

# Species Status Assessment

<b>Common Name</b>	spiny water nymph	<b>Date Updated:</b>	2024-01-30
<b>Scientific Name</b>	<i>Najas marina</i>	<b>Updated By:</b>	Rachael A. Renzi
<b>Family</b>	Hydrocharitaceae		

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

Spiny water nymph is an annual forb in the tape grass, or frog's bit, family (Hydrocharitaceae). *Najas marina* is one of 8 species of the same genus in New York, though not the only listed as a species of concern (Werier et al. 2023). In New York, *Najas muenscheri* and *N. olivacea* are endangered, like *N. marina*. The plant can be found scattered across North America, but it has a cosmopolitan distribution (IPNI 2024). It grows primarily in aquatic habitats including lakes, brackish water, and marshes (NYNHP 2023). In New York, there are only two extant populations, though there were more that may have disappeared due to urbanization and industrial pollution of lakes over the last 100 years (NYNHP 2023, Stuckey 1985). Overall, data is lacking on this plant, and additional inventory is needed to determine if an absence of recent observations correlates with loss of *Najas marina* populations.

## I. Status

### a. Current legal protected Status

i. Federal:		<b>Candidate:</b>
ii. New York:	<u>Endangered</u>	

### b. Natural Heritage Program

i. Global:	<u>G5</u>		
ii. New York:	<u>S1</u>	<b>Tracked by NYNHP?</b>	On Active Tracking List

### Other Ranks:

COSEWIC: Not listed in Canada  
IUCN Red List: Least Concern

### Status Discussion:

There are two verified occurrences in New York and ten historical occurrences (NYNHP 2023). One of the populations has hundreds to thousands of plants in a well-protected setting. The other extant occurrence has 36 patches along a lake shore, where additional surveys are

needed to determine the full extent of the population. These two extant populations in the Cayuga Lake Watershed are within 4km of each other, as the crow flies (NYNHP 2023). Additional historic specimens exist in three other counties. Targeted field surveys for this species in New York may find additional extant populations.

## 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	E	
Connecticut	No	-	-	-		
Massachusetts	No	-	-	-		
New Jersey	No	-	-	-		
Pennsylvania	Yes	Unknown	Unknown	Unknown	SNR	
Vermont	No	-	-	-		
Ontario	Yes	Unknown	Unknown	Unknown	SU	
Quebec	No	-	-	-		

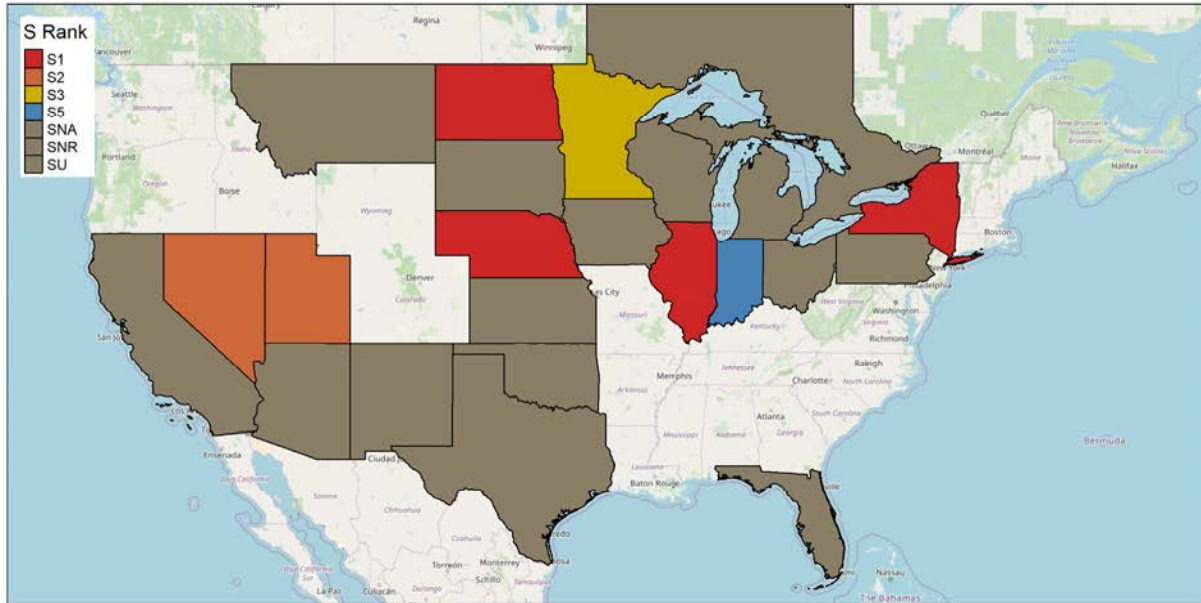


Figure 11. *Najas marina* North American distribution.

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

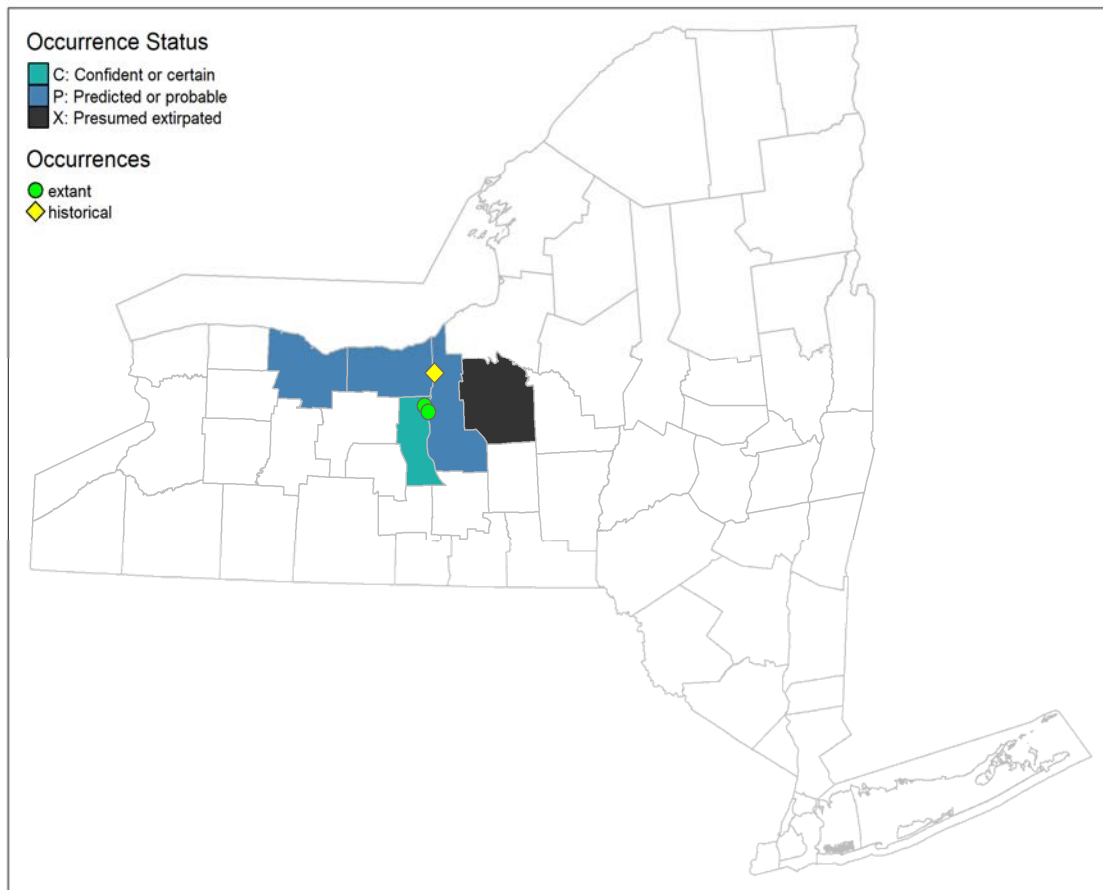
### III. NY Rarity and Trends

#### Trends Discussion

*Najas marina* was first discovered in North America in 1864. The earliest documented occurrence of the plant in New York was in Onondaga Lake, where it was abundant in 1864 (Stuckey 1985). However, *N. marina* is now extirpated from this site due to pollution from industrial development. Since then, *Najas marina* has been found elsewhere in the Great Lakes region, to as far west as California, and as far south as Texas and Florida (NatureServe 2023). The long-term trend throughout its North American range is difficult to assess due to a lack of distribution data (NatureServe 2023). The two extant populations in New York both consist of hundreds to thousands of plants in good habitat, but at least 8 reported herbaria specimens dated since 1939 have not been relocated (NYNHP 2023). Stuckey (1985) attributes this loss of extant populations to industrial pollution. More consistent surveys are needed to verify these absences of previously documented populations in New York.

#### Details of historic and current occurrence

*Najas marina* has been found in the Cayuga Lake region from Onondaga County west to Monroe County. However, there are only two extant occurrences, which are within 4km of each other. It is estimated that each has hundreds to thousands of individuals (NYNHP 2023). Historic populations are thought to have disappeared due to industrial pollution of lakes (Stuckey 1985).



**Figure 22:** NYS distribution for *Najas marina*.

**Table 1.** Number of records (element occurrences) of *Najas marina* 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	2	2	0.2
1995-2004	0	0	0.0
2005-2014	0	0	0.0
2015-2023	1	2	0.2

### Monitoring in New York

There are two extant occurrences of *Najas marina* in New York. One occurs partially on State Park land and within a state Wildlife Management Area, yet most of the population grows in shallow waters of a lake near privately-owned shoreline. This population was last surveyed in 2022. The other population occurs in a National Wildlife Refuge and was last surveyed in 2002

(NYNHP 2023). Rare plants in state parks are surveyed on a 10-year rotation, however, other occurrences are not regularly monitored.

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

Northeastern Habitat Classification Macrogroup: Salt Marsh, Emergent Marsh, Lakes and Ponds

New York Ecological Communities: Natural Lakes and Ponds (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:**

*Najas marina* is known from lakes, marshes, and ponds (NYNHP 2023; Voss 1972). It inhabits brackish or highly alkaline water of ponds and lakes (Gleason and Cronquist 1991; Fernald 1950). Plants have been found to survive highly eutrophic conditions, though these populations will not survive these conditions long-term (Ruëgg 2020).

**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):

*Najas marina* is an annual aquatic herb. The plants are dioecious and reproduce by seeds (Tarver et al. 1986). The endozoochorous seeds, which ripen from September through November, are a food source for mallard ducks (Agami and Waisel 1986). Germination and root establishment was found to be best on cohesive, but not firm, sediment (Handley & Davy 2002). Though *Najas marina* can grow in eutrophic conditions, lower light conditions from algal blooms may favor invasive aquatics over native *Najas* species (Ruëgg 2020).

**Table 2.** Phenology of *Najas marina* in New York State (NYNHP 2023).

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

## VI. Threats

### Are there regulatory mechanisms that protect the species or its habitat in New York?

Lake management such as harvesting, or water level draw down may pose a threat to plants in the shallow water of lakes (NYNHP 2023). Invasive species, pollution, and persistent algal blooms may also negatively impact population vigor (Ruëgg 2020).

**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:

Maintaining the quality and health of the habitat should minimize ecological threats.

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 *Najas marina*.

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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