Common Name: Allegheny woodrat  
Scientific Name: Neotoma magister  
Taxon: Mammals  
Federal Status: Not Listed  
New York Status: Not Listed  
Natural Heritage Program Rank:  
  Global: G3G4  
  New York: S1  
  Tracked: Yes  

Synopsis:
The Allegheny woodrat (*Neotoma magister*) is not closely related to the European rats, such as the Norway rat (*Rattus norvegicus*). It is more closely related to the white-footed deer mouse (*Peromyscus leucopus*) or North American deer mouse (*Peromyscus maniculatus*) (NYSDEC 2007).

The species’ range extends from western Connecticut (formerly), southeastern New York (virtually extirpated), northern New Jersey, and northern Pennsylvania southwestward through western Maryland, Tennessee, Kentucky, West Virginia, and northern and western Virginia to northeastern Alabama and northwestern North Carolina (Hall 1981), with isolated populations north of the Ohio River in southern Ohio (where recent surveys failed to locate this species) (W. Peneston, pers. comm., cited by Mengak 2002) and southern Indiana (Whitaker and Hamilton 1998). Although Hall (1981) showed *Neotoma magister* in the northwestern corner of Georgia, the Tennessee River is generally accepted as the southern range limit. The Allegheny woodrat is at the absolute northern extent of its range in New York State.

A decline in the numbers and range of the Allegheny woodrat was first noticed in the 1960s and the decline was considered severe by the mid-1970s. The species is believed to have been extirpated from the state by 1987 (NYSDEC 2013). There is a single extant occurrence in New York that represents a recent (2001) rediscovery. The population at this location is small and possibly unstable. It is made up of immigrants that occasionally occupy a small patch of habitat in the Palisades on the New York-New Jersey border, which is the northern extreme of the habitat for the last remaining New Jersey woodrat population (NYSDEC 2005). The raccoon roundworm parasite, combined with a small population size, makes the single New York site subject to extirpation.

### Distribution

<table>
<thead>
<tr>
<th>Distribution (% of NY where species occurs)</th>
<th>Abundance (within NY distribution)</th>
<th>NY Distribution Trend</th>
<th>NY Abundance Trend</th>
</tr>
</thead>
<tbody>
<tr>
<td>0% to 5%</td>
<td>X</td>
<td>Abundant</td>
<td></td>
</tr>
<tr>
<td>6% to 10%</td>
<td>Common</td>
<td></td>
<td>Severe Decline</td>
</tr>
<tr>
<td>11% to 25%</td>
<td>Fairly common</td>
<td></td>
<td></td>
</tr>
<tr>
<td>26% to 50%</td>
<td>Uncommon</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt; 50%</td>
<td>Rare</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Habitat Discussion:
Throughout the range, the Allegheny woodrat is associated with extensive rocky areas. The rocky areas where the woodrats make their dens include rock outcrops and ledges with associated boulders and talus slopes. (Howell 1921, Poole 1940). Woodrat habitat also includes caves and former mines in these rocky locations (e.g., old iron mines in the Hudson River Valley). Woodrats tend to avoid humans, but the species will sometimes use abandoned buildings (NatureServe 2012). The habitats that formerly supported woodrat populations are generally at higher elevations, although in New York the species has
been documented to occur along the Hudson River at or near sea level. During winter, woodrats tend to remain in caves and crevices. While home ranges may overlap, each woodrat defends its own den (Poole 1940).

<table>
<thead>
<tr>
<th>Primary Habitat Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caves and Tunnels</td>
</tr>
<tr>
<td>Cliff and Talus</td>
</tr>
<tr>
<td>Erosional Bluff</td>
</tr>
<tr>
<td>Oak Forest</td>
</tr>
<tr>
<td>Surface Mining</td>
</tr>
</tbody>
</table>

**Distribution:**
The species was rediscovered in the Palisades in 2001 and this is thought to be only extant site in the state. There is a slim chance some could still exist at Storm King Mountain where they were extant, but in severe decline in the mid-1980s, and where the last known remaining individuals were live-trapped for a captive breeding program in the late 1980s. Four individuals were trapped at the Palisades in 2001 and two were trapped in 2003. Additional evidence (i.e., fresh droppings) was also noted during both surveys. It is difficult to estimate the numbers that are present in the New York portion of the site, but it is likely that the population in New York is small and fluctuates (New York Natural Heritage Program 2013).
<table>
<thead>
<tr>
<th>Threat Category</th>
<th>Threat</th>
<th>Scope</th>
<th>Severity</th>
<th>Irreversibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Invasive &amp; Other</td>
<td>Problematic Native Species (infection with raccoon roundworm)</td>
<td>P</td>
<td>V</td>
<td>M</td>
</tr>
<tr>
<td>Problematic Species &amp; Genes</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Invasive &amp; Other</td>
<td>Invasive &amp; Non-Native/Alien Species (defoliation by gypsy moths reducing acorn availability)</td>
<td>P</td>
<td>L</td>
<td>M</td>
</tr>
<tr>
<td>Problematic Species &amp; Genes</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**References Cited:**


Common Name: Indiana myotis
Scientific Name: Myotis sodalis
SGCN – High Priority
Taxon: Mammals

Federal Status: Endangered
New York Status: Endangered
Natural Heritage Program Rank:
Global: G2
New York: S1
Tracked: Yes

Synopsis:
Indiana myotis was first described by Miller and Allen (1928). Prior to that, it was confused with other Myotis species, especially M. lucifugus. Taxonomy for the species has since been stable, although the common name was formerly Indiana bat. No subspecies are recognized.

Indiana myotis overwinters primarily in multi-species hibernacula in caves or abandoned mines and generally comprise a small proportion of the total number of individuals. Individuals may travel more than 575 km (Winhold and Kurta 2006) from hibernacula to seasonal habitat although studies in NY suggest that the large majority migrate than 65 km.

Early accounts (e.g., Humphrey et al 1977) described the species as a riparian habitat specialist in summer, a misconception that persists. Capture and radio-tracking data from NY and elsewhere suggest that summer habitat is closely tied to a wide range of deciduous forest types (Hobson and Holland 1995; Menzel et al. 2001; Butchkoski and Hassinger 2002; Chenger 2003; Sparks 2003; Murray and Kurta 2004; Sparks et al. 2005a, 2005b), with occasional use of nearby open habitats (Humphrey et al. 1977; Brack 1983; Clark et al. 1987; Hobson and Holland 1995; Gumbert 2001; Sparks et al. 2005a, 2005b). Maternity colonies are most often established in trees beneath peeling bark, often in large diameter snags but notably also large, healthy shagbark hickories, or within crevices formed in the trunk of snags after bark has fallen off. Human structures are rarely used. Frequent roost-switching has been reported and females may preferentially select roost sites with high solar exposure.

Despite the fact that most chosen roost trees are ephemeral, fidelity to the colony home range between years is high (Humphrey et al. 1977; Gardner et al. 1991a, 1991b; Gardner et al. 1996; Callahan et al. 1997; Whitaker and Sparks 2003; Whitaker et al. 2004), as is fidelity to hibernacula (LaVal and LaVal 1980).

Distribution
(% of NY where species occurs) | Abundance (within NY distribution) | NY Distribution Trend | NY Abundance Trend
--- | --- | --- | ---
0% to 5% | Abundant | | |
6% to 10% | X | Common | Moderate Decline | Rapid Recent Decline
11% to 25% | Fairly common | | |
26% to 50% | Uncommon | X | |
> 50% | Rare | | |

Habitat Discussion:
Winter habitat is limited to a small number of caves and mines with stable and atypically cool temperatures (USFWS 2007). Three-fourths of the known current population in NY is found in a single site (NYSDEC winter bat survey records).
Summer habitat is closely tied to a wide range of deciduous forest types below 300 m elevation with occasional use of nearby open habitats (USFWS 2007, USFWS 2012b). Even at the peak of abundance for the species summer habitat availability did not appear to be limiting in most parts of its range in NY. Since the arrival of white-nose disease population declines suggest habitat availability is now even less of an issue.

### Primary Habitat Type

<table>
<thead>
<tr>
<th>Primary Habitat Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caves and Tunnels</td>
</tr>
<tr>
<td>Forest and Woodland; Northeast Upland Forest</td>
</tr>
<tr>
<td>Forest and Woodland; Northeast Wetland Forest</td>
</tr>
</tbody>
</table>

### Distribution:

Indiana myotis was thought to be in decline until 2001 but records suggest increases in abundance from then until 2007 (USFWS 2012). Since the arrival of White-nose disease observations of the species have declined significantly both in NY and throughout the Northeast, suggesting a severely declining population trend.
## Threats to NY Populations

<table>
<thead>
<tr>
<th>Threat Category</th>
<th>Threat</th>
<th>Scope</th>
<th>Severity</th>
<th>Irreversibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Invasive &amp; Other Problematic Species &amp; Genes</td>
<td>Invasive Non-Native/Alien Species (disease: white nose syndrome)</td>
<td>P</td>
<td>V</td>
<td>V</td>
</tr>
<tr>
<td>Human Intrusions &amp; Disturbance</td>
<td>Recreational Activities (recreational spelunking)</td>
<td>P</td>
<td>L</td>
<td>L</td>
</tr>
<tr>
<td>Energy Production &amp; Mining</td>
<td>Renewable Energy (wind turbines)</td>
<td>R</td>
<td>L</td>
<td>M</td>
</tr>
<tr>
<td>Energy Production &amp; Mining</td>
<td>Renewable Energy (pumped storage hydroelectric project near Barton Mine)</td>
<td>W</td>
<td>L</td>
<td>V</td>
</tr>
<tr>
<td>Residential &amp; Commercial Development</td>
<td>Housing &amp; Urban Areas (habitat loss, fragmentation)</td>
<td>R</td>
<td>L</td>
<td>H</td>
</tr>
<tr>
<td>Biological Resource Use</td>
<td>Logging &amp; Wood Harvesting (silviculture)</td>
<td>N</td>
<td>L</td>
<td>H</td>
</tr>
<tr>
<td>Pollution</td>
<td>Industrial &amp; Military Effluents (environmental contaminants)</td>
<td>P</td>
<td>L</td>
<td>H</td>
</tr>
<tr>
<td>Human Intrusions &amp; Disturbance</td>
<td>Work &amp; Other Activities (disturbance from research in hibernacula)</td>
<td>P</td>
<td>L</td>
<td>L</td>
</tr>
</tbody>
</table>

## References Cited:


Whitaker, J.O., Jr. and D.W. Sparks. 2003. 2002 Monitoring program for the Indiana myotis (Myotis sodalis) near the site of the future Six Points interchange in Hendricks and Marion Counties, Indiana as required under the Six Points Interchange Habitat Conservation Plan.


Common Name: Little brown myotis  
Scientific Name: Myotis lucifugus  
Taxon: Mammals  

SGCN – High Priority

Federal Status: Not Listed  
New York Status: Not Listed

Natural Heritage Program Rank:  
Global: Not Ranked  
New York: Not Ranked  
Tracked: No

Synopsis:
The little brown myotis (Myotis lucifugus), formerly called the “little brown bat,” has long been considered one of the most common and widespread bat species in North America. Its distribution spans from the southern limits of boreal forest habitat in southern Alaska and the southern half of Canada throughout most of the contiguous United States, excluding the southern Great Plains and the southeast area of California. In the southwestern part of the historic range, a formerly considered subspecies identified as Myotis lucifugus occultus, is now considered a distinct species, Myotis occultus (Piaggio et al. 2002, Wilson and Reeder 2005). Available literature indicates that the northeastern U.S. constitutes the core range for this species, and that population substantially decreases both southward and westward from that core range (Davis et al. 1965, Humphrey and Cope 1970).

New York was the first state affected by white-nose syndrome (WNS), a disease characterized by the presence of an unusual fungal infection and aberrant behavior in hibernating bats. The pre-WNS population was viable and did not face imminent risk of extinction. However, a once stable outlook quickly reversed with the appearance of WNS in 2006, which dramatically altered the population balance and has substantially impaired the ability of the species to adapt to other cumulative threats against a rapidly declining baseline. In January 2012, U.S. Fish and Wildlife Service (USFWS) biologists estimated that at least 5.7 million to 6.7 million bats had died from WNS (USFWS 2012).

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<th>NY Abundance Trend</th>
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<td></td>
<td>Rapid Recent Decline</td>
</tr>
<tr>
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<td>Uncommon</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt; 50%</td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>

Habitat Discussion:
Little brown myotis feed primarily over wetlands and other still water where insects are abundant. They use rivers, streams, and trails as travel corridors to navigate across the landscape and often follow the same flight pattern each night as they search for food. Feeding is often done over open water and at the margins of bodies of water and forests (Anthony and Kunz 1977, Barclay 1991, Belwood and Fenton 1976, Fenton and Bell 1979, Saunders and Barclay 1992). However, foraging habits do vary based on intraspecific competition and flight ability. Juveniles show a preference for foraging in clearings or open forests roads, whereas adults regularly forage in environments that are less open (Crampton and Barclay 1998, van Zyll de Jong 1985). Adults prefer more open areas as well, especially when population density is high (Adams and Hayes 2008).
They prefer summer roosts close to water (New Hampshire Fish and Game 2013) and roost in buildings such as barns, attics, and outbuildings, with males and females roosting apart. The females gather into maternity colonies. They prefer hot spaces, such as right under the roof. The increased heat from the roof and multiple bat bodies helps the pups to grow faster. Males roost in smaller colonies, and may use tree cavities as well as buildings. Both genders can benefit from bat houses, but the females will seek out larger and hotter houses (New Hampshire Fish and Game 2013).

In the winter, little brown bats hibernate in clusters in caves and mines. In order to minimize evaporative losses, the humidity in these hibernation areas must be high, preferably over 90%. A constant temperature of 40 degrees F is desirable for hibernation. These conditions are also prime for the fungus, *Pseudogymnnoascus destructans*, formerly *Geomyces*, which is the causative agent of white-nose syndrome (New Hampshire Fish and Game 2013). In New York, sites with warmer temperatures experienced significantly more severe declines than sites with cooler temperatures (Langwig et al. 2012). The hibernacula is a reservoir for the disease. Environmental reservoirs such as this increase the likelihood that a species will go extinct from the disease.

<table>
<thead>
<tr>
<th>Primary Habitat Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caves and Tunnels</td>
</tr>
<tr>
<td>Commercial/Industrial and Residential</td>
</tr>
<tr>
<td>Forest and Woodland; Northeast Upland Forest</td>
</tr>
<tr>
<td>Forest and Woodland; Northeast Wetland Forest</td>
</tr>
</tbody>
</table>

**Distribution:**
The population estimate for little brown myotis in the core range was 6.5 million individuals in 2006, before WNS hit. This core range is presumed to account for the vast majority of the species’ global population. As of 2006, the population was assessed as stable or slightly increasing (Frick et al. 2010b). Once considered a common bat, the little brown myotis has declined considerably within its range. Between 2006 and 2010, the species lost at least 15-20% of its population (Frick et al. 2010b). Overall colony losses at the most closely monitored sites reached 95% of individuals at those sites within 2 to 3 years of initial WNS detection. The best available evidence conservatively predicts a 99% chance of little brown myotis extinction in the northeastern U.S. by at least 2026, and potentially much sooner depending on the actual mortality rates as WNS continues to spread rapidly (Frick et al. 2010b). Analyses of summer trends of this species have some similar evidence of decline across its range. However, a more recent analysis suggests that while initial declines in this species are severe (mean:70%), this species does show evidence of stabilization in sites with >3 years of WNS, although populations stabilize at much lower levels (Langwig et al. 2012).
### Threats to NY Populations

<table>
<thead>
<tr>
<th>Threat Category</th>
<th>Threat</th>
<th>Scope</th>
<th>Severity</th>
<th>Irreversibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Invasive &amp; Other Problematic</td>
<td>Invasive Non-Native/Alien Species (disease: white nose syndrome)</td>
<td>P</td>
<td>V</td>
<td>V</td>
</tr>
<tr>
<td>Species &amp; Genes</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Human Intrusions &amp; Disturbance</td>
<td>Recreational Activities (recreational spelunking)</td>
<td>P</td>
<td>L</td>
<td>L</td>
</tr>
<tr>
<td>Energy Production &amp; Mining</td>
<td>Renewable Energy (wind turbines)</td>
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<td>W</td>
<td>L</td>
<td>V</td>
</tr>
<tr>
<td>Biological Resource Use</td>
<td>Hunting &amp; Collecting Terrestrial Animals (nuisance control)</td>
<td>P</td>
<td>M</td>
<td>L</td>
</tr>
<tr>
<td>Pollution</td>
<td>Industrial &amp; Military Effluents (environmental contaminants)</td>
<td>P</td>
<td>L</td>
<td>H</td>
</tr>
<tr>
<td>Human Intrusions &amp; Disturbance</td>
<td>Work &amp; Other Activities (disturbance from research in hibernacula)</td>
<td>W</td>
<td>L</td>
<td>L</td>
</tr>
</tbody>
</table>

### References Cited:


Common Name: New England cottontail  
Scientific Name: Sylvilagus transitionalis  
Taxon: Mammals  

Federal Status: Not Listed  
New York Status: Special Concern  

Natural Heritage Program Rank:  
Global: G3  
New York: S1S2  
Tracked: Yes

Synopsis:
The New England cottontail (Sylvilagus transitionalis), abbreviated as NEC, is the only rabbit native to the northeastern United States from the Hudson River Valley of New York eastward. Some biologists believe that NEC do not interbreed with the Eastern cottontail (Sylvilagus floridanus), while others believe that NEC and Eastern cottontail hybrids, if born, apparently do not survive. Taxonomists have recognized the New England cottontail as a separate species since the 1990s, when it was split off from the Appalachian cottontail (Sylvilagus obscurus) on the basis of chromosomal differences, morphology, and geographic separation (Fuller and Tur 2012). The NEC usually can be distinguished from the Eastern cottontail by its shorter ears, the presence of a black spot between the ears, the absence of a white spot on the forehead, and a black line on the anterior edge of the ears (Litvaitis et al. 1991). However, external characteristics alone are not completely diagnostic and cranial differences provide a more reliable means of distinguishing the two species (Johnston 1972, Chapman and Ceballos 1990).

The NEC was previously widely distributed in New England, but the range has been reduced and fragmented (Chapman et al. 1992) and it currently has a disjunct distributional pattern, surviving in refugia in portions of the original range. It occurs generally in much of New England northward to southern Maine, westward to the Hudson River in eastern New York, and southward to eastern Long Island (Whitaker and Hamilton 1998). Remnant populations are now restricted to five regions: 1) seacoast region of southern Maine and New Hampshire, 2) Merrimack River Valley of New Hampshire, 3) a portion of Cape Cod, Massachusetts, 4) eastern Connecticut and Rhode Island, and 5) portions of western Connecticut, eastern New York, and southwestern Massachusetts (Litvaitis et al. 2006).

Habitat Discussion:
The NEC is an early-successional species, preferring open woods, disturbed areas, shrubby areas, thickets, and marshes (Hamilton and Whitaker 1979). Specimens collected in Rensselaer County in the 1960s were from second-growth hardwoods with hemlocks at elevations greater than 1000 feet, and scattered swampy areas with stands of spruce and conifer plantations. Current populations in southeastern New York can be found in isolated habitat patches that have undergone some form of disturbance; such habitats include agricultural fields and edges, and occasionally, brushy edges of transportation corridors (Tash and Litvaitis 2007). NEC need young regrowing forest, dense shrubs, or thickets in which to find.
food, reproduce, take shelter from bad weather, and escape predators. Barbour and Litvaitis (1993) found that NEC thrive in habitats containing greater than 20,234 stem-cover units per acre.

<table>
<thead>
<tr>
<th>Primary Habitat Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mixed Hardwood Swamp</td>
</tr>
<tr>
<td>Mixed Northern Hardwoods</td>
</tr>
<tr>
<td>Old Field/Managed Grasslands</td>
</tr>
<tr>
<td>Wet Meadow/Shrub Marsh</td>
</tr>
</tbody>
</table>

**Distribution:**

NECs have disappeared from many historical locations in New York including Warren County, the Catskills, and Long Island. The species was last documented in Rensselaer County in the 1960s (Benton and Atkinson 1964). Recent surveys suggest that the species continues to decline throughout its range due to forest maturation, habitat loss, habitat fragmentation, and competition with Eastern cottontails (Litvaitis et al. 2006). In New York, it is now limited to a few fragmented populations in Columbia, Dutchess, Putnam, and Westchester counties. If current trends continue, the NEC will likely become extirpated in the state.
<table>
<thead>
<tr>
<th>Threat Category</th>
<th>Threat</th>
<th>Scope</th>
<th>Severity</th>
<th>Irreversibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Residential &amp; Commercial Development</td>
<td>Housing &amp; Urban Areas (habitat loss)</td>
<td>W</td>
<td>L</td>
<td>H</td>
</tr>
<tr>
<td>2. Transportation &amp; Service Corridors</td>
<td>Roads &amp; Railroads (fragmentation, road mortality)</td>
<td>W</td>
<td>L</td>
<td>V</td>
</tr>
<tr>
<td>3. Invasive &amp; Other Problematic Species &amp; Genes</td>
<td>Invasive Non-Native/Alien Species (competition with eastern cottontail)</td>
<td>P</td>
<td>H</td>
<td>H</td>
</tr>
<tr>
<td>4. Invasive &amp; Other Problematic Species &amp; Genes</td>
<td>Invasive Non-Native/Alien Species (domestic and feral cats)</td>
<td>W</td>
<td>L</td>
<td>H</td>
</tr>
<tr>
<td>5. Biological Resource Use</td>
<td>Hunting &amp; Collecting Terrestrial Animals (due to similarity with eastern cottontail)</td>
<td>W</td>
<td>L</td>
<td>L</td>
</tr>
<tr>
<td>6. Natural Systems Modifications</td>
<td>Other Ecosystem Modifications (natural succession associated with land use change)</td>
<td>P</td>
<td>H</td>
<td>M</td>
</tr>
</tbody>
</table>

**References Cited:**


Common Name: Northern myotis  
Scientific Name: Myotis septentrionalis  
Taxon: Mammals  

SGCN – High Priority

Federal Status: Not Listed  
New York Status: Not Listed

Natural Heritage Program Rank:  
Global: G2  
New York: S3S4  
Tracked: No

Synopsis:  
The northern myotis (Myotis septentrionalis), previously called the northern long-eared bat, was formerly regarded as conspecific with Keen’s myotis (Myotis keenii). Since van Zyll de Jong (1979, 1985) and Jones et al. (1992), M. keenii and M. septentrionalis have generally been regarded as separate species. Most literature under the name M. keenii actually pertains to M. septentrionalis. No subspecies are recognized.

The northern myotis ranges widely across much of Canada and the U.S., but is patchily distributed and rarely found in large numbers (Barbour and Davis 1969). It is more common in the northern part of its range than in the southern (Harvey 1992), and western (Caceres and Barclay 2000) portions. It occurs in all Canadian provinces, in the Yukon and Northwest Territories, and in eastern, midwestern, and some southern states (Caceres and Barclay 2000). It is listed as vulnerable across much of its range (NatureServe 2013). It is found throughout forested areas of New York.

Recent trends suggest this species is in severe decline in NY and elsewhere in the Northeast (Turner et al. 2011).

<table>
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<tr>
<th>Distribution (% of NY where species occurs)</th>
<th>Abundance (within NY distribution)</th>
<th>NY Distribution Trend</th>
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</tbody>
</table>

Habitat Discussion:  
Although the published literature frequently associates the northern long-eared bat with forests in later stages of successional development, the frequency of encounter prior to 2007 suggests that the species may be found in a wide variety of forest types.

Aside from a tendency to favor deep crevices for hibernation, the species shows no strong preferences for particular cave or mine characteristics (Caceres and Barclay 2000). Most bat hibernacula in NY contained this species prior to 2007, supporting the notion that the species does not exhibit preference for rare environmental conditions.

The northern myotis overwinters primarily in multi-species hibernacula in caves or abandoned mines and generally comprise a small proportion of the total number of individuals (Caceres and Pybus 1997).
Individuals may travel considerable distance from hibernacula to seasonal habitat. The maximum reported 56 km (Nagorsen and Brigham 1993) is short compared to other Myotis and probably understates their capability.

Environmental conditions in caves are prime for the fungus, Pseudogymnoascus destructans, formerly Geomyces, which is the causative agent of white-nose syndrome (New Hampshire Fish and Game 2013). Hibernacula therefore serve as reservoirs for the disease (Lorch et al. 2013). In New York, sites with warmer temperatures experienced significantly more severe declines than sites with cooler temperatures (Langwig et al. 2012). Environmental reservoirs increase the likelihood that a species will go extinct from the disease.

Short migratory movements between summer roost and winter hibernacula between 56 km (35 mi) and 89 km (55 mi) have been documented most often (Nagorsen and Brigham 1993 p. 88; Griffin 1945, p. 53). However, movements from hibernacula to summer colonies may range from 8 to 270 km (5 to 168 mi) (Griffin 1945, p. 22).

Much of the published literature (Krusic et al. 1996, Thomas 1988, Jung et al. 1999, Lacki and Schwierjohann 2001, Broders and Forbes 2004) suggests presence of the species in spring and summer is correlated with the availability of features that often associated with older forests, such as uneven forest age with a significant percentage of trees of advanced age, multi-layered vertical structure and standing snags. Capture data from NY and elsewhere, however, suggest that the northern myotis does not require older forests.

Maternity colonies are often established beneath peeling bark or within hollow trees or cavities (Caceres and Pybus 1997) and thus the presence of large, partially dead or decaying trees may be a major habitat feature for the species. Frequent roost-switching has been reported and females may preferentially select roost sites with high solar exposure (Lacki and Schwierjohann 2001).

The species’ preferred habitat has often been characterized as “cluttered” (Patriquin and Barclay 2003, Carter and Feldhamer 2005) and the bat is well-adapted to foraging in dense vegetation, often at canopy level. Site occupancy has been documented as being inversely related to the proportion of edge habitat within a patch (Yates and Muzika 2006) leading to its characterization as a species of forest interiors (Henderson and Broders 2008).

<table>
<thead>
<tr>
<th>Primary Habitat Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caves and Tunnels</td>
</tr>
<tr>
<td>Forest and Woodland; Northeast Upland Forest</td>
</tr>
<tr>
<td>Forest and Woodland; Northeast Wetland Forest</td>
</tr>
</tbody>
</table>

**Distribution:**
The northern myotis was formerly common in NY and regularly encountered throughout northeastern North America. Since the arrival of white-nose syndrome (WNS), the species has become rare throughout the region, with observed decline in NY exceeding 95% (Turner et al. 2011), suggesting a severely declining trend. Encounters are currently so rare that assessment of trends since 2011 have been uncertain. It is unclear whether these declines have resulted in reduced distribution in NY or elsewhere.
<table>
<thead>
<tr>
<th>Threat Category</th>
<th>Threat</th>
<th>Scope</th>
<th>Severity</th>
<th>Irreversibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Invasive &amp; Other Problematic Species &amp; Genes</td>
<td>Invasive Non-Native/Alien Species (disease: white nose syndrome)</td>
<td>P</td>
<td>V</td>
<td>V</td>
</tr>
<tr>
<td>Human Intrusions &amp; Disturbance</td>
<td>Recreational Activities (recreational spelunking)</td>
<td>P</td>
<td>L</td>
<td>L</td>
</tr>
<tr>
<td>Energy Production &amp; Mining</td>
<td>Renewable Energy (wind turbines)</td>
<td>W</td>
<td>L</td>
<td>M</td>
</tr>
<tr>
<td>Energy Production &amp; Mining</td>
<td>Renewable Energy (pumped storage hydroelectric project near Barton Mine)</td>
<td>R</td>
<td>L</td>
<td>V</td>
</tr>
<tr>
<td>Biological Resource Use</td>
<td>Hunting &amp; Collecting Terrestrial Animals (nuisance control)</td>
<td>N</td>
<td>L</td>
<td>L</td>
</tr>
<tr>
<td>Pollution</td>
<td>Industrial &amp; Military Effluents (environmental contaminants)</td>
<td>P</td>
<td>L</td>
<td>H</td>
</tr>
<tr>
<td>Human Intrusions &amp; Disturbance</td>
<td>Work &amp; Other Activities (disturbance from research in hibernacula)</td>
<td>W</td>
<td>L</td>
<td>L</td>
</tr>
<tr>
<td>Residential &amp; Commercial Development</td>
<td>Housing &amp; Urban Areas (fragmentation)</td>
<td>N</td>
<td>L</td>
<td>H</td>
</tr>
<tr>
<td>Biological Resource Use</td>
<td>Logging &amp; Wood Harvesting (silviculture)</td>
<td>N</td>
<td>L</td>
<td>M</td>
</tr>
</tbody>
</table>

**References Cited:**


Harvey, M. J. 1992. Bats of the eastern United States. Arkansas Game and Fish Commission in cooperation with the U. S. Fish and Wildlife Service and Tennessee Technological University. Little Rock, Arkansas, USA.


Common Name: Eastern pipistrelle
Scientific Name: *Perimyotis subflavus*
Taxon: Mammals

**Federal Status:** Not Listed
**New York Status:** Not Listed

**Natural Heritage Program Rank:**
- Global: G3
- New York: S3
- Tracked: No

**Synopsis:**
This species has undergone taxonomic revision. Most of the literature is published under the name *Pipistrellus subflavus*. Hoofer et al. (2006) revised the generic status to *Perimyotis*. The common name “tricolored bat” has also been used.

The eastern pipistrelle is found throughout eastern North America and parts of Central America. New York is peripheral to the core distribution of the species.

The eastern pipistrelle prefers partly open country with large trees and woodland edges, typically foraging at treetop level and often over water. They are thought to avoid deep woods and open fields. Summer roosts probably are mainly in tree foliage and occasionally in buildings (Schmidly 1991, Veilleux et al. 2003). Hibernation sites are usually in caves and mines that may contain other species, although it tends to segregate into areas with higher humidity and warmer temperatures than other hibernating bats (DEC winter survey data).

Recent trends suggest this species is in severe decline in New York and elsewhere in the Northeast (Turner et al. 2011).

<table>
<thead>
<tr>
<th>Distribution (% of NY where species occurs)</th>
<th>Abundance (within NY distribution)</th>
<th>NY Distribution Trend</th>
<th>NY Abundance Trend</th>
</tr>
</thead>
<tbody>
<tr>
<td>0% to 5%</td>
<td>Abundant</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6% to 10%</td>
<td>Common</td>
<td>Rapid Recent Decline</td>
<td>Rapid Recent Decline</td>
</tr>
<tr>
<td>11% to 25%</td>
<td>Fairly common</td>
<td></td>
<td></td>
</tr>
<tr>
<td>26% to 50%</td>
<td>Uncommon</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt; 50%</td>
<td>X</td>
<td>Rare</td>
<td>X</td>
</tr>
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</table>

**Habitat Discussion:**
During the warmer months, Eastern pipistrelles 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 (MNHESP 2012).

Eastern pipistrelles forage at the treetop level, in partly open country with large trees, over water courses, and forest-field edges. They avoid deep woods and open fields (MNHESP 2012).

In winter, Eastern pipistrelles hibernate in limestone caves and abandoned mines, in areas where the humidity is so high that water droplets often cover their fur (MNHESP 2012).
**Primary Habitat Type**

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**Distribution:**
The species has been extirpated from many hibernation sites since the arrival of white-nose disease and has suffered severe decline in virtually all others. State-wide population decline for the species is estimated at >95%, based on hibernation counts (NYSDEC winter survey database). Consistent with the observed decline in hibernation sites, no summer captures have been reported for the species in NY since 2010 (NYSDEC files).

USGS (2013)
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