Species Status Assessment

Common Name: Herodias underwing **Date Updated:** 10/18/2024

Scientific Name: *Catocala herodias gerhardi* **Updated By:** Annie Stupik

Class: Insecta

Family: Erebidae

Species Synopsis

The Herodias, or pine barrens underwing, (*Catocala herodias gerhardi*) is found mostly in four main areas: the Cape Cod region and adjacent islands of Massachusetts, the Long Island, New York pine barrens, the core of the New Jersey Pine Barrens in Ocean, Burlington, and extreme northern Atlantic Counties (one specimen from Cape May County), and in the mountains from eastern West Virginia to far western North Carolina. Isolated populations are known on two ridge tops in Berkshire County, Massachusetts and at least one such ridge top in the lower Hudson Valley, New York. The extent and continuity of the Appalachian range is unknown. There is a gap in the range across Pennsylvania, but the species could turn up in the shale barrens areas of south-central Pennsylvania and adjacent Maryland (NYNHP 2011).

In New York, this underwing was at least formerly widespread on Long Island and probably still occurs in most extensive pitch pine-scrub oak communities in Suffolk County. It has been documented in Orange County, although it probably does not occur on many sites on the mainland, but it could turn up in a few more nearby counties (NYNHP 2011).

I. Status

a. Current legal protected Status

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

ii. **New York:** Special Concern; SGCN

b. Natural Heritage Program

i. **Global:** G3T3

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

Other Ranks:

-IUCN Red List: N/A

-Northeast Regional SGCN: Yes

Status Discussion:

This species is probably still somewhat widespread on Long Island, but it is unknown how many populations remain there. At least one globally significant occurrence still remains. Similarly, it is possible that additional occurrences could be found in the southeastern mainland counties. There are possibly 5 to 20 populations left in New York, but only two or three of these have been recently documented (NYNHP 2011).

Globally, the species is fairly common in a few counties such as Plymouth and Dukes in Massachusetts, perhaps Suffolk in New York, and Ocean and Burlington in New Jersey, but overall a limited and discontinuous range and serious potential threats in the Appalachians. It is certainly

not immediately imperiled but globally uncommon to rare by virtue of its limited range and specialized habitat (NatureServe 2012).

II. Abundance and Distribution Trends

Region	Present?	Abundance	Distribution	Time Frame	Listing status	SGCN?
North America	Yes	Stable	Stable			(blank)
Northeastern US	Yes	Declining	Declining			(blank)
New York	Yes	Stable	Stable		Special concern	Yes
Connecticut	Yes	Declining	Declining		Endangered	Yes
Massachusetts	Yes	Stable	Stable		Special concern	Yes
New Jersey	Yes	Stable	Stable			No
Pennsylvania	No	N/A	N/A			(blank)
Vermont	No	N/A	N/A			(blank)
Ontario	No	N/A	N/A			(blank)
Quebec	No	N/A	N/A			(blank)

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

Monitoring is not currently being conducted for this species.

Trends Discussion

Short-term trends indicate that the population is stable. Long-term trends indicate that the population has undergone a substantial to large decline of 50% to 90% (NYNHP 2011).

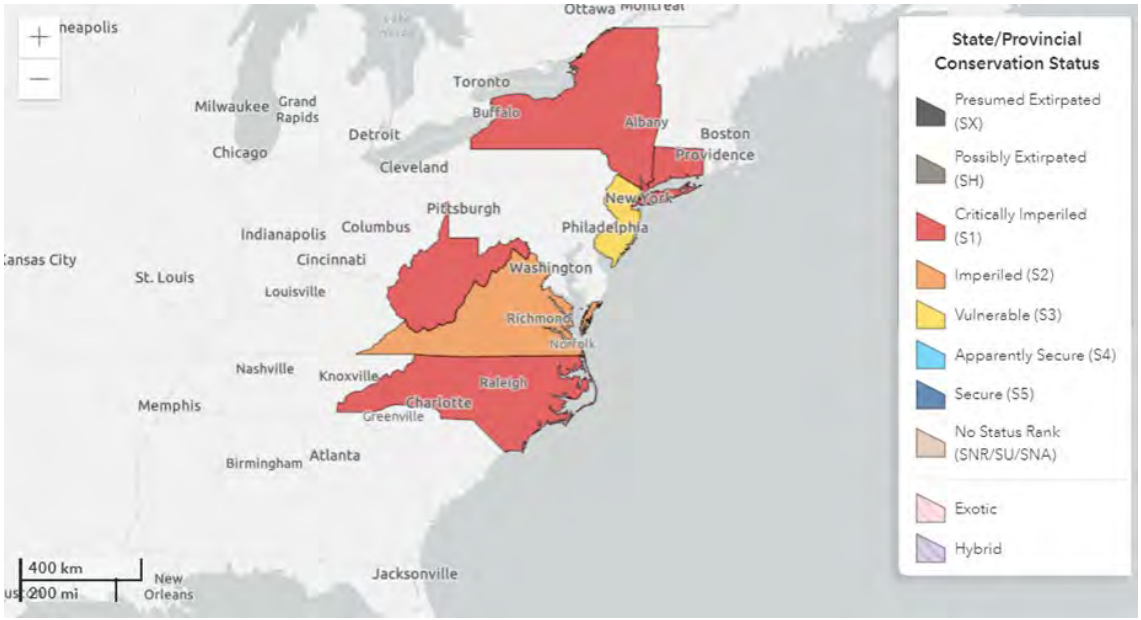

Figure 1: Conservation status and distribution of *Catocala herodias gerhardi* in North America (NatureServe 2024).

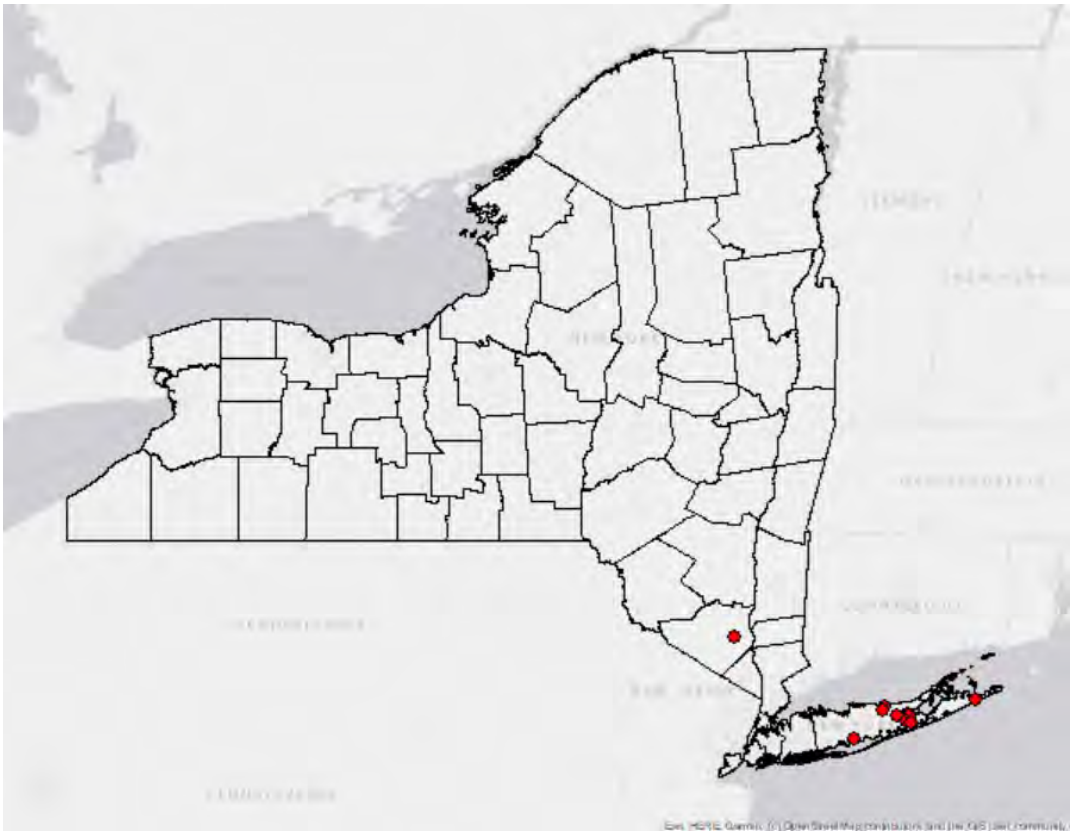

Figure 2: Occurrences of *Catocala herodias gerhardi* in New York (NYNHP 2024).

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

Years	# of Records	# of Distinct Waterbodies/Locations	% of State
Pre-2000	5	5	
2000- 2023	16	4	

Table 1. Records of *Catocala herodias gerhardi* in New York.

Details of historic and current occurrence:
No historic occurrence records available.

Orange County — 1993
Suffolk County — recorded several years, first in 1989 and most recently in 2017.

It is uncertain how many occurrences are on Long Island and also difficult to define them there. This species has recently been collected on a ridge top pine barren in Orange County and probably will be found slightly more widely there. Any hill top with abundant scrub oak on a few hundred acres could potentially have this species, although most probably do not. Southeastern New York is somewhat peripheral to the main range and the species has never been collected in

Pennsylvania or as far north as Albany. It has however turned up on a few similar sites in western New England. The New York Natural Heritage Program estimates 6-80 elemental occurrences (EOs) in New York.

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%	Core	

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	No	(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 is exclusively found in pitch pine-scrub oak communities, usually on sand, but sometimes on acidic rocks in the lower Hudson Valley. In some other parts of the range there may be few enough pitch pines that sites could be considered shrublands rather than wooded (NYNHP 2009).

V. Species Demographic, and Life History:

Breeder in NY?	Non-breeder in NY?	Migratory Only?	Summer Resident?	Winter Resident?	Anadromous/ Catadromous?
Yes	(blank)	(blank)	Yes	Yes	(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 *(include information about species life span, reproductive longevity, reproductive capacity, age to maturity, and ability to disperse and colonize):*

The eggs of the pine barrens underwing hatch near the time when the new growth of the host plant begins to expand. A date has not been described for New York but this is in April or early May in New Jersey. The larval and pupal stages both last approximately one month. Adults appear sometime in July in most places, and those from coastal Massachusetts are often fresh in late July (Schweitzer and Wagner 2011). Adult moths fly in July and August. Eggs are laid on the stems of scrub oak (Quercus ilicifolia), where they overwinter until hatching in early spring. Larvae feed on the catkins and new leaves of scrub oak and pupate in June (Nelson 2007). Adult, especially males, are highly attracted to black lights, but mostly after midnight. Few adults have been attracted to bait, and these are usually within two hours after sunset. Adults have rarely been found in the daytime, but they apparently rest on the ground under trailing pine branches or at the base of oak bushes (Schweitzer and Wagner 2011).

Globally, the species is fairly common in a few counties such as Plymouth and Dukes in Massachusetts, perhaps Suffolk in New York, and Ocean and Burlington in New Jersey, but overall a limited and discontinuous range and serious potential threats in the Appalachians. It is certainly not immediately imperiled but globally uncommon to rare by virtue of its limited range and specialized habitat (NatureServe 2012).

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

The threats are difficult to assess since some habitats are more management dependent than others. This species should do well with any reasonable fire management program as long as the entire habitat is not burned at once. However, wild fires that could consume the entire occupied habitat are a threat, especially on ride tops and in small isolated habitats. Spongy moth (Lymantria dispar) spraying could be a threat. It would be with chemical biocides and potentially would be with Bt (Bacillus thuringiensis- a bacterial biological control used on spongy moth caterpillars). The closely related scarlet underwing (*Catocala coccinata*) is very sensitive to Bt, but many Catocala are not (Peacock et al. 1998). However, unusually early defoliation, before about 10 June, of scrub oaks on hilltops and ridges could itself annihilate a population (Schweitzer 2004).

Other threats include habitat loss, invasion by exotic plants, introduced generalist parasitoids, off-road vehicles, and light pollution (Nelson 2007). More information is needed to properly assess the threats to this species.

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.
8. Invasive & Other Problematic Species	8.1 Invasive Non-Native Plants & Animals	(introduced generalist parasitoids)	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 (spongy 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 2. Threats to *Catocala herodias gerhardi*.

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:

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

Substantial refugia are needed when fires burn the habitat, since survival in burned areas is minimal. Habitats supporting this species should be protected from spongy moth spraying. However, if severe defoliation is likely before about 10 June, then starvation is a risk and it might be prudent to use Bt to reduce defoliation on a portion of the habitat. Starvation of the entire brood is possible if all of the scrub oak foliage is consumed during May. Such early defoliation is not common and is unlikely to occur widely on coastal barrens, but it can occur on outcrops and ridge tops. It is unlikely Bt would kill all of the larvae, but it seems likely it would kill a majority of them (New York Natural Heritage Program 2011).

It would be useful to know how sensitive larvae are to Bt and exactly when most of the larvae finish feeding, so that risks from starvation as compared to Bt applications could be better evaluated in severe spongy moth outbreaks (New York Natural Heritage Program 2011).

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 *Catocala herodias gerhardi*.

VII. References

NatureServe. 2024. 4 October 2024. https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.109824/Catocala_herodias_gerhardi. Accessed 18 October 2024.

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