

Hoary Bat

Lasiurus cinereus

Federal Listing	N/A
State Listing	SC
Global Rank	G4
State Rank	S3
Regional Status	Very High

Justification (Reason for Concern in NH)

Hoary bats are relatively long lived and have a low reproductive rate, typically giving birth to 2 young per year (Koehler and Barclay 2000; Shump and Shump 1982). Habitat loss and degradation may lead to population declines, which are compounded by slow reproductive rates. Only 16 individuals have been captured in New Hampshire (NHFG unpublished data) from 5 counties. Based on echolocation calls, Reynolds (1999) reported the presence of hoary bats at Gile State Park, Springfield, Sullivan County and Pawtuckaway State Park, Nottingham, Rockingham County. Chenger (2005) reported echolocation calls from Gorham (Coos County) and Albany (Carroll County). These data indicate that hoary bats may have a wide summer distribution in New Hampshire. The current lack of detailed data on the distribution, habitat use, and life history of hoary bats in New Hampshire is largely due to a lack of research. The biggest threats to hoary bats are wind turbines and habitat loss.

Distribution

Data that describe the range of hoary bats in New Hampshire are too few to allow a regional comparison of hoary bat populations.

Habitat

Hoary bats leave New Hampshire in the autumn to spend winter months in the South. During spring, they return north to their summer habitat (Cryan and Veilleux 2007). Veilleux et al 2009 describe the summer roosting habitat as eastern hemlock (*Tsuga canadensis*) with individual bats using multiple roosts within a 0.5ha area. Elsewhere they roost in tree foliage or even in woodpecker holes and squirrel nests (Shump and Shump 1982, Whitaker and Hamilton 1998). They use both deciduous and coniferous trees for roosting (Willis and Brigham 2005, Perry and Thill 2007). Hoary bats are not colonial, but roost singly during all times of the year (except for reproductive females, who birth and wean their young within the roost) (Shump and Shump 1982). A study by Willis and Brigham (2005) demonstrated that, on average, hoary bats roosted 2 m from the tree trunk and in branches located 12.7 m from the ground. Roosts were oriented to the southeast (mean angle = 158.6). Roosts are typically sheltered by dense, overhanging foliage that forms an umbrella shape above the bats. The southeast exposure, lower canopy closure, and relative roost height may increase exposure of bats to sunlight, thereby providing warmer roost temperatures (Willis and Brigham 2005). Koehler and Barclay (2000) reported hoary bats from Manitoba, Canada, roosting at heights of 8-18 m in the foliage, and occasionally on the bark of trees. Trees bordered clearings or rose above nearby trees in the forest. Willis and Brigham (2005) observed reduced forest density on the roosting side of roost trees, possibly providing an open 'flyway' for bats returning to and leaving the roost. Hoary bats also roost at lower elevations, possibly due to lower wind levels and the abundance white spruce.

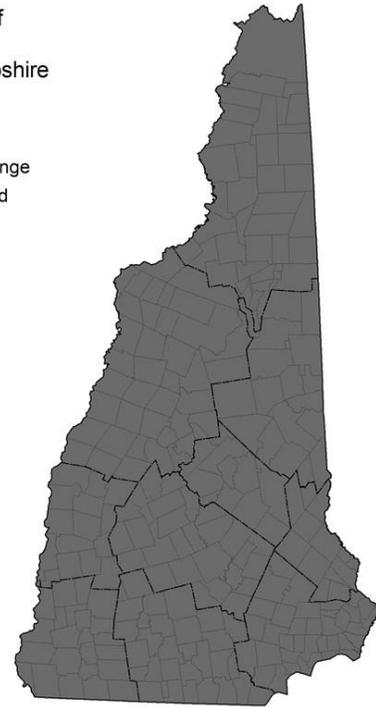
Appendix A: Mammals

NH Wildlife Action Plan Habitats

- Hemlock Hardwood Pine Forest
- Northern Hardwood-Conifer Forest
- Appalachian Oak Pine Forest
- Floodplain Habitats
- Lowland Spruce-Fir Forest
- Northern Swamps
- Temperate Swamps

Distribution of
HOARY BAT
in New Hampshire

■ Core Range
▨ Localized



Distribution Map

Current Species and Habitat Condition in New Hampshire

Population trends and viability cannot be assessed due to the paucity of data on hoary bats in NH.

Population Management Status

Hoary bats are not currently managed in New Hampshire. The risk to bats from mortality due to wind turbines is considered during the environmental review process for wind power facilities.

Regulatory Protection (for explanations, see Appendix I)

- NHFG Permit for collection or possession

Quality of Habitat

Unknown

Habitat Protection Status

Unknown

Habitat Management Status

None.

Threats to this Species or Habitat in NH

Threat rankings were calculated by groups of taxonomic or habitat experts using a multistep process (details in Chapter 4). Each threat was ranked for these factors: Spatial Extent, Severity, Immediacy, Certainty, and Reversibility (ability to address the threat). These combined scores produced one overall threat score. Only threats that received a “medium” or “high” score have accompanying text in this profile. Threats that have a low spatial extent, are unlikely to occur in the next ten years, or there is uncertainty in the data will be ranked lower due to these factors.

There are no threats ranked high or medium for this species.

List of Lower Ranking Threats:

Mortality and species impacts from agricultural pesticide use causing prey declines
Habitat degradation from succession that causes loss of drinking and foraging habitats
Mortality due to prescribed fire during winter
Habitat degradation from timber harvest that removes summer roosting and foraging areas
Habitat degradation from roads and powerline development
Mortality and conversion of migratory habitat due to wind turbine development
Habitat conversion and degradation due to removal of summer roosting and foraging areas

Actions to benefit this Species or Habitat in NH

Monitor bat populations

Objective:

Continue to monitor summer bat populations.

General Strategy:

Resurvey summer mist netting sites that have been historically monitored such as Surry Mountain Dam and New Boston Air Force Station.

Political Location:

Statewide

Watershed Location:

Statewide

Promote organic practices and integrated pest management (IPM)

Primary Threat Addressed: Mortality and species impacts from agricultural pesticide use causing prey declines

Specific Threat (IUCN Threat Levels): Pollution / Agricultural & forestry effluents / Herbicides & pesticides

Appendix A: Mammals

Objective:

Provide technical assistance to organizations that provide education, technical assistance and funding to farmers and homeowners on organic growing practices and IPM.

General Strategy:

Work with the Northeast Organic Farmers Association, UNH Cooperative Extension, NRCS, nursery stock growers, garden centers, garden clubs, landscapers and others to educate farmers, homeowners and commercial landscapers on using IPM and organic practices

Political Location:

Statewide

Watershed Location:

Statewide

Protect occupied roosting trees

Primary Threat Addressed: Habitat degradation from timber harvest that removes summer roosting and foraging areas

Specific Threat (IUCN Threat Levels): Biological resource use

Objective:

Prevent occupied roosting trees from being cut down.

General Strategy:

Develop voluntary BMPs for forestry that help landowners and foresters identify and protect known and potential roosting trees during harvesting operations. Provide these guidelines to organization building trails or otherwise potentially cutting trees. BMPs could include time of year restrictions for cutting, tree size limitation and other techniques. Coordinate with other states for consistency

Political Location:

Statewide

Watershed Location:

Statewide

Develop standard processes to reduce the effect of wind energy production on bats

Primary Threat Addressed: Mortality and conversion of migratory habitat due to wind turbine development

Specific Threat (IUCN Threat Levels): Energy production & mining

Objective:

Develop and implement rules on siting and operation of wind turbines to reduce mortality of bats during construction and operation

General Strategy:

Develop and implement siting rules that protect migration routes and occupied habitat from wind turbine development. Develop required operational mitigation measures such as curtailment to reduce bat mortality post-construction. Develop these in conjunction with nearby states to provide consistency to energy developers across the northeast.

Appendix A: Mammals

Political Location:

Northeast, Statewide

Watershed Location:

Statewide

References, Data Sources and Authors

Data Sources

Data on species distribution were compiled by searching for specimens deposited in museums and college/university teaching collections and by examining published and gray literature of research on bat populations in New Hampshire. NHFG unpublished data includes capture records provided by researchers as part of their reporting requirements for obtaining scientific collecting permits in NH. See 2.4.

Data Quality

There are limited data on the distribution of hoary bats in New Hampshire but data quality is believed to be good. Hoary bats are morphologically unique and identifications should be accurate. See 2.4.

2015 Authors:

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2005 Authors:

Jacques Veilleux, Franklin Pierce University; D. Scott Reynolds, St. Paul's School

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Appendix A: Mammals

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