

# Species Status Assessment

**Common Name:** Jack pine looper

**Date Updated:** March 2025

**Scientific Name:** *Macaria signaria* **Minor Edits By:** NYSDEC Wildlife Section

**Class:** Insecta

**Family:** Geometridae

**Species Synopsis** (a short paragraph which describes species taxonomy, distribution, recent trends, and habitat in New York):

The jack pine looper, *Macaria signaria*, was reclassified from the previous species name *Semiothisa banksiana* (Ferguson 2008). The jack pine looper is a boreal species, spanning coast to coast in Canada. In the United States, populations are known in Maine, Michigan, Wisconsin, and New York where it was recently discovered in Clinton County. The larval host plant of this species is jack pine (*Pinus banksiana*), an uncommon species in New York (New York Natural Heritage Program 2012, USDA 2012). Additional monitoring is needed to assess the population trends, phenology and life cycle for this species. It is believed to continue to occur at this one location in Clinton County, where it was discovered in 1995 and was still present in 2006 (NYSDEC SGCN Expert Meeting).

DEC is not aware of any additional data or new information on population trends or threats to this species since the last SWAP revision in 2015. This species was listed as SPCN in 2015, but with the removal of this status in the 2025 revision it has been changed to SGCN.

## I. Status

### a. Current legal protected Status

i. **Federal:** Not listed \_\_\_\_\_ **Candidate:** No \_\_\_\_\_

ii. **New York:** Not listed \_\_\_\_\_

### b. Natural Heritage Program

i. **Global:** G5 \_\_\_\_\_

ii. **New York:** S1 \_\_\_\_\_ **Tracked by NYNHP?:** Yes \_\_\_\_\_

### Other Ranks:

-NYS 2025 SGCN Status: SGCN

-IUCN Red List: N/A

-Northeast Regional SGCN: N/A

### Status Discussion:

The jack pine looper is listed as globally secure as of 27 May 2011. In New York, this species is ranked S1. In Ontario, Canada, its conservation status is S1? (NatureServe 2012).

## II. Abundance and Distribution Trends

Region	Present?	Abundance	Distribution	Time Frame	Listing status	SGCN?
North America	Yes	Unknown	Unknown			-
Northeastern US	Yes	Unknown	Unknown			-
New York	Yes	Unknown	Unknown			Yes
Connecticut	No	-	-			-
Massachusetts	No	-	-			-
New Jersey	No	-	-			-
Pennsylvania	No	-	-			-
Vermont	No	-	-			-
Ontario	No data	-	-			-
Quebec	No data	-	-			-

Column options

**Present?:** Yes; No; Unknown; No data; (blank) or Choose an Item

**Abundance and Distribution:** Declining; Increasing; Stable; Unknown; Extirpated; N/A; (blank) or Choose an item

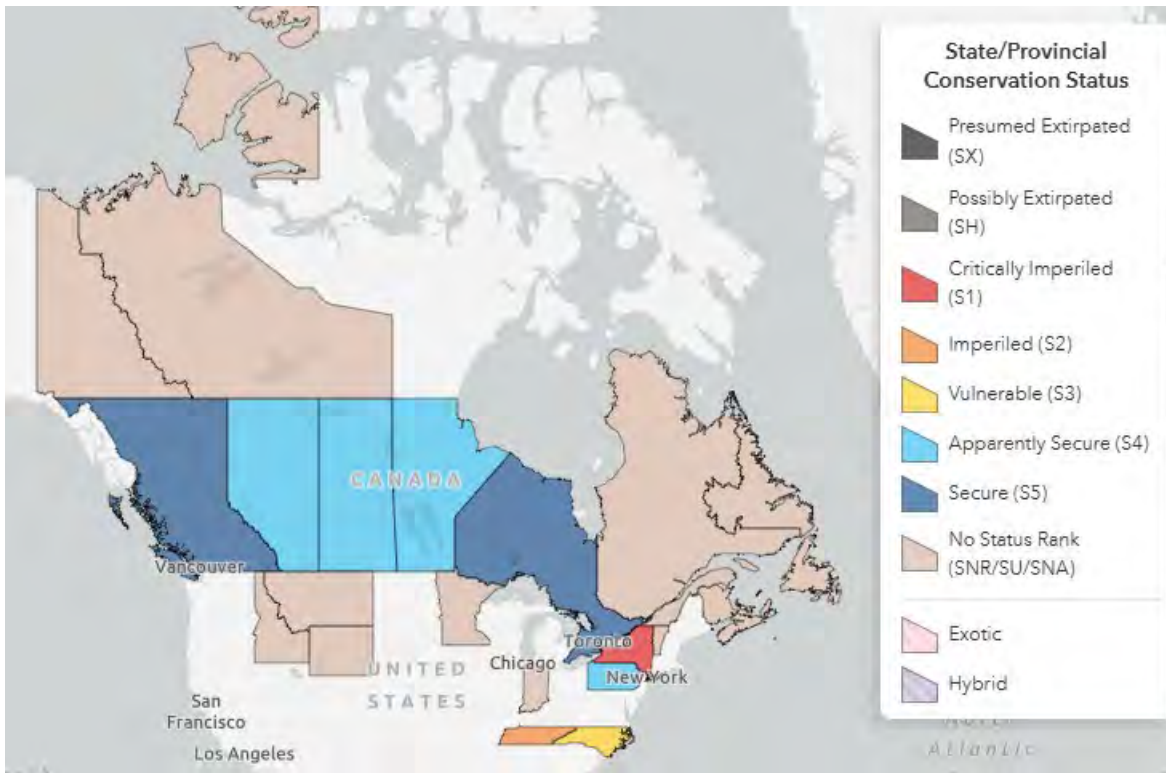
**SGCN?:** Yes; No; Unknown; (blank) or Choose an item

**Monitoring in New York** (*specify any monitoring activities or regular surveys that are conducted in New York*):

Intermittent surveys have been conducted in pine barren communities of Long Island

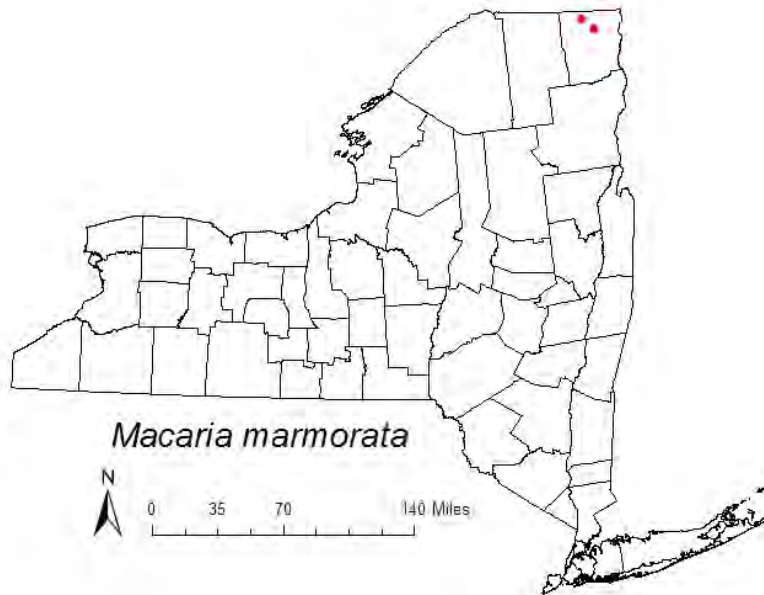
**Trends Discussion** (*insert map of North American/regional distribution and status*):

There is not enough information to assess the short and long-term population trends of this species. The only records of this species in New York are from two recent collections in Clinton County. This species ranges from coast to coast in Canada. In the United States, populations of the species are known to occur in New York, Maine, Michigan, and Wisconsin (NYSDEC 2010).



**Figure 1.** Conservation status of *Macaria signaria* in North America (NatureServe 2025).

**III. New York Rarity** (provide map, numbers, and percent of state occupied)



**Figure 1.** Known occurrences of jack pine looper in New York (NY Nature Explorer 2009). Map created by Shawn Ferdinand, NYSDEC

**Details of historic and current occurrence:**

No historic occurrence information available.

This species was collected at the Altona Flat Rock State Forest and Gadway Sandstone Pavement Barrens Preserve, both in Clinton County, in 1995 (New York Nature Explorer 2009). Surveys in 2003 confirmed the continued presence of the species at the Gadway site.

**New York’s Contribution to Species North American Range:**

Percent of North American Range in NY	Classification of NY Range	Distance to core population, if not in NY
1-25%	Peripheral	

*Column options*

**Percent of North American Range in NY:** 100% (endemic); 76-99%; 51-75%; 26-50%; 1-25%; 0%; Choose an item

**Classification of NY Range:** Core; Peripheral; Disjunct; (blank) or Choose an item

**IV. Primary Habitat or Community Type** *(from NY crosswalk of NE Aquatic, Marine, or Terrestrial Habitat Classification Systems):*

- a. Erosional bluff
- b. Pine-oak forest
- c. Pine barrens

**Habitat or Community Type Trend in New York**

Habitat Specialist?	Indicator Species?	Pollinator Species?	Habitat/Community Trend	Time frame of Decline/Increase
Yes	No	Choose an item.	Declining	

*Column options*

**Habitat Specialist, Indicator Species and Pollinator Species:** Yes; No; Unknown; (blank) or Choose an item

**Habitat/Community Trend:** Declining; Stable; Increasing; Unknown; (blank) or Choose an item

**Habitat Discussion:**

The jack pine looper is dependent on the larval fooplant, jack pine. In New York, the jack pine’s distribution is limited to the northern counties (USDA 2012). Collection sites in New York were dominated by jack pine, with an understory of ericaceous shrubs. The site also contains exposed bedrock and an herb layer of sparse grasses, mosses and lichens (New York Natural Heritage Program 2013).

## V. Species Demographic, and Life History:

Breeder in NY?	Non-breeder in NY?	Migratory Only?	Summer Resident?	Winter Resident?	Anadromous/Catadromous?
Yes	-	-	Yes	Yes	-

*Column options*

**First 5 fields:** Yes; No; Unknown; (blank) or Choose an item

**Anadromous/Catadromous:** Anadromous; Catadromous; (blank) or Choose an item

**Species Demographics and Life History Discussion** (*include information about species life span, reproductive longevity, reproductive capacity, age to maturity, and ability to disperse and colonize*):

The jack pine looper produces a single annual brood, with adults present from June to July. Mature caterpillars are seen in August and September. Pupae overwinter in the soil and leafy debris (Maier et al. 2003). Additional research is needed to determine the phenology and life cycle of this species (New York Natural Heritage Program 2011).

## VI. Threats (*from NY 2015 SWAP or newly described*):

Threats facing the jack pine looper include fire suppression, logging, mineral excavation, gypsy moth spraying and off road vehicle damage to habitat. Wildfires are required to maintain the jack pine forests in New York (New York Natural Heritage Program 2012). Wildfire suppression allows jack pine stands to reach maturity and which may be replaced by other species (Hawver 1993). Wildfire management plans should set aside unburned patches to serve as a refuge. McCabe (2004) documented the defoliation of jack pines brought to Albany, NY by pine sawflies. Pine sawflies may limit jack pine occurrence in the state to locations on sandstone or flat rock areas where soil is too sparse for the development of pine sawfly larvae. Introduced parasitoid flies have been known to negatively affect native Lepidoptera (Boettner et al. 2000).

Threat Level 1	Threat Level 2	Threat Level 3	Spatial Extent	Severity	Immediacy	Trend	Certainty
1. Residential and Commercial	1.1 Housing & Urban Areas	(habitat loss)	Choose an item.	Choose an item.	Choose an item.	Choose an item.	Choose an item.
3. Energy Production & Mining	3.2 Mining & Quarrying	(mineral excavation)	Choose an item.	Choose an item.	Choose an item.	Choose an item.	Choose an item.
5. Biological Resource Use	5.3 Logging & Wood Harvesting	-	Choose an item.	Choose an item.	Choose an item.	Choose an item.	Choose an item.
6. Human Intrusions & Disturbance	6.1 Recreational Activities	6.1.1 Motor vehicles	Choose an item.	Choose an item.	Choose an item.	Choose an item.	Choose an item.
7. Natural System Modifications	7.1 Fire & Fire Suppression	7.1.2 Suppression in the fire regime	Choose an item.	Choose an item.	Choose an item.	Choose an item.	Choose an item.
8. Invasive & Other Problematic Species	8.1 Invasive Non-Native Plants & Animals	8.1.1 Terrestrial animals (parasitoid flies)	Choose an item.	Choose an item.	Choose an item.	Choose an item.	Choose an item.
8. Invasive & Other Problematic Species	8.2 Problematic Native Plants & Animals	(pine sawflies)	Choose an item.	Choose an item.	Choose an item.	Choose an item.	Choose an item.
9. Pollution	9.3 Agricultural & Forestry Effluents	9.3.3 Herbicides & pesticides (gypsy moth spraying)	Choose an item.	Choose an item.	Choose an item.	Choose an item.	Choose an item.
9. Pollution	9.6 Excess Energy	9.6.1 Light pollution	Choose an item.	Choose an item.	Choose an item.	Choose an item.	Choose an item.

**Table 1.** Threats to *Macaria signaria*

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

Yes: \_\_\_\_\_ No: X Unknown: \_\_\_\_\_

**If yes, describe mechanism and whether adequate to protect species/habitat:**

Populations of this moth have been found in Altona Flat Rock State Forest, a state owned forest and Gadway Sandstone Pavement Barrens Preserve, land owned by The Nature Conservancy, and thus protected from development.

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

Fire management is needed to maintain jack pines in New York. High intensity fires are necessary for cones to open and seeds to germinate in large numbers. Prescribed burning programs should take into account rare Lepidoptera species that can be negatively affected by the loss of eggs, pupae, larvae, or adults depending on the size and timing of a burning event. Wildlife management plans should leave unburned refugia for rare Lepidoptera (New York Natural Heritage Program 2012).

This species is known to come to black light traps from April-June (New York Natural Heritage Program 2013).

Action Category	Action	Description
A.1 Direct Habitat Management	A.1.0.0.0 Direct habitat management	Site/Area management
A.1 Direct Habitat Management	A.1.1.0.0 Manage plants, animals, fungi, or bacteria	Invasive/Problematic species control
B.3 Outreach	B.3.1.4.0 Public outreach and information	Awareness & Communications
C.6 Design and Plan Conservation	C.6.5.0.0 Conservation planning	Site/Area Protection
C.6 Design and Plan Conservation	C.6.5.0.0 Conservation planning	Resource/Habitat Protection
C.7 Legislative and Regulatory Framework or Tools	C.7.1.3.0 Create, amend, or influence regulation	

Action Category	Action	Description
C.7 Legislative and Regulatory Framework or Tools	C.7.2.1.0 Create or amend policies	

**Table 3.** Recommended conservation actions for *Macaria signaria* (add more lines as needed).

The Comprehensive Wildlife Conservation Strategy (NYSDEC 2005) includes recommendations for the following actions for other moths, and for *Macaria marmorata* in particular.

**Easement acquisition:**

\_\_\_\_\_ Where appropriate, acquire easements to promote moth protection and conservation.

**Fact sheet:**

\_\_\_\_\_ Create fact sheets covering moths.

**Habitat management:**

\_\_\_\_\_ Determine best management regime for moth species, including fire and other forms of management.

**Habitat monitoring:**

\_\_\_\_\_ Develop standardized measures of habitat parameters for each species of listed moth.

\_\_\_\_\_ Investigate threats to food and host plants.

\_\_\_\_\_ Monitor land development projects.

**Habitat research:**

\_\_\_\_\_ Examine role of light pollution as threat to moths.

\_\_\_\_\_ Determine host/ food plant.

**Life history research:**

\_\_\_\_\_ Investigate the metapopulation dynamics of those species which warrant it.

\_\_\_\_\_ Examine role of introduced parasites and predators in threats to moths.

**Other action:**

\_\_\_\_\_ Develop standard definition of what is needed for "viable" populations of moths.

\_\_\_\_\_ Research the role of pesticide use in threats to moths.

**Population monitoring:**

\_\_\_\_\_ Inventory of species within historical range.

\_\_\_\_\_ Develop standardized survey protocols for moths.

**Private fee acquisition:**

\_\_\_\_\_ Where appropriate, encourage/assist private entities to acquire land for moth protection and conservation.

**State fee acquisition:**

\_\_\_\_\_ Where appropriate, acquire land essential to moth protection and conservation.

**State land unit management plan:**

\_\_\_\_\_ Incorporate needs of moths into state land management plans.

## VII. References

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