

Species Status Assessment

Common Name: Acadian pine pinion moth

Date Updated: 11/04/24

Scientific Name: *Lithophane lepida lepida*

Updated By: Annie Stupik

Class: Insecta

Family: Noctuidae

Species Synopsis

L. lepida lepida is a boreal moth species that historically occupied Canada and the northeastern United States. It is similar to the subspecies *L. lepida adipel*, and some suggest they are two distinct species (Don Lafontaine). We consider these as subspecies to maintain consistency with other data sources (NatureServe 2024; Pohl and Nanz 2023). *L. lepida adipel* is considered more common in the western region of the species' range, occurring from Georgia, New Jersey, and Saskatchewan (Schwizter et al. 2018, Forbes 1954), while *L. lepida lepida* may occupy more of the far northeastern region of the US and Canada (Schwizter et al. 2018, Don Lafontaine). The two subspecies have known overlapping populations in New York and New Hampshire. However, it is difficult to conclude that populations do not overlap in other areas without further evaluation (Schwizter et al. 2018).

L. lepida lepida occupies pine barrens and young pine forests. It feeds on pine needles as larvae, pupate in the soil during late summer, and emerge as adults in late summer/early fall (Schwizter et al. 2018).

I. Status

The *L. lepida lepida* subspecies historically occurred in the pine barrens of Albany, New York (Schwizter et al. 2018) but has not been documented there in over a century. It was documented in pine barrens in Clintonville, New York, in 1991 (Tim McCabe). While suitable habitat is present in Massachusetts and Long Island, NY, no populations have been identified there (Schwizter et al. 2018). While the rarity of this subspecies may be due to difficulty collecting it, experts suggest that the subspecies is experiencing declines throughout its range (Schwizter et al. 2018).

a. Current legal protected Status

i. **Federal:** Not listed **Candidate:** N/A

ii. **New York:** Endangered

b. Natural Heritage Program

i. **Global:** G4, T2 (depending on taxonomic consideration)

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

Other Ranks:

-NYS SGCN Status: High Priority Species of Greatest Conservation Need

-IUCN Red List: N/A

-Northeast Regional SGCN: Yes

Status Discussion:

This subspecies has not been documented in New York since 1991 and data is extremely sparse across its range. It is difficult to determine if the lack of records is due to a decline or the potential determination of false rarity (NatureServe 2024).

II. Abundance and Distribution Trends

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

Monitoring in New York

There are no regular surveys or monitoring for this species. The New York Natural Heritage Program conducted black light surveys in 1991 at the state's only known location.

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

Short term trends for *Lithophane lepida lepida* are shown to be stable, with less than 10% change. Long term trends have shown a decline of 70-90%. This species occurs spottily from Nova Scotia to eastern Ontario. In the United States, this species occurs in Maine, New Hampshire and New York (D. Lafontaine, personal communication). Populations in Albany had declined prior to extensive habitat loss from urbanization, and now are extirpated (NatureServe 2012).



Figure 1. *Lithophane lepida lepida* occurrence in New York. May not reflect all historic data (NYNHP 2024)



Figure 2. *Lithophane lepida lepida* distribution/status in North America (NatureServe 2024).

III. New York Rarity

Years	# of Records	# of Distinct Waterbodies/Locations	% of State
Pre-2000	2	1	_____
2000- 2023	_____	_____	_____

Table 1. Records of *Lithophane lepida lepida* in New York.

Details of historic and current occurrence:

Two adults were collected in 1982 and 1 adult in 1984 at the Clintonville Pine Barrens, Clinton County (New York Natural Heritage Program 2013).

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%	(blank)	

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. Pine barrens
- b. Oak-pine forest

Habitat or Community Type Trend in New York

Habitat Specialist?	Indicator Species?	Pollinator Species?	Habitat/Community Trend	Time frame of Decline/Increase
Yes	Yes	(blank)	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:

This species’ habitat consists of pine barrens and young pine forests (Schwizter et al. 2018).

V. Species Demographic, and Life History:

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

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

Larvae feed on new pine needle growth in the spring, spend mid to late summer as prepupa in the duff layer, and adults emerge in September to October.

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

Habitat loss due to urbanization, including residential and commercial development, is a major threat to *Lithophane lepida lepida*. Chemical treatments used to manage invasive species may be a threat. While prescribed fire is an important tool to maintain pine barren habitat, if conducted at the wrong time of year, it could be a threat to this species (Schwizter et al. 2018).

Introduced parasitoid flies have been known to negatively affect native Lepidoptera (Boettner et al. 2000). Other threats may include invasive species, light pollution affecting reproductive success, over grazing of host plants by wild deer populations, and off-road vehicle use (NYSDEC 2005).

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.
1. Residential and Commercial	1.2 Commercial & Industrial Areas	(habitat loss)	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 (offroad)	Choose an item.	Choose an item.	Choose an item.	Choose an item.	Choose an item.
7. Natural System Modifications	7.1 Fire & Fire Suppression	7.1.1 Increase in the fire regime (prescribed fire at wrong times of the year)	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	8.2.3 Localized increase in invertebrate grazing	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 2. Threats to *Lithophane lepida lepida*.

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

Yes: ✓

No:

Unknown:

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

The pine pinon moth is listed as an endangered species in New York and 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.

Specimens that were collected in New York were within the Clintonville Pine Barrens, an area owned by The Nature Conservancy, are 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:

Surveys could confirm the current population status and possibly discover new populations. This species is known to be attracted to bait traps in the spring, but not in the fall (NYSDEC 2012). This species shares habitat with Karner blue butterfly (*Lycaeides melissa samuelis*) and any extant population may benefit from management for that species.

Action Category	Action	Description
A.1 Direct Habitat Management	A.1.0.0.0 Direct Habitat Management	Site Management
A.2 Direct Species Management	A.2.0.0.0 Direct Species Management	Invasive/problematic species control
B.3 Outreach	B.3.0.0.0 Outreach	Awareness and Communications
C.6 Design and Plan Conservation	C.6.0.0.0 Design and Plan Conservation	Site/Area Protection
C.6 Design and Plan Conservation	C.6.0.0.0 Design and Plan Conservation	Resource/Habitat Protection
C.7 Legislative and Regulatory Framework or Tools	C.7.0.0.0 Legislative and Regulatory Framework or Tools	Policies and Regulations

Table 3. Recommended conservation actions for *Lithophane lepida lepida*.

VII. References

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Date first prepared	19 February 2013
First revision	18 July 2013 (Samantha Hoff)
Last revision	4 November 2024 (Central Office Herp & Invertebrate Unit)