

Species Status Assessment

Class: Mammalia
Family: Felidae
Scientific Name: *Lynx canadensis*
Common Name: Canadian lynx

Species synopsis:

The distribution of the Canadian lynx (*Lynx canadensis*) in North America is closely associated with the distribution of North American boreal forest. In Canada and Alaska, lynx inhabit the boreal forest ecosystem known as the taiga. The range of lynx populations extends south from the classic boreal forest zone into the subalpine forest of the western United States, and the boreal/hardwood forest ecotone in the eastern United States. Forests with boreal features extend southward into the contiguous United States along the North Cascade and Rocky Mountain ranges in the west, the western Great Lakes region, and northern Maine. Within these general forest types, lynx are most likely to persist in areas that receive deep snow and have high-density populations of snowshoe hares, the principal prey of lynx (USFWS 2013b). Regionally, the only recognized viable population exists in northern Maine. Until recently lynx were believed to be extirpated from New Hampshire and Vermont (Kart 2005) but recent confirmed sightings in VT and NH lend some doubt to that conclusion (NHFG 2015; Vermont Wildlife Action Plan, 2015).

I. Status

a. Current and Legal Protected Status

- i. **Federal** Threatened **Candidate?** N/A
- ii. **New York** Threatened

b. Natural Heritage Program Rank

- i. **Global** G5
- ii. **New York** SX **Tracked by NYNHP?** No (Watch list)

Other Rank:

IUCN Red List— Least concern

Species of Northeast Regional Conservation Concern (Therres 1999)

Status Discussion:

Canadian lynx numbers in the United States have been falling for the last 30 years. In the 1980s, states began restricting lynx trapping (Maine stopped trapping earlier, in 1963). Trapping was banned altogether with Endangered Species Act protection in 1973 (Kart 2005).

II. Abundance and Distribution Trends

a. North America

i. Abundance

 X declining ___ increasing ___ stable ___ unknown

ii. Distribution:

 X declining ___ increasing ___ stable ___ unknown

Time frame considered: 1980s to present

b. Regional

i. Abundance

 X declining ___ increasing ___ stable ___ unknown

ii. Distribution:

 X declining ___ increasing ___ stable ___ unknown

Regional Unit Considered: Northeast

Time Frame Considered: 1980s to present

c. Adjacent States and Provinces

CONNECTICUT **Not Present** X **No data** _____

NEW JERSEY **Not Present** X **No data** _____

MASSACHUSETTS **Not Present** X **No data** _____

i. Abundance

____ declining ____ increasing ____ stable ____ unknown

ii. Distribution:

____ declining ____ increasing ____ stable ____ unknown

Time frame considered: _____

Listing Status: Not listed (SX)- Presumed Extirpated SGCN? _____

ONTARIO **Not Present** _____ **No data** _____

i. Abundance

____ declining ____ increasing X stable ____ unknown

ii. Distribution:

____ declining ____ increasing X stable ____ unknown

Time frame considered: _____

Listing Status: Not listed (S5)

PENNSYLVANIA **Not Present** X **No data** _____

i. Abundance

____ declining ____ increasing ____ stable ____ unknown

ii. Distribution:

____ declining ____ increasing ____ stable ____ unknown

Time frame considered: _____

Listing Status: Not listed (SX)- Presumed Extirpated SGCN? _____

Trends Discussion:

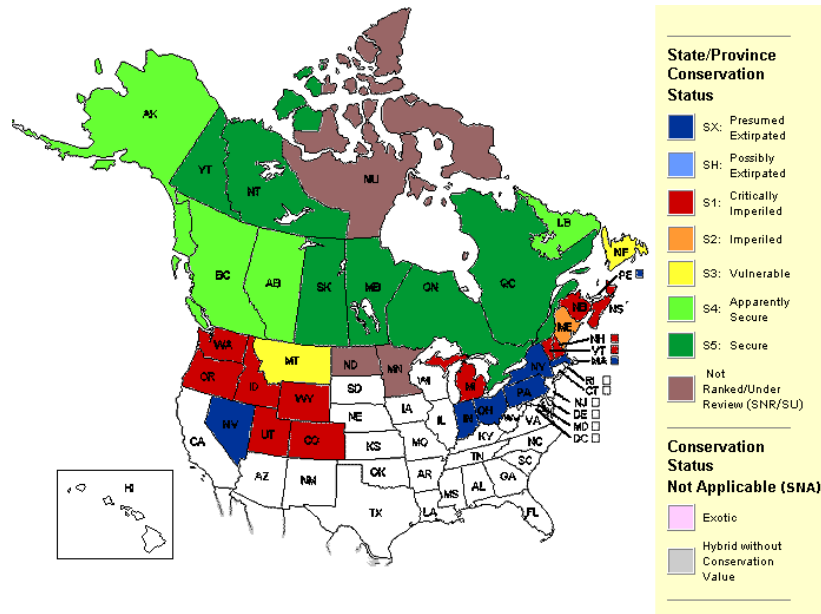


Figure 1. Conservation status of the Canadian lynx in North America (NatureServe 2012).

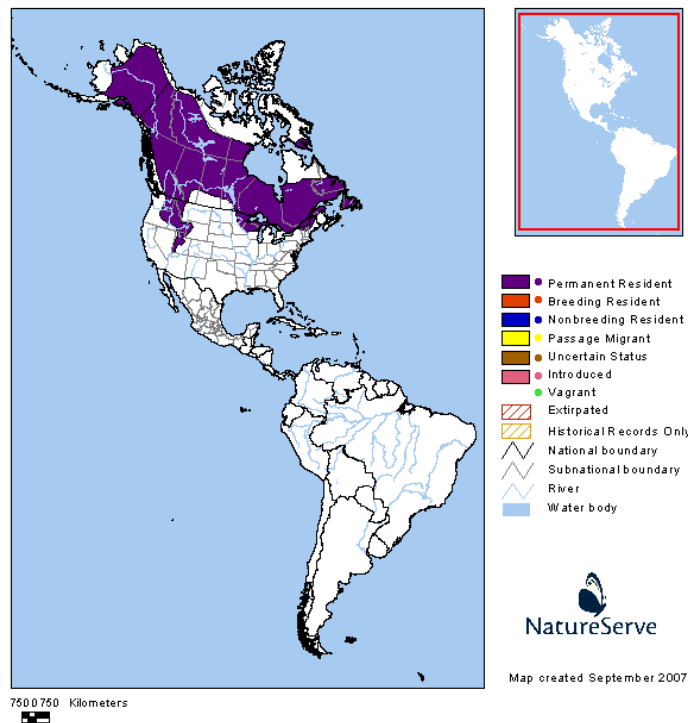


Figure 2. Distribution of the Canadian lynx in North America (NatureServe 2012).

III. New York Rarity, if known:

Historic	<u># of Animals</u>	<u># of Locations</u>	<u>% of State</u>
prior to 1970	_____	_____	_____
prior to 1980	<u>23</u>	<u>18</u>	_____
prior to 1990	_____	_____	_____

Details of historic occurrence:

There are 23 historic records of lynx in New York. It is thought that these records represent individual dispersers rather than a resident population (Ruggiero et. al. 1999).

Current	<u># of Animals</u>	<u># of Locations</u>	<u>% of State</u>
	_____	_____	_____

Details of current occurrence:

There are no current records of lynx in New York.

New York's Contribution to Species North American Range:

% of NA Range in New York	Classification of New York Range
<u> </u> 100 (endemic)	<u> </u> Core
<u> </u> 76-99	<u> X </u> Peripheral
<u> </u> 51-75	<u> </u> Disjunct
<u> </u> 26-50	Distance to core population:
<u> </u> 1-25	<u> ~400 mi </u>

V. New York Species Demographics and Life History

- Breeder in New York
 - Summer Resident
 - Winter Resident
 - Anadromous
- Non-breeder in New York
 - Summer Resident
 - Winter Resident
 - Catadromous
- Migratory only
- Unknown

Species Demographics and Life History Discussion:

Canadian lynx require large hunting areas. Home ranges in the United States are highly variable and can be from 12 to 83 square miles depending on abundance of prey, the animal's gender and age, season, and the density of lynx populations (USFWS 2013b). Where snowshoe hare densities are high, territories average 22 square miles for males and 10 square miles for females (USFWS 2013a). Home ranges are larger in winter. A male's territory may contain or overlap with the range of two or three females and their young (USFWS 2013a).

Lynx also make long distance exploratory movements outside their home ranges. Preliminary research supports the hypothesis that lynx home ranges at the southern extent of the distribution are large compared to those in Canada, indicating a relative reduction of food resources in these areas (USFWS 2013b). Snowshoe hare make up 75% or more of the lynx's diet, and the populations of these two species are highly linked. Snowshoe hare numbers have been reported to rise over a nearly 10-year period to a peak before crashing, and lynx follow the same pattern closely behind. However, in the Northeast, there is currently no evidence of natural snowshoe hare cycling; hare densities are more likely affected by forest practices than by 10-year cycles (USFWS 2013a). Without high densities of snowshoe hares, lynx are unable to sustain populations, despite utilizing a multitude of alternate prey species which include red squirrel (*Tamiasciurus hudsonicus*), grouse (*Bonasa umbellus*, *Dendragapus* spp., *Lagopus* spp.), flying squirrel (*Glaucomys sabrinus*), ground squirrel (*Spermophilus parryii*, *S. Richardsonii*), porcupine (*Erethizon dorsatum*), beaver (*Castor canadensis*), mice (*Peromyscus* spp.), voles (*Microtus* spp.), shrews (*Sorex* spp.), fish, and ungulate carrion (USFWS 2013b).

Breeding occurs through March and April in the north. Kittens are born in May to June. The male lynx does not help with rearing young. Yearling females may give birth during periods when hares are abundant but otherwise females begin breeding during their second year. During periods of hare abundance in the northern taiga, litter size of adult females averages 4 to 5 kittens. Litter sizes are typically smaller in lynx populations in the contiguous United States (USFWS 2013b).

VI. Threats:

Timber harvest and recreation, and their related activities, are the predominant land uses affecting lynx habitat in the United States (Hoving 2001). Past land use practices and poorly planned logging has resulted in a reduction of habitat and the fragmentation of habitat corridors between populations, limiting dispersal (Ruediger *et al.* 2000).

The primary factor that caused the lynx to be listed as federally threatened was the lack of guidance for the conservation of lynx and snowshoe hare habitat in plans for federally managed lands. Methods of timber harvest can either enhance or destroy lynx habitat; movements may be negatively affected by high traffic volume on roads that bisect suitable lynx habitat, and in some areas, mortalities due to road kill are high (USFWS 2013b). A lack of connectivity between habitats is often the result of poor land management for species such as lynx.

Brocke and Gustafson (1992) hypothesize that heavy logging in the Adirondack region during the past century and forest disturbance created ideal conditions for white-tailed deer (*Odocoileus virginianus*) and bobcat, which rely on the deer as winter food. It is hypothesized that the expanding bobcat population competed with the Adirondack lynx in the last century, contributing to the decline of the lynx. Other factors included trapping and incidental killing by humans.

Competition from coyote (*Canis latrans*) and fisher (*Martes pennanti*) (Ray *et al.* 2002) as well as genetic isolation and hybridization with bobcats may limit any recovery efforts (Schwartz *et al.* 2004).

Are there regulatory mechanisms that protect the species or its habitat in New York?

No Unknown

Yes

The Canadian lynx is protected by its status as state- and federally-listed Threatened. The species is classified by New York state law as a small game animal, but regulations do not permit lynx harvest. As a state-listed threatened species in New York, it is protected by Environmental Conservation Law (ECL) section 11-0535 and the New York Code of Rules and Regulations (6 NYCRR Part 182). A permit is required for any proposed project that may result in a take of a species listed as Threatened or Endangered, including, but not limited to, actions that may kill or harm individual

animals or result in the adverse modification, degradation or destruction of habitat occupied by the listed species.

The Adirondack Park was created by the New York State Legislature in 1892. State-owned Forest Preserve comprises 2.6 million acres (42%) and is protected by the state constitution as "forever wild." One million acres of the Forest Preserve is further classified as wilderness.

Describe knowledge of management/conservation actions that are needed for recovery/conservation, or to eliminate, minimize, or compensate for the identified threats:

A reintroduction effort would require a suitable prey base, which could be measured by the number of acres of snowshoe hare habitat within potential lynx range. Connectivity of habitat must also be maintained (Kart 2005).

A 1982 study found that lynx restoration was feasible in the Adirondack Park's north-east sector, which is relatively free of deer and bobcats and which harbors a good population of snowshoe hares. Brocke and Gustafson (1992) estimated that hare densities (170 hares/km²) would support a lynx population of 70 animals. A Canadian Lynx Restoration Project was launched in 1989 as a cooperative effort between the NYSDEC and the State University of New York College of Environmental Science and Forestry's Adirondack Wildlife Program. A total of 50 lynx were released in the High Peaks Region during the winters of 1989-1990, and another 30-40 during the winter of 1990-1991 (Gustafson 1991). It did not succeed in establishing a viable population. Out of 83 releases (48 females, 35 males), there have been 32 known mortalities. Twelve were killed by vehicles, the largest single source of known mortality. Five died out of state, usually by accidental shooting. Three lynx were raiding livestock pens. Six animals were lost to miscellaneous causes. In one case, a young lynx was apparently killed by a large male lynx (Brocke and Gustafson 1992).

Conservation actions following IUCN taxonomy are categorized in the table.

Conservation Actions	
Action Category	Action
Species Management	Species reintroduction

The Comprehensive Wildlife Conservation Strategy (NYSDEC 2005) includes recommendations for the following actions for large mammals that have been extirpated in New York.

Habitat research:

___ Conduct biological assessment for species shown to be socially acceptable.

Other actions:

— Conduct public attitude surveys when decision makers are of the opinion that there is a reasonable chance of public support for the restoration of an extirpated species.

Relocation/ reintroduction:

— Restore species believed likely to succeed and that are socially acceptable and monitor their progress.

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