



Natural Heritage & Endangered Species Program

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Massachusetts Division of Fisheries & Wildlife

Tricolored Bat *Perimyotis subflavus*

State Status: **Endangered**
Federal Status: **None**

DESCRIPTION: This small bat has uniquely tricolored fur; the hairs of its back are dark gray at the base, yellowish-brown in the middle, and dark brown at the tips. On its underside, the fur is a uniform yellowish brown. Adult Tricolored Bats average 85 mm in total length, with a 40 mm tail. Weight varies from 3.5-6 grams. This bat can also be identified by its weak, fluttery, erratic flight, which has given it the nickname “moth bat.”

SIMILAR SPECIES: The Tricolored Bat, formerly called the Eastern Pipistrelle, can be distinguished from other species found in Massachusetts by the tricolored fur on its back. The back hairs of the Little Brown Bat and most other species in the state are bicolored, dark at the base and light at the tip. The Eastern Red Bat has hairs that are rusty in color, with white tips. Hoary and Silver-haired Bats have black or dark brown hairs with white tips.

RANGE: The Tricolored Bat is found across the eastern United States, from Maine south to central Florida, and west to Minnesota and Texas. It occurs north into the eastern provinces of Canada, and south through much of eastern Mexico into Honduras.

HABITAT IN MASSACHUSETTS: During the warmer months, Tricolored Bats occupy day and night roosts in forest vegetation in the canopy, most typically in dead leaves on mature live or recently dead deciduous trees. Maternity colonies, where females rear young, are commonly found among the dead needles of living pines. Colonies and roost sites are also occasionally situated in barns, buildings, and other man-made structures, as well as in caves. Tricolored Bats forage at the treetop level, in partly open country with large trees, over water courses, and at forest-field edges. They avoid deep woods and open fields. These bats are widespread in Massachusetts, and have been documented in 9 of 14

counties. In winter, Tricolored Bats hibernate in limestone caves and abandoned mines, in areas where the humidity is so high that water droplets often cover their fur. Winter hibernacula (hibernation sites) have been reported in Berkshire, Franklin, and Hampden counties.

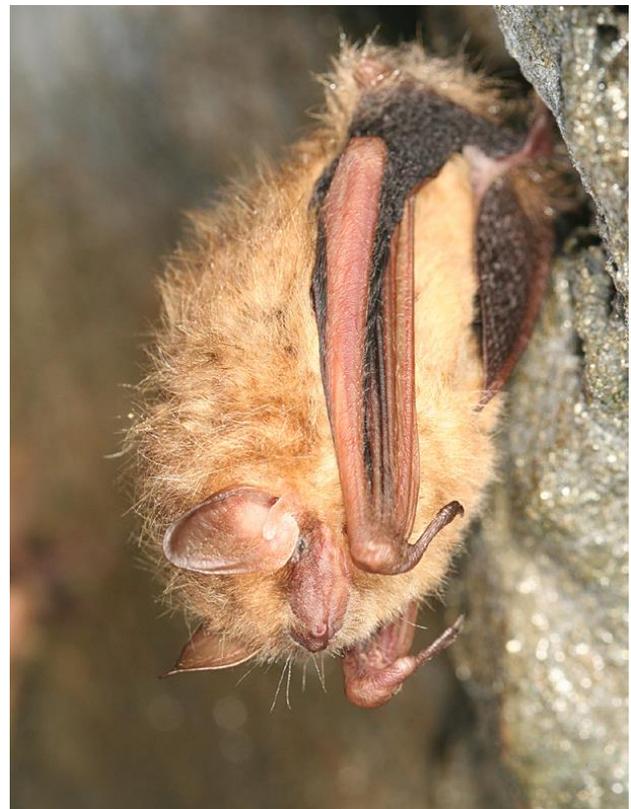


Photo: Tom Murray

LIFE CYCLE/BEHAVIOR: Tricolored Bats are the earliest to emerge to feed in the evening. They use echolocation to locate insects, often catching them in tail or wing membranes. Their foraging area is small relative to other bats, but they may travel up to 5 miles

A Species of Greatest Conservation Need in the Massachusetts State Wildlife Action Plan

Massachusetts Division of Fisheries & Wildlife

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from their roosting site to feed. In late summer, the bats begin to “swarm” around the entrances of caves, and are thought to be testing the air of potential hibernacula. Tricolored Bats have been known to migrate up to 85 miles to hibernation sites.

Tricolored Bats are the first species to enter hibernation in the fall and the last to leave in the spring. During hibernation, their metabolisms slow and they enter torpor. Tricolored Bats will rouse infrequently throughout the winter to drink water or move between spots within a cave. These bats typically hang singly from walls (not ceilings) in warmer sections of a cave or mine. Individuals may occupy the same location in a cave for consecutive winters; usually an individual will have several spots to hang within a cave and will shift from spot to spot. In the spring, females awaken and leave caves earlier than males; some males may remain in caves until June.

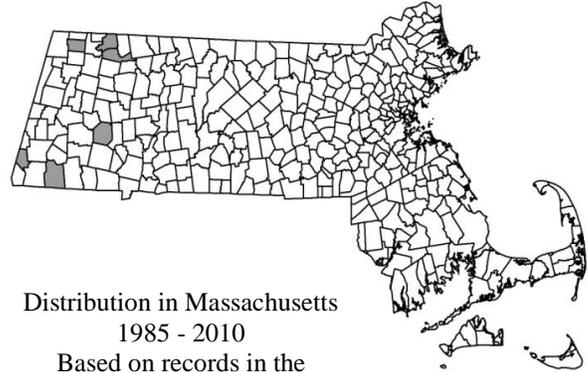
Female bats congregate and tend to remain separate from males, except during breeding. Breeding occurs in the fall during swarming, and inactive sperm are believed to be stored by the females until spring, when eggs are fertilized. Females bear two young in late June to mid-July. The young are carried by their mother for the first few days of life, and later left at the roosting site while she feeds. Young bats make their first flight before three weeks of age. The longevity record for the Tricolored Bat is over 14 years.

POPULATION STATUS IN MASSACHUSETTS:

The Tricolored Bat listed as Endangered under the Massachusetts Endangered Species Act. All listed species are protected from killing, collecting, possessing, or sale and from activities that would destroy habitat and thus directly or indirectly cause mortality or disrupt critical behaviors. In addition, listed animals are specifically protected from activities that disrupt nesting, breeding, feeding, or migration.

Tricolored Bat populations were reduced by heavy pesticide use in the mid-1900s, but were steadily on the rise again until the outbreak of White-nose Syndrome in the winter of 2007-2008. Once the third most abundant bat in Massachusetts caves, populations in infected hibernacula in the Northeast have seen catastrophic losses averaging at least 90%. White-nose Syndrome is caused by *Pseudogymnoascus destructans*, a species new to science, but closely related to fungi that naturally

grow in caves. The fungus grows over bats while they hibernate, causing them to rouse from dormancy frequently, lose valuable stored fat, and fail to survive the winter. The fungus is believed to be passed from cave to cave primarily by the movements of breeding male bats, but human transport is also thought to be responsible for the infection of some hibernacula.



Distribution in Massachusetts
1985 - 2010
Based on records in the
Natural Heritage Database

MANAGEMENT RECOMMENDATIONS: The U.S. Fish & Wildlife Service is working in concert with government and non-profit groups to understand the spread of the fungus and potential for stopping its spread, as well as exploring opportunities for captive breeding of the most vulnerable species. Access to suitable, undisturbed hibernacula is essential to the survival of the Tricolored Bat, and protection of known sites is paramount. Human disturbance of hibernacula can be discouraged or prevented with the use of gated entrances, in order to avoid arousal of hibernating bats and the spread of fungal spores.

REFERENCES:

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- Perry, R.W., and R.E. Thill. 2007. Tree roosting by male and female Eastern Pipistrelles in a forested landscape. *Journal of Mammalogy* 88(4): 974-981.
- U.S. Fish & Wildlife Service. 2012. “White-nose Syndrome.” <http://whitenosesyndrome.org/>

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