

Species Status Assessment

Common Name red pigweed

Date Updated: 2024-01-22

Scientific Name *Oxybasis rubra* var. *rubra*

Updated By: Rachael A. Renzi

Family Amaranthaceae

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

Red pigweed (*Oxybasis rubra* var. *rubra*), previously known as *Chenopodium rubrum*, is an annual forb/herb in the Amaranth family. It is one of four species of *Oxybasis* in New York, but the only native species (Werier et al. 2023). *Oxybasis rubra* var. *rubra* has a circumboreal distribution, occurring throughout the northern hemisphere (NatureServe 2023). It is rare throughout northeastern North America, is scattered throughout the northern midwestern United States, and becomes more common west of the Dakotas (NYNHP 2023, 2024, NatureServe 2023).

In NY, *O. rubra* var. *rubra* was historically known from inland salt ponds of Onondaga County, Long Island, and the southern Hudson Valley. There were eight remaining populations in 1992, but more recent visit to three of these populations found no plants. *Phragmites australis* is now abundant at those sites (NYNHP 2023, 2024).

Being an early successional species, *O. rubra* var. *rubra* can thrive in the changing environments of beaches, coastal pond shores, saltmarshes, and even waste places, but it does not tolerate a closed habitat (NYNHP 2023, 2024; Williams 1969). Thus, threats from invasion by *Phragmites australis* should be taken seriously. It is likely that since 1992, when the populations of *O. rubra* var. *rubra* were last visited, the communities have become dominated by this invasive reed. Invasive plant takeover and development of saline habitat have led to a loss of historic populations; to slow this trend, manage the spread of *Phragmites australis*. Surveys to determine the status of the remaining populations are needed. The conservation trend of *O. rubra* var. *rubra* may seem like a dire case, but the seeds can remain viable for over 50 years (Williams 1969; Bakker et al. 2005). If the right conditions are met, a revival of vigorous populations of red pigweed in NY is possible.

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:

Oxybasis rubra var. *rubra* is Threatened in New York (Ring 2023). As of 1992, there were nine existing populations which primarily occurred on Long Island or in New York City. At three of these populations, in Onondaga, Suffolk, and Nassau Counties, revisits found no plants. At one of these, hundreds of plants were recorded, but the last two visits found none. Thus, there may only be six extant populations, in Kings County, Suffolk County, or the Long Island Sound. One population in Suffolk County was recorded as having thousands of plants in 1992, but revisits to all sites are needed, as development, trampling by beachgoers, and competition from *Phragmites australis* pose serious threats to their establishment. There are 14 historical occurrences mostly from the early 1900s, which probably did not persist (NYNHP 2023, 2024).

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	SH	
Massachusetts	Yes	Unknown	Unknown	Unknown	S3	
New Jersey	Yes	Unknown	Unknown	Unknown	S1	
Pennsylvania	Yes	Unknown	Unknown	Unknown	SNR	
Vermont	No	-	-	-		
Ontario	Yes	Unknown	Unknown	Unknown	SU	
Quebec	No	-	-	-		

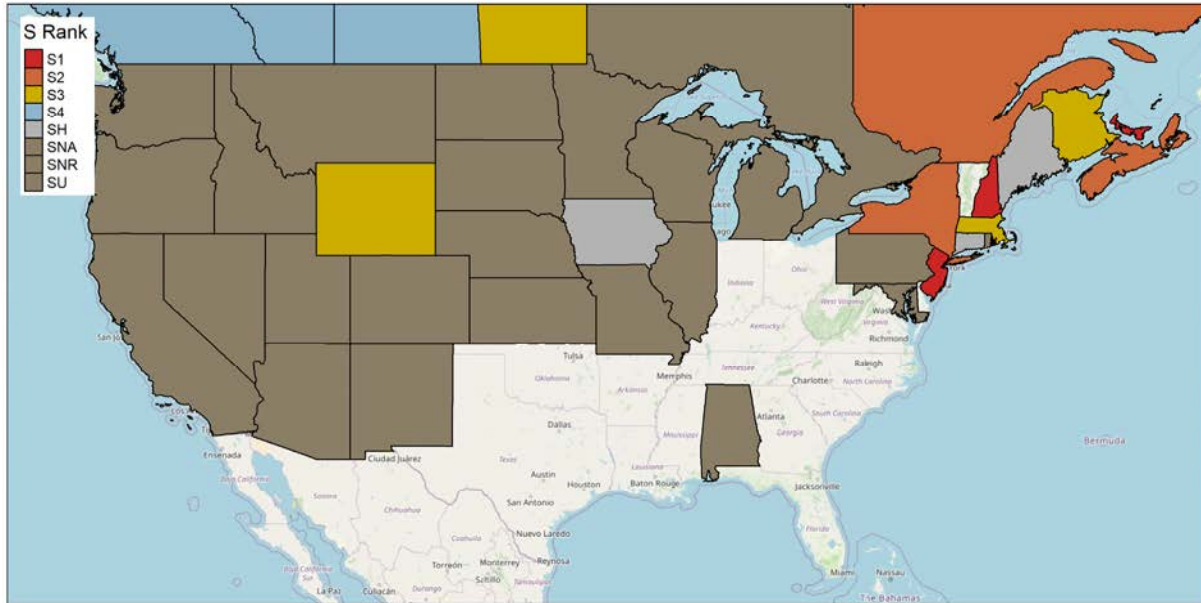


Figure 1. *Oxybasis rubra* var. *rubra* North American distribution.

Percent of North American Range in NY	Classification of NY Range	Distance to core population, if not in NY
1-25%	Peripheral	≥100km

III. NY Rarity and Trends

Trends Discussion

Most of the existing populations have not been surveyed more than once, but at the two populations that have been revisited, no plants were found. *Oxybasis rubra* var. *rubra* was likely outcompeted by the invasive *Phragmites australis* at these locations. Surveys to the other sites, are needed to determine their status, as they were last seen between 1982 and 1991. The size of many of these populations is unknown, but one was recorded as having thousands of plants. Optimistically, there are still thousands of plants, but it is likely that some of these populations no longer exist. Over the long-term, there has been a substantial decline in this species. Saltmarshes and swales have been ditched, developed, or dominated by *Phragmites australis* (NYNHP 2023, 2024). *Oxybasis rubra* var. *rubra* is a successional species and, though it produces copious amounts of seed, will not establish in closed communities (Williams 1969; Rayner 1978; Dodds 2023).

Details of historic and current occurrence

This species is mainly restricted to the saline areas of Long Island and the extreme southern Hudson Valley. It is also historically known from the inland salt ponds of Onondaga County. Scattered additional historical records from waste ground in non-saline soils are also reported. As of 1992, there were likely tens of thousands of plants. Since then, development and invasive species have likely reduced that number (NYNHP 2023, 2024).

Though the plant's range is circumboreal, it is uncommon, rare, or historical in the northeastern United States (NatureServe 2023; Dodds 2023). It is considered stable throughout its range (NatureServe 2023).

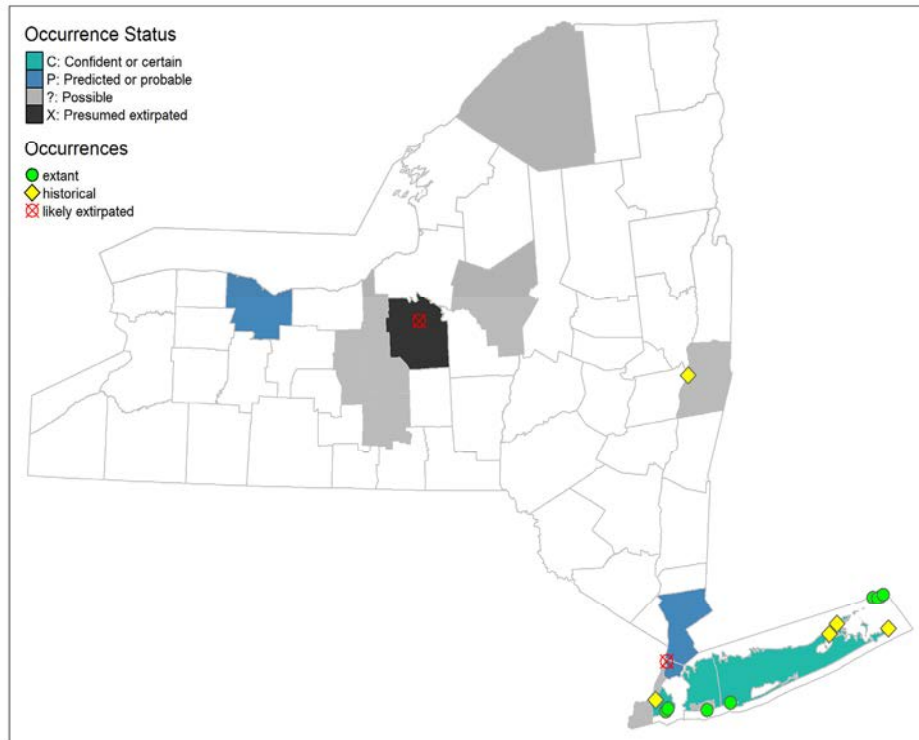


Figure 2. NYS distribution for *Oxybasis rubra* var. *rubra*

Table 1. Number of records (element occurrences) of *Oxybasis rubra* var. *rubra* 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	14	1.4
1995-2004	0	0	0.0
2005-2014	0	0	0.0
2015-2023	0	0	0.0

Monitoring in New York

One of the populations occurs on State Park land, which is monitored on a 10-year rotation. Two others occur on federally owned land, and one occurs on land owned by local government (NYNHP 2023). Some populations occur on an exclusive island in the Long Island Sound (NYNHP 2023). These, and others, are not monitored on a regular basis.

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

Northeastern Habitat Classification Macrogroups: Intertidal shore, Coastal grassland and shrubland, Coastal plain pond.

NY Ecological Communities: Marine intertidal gravel/sand beach, Brackish interdunal swales, Coastal plain pond shore, Coastal salt pond, Dredge spoil wetland, Marine dredge spoil shore, and Maritime freshwater interdunal swales (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:

In New York, *Oxybasis rubra* var. *rubra* has been found along the coast in wet interdunal swales, stony beaches, and the shores of coastal ponds, as well as amongst ship ballast and waste places (NYNHP 2023, 2024; Voss 1985). It is known from marshes, brackish soil, and occasionally riverbanks (Clemants 1992; Gleason and Cronquist 1991; 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):

Oxybasis rubra var. *rubra* is an annual forb that is wind-pollinated and reproduces by seed (Williams 1969). The flowers are protogynous (Williams 1969). Each plant can produce hundreds to thousands of seeds (Salisbury 1970). The seeds are dispersed by gravity and ducks; Mueller and van der Valk (2002) found that, after travelling through the duck’s digestive system, up to 21% of the seeds remained viable. Germination is opportunistic, though Williams (1969) reports the majority of seedlings sprout during spring, or as Ter Heerd et al. (2017) reports, during warm weather, with water draw down. Seed near the soil surface were found to have higher germination rates (Williams 1969).

Table 2. Phenology of *Oxybasis rubra* var. *rubra* in New York State (NYNHP 2023).

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

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