibii



CURRENT STATUS: In Pennsylvania, the eastern small-footed bat, also commonly referred to as small-footed *Myotis*, is listed as threatened and protected under the state Game and Wildlife Code. It also is a priority species in the state's Wildlife Action Plan. Nationally, it has no special protection. The eastern small-footed bat was proposed for federal endangered or threatened listing due to losses to White Nose Syndrome (WNS). In October 2013, after reviewing the best available scientific and commercial information, the U.S. Fish and Wildlife Service found that listing was not warranted.

POPULATION STATUS: Historically rare in the eastern United States, the eastern small-footed bat (*Myotis leibii*) is fairly widespread within its range, but spottily distributed and rarely found in large numbers. It is a species of deciduous and coniferous forests of eastern North America, with most reports coming from forested uplands in the Ridge and Valley physiographic province. Most occurrences and the largest known populations of this species are in Pennsylvania, New York, Virginia and West Virginia. Research published in 1989 reported eastern small-footed bats in winter hibernation sites in eight counties in central, south-central and southwestern Pennsylvania. More recent winter and summer surveys have added 23 counties to its known distribution. Unfortunately, despite the increase in known sites, this species is no longer found in many of our caves where it was observed in the 1930s and 1940s. Globally, it is considered a vulnerable species.

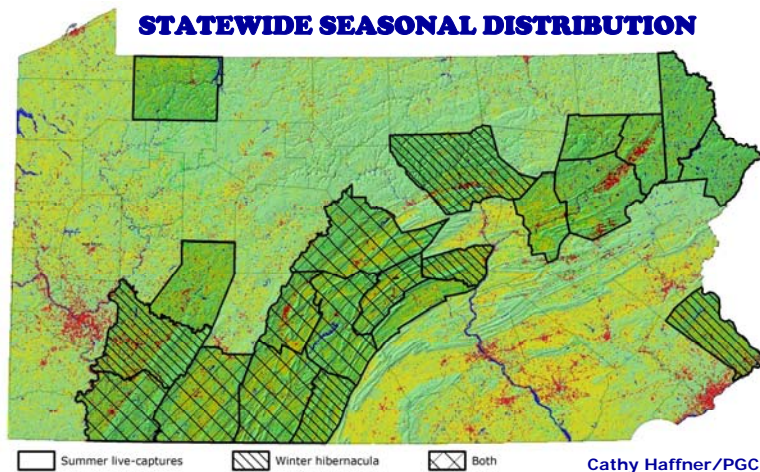
IDENTIFYING CHARACTERISTICS:

The eastern small-footed bat has brownish fur, often with a golden sheen, that contrasts with its blackish face and ears, and blackish-brown wings and tail membrane. It can be distinguished from other *Myotis* species by its black mask and small size. The body is little more than 3½ inches long, including a 1½-inch tail. Its small feet, which provide the common name, are less than a half-inch and its wingspan ranges from 8¼ to 9¾ inches. This species flies slowly and erratically, usually about one to three yards above the ground.

BIOLOGY-NATURAL HISTORY: Most published information comes from studies of wintering populations from Pennsylvania, New York,



Vermont and Ontario. There is evidence that this species enters hibernation later and leaves earlier than other bat species, often selecting a location close to the cave or mine entrance where the temperature and humidity are lower. It usually roosts singly during hibernation, rather than forming clusters like the once-common little brown bat. In summer, individual bats have been found in caves and mines, under rocks, and in crevices in rock walls. Little is known about reproduction in this species. Apparently a single pup is typical, born in late spring or early summer. There is no published data on food habits.



PREFERRED HABITAT: Caves and mines are key winter habitat for eastern small-footed bats, and smaller caves may be important. This species is more tolerant of cold temperatures than other eastern bats and has a preference for hibernating under large rocks that make up cave floors, and in tight crevices in cave and mine walls or ceilings. Because of this secretive behavior, some researchers think this species may be more common than it appears. Summer roosts include caves and mines, hollow trees and under bark, cracks and crevices in rock walls, and ridge-top talus fields. This suggests that forested areas with caves, mines, rock outcrops or talus provide key summer habitat, but few small-footed bats are captured during mist-netting surveys on potential summer foraging habitat, so little is known about the species' reproduction or summer behavior.

REASONS FOR BEING THREATENED: The most immediate threat is destruction and disturbance of hibernation sites. Property owners of caves and mines may completely block openings out of human safety and liability concerns. Open caves may be degraded and bats disturbed by people entering them recreationally. Destruction or development of areas that provide habitat suitable for food foraging, particularly forested areas with abundant rock outcrops, is another potential problem, but more information is needed to assess this threat. Commercial wind turbine installations have emerged as a threat to bat populations in general, and could affect eastern small-footed bats, however it is probably not the most vulnerable species because of its low-flying habits. WNS has caused the death of cave bats in unprecedented numbers across a rapidly increasing portion of the eastern United States, including Pennsylvania. Named for the presence of a white fungus on the muzzle, ears, or wings of bats in hibernation sites, WNS usually culminates in starvation and death.

MANAGEMENT PROGRAMS: To limit accidental introduction of WNS into unaffected caves and mines, winter counts of hibernating bat species were curtailed for several years but resumed in 2012. During fall and spring, live-traps can be used to capture bats at hibernacula entrances, to check for physical signs of WNS and to compare capture totals to similar surveys conducted in previous years. After each

use, equipment and clothing are decontaminated before use at another site.



Summer information is collected by setting up arrays of mist-nets on known or potential foraging and roosting areas. Wildlife survey specialists contracted by developers are required to conduct radio telemetry on healthy small-footed bats captured during mist-net surveys where pipelines, wind farms or other development is planned. Foraging areas and roosts are found by tracking the bats, and mitigation may be required if construction will affect the bats' habitat.

Objectives in Pennsylvania's Wildlife Action Plan include protection of known hibernacula from disturbance during winter months, outreach to private landowners and public land managers to increase awareness of the need to protect hibernating bats and their hibernacula, and limiting disturbance during summer of bats roosting in caves and crevices in rock walls and talus, especially in areas where maternity colonies might be disturbed.

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Suggested further reading:

- Whidden, H. P. 2010. Eastern Small-footed Myotis. In: Steele M. A., et al., editors. Terrestrial Vertebrates of Pennsylvania: A Complete Guide to Species of Conservation Concern. Baltimore: Johns Hopkins University Press. p. 335-337.