Species Status Assessment

Common Name: Pine barrens zanclognatha **Date Updated:** March 2025

Scientific Name: *Zanclognatha martha* **Minor Edits By:** NYSDEC Wildlife Section

Class: Insecta

Family: Erebidae

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

Recent taxonomic review of*Z. Martha* has described a new species, *Z. dentata* (Wagner and McCabe 2011). Reports prior to 2011 on Z. marth awould have described the two species under the single name. The new discovery could prove that *Z. martha* is less common that previously considered (NYSDEC 2012). Pine barrens zanclognatha is a barrens species found in sandy pitch pine (*Pinus rigida*)- scrub oak [*Quercus ilicifolia*) barrens. This species is common in the pinelands of southern New Jersey, in the inland sandplain-pine barrens of New York and New England, northward to central New Hampshire and southern Maine. It is also found in eastern Pennsylvania, southern Ohio, and the mountains from Virginia to northern Georgia (NYNHP 2013a). Wagner et al. (2011) mention populations in Wisconsin and Texas. Pine barrens zanclognatha is moderately widespread but very local in areas outside of southern New jersey (NatureServe 2013). In New York, this species is numerous and widespread throughout the Albany Pine Bush (NYNHP 2013a). Short-term trends of this species in New York are thought to be stable; however, it is thought that a population has been extirpated from Minnewaska State Park, Ulster County. Long-term trends show a moderate to substantial decline of 25-75% of the population in New York. A recent report by Tim McCabe discussed the extirpation of this species from Massachusetts and Connecticut (NYSDEC 2012).

I. Status

a. Current legal protected Status

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

ii. **New York:** Not listed

b. Natural Heritage Program

i. **Global:** G4

ii. **New York:** S1S2 **Tracked by NYNHP?:** _____

Other Ranks:

-NYS 2025 SGCN Status: SGCN

-IUCN Red List: N/A

-Northeast Regional SGCN: Watchlist

Status Discussion:

Pine barrens zanclognatha is very common in southern New Jersey. Outside of New Jersey, it is widespread and local. This species is unlikely to be globally endangered as long as New Jersey Pinelands receive a degree of protection, but is vulnerable in other parts of its range (NatureServe 2013).

II. Abundance and Distribution Trends

Region	Present?	Abundance	Distribution	Time Frame	Listing status	SGCN?
North America	Yes	Declining	Declining	1996-2015		-
Northeastern US	Yes	Declining	Declining	1996-2015		-
New York	Yes	Stable	Declining	1996-2008		Yes
Connecticut	Yes	Declining	Declining		SC	Yes
Massachusetts	Yes	Declining	Declining		T	Yes
New Jersey	Yes	Stable	Stable			Yes
Pennsylvania	No data	-	-			-
Vermont	No data	-	-			-
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 New York's pine barren communities

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

Pine barrens zanclognatha ranges from southern Maine to New Jersey, with populations in eastern Pennsylvania, southern Ohio and in mountains from Virginia to northern Georgia (NYNHP 2012a). Short-term trends of this species in New York are thought to be stable with the exception of a population that is potentially extirpated from Minnewaska State Park, Ulster County. Long-term trends show a moderate to substantial decline of 25-75% of the population in New York. A recent report by Tim McCabe discussed the extirpation of this species from Massachusetts and Connecticut (NYSDEC 2012).

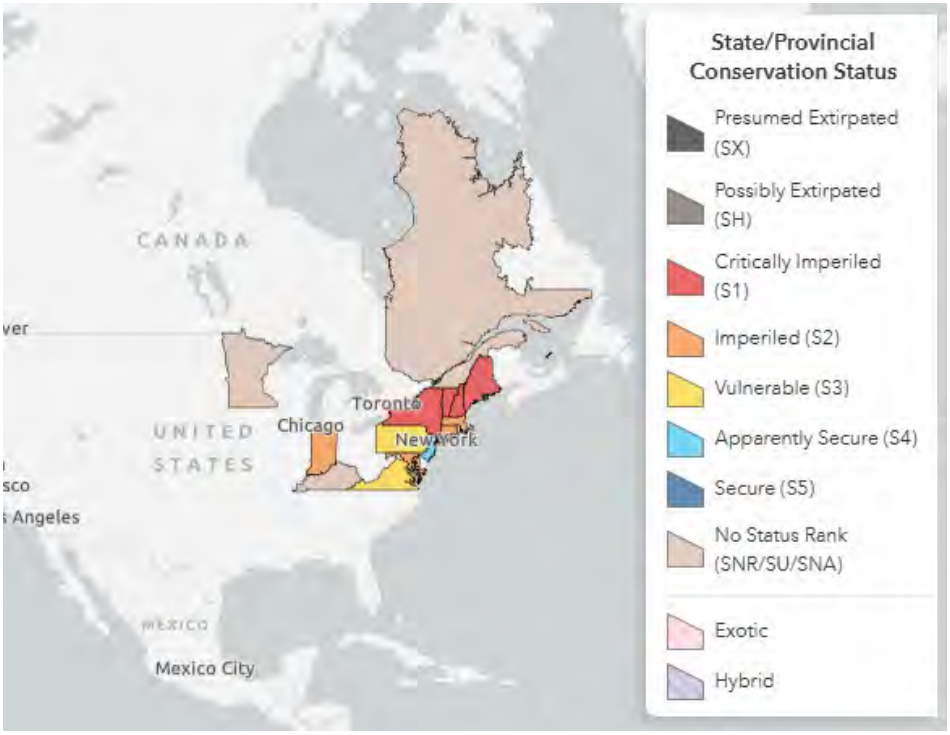

Figure 1. Conservation status of *Zanclognatha martha* in North America (NatureServe 2024).

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

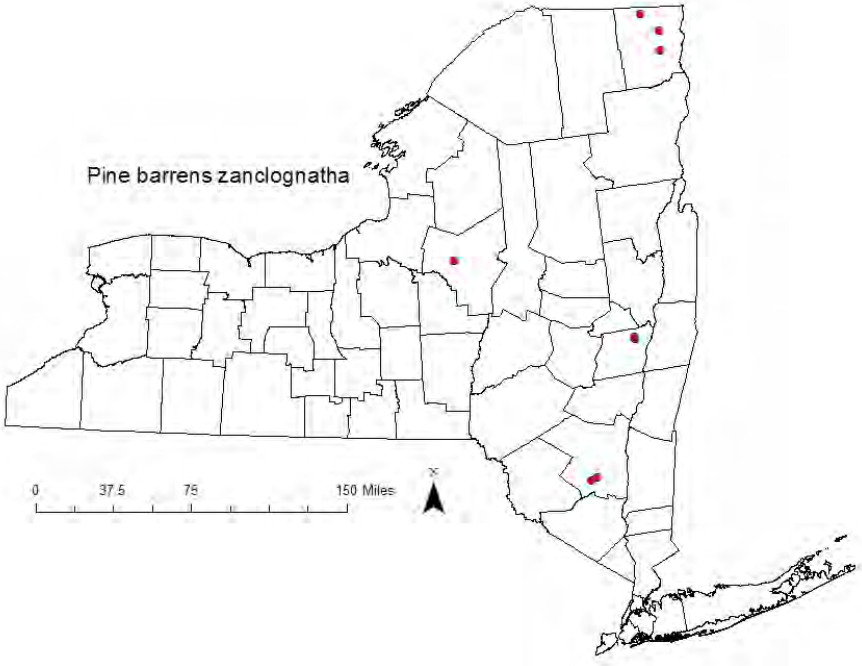

Figure 2. Occurrences of pine barrens zanclognatha in New York (New York Natural Heritage Program 2013). Map created by Shawn Ferdinand, NYSDEC

Details of historic and current occurrence:

This species was recorded to be extant in the Albany Pine Bush, Albany County in 1978. It was collected by a light trap in the Albany Pine Bush by Dale Schweitzer in 1979 and at a bait trap by Tim McCabe in 1987 (NYNHP 2013b).

This species was collected at 5 out of 6 trap sites set up by Tim McCabe in the Albany Pine Bush, Albany County, in 1990. In 1993, one specimen was collected by a light trap set by Mark Gretch in the West Plattsburgh Pine Barrens, Clinton County. In 1995, it was collected by Edward Stanton in the Gadway Sandstone Pavement Barrens Preserve and Altona Flat Rock, Clinton County and in Rome Sand Plains, Oneida County. Tim McCabe collected this species in Minnewaska State Park Preserve, Ulster County in 1996; however, it was not observed in an additional survey of the area in 2008 (NYNHP 2013b). It is thought to be extirpated from Minnewaska State Park (NYSDEC 2012).

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. Oak-pine Forest

b. 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	Yes	-	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:

Zanclognatha martha inhabits pine barren communities, occurring in coarse-textured, nutrient-poor, and droughty soils, that are dominated by pitch pine and scrub oak (NHNHB 2005). In New Hampshire, this species is associated with open pitch pine forests with a scrub oak-ericaceous understory (Mello 1998). It is most numerous where there is substantial leaf litter and a pine canopy. This species prefers more of a pine canopy than most other pine barren specialists

(NYNHP 2013a). *Z. martha* is an indicator of habitat health. As pine barrens habitat is lost, fragmented, and transitioned to a closed canopy system, this species dies off (NHNHB 2005).

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):*

Adults fly at night between June and mid-August. Eggs are laid on or near the host plant (MDIFW 2010). Larva feed on pitch pine needles, but will also use detritus and the ubiquitous epiphytic algae, *Protococcus viridis*. Larvae rapidly develop into penultimate larvae, which enter diapause and overwinter in a growth chamber in the branches of their host plant. Larva resume feeding in the spring and pupate in June (Nelson 2012, NYSDEC 2012).

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

Threats specific to this species are habitat loss and degradation caused by development; habitat fragmentation; alteration of natural fire regimes; natural succession of barrens habitats. 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, over grazing of host plants by wild deer populations, and off-road vehicle use (NYSDEC 2005). Light pollution is thought to not heavily affect this species due to its persistence within the Albany Pine Bush, an area severely impacted by light pollution (NYSDEC 2012).

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.
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	7.3 Other Ecosystem Modifications	7.3.2 Vegetation succession	Choose an item.	Choose an item.	Choose an item.	Choose an item.	Choose an item.
9. Pollution	9.5 Air-Borne Pollutants	(Gypsy moth spraying)	Choose an item.	Choose an item.	Choose an item.	Choose an item.	Choose an item.

Table 1. Threats to *Zanclognatha martha.*

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:

Known populations of this species in New York occur on property owned by The Nature Conservancy or the State of New York, and 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:

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

Table 3. Recommended conservation actions for *Zanclognatha martha* (add more lines as needed).

The Comprehensive Wildlife Conservation Strategy (NYSDEC 2005) includes recommendations for the following actions for other moths,

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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Originally prepared by	Shawn Ferdinand
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