Species Status Assessment

Common Name: Olympia marble **Date Updated:** January 2024

Scientific Name: *Euchloe olympia* **Updated By:** Ashley Ballou

Class: Insecta

Family: Pieridae

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

The olympia marble ranges from the eastern plains of Alberta, Canada southward through eastern Montana, Wyoming and Colorado. There are isolated populations in southern Missouri, Arkansas, Texas and Ontario, Canada. In the eastern U.S., this species is found from northern Minnesota through Wisconsin and Michigan. Appalachian populations are found in West Virginia, Virginia, Pennsylvania, New York, Maryland, North Carolina, Tennessee, and Ohio (Parshall 2002). This species was first recorded in Jefferson County, New York in 1986 (NYNHP 2013).

The olympia marble inhabits open woods, barrens, very dry meadows in eastern part of range and open grasslands to the west. It is typically found in habitats that appear semi-arid with well-drained soils (Opler and Krisek 1984). Appalachian populations are restricted to shale barrens, openings, and rights-of-way on sunny wooded shale slopes and crests. Great Lakes region and southeastern Canadian populations are found in dry meadows and open sandy woodlands on old dunes and in alvars (NatureServe 2013). Short-term trend for this species has increased 10-25%. Olympia marble has recently expanded its ranged in the Great Lakes region of Ontario and western New York. Long-term trend for this species varies from an increase of 10-25% to a decline of 30% (NatureServe 2013).

I. Status

a. Current legal protected Status

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

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

b. Natural Heritage Program

i. **Global:** G5

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

Other Ranks:
-Northeast Regional SGCN: yes
-United States National Status: N4N5
-Canada National Status: N4
-IUCN Redlist: Not assessed

Status Discussion:

This specialist butterfly is confined to a small fraction of New York State where its particular Alvar grassland habitat is found. This species was first discovered in New York in 1986, and surveys from 1986 to 2018 indicate the species was extant during that time. No surveys have been completed at one of the two known sites since 2006. Both of the populations in New York are ranked as having good estimated viability (New York Natural Heritage Program 2023). The

Olympia Marble is secure in the northern and western portions of its range, and may be increasing in parts of the northern range (NatureServe 2023).

II. Abundance and Distribution Trends

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

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):*

There are no known monitoring programs in New York.

Trends Discussion *(insert map of North American/regional distribution and status):*
Olympia marbles are widespread and can be found throughout western North America between the Rockies and the Mississippi and extend from the Great Lakes region in southern Canada and south into Texas. The species also occurs in disjunct populations in the Appalachians from extreme southern Pennsylvania south to Kentucky, with populations in western Maryland, Virginia, and northeastern West Virginia. Small populations also exist in New York and North Carolina (NatureServe 2017). The range has expanded into western New York and in the Great Lakes regions of Ontario, while the western part of its range has likely declined in the longer term from the conversion of native grasslands to agriculture (NatureServe 2023).

This species was first discovered in New York in 1986, and surveys from 1986 to 2018 indicate the species was extant and apparently stable during that time. No surveys have been completed at one of the two known sites since 2006.

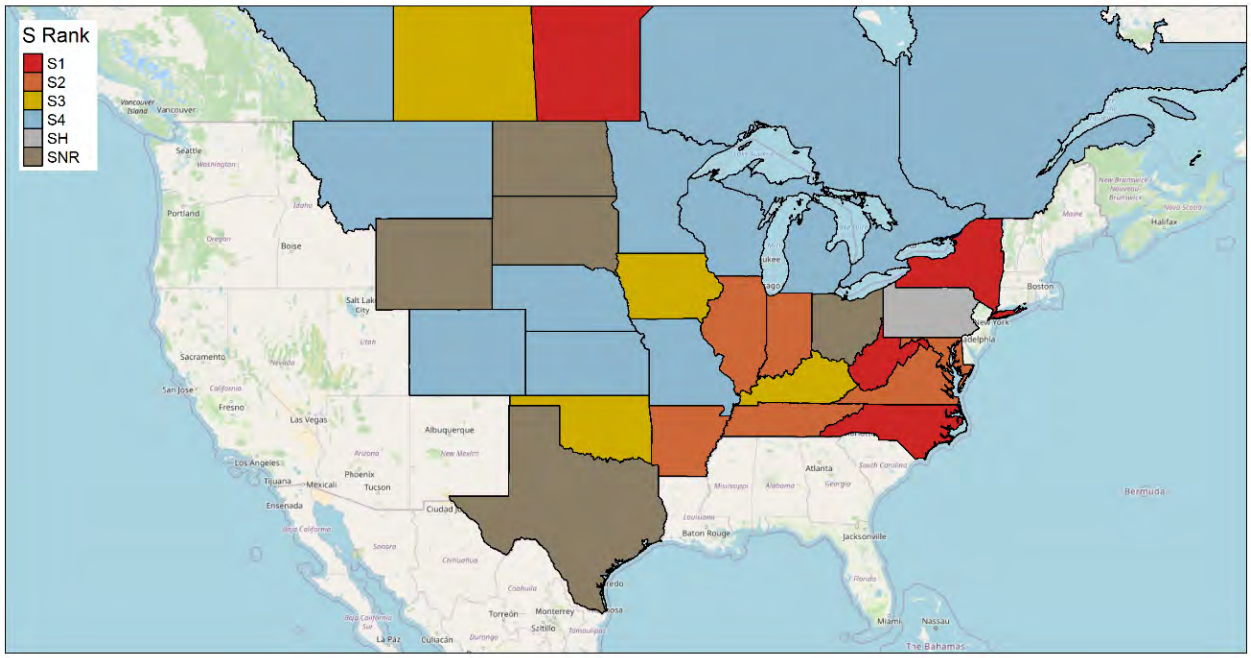

Figure 1. Olympia marble distribution and status (NatureServe)

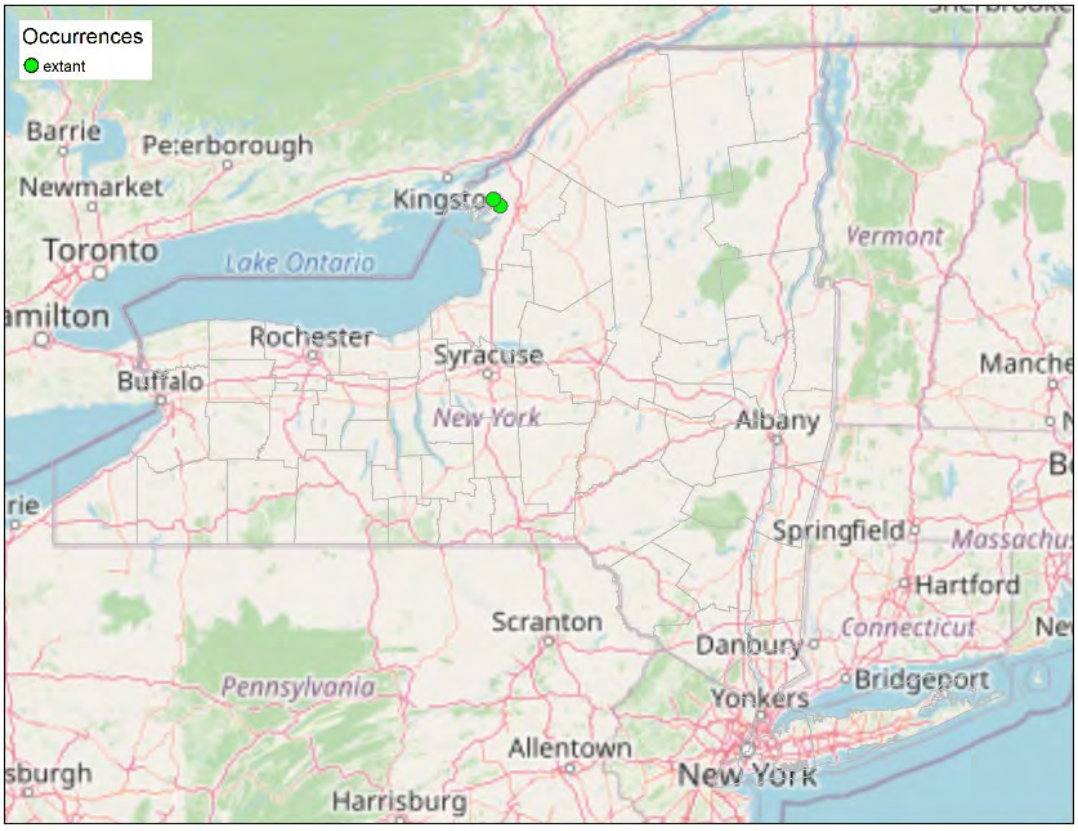

Figure 2. Olympia marble distribution in New York (NYNHP)

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

Years	# of Records	# of Counties	% of State
Pre-1985	0	0	0
1986- 2023	2	1	<5

Table 1. Records of olympia marble in New York.

Details of historic and current occurrence:

The Olympia Marble butterfly has been documented at two sites in Jefferson County in Limerick Cedars Preserve and Chaumont Barrens Preserve. The populations were documented in 1986 and 1987 respectively. Limerick Barrens had sightings until 2005 with no surveys since 2006, and surveys at Chaumont Barrens have recorded an extant population through 2018.

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. Native barrens and savanna

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	Not specified

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 generally found in habitats with well-drained soils that appear semi-arid (Opler and Krizek 1984). In New York, the butterflies inhabit a limestone pavement barrens and alvar grassland mosaic (New York Natural Heritage Program 2017). Olympia marbles require habitats with the host plants necessary to complete their life cycle. Olympia marble larvae feed on plants in the rockcress family (*Brassicaceae*), particularly *Arabis X divaricarpa* in New York (Parshall 2002, New York Natural Heritage Program 2017).

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):*

Olympia marbles have one brood per year, and they overwinter as pupa (Holmes et al. 1991, Parshall 2002). Adults emerge in May and are active through June. The female lays single eggs on flower buds and leaves of the host plant in May or June, where the eggs remain until hatching approximately seven days later. Larvae feed on the host plant's flower buds, flowers, seedpods, and sometimes leaves, until forming a chrysalis, usually occurring in June.

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

One of the main threats to the Olympia marble is pesticide use to control spongy moths. Most Lepidoptera are negatively impacted by the chemicals used in spongy moth sprays, and the use of these chemicals could cause a decline in Olympia Marble populations in New York (Butler et al. 1995, Parshall 2002).

The olympia marble was classified as HV (highly vulnerable) to predicted climate change in an assessment of vulnerability conducted by the New York Natural Heritage Program. Its abundance and/or range extent within geographical area assessed likely to decrease by 2050 (Schlesinger et al. 2011).

Populations can also be threatened by prescribed fire and herbicides to maintain habitat openings. Hot prescribed burns can be lethal to individuals, and herbicides can destroy host plants needed by larvae. Habitat destruction is a potential threat in areas that are not already protected. Additionally, the habitat needed for this species is threatened by invasive plant species.

Threat Level 1	Threat Level 2	Threat Level 3	Spatial Extent	Severity	Immediacy	Trend	Certainty
7. Natural System Modifications	7.1 Fire & Fire Suppression	7.1.1 Increase 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	8.1.2 Terrestrial plants	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 control)	Choose an item.	Choose an item.	Choose an item.	Choose an item.	Choose an item.
11. Climate Change	-	-	Choose an item.	Choose an item.	Choose an item.	Choose an item.	Choose an item.

Table 2. Threats to *olympia marble.*

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:

This species is sensitive to chemical spraying (e.g. herbicides, insecticides), and so broadcast use of chemicals in their habitat should be avoided. Managers should also avoid hot burns within inhabited areas, since populations can be impacted by prescribed fire (Butler et al. 1995, Parshall 2002). If an area occupied by the moth must be burned, some areas should be left unburned as refugia for the moth. Sites should be managed to promote growth of larval host plants (*Arabis sp.*).

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
C.9 Education and Training	C.9.0.0.0 Education and training	Training

Table 3. Recommended conservation actions for olympia marble.

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