

# Species Status Assessment

<b>Common Name</b>	golden club	<b>Date Updated:</b>	2024-01-31
<b>Scientific Name</b>	<i>Orontium aquaticum</i>	<b>Updated By:</b>	Rachael A. Renzi
<b>Family</b>	Araceae		

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

Golden club (*Orontium aquaticum*) is a perennial forb/herb in the Arum family. It is the only living species in the genus (Bogner et al. 2007). *Orontium aquaticum* is at the northern edge of its range in New York and Massachusetts (NatureServe 2023). It is also rare near the western edge of its range in Kentucky, though it continues to grow west to Texas and south to Florida (NatureServe 2023). It is not reported to occur outside of the United States. In New York, it grows mainly in intertidal mud flats and swamps along the Hudson River, but it also grows in Sphagnum bogs (NYNHP 2023, 2024). There are historical records of the plant from Long Island and New York City, but these occurrences were extirpated by development (NYNHP 2023, 2024). A 2014 study on the *O. aquaticum* in Hudson River found that since 1970, some stands had become extirpated, some decreased, relocated, or others increased (Les & Kiviat 2014). Reasons for decrease could include herbivory or stress from waves and flooding (Les & Kiviat 2014). Overall, more research is needed to explain the changes in demography. Protection of the Hudson River and surrounding wetlands is necessary for conserving *O. aquaticum* in NY.

## I. Status

### a. Current legal protected Status

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

### b. Natural Heritage Program

i. Global:	<u>G5</u>		
ii. New York:	<u>S2</u>	<b>Tracked by NYNHP?</b>	On Active Tracking List

### Other Ranks:

COSEWIC: Not listed in Canada

IUCN Red List: Not assessed by IUCN Red List

## Status Discussion:

*Orontium aquaticum* is Threatened in New York (Ring 2023). There are 15 existing populations, two of which are in sphagnum bogs and the others are in freshwater tidal mud flats or marshes (NYNHP 2023, 2024). About half of the populations are in good to excellent condition, whereas six populations have 10 or less plants (NYNHP 2023, 2024). There are seven historical records from Long Island that are probably extirpated due to development (NYNHP 2023, 2024). Two historical locations were visited, in Ulster and Orange Counties, yet no plants were found (NYNHP 2023, 2024). Other historic locations are likely to exist if the habitat has remained intact.

## 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	S3	
Massachusetts	Yes	Unknown	Unknown	Unknown	S1	
New Jersey	Yes	Unknown	Unknown	Unknown	S4	
Pennsylvania	Yes	Unknown	Unknown	Unknown	S4	
Vermont	No	-	-	-		
Ontario	No	-	-	-		
Quebec	No	-	-	-		

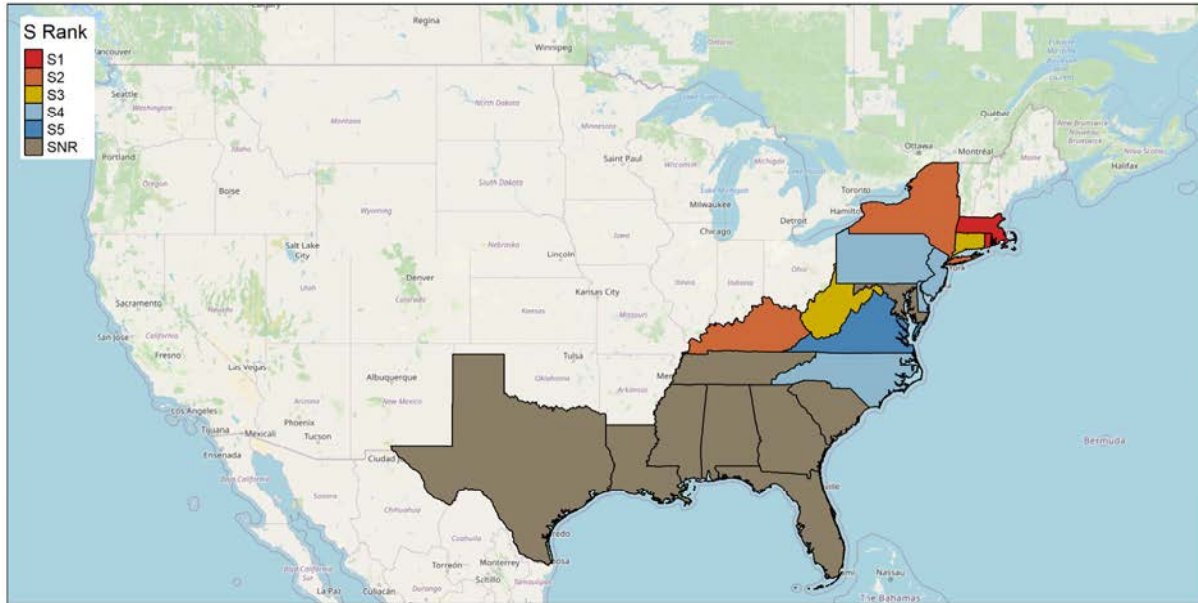


Figure 1. *Orontium aquaticum* North American distribution.

Percent of North American Range in NY	Classification of NY Range	Distance to core population, if not in NY
1-25%	Peripheral	350 km

### III. NY Rarity and Trends

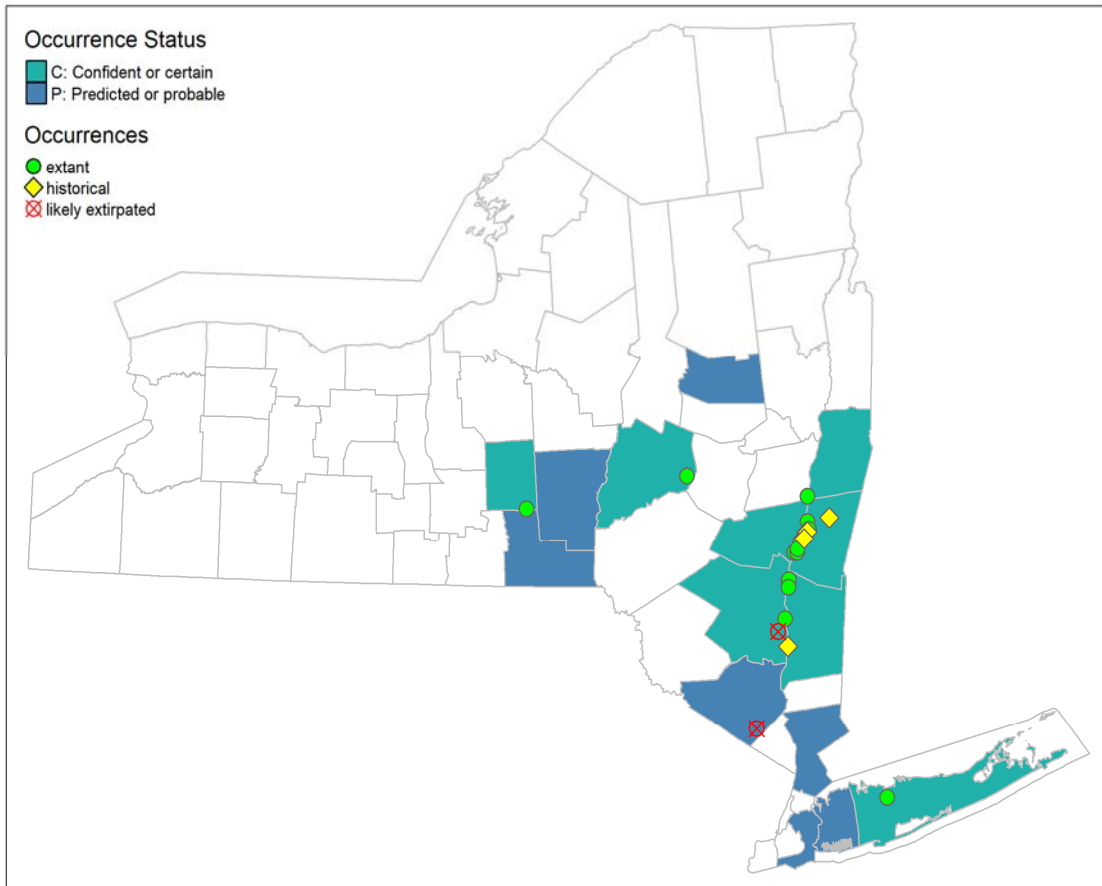
#### Trends Discussion

The occurrences in NY are at the northernmost extent of the plant's range (NatureServe 2023). Although populations tend to fluctuate, many appear to be in good to excellent condition within the state (NYNHP 2023, 2024). Others, however, have only a few plants. Studies in 2014 reported decline and extirpation at some of the populations in the Hudson River that had been visited in the 1970s (Les & Kiviat 2014). The decline may be explained by increased herbivory and increased hydrodynamic stress from sea level rise, flooding, and waves, but more monitoring is recommended (Les & Kiviat 2014). The establishment of alternate sites and discovery of other new populations help to balance the overall trend but it is unknown whether the 'new' populations escaped observation in the past or if they are truly novel establishments (Les & Kiviat 2014; NYNHP 2023, 2024). Overall, these data indicate changes since the 1970s, and more research is needed to clarify the trends. In the past, populations have been lost to development, especially on Long Island and New York City (NYNHP 2023, 2024). If the wetland habitats, especially in and around the Hudson River, remain in good condition, *O. aquaticum* should remain stable throughout NY. NatureServe (2023) considers the plant to be stable across its range as well.

#### Details of historic and current occurrence

Most of the currently extant populations of Golden Club are in the freshwater tidal areas of the Hudson River. None of the populations occur north of Albany. There are known extant populations in central New York, and north-central Long Island, and many historical populations

from inland within the Hudson Valley and the Long Island and New York City areas. Development has likely extirpated those from Long Island and New York City. Some of the current occurrences exhibit vigorous, healthy growth, yet some are reported to have declined since 1970 (NYNHP 2023, 2024; Les & Kiviat 2014). Six populations are reported to have less than 10 plants (NYNHP 2023, 2024) Overall, there are a likely a few thousand plants growing in NY (NYNHP 2023, 2024). *Orontium aquaticum* occurs only in the eastern United States. It grows in Massachusetts to Florida, west to central New York, southwestern Pennsylvania, eastern Kentucky, western Pennsylvania, and Louisiana (NYNHP 2023, 2024; NatureServe 2023).



**Figure 2.** NYS distribution for *Orontium aquaticum*.

**Table 1.** Number of records (element occurrences) of *Orontium aquaticum* 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	15	13	1.3
1995-2004	7	6	0.6
2005-2014	4	4	0.4
2015-2023	2	1	0.1

## Monitoring in New York

One of the populations occurs on State Park land, which is surveyed on a 10-year rotation. Four of the populations occur on a wildlife management area, and another occurs on a multiple-use area. Four occur on privately-owner preserves or reserves. One population occurs in a bog between a highway. Two others occur on privately owned land. Although these populations are not monitored on a regular basis, 13 out of the 15 extant populations have been seen since 2000 or later. A study in 2014 visited stands of *Orontium aquaticum* in the Hudson River. Regular surveys are needed, and an effort should be made to relocate historical populations.

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

Northeast Habitat Classification Macrogroups: intertidal shore, Coastal plain pond, Tidal rivers.

NY Ecological Communities: Freshwater intertidal mudflats, Freshwater intertidal shore, Freshwater tidal marsh, Freshwater tidal creek, Tidal river, Inland poor fen (Edinger et al. 2014, NYNHP 2023).

## Habitat or Community Type Trend in New York

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

## Habitat Discussion:

*Orontium aquaticum* has a split personality when it comes to habitats. It occurs in two very different wetland habitats in New York; in freshwater, or sometimes slightly brackish, intertidal mud flats, swamps, and marshes along the Hudson or in the Sphagnum peat moss of shrub bogs (NYNHP 2023, 2024; Werier et al. 2023). Elsewhere it occurs in bogs, poor fens, and coastal plain ponds (Gleason & Cronquist 1991). Golden Club apparently is tolerant of a wide range of acidity and exposure to light, occupying peaty, sandy, or muddy shores (NYNHP 2023, 2024, Fernald 1950). However, across its range, all habitats have still, shallow water (Fernald 1950).

## 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):*

*Orontium aquaticum* is a perennial forb. It flowers from spring to early summer (NYNHP 2023, 2024). The flowers are probably pollinated by bees or flies, but more research is needed (Les & Kiviat 2014; Klotz 1992). The seeds may be animal dispersed, though they contain crystals that discourage herbivory, and float, suggesting water dispersal (Klotz 1992). The plants have stout rhizomes with roots that help keep the plant buried (Hotta 1971).

**Table 2.** Phenology of *Orontium aquaticum* in New York State (NYNHP 2023).

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

## VI. Threats

*Orontium aquaticum* populations in the Hudson River are threatened by the spread of *Phragmites* and water chestnut (NYNHP 2023, 2024). Increased herbivory from swimming mammals and hydrodynamic stress, from boat wakes for example, also have negative effects on stand health (Les & Kiviat 2016). Any activity that would substantially degrade water quality, increase turbidity or sedimentation, alter flows, temperature or water depths may result in significant impairment of the *Orontium aquaticum* habitat in NY (NYS DOS 2012).

### 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:

Establish sufficient buffers around populations to preserve the undisturbed aspect and hydrology of their habitat. Conservation of the wetland around the Hudson River is essential, as it comprises most of the plant's habitat in NY.

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 *Orontium aquaticum*.

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

Conservation Actions	
Action Category	Action
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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