Species Status Assessment

Common Name: Pale green pinion moth **Date Updated:** January 15, 2024

Scientific Name: *Lithophane viridipallens* **Updated By:**

Class: Insecta

Family: Noctuidae

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

The pale green pinion moth is a common, habitat generalist species throughout the southern U.S. lowlands. This species is spottily distributed along the coastal plain from Massachusetts to New Jersey, becoming more continuous from New Jersey to Georgia and west to Louisiana and east Texas (Wagner et al. 2011, NatureServe 2013). In New York, this species was historically known from Long Island (Forbes 1954). This species was recently collected in the dwarf pine barrens, Suffolk County in 2005. This species can be found in a variety of habitats including cedar swamps, hardwood swamps, shrub swamps, woodlands and forests (Wagner et al. 2011). Population trends for this species in New York are unknown. The short-term trend throughout its range is considered to be relatively stable. The long-term trend for this species has declined 30-50% throughout its known range (NatureServe 2013).

I. Status

a. Current legal protected Status

i. **Federal:** Not listed **Candidate:** not listed

ii. **New York:** Not listed; HPSGCN

b. Natural Heritage Program

i. **Global:** G5

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

Other Ranks:

United States National Rank: Not assessed

IUCN Red List: Not assessed

Status Discussion:

This species is a common southern lowland moth, becoming rare north of New Jersey (NatureServe 2013). Additional inventory is needed on Long Island to accurately assess the status of the population in New York (NYNHP 2013). This species is considered extirpated in Connecticut (Connecticut Department of Environmental Protection 2005).

II. Abundance and Distribution Trends

Region	Present?	Abundance	Distribution	Time Frame	Listing status	SGCN?
North America	Yes	Stable	Stable	Not specified		-
Northeastern US	Yes	Stable	Stable	Not specified		-
New York	Yes	Unknown	Unknown			Yes
Connecticut	Yes	Extirpated	Extirpated	Not specified	Special Concern/ Extirpated	Yes
Massachusetts	Yes	Unknown	Unknown	Not specified	Special concern	Yes
New Jersey	Yes	Unknown	Unknown	Not specified	Not listed	No
Pennsylvania	No	-	-			-
Vermont	No	-	-			-
Ontario	No	-	-			-
Quebec	No	-	-			-

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 over the last 10 years (as of 2015).

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

The pale green pinion moth ranges spottily from Massachusetts to New Jersey, becoming continuous from New Jersey southward to Georgia and westward to Louisiana and Texas (Wagner et al. 2011, NatureServe 2013). Short and long-term population trends in New York are unknown. Short-term trends for this species are thought to be stable range wide. Long-term trends for this species show that it has declined 30-50% throughout its range (NatureServe 2013).

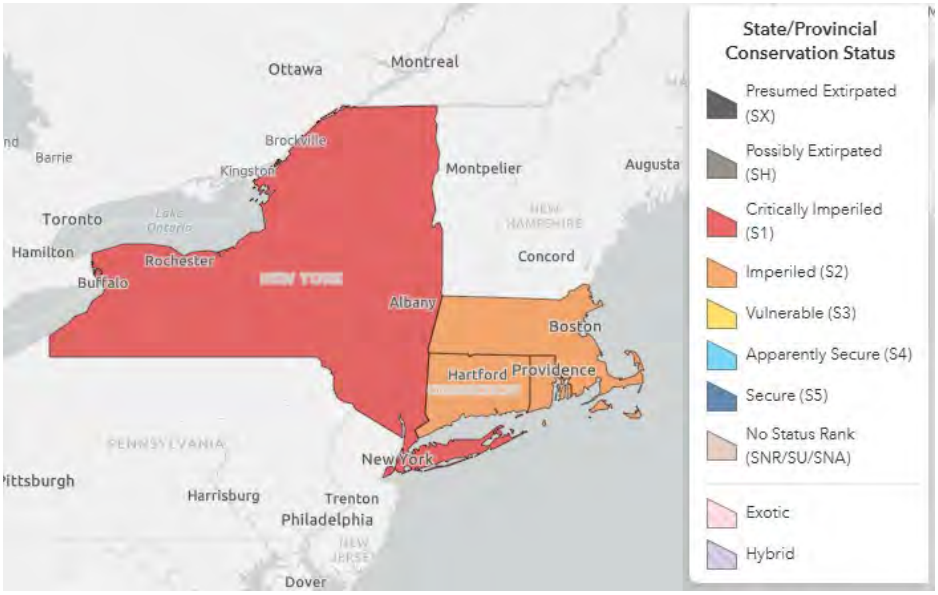

Figure 1. Conservation status of pale green pinion moth in North America (NatureServe 2013).

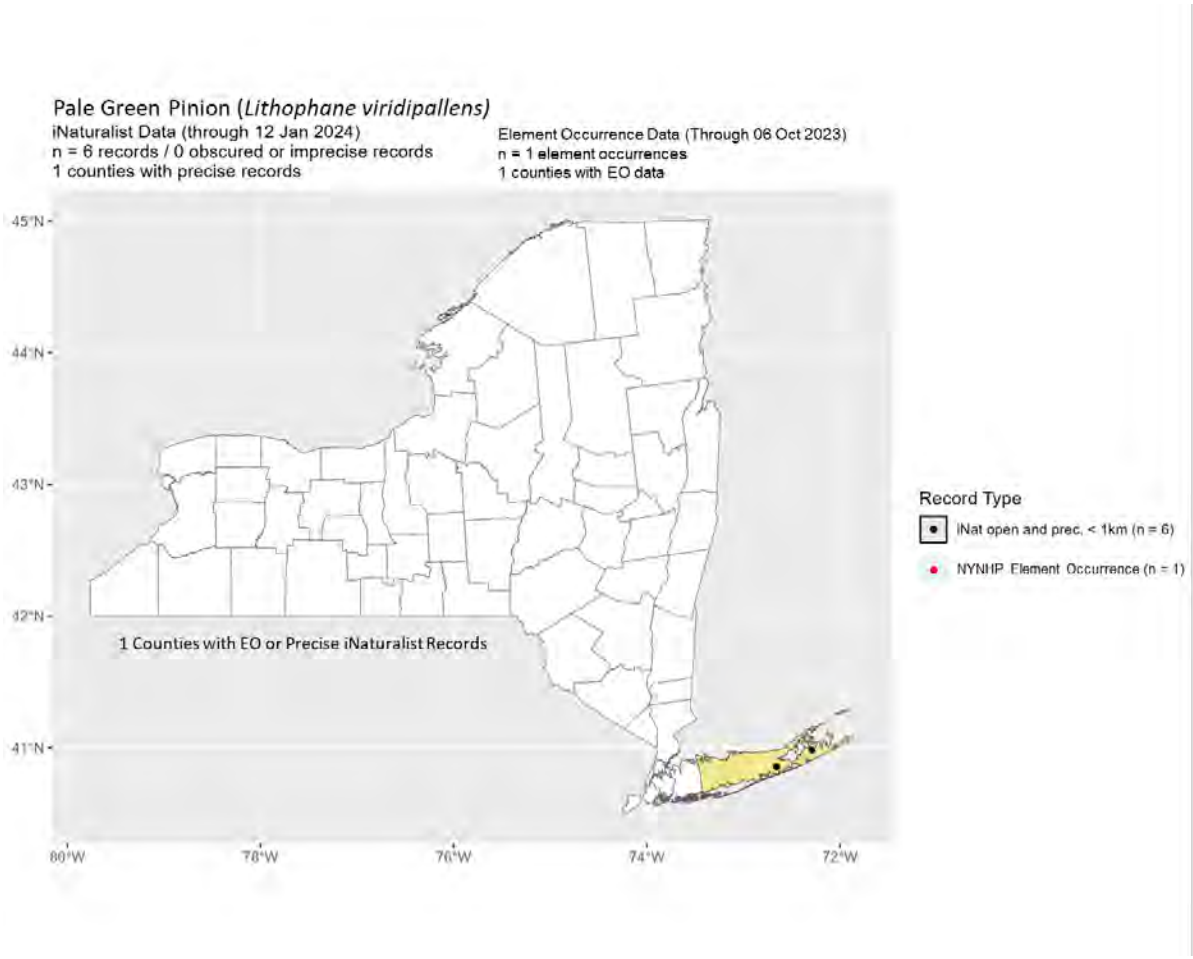

Figure 2. Occurrence record of pale green pinion moth in the dwarf pine barrens, Suffolk County (NYNHP 2024, iNaturalist).

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

In the Northeast, the pale green pinion moth is local and rare, confined to mostly shrub swamps near Cape Cod and coastal plain sites (Wagner et al. 2011). It is common on the coastal plain and south of Virginia (NYNHP 2013).

Years	# of Records	# of Counties	% of State
Pre-2000		1	<1
2000- 2023		1	<1

Table 1. Records of pale green pinion moth in New York.

Details of historic and current occurrence:

This species was reported to historically be found on Long Island (Forbes 1954). This species was observed by Hugh McGuinness in the dwarf pine barrens in Southampton, Suffolk County in 2005 (NYNHP 2024). There are additional undocumented sightings of this species at multiple locations on Long Island (NYNHP 2013), and an iNaturalist record from Sag Harbor. It is unclear if the Sag Harbor record represents a new locality due to its proximity to a house.

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):*

1. Pine barrens
2. Shrub swamp
3. Northern white cedar swamp
4. Mixed hardwood swamp

Habitat or Community Type Trend in New York

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

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:

In New York, this species was recorded in a dwarf pine barrens community, dominated with dwarf pitch pine-scrub oak (NYNHP2024). This species is considered a generalist occupying multiple coastal habitats including cedar swamps, hardwood swamps, shrub swamps, woodlands and forests (Wagner et al. 2011). In Massachusetts this species is found in oak/holly swamps and acidic shrub swamps containing a variety of its probable host plants. Larval host plants are undocumented but are thought to include hollies (*Ilexi* spp.), sweet pepper-bush (*Clethra alnifolia*), swamp-fetterbush (*Leucothoe racemosa*), maleberry (*Lyonia ligustrina*), and highbush blueberry (*Vaccinium corymbosum, V. pallidum*) (Nelson 2012, NYNHP 2024). This species occurs in other wooded habitats on Long Island, demonstrating that it is not a barrens specialist (McGuiness 2006).

V. Species Demographic, and Life History:

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

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):*

This species has a single annual brood, with mature caterpillars found on the underside of new leaves from May through June. Pupation occurs in early June and adults emerge on warm nights in October, November and early April (Wagner et al. 2011, Nelson 2012, NYNHP 2013).

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

Direct threats to pale green pinion moth are elimination and fragmentation of habitat by commercial and residential development (NYNHP 2013). Additional threats thought to affect this species are hydrologic alteration that disrupts the natural seasonal flooding of its habitat. General threats known to affect moths include habitat loss and degradation cause by alteration of natural fire regimes; natural succession of shrubland, woodland, and barrens habitats; land clearing; coastal erosion; and sea level rise. Past use of chemical biocides to control gypsy moth and other pest insects continues to kill native Lepidoptera (Schweitzer 2004). 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/ degradation)	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 (ATVs)	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.
7. Natural System Modifications	7.2 Dams & Water Management/Use	-	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.
11. Climate Change	11.1 Habitat Shifting & Alteration	(sea level rise)	Choose an item.	Choose an item.	Choose an item.	Choose an item.	Choose an item.

Table 2. Threats to pale green pinion moth.

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:

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

Additional inventory is needed for this species to better understand its distribution on Long Island and its status in the state (NYNHP 2013).

Conservation actions following IUCN taxonomy are categorized in the table.

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 pale green pinion moth.

The Comprehensive Wildlife Conservation Strategy (NYSDEC 2005) includes recommendations for the following actions for other moths, and for the pale green pinion moth 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

Boettner, G.H., J.S. Elkington, and C.J. Boettner. 2000. Impacts of an introduced generalist parasitoid on three native species of saturniid moths. Conservation Biology 14: 1798–1806.

Connecticut Department of Environmental Protection. 2005. Comprehensive Wildlife Conservation Strategy. Connecticut Bureau of Natural Resources in Consultation with Terwilliger Consulting, Inc. http://www.ct.gov/dep/site/default.asp.

Ferdinand, S. 2013. NYSDEC SWAP 2015 Species Status Assessment for Pale Green Pinion Moth. Prepared on May 6, 2013. Revised July 18 2023.

McGuinness, Hugh. 2006. Overview of the 2005 Dwarf Pine Plains data.

NatureServe. 2012. NatureServe Explorer: An online encyclopedia of life [web application]. Version 7.1. NatureServe, Arlington, Virginia. <http://www.natureserve.org/explorer>. Accessed 3 May 2013.

Nelson, M.W. 2013. Massachusetts rare species fact sheets. Massachusetts Division of Fisheries & Wildlife, Westborough, MA. <www.mass.gov/dfwele/dfw/nhesp/species.../lithophane_viridipallens.pdf >. Accessed 3 May 2013.

New York Natural Heritage Program (NYNHP). 2013. Online Conservation Guide for *Lithophane viridipallens.* Available from: http://www.acris.nynhp.org/guide.php?id=8130. Accessed 15 Jan 2024.

New York Natural Heritage Program (NYNHP). 2024. Biodiversity database. Albany, New York. Accessed 15 Jan 2024.

New York State Department of Environmental Conservation. 2005. New York State Comprehensive Wildlife Conservation Strategy. http://www.dec.ny.gov/index.html.

Schweitzer, D.F. 2004. Gypsy Moth (*Lymantria dispar*): Impacts and Options for Biodiversity-Oriented Land Managers. NatureServe: Arlington, Virginia. 59 pp.

Wagner, D.L., D.F. Schweitzer, J.B. Sullivan, and R.C. Reardon. 2011. Owlet caterpillars of Eastern North America. Princeton University Press, Princeton, New Jersey. 576 pp.

Originally prepared by	Shawn Ferdinand
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