

Species Status Assessment

Common Name Oakes' evening primrose **Date Updated:** 2024-01-31
Scientific Name *Oenothera oakesiana* **Updated By:** Rachael A. Renzi
Family Onagraceae

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

Oakes' evening primrose is in the evening-primrose family (Onagraceae). It is one of 16 species of *Oenothera* in New York, yet one of eight known to be native in New York (Werier, et al. 2023). It is in the subsection *Oenothera* (the *O. biennis* complex) and is visually very similar to *O. parviflora*, which is common in New York (Voss & Reznicek 2012, Werier et al. 2023). *Oenothera oakesiana* is an annual plant that is found in sandy soils on Long Island and Staten Island, well-developed areas, as well as in the Adirondacks (NYNHP 2023, 2024). It uses disturbed areas, such as roadsides and dunes, to its advantage (NYNHP 2023, 2024). One benefit to establishing in an open disturbed area is reduced competition. However, this disturbance-reliant strategy allows for establishment in newly disturbed areas that may not be the same as previous years. Not only does this make tracking trends difficult, but it complicates plans to re-visit occurrences. There are twice as many historic occurrences as there are extant ones (NYNHP 2023). It is difficult to say whether this is due to declining population numbers, open habitat loss such as eroding dunes, or due to a lack of observation (NYNHP 2023, 2024). Many of the existing populations have only been surveyed once, and a few that have been visited in recent years had no plants. More surveys and research are needed to understand *Oenothera oakesiana*'s distribution and population trends in New York.

I. Status

a. Current legal protected Status

i. Federal: **Candidate:**
ii. New York: Threatened

b. Natural Heritage Program

i. Global: G5
ii. New York: S2 **Tracked by NYNHP?** On Active Tracking List

Other Ranks:

COSEWIC: Not listed in Canada
IUCN Red List: Not assessed by IUCN Red List

Status Discussion:

Oenothera oakesiana is Threatened in New York (Ring 2023). There are thirteen existing populations the state, but only four have 100 or more plants. At two locations visited after 2015, no plants were found (NYNHP 2023). The plant's locations are in disturbed areas, including roadsides and dunes, which may affect population sizes from year to year. Most of the extant populations are on Long Island or Staten Island, which are well-developed areas (NYNHP 2024). Populations can also be found in the Adirondacks, at least 400km from Long Island. There are 26 historical occurrences but many of these have probably been extirpated by development of the open sandy areas (NYNHP 2023). NatureServe (2023) considers *Oenothera oakesiana* to be secure throughout its range.

II. Abundance and Distribution

Region	Present?	Abundance	Distribution	Time Frame	Listing status or S-Rank	SGCN?
North America	Yes	Unknown	Unknown	Unknown		
Northeastern US	Yes	Unknown	Unknown	Unknown		
New York	Yes	Unknown	Unknown	Unknown	T	
Connecticut	Yes	Unknown	Unknown	Unknown	SNR	
Massachusetts	Yes	Unknown	Unknown	Unknown	S4	
New Jersey	Yes	Unknown	Unknown	Unknown	S3	
Pennsylvania	Yes	Unknown	Unknown	Unknown	S2	
Vermont	Yes	Unknown	Unknown	Unknown	SU	
Ontario	Yes	Unknown	Unknown	Unknown	S5	
Quebec	No	-	-	-		

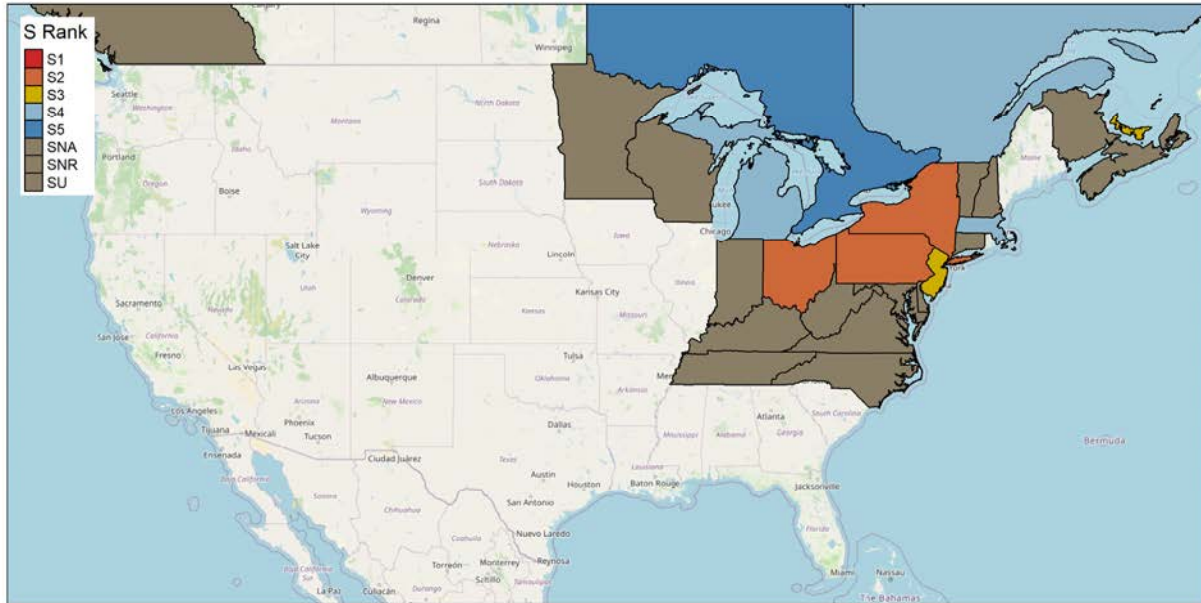


Figure 11. *Oenothera oakesiana* North American distribution.

Percent of North American Range in NY	Classification of NY Range	Distance to core population, if not in NY
1-25%	Core	Unknown

III. NY Rarity and Trends

Trends Discussion

In New York, populations seem to be declining from historical numbers, but more surveys are needed (NYNHP 2023). Over the short term, existing population sizes seem to be stable at low numbers, but most populations have only been surveyed once. Because the plant relies on a degree of disturbance, its population sizes are fated to change with suitable conditions (NYNHP 2023, 2024). This adds to the difficulty in assessing population trends. Its global distribution is stable, occurring from Newfoundland through Ontario south to North Carolina and Tennessee (NatureServe 2023, NYNHP 2024).

Details of historic and current occurrence

This species is most common on Staten Island and Long Island but there are also records from Essex County and Clinton County. Historical records appear in upstate New York from Fulton, Washington, and Warren counties in the east and Cayuga and Ontario counties to the west (NYNHP 2023). Although *Oenothera oakesiana* relies on a degree of disturbance, it is not immune to disturbances from development (NYNHP 2024). Many historical populations are likely extirpated in highly urbanized areas. Extant populations are generally small, and only a few have been observed with 100 individuals or more, though these occur in urbanized areas. Half of these 'larger' populations have not been surveyed since 1992 (NYNHP 2023).

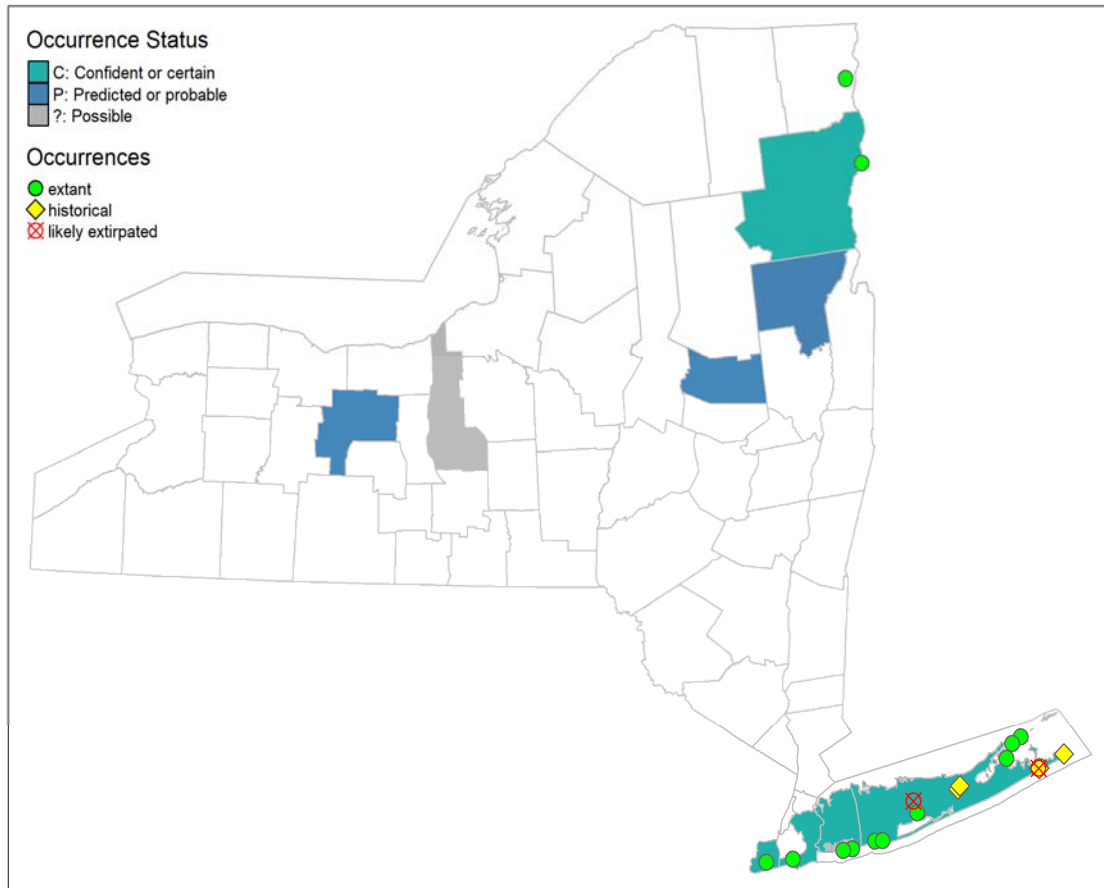


Figure 2.2 NYS distribution for *Oenothera oakesiana*.

Table 1. Number of records (element occurrences) of *Oenothera oakesiana* grouped by the dates known to be extant (the years spanning first observation to last observation) and the number and percent of total of USGS 7.5 minute map quadrangles these observations fall within for New York State.

Years	# of Records	# of distinct quads	% of quads in State
Pre-1995	11	9	0.9
1995-2004	3	3	0.3
2005-2014	4	4	0.4
2015-2023	5	5	0.5

Monitoring in New York

Six populations occur on State Park lands, which are surveyed on a 10-year rotation. None of the other populations are regularly monitored. Seven of the populations have been visited in 2015 or more recently. Many of the populations have only been surveyed once (NYNHP 2023).

IV. Primary Habitat or Community Type (from NY crosswalk of NE Aquatic, Marine, or Terrestrial Habitat Classification Systems):

Northeastern Habitat Classification Macrogroup: Coastal Grassland and Shrubland, Central Oak-Pine.

NY Ecological Communities: Maritime dunes, Maritime pitch pine dune woodland, Mowed roadside/pathway, Pitch pine-oak forest (Edinger et al. 2014, NYNHP 2023).

Habitat or Community Type Trend in New York

Declining: Stable: Increasing: Unknown: ✓
 Time Frame of Decline/Increase:
 Habitat Specialist Yes: No: ✓

Habitat Discussion:

Oenothera oakesiana grows primarily in disturbed open places (Gleason and Cronquist 1991). Most populations of this plant in New York occur on maritime dunes, though there are a few occurrences on disturbed, sandy soils along roadsides or stream sides in pine barrens (NYNHP 2023, 2024). Throughout its range, it occupies sandy or rocky shores, dunes, and clearings along the Great Lakes; occasionally inland along railroads, on sandy shores, in clearings or other disturbed places (Voss 1985).

V. Species Demographics and Life History

(include information about species life span, reproductive longevity, reproductive capacity, age to maturity, and ability to disperse and colonize):

Oenothera oakesiana is an annual herb. The axillary flowers open at twilight in August and early September, then the fruits persist through October (NYNHP 2024). More research is needed concerning this species’ biology, including seed bank studies (NYNHP 2024).

Table 2. Phenology of *Oenothera oakesiana* in New York State (NYNHP 2023).

Phenology	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Flowering												
Fruiting												

VI. Threats

When plants occur along sand roads, they are vulnerable to ORV traffic during the growing season. Improper road maintenance activities may also be a problem (NYNHP 2023).

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:

This species needs disturbance to reduce competition from woody plants or more aggressive herbaceous plants but too much direct disturbance to the plants will reduce or eliminate the population. Its habitat could be disturbed in the non-growing season to open it up for seed germination and colonization, but direct disturbance should be prevented during the growing season (NYNHP 2024).

Complete Conservation Actions table using IUCN conservation actions taxonomy at link below. Use headings 1-6 for Action Category (e.g., Land/Water Protection) and associated subcategories for Action (e.g., Site/Area Protection) -

<https://www.iucnredlist.org/resources/conservation-actions-classification-scheme>

Table 3. Recommended conservation actions for *Oenothera oakesiana*.

Conservation Actions	
Action Category	Action
Land/water protection	1.1. Site/area protection
Land/water protection	1.2. Resource & habitat protection
Land/water management	2.1. Site/area management
Land/water management	2.2. Invasive/problematic species control
Land/water management	2.3. Habitat & natural process restoration

VII. References

This SSA drew heavily from these resources:

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