

# Species Status Assessment

**Common Name**    nodding rattlesnake root    **Date Updated:**    2023-12-22  
**Scientific Name**    *Nabalus crepidineus*    **Updated By:**    Rachael Renzi  
**Family**    Asteraceae

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

Nodding rattlesnake root is a perennial forb in the aster (Asteraceae) family. *Nabalus crepidineus*, synonymous with *Prenanthes crepdinea* is one of six species in the genus in New York (Werier et al. 2023). *Nabalus boottii* is among these, which is another state endangered species. *Nabalus crepidineus* is extant at only one location in New York State. There are two historic populations and a third considered to be extirpated. The extant population was discovered in 2021. This single existing occurrence is comprised of only three plants. None of the plants have been observed in flower or fruit, due to herbivory of the flowering stalk by deer. Additional inventory for *Nabalus boottii* near existing plants and around historically documented locations may expand the extant distribution.

## I. Status

### a. Current legal protected Status

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

### b. Natural Heritage Program

i. Global:    G4  
ii. New York:    S1    **Tracked by NYNHP?**    On Active Tracking List

### Other Ranks:

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

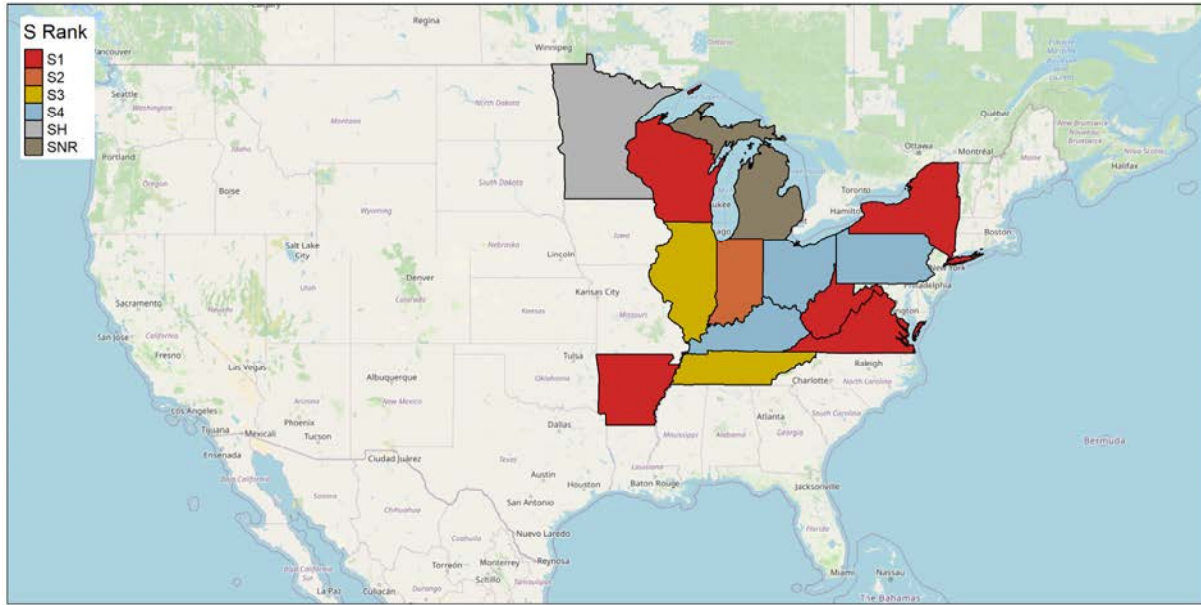
### Status Discussion:

There is one verified extant occurrence on *Nabalus crepidineus* in New York, and three historical occurrences. The single extant population was found in 2021, and last documented in 2022 as having three plants, which are located next to a trail (NYNHP 2023). It may be possible that basal rosettes have been overlooked, especially as they are known to senesce by mid-

summer if no flowers are produced (NatureServe 2023). The viability of such a small population is low, especially with pressure from herbivores. Successful flowering or fruiting has not been observed in these plants (NYNHP 2023).

## 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    | S4                       |       |
| Vermont         | No       | -         | -            | -          |                          |       |
| Ontario         | No       | -         | -            | -          |                          |       |
| Quebec          | No       | -         | -            | -          |                          |       |



**Figure 1.** *Nabalus crepidineus* 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                 | ~500 kilometers                           |

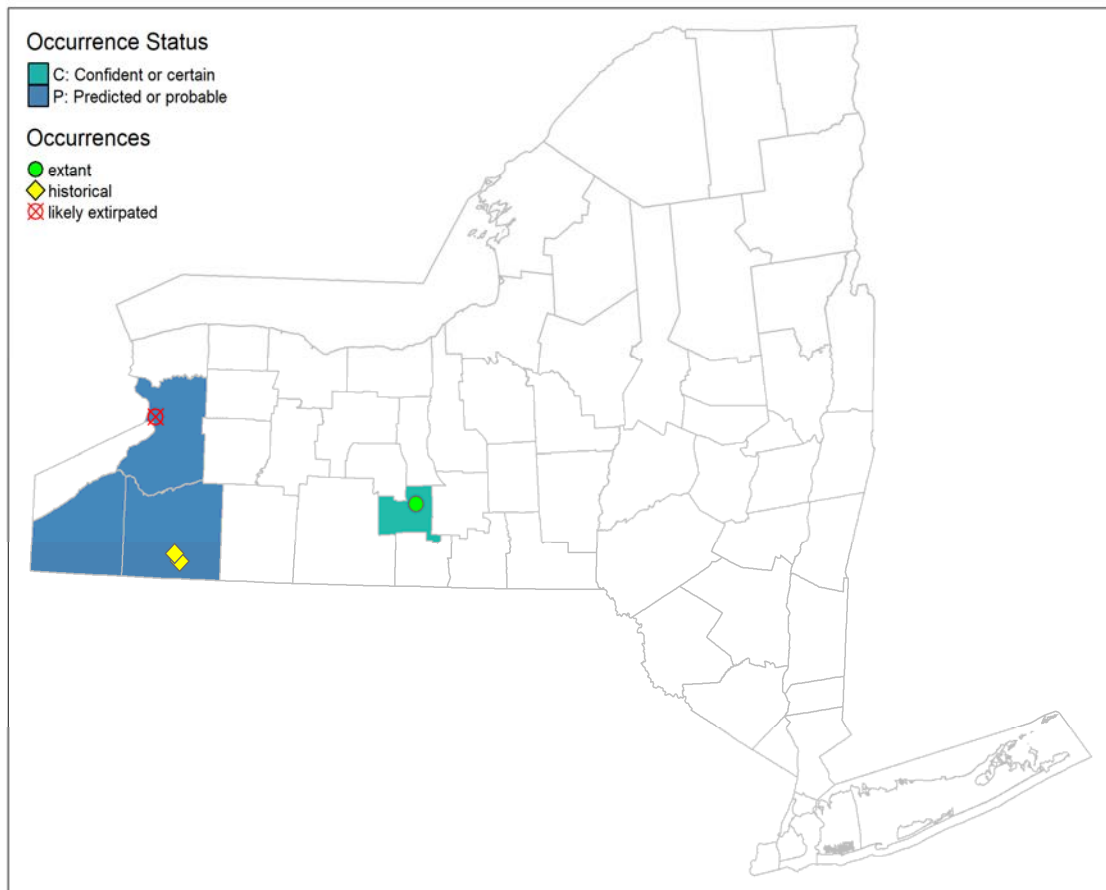
### III. NY Rarity and Trends

#### Trends Discussion

Until 2021, *Nabalus crepidineus* was not considered extant in New York. This recent find warranted a state status change from historical to endangered. Before this change, the most recent records were from 1958. The short-term trend across its entire range has been relatively stable, with a less than 10% change overall (NatureServe 2023). However, only one population across its range has over 1,000 plants. The long-term trend of *Nabalus crepidineus* in New York is unknown, given the scarcity of pre-1900s data. There are three populations considered to be historic, and another considered extirpated by development. According to NatureServe (2023), *N. crepidineus* is apparently globally secure, but the status of this infrequent plant needs review, as well as research into reasons for a decreased range (NatureServe 2023).

#### Details of historic and current occurrence:

In New York, *Nabalus crepidineus* was found in Erie and Cattaraugus counties historically. A single extant population was found in Schuyler County on National Forest land in 2021, consisting of three scattered plants in a second-growth forest (NYNHP 2023). None of the three plants were observed in flower or fruit. Though two plants had bolted in 2022, deer had eaten most of the stalk. NatureServe (2023) estimates that there are 2500-10,000 individuals throughout its range, with only one 1,000-plus plant population. *Nabalus crepidineus* occurs from western New York west to Minnesota and south to Kansas (reputedly), Arkansas, and Tennessee (NatureServe 2023). Although it occurs somewhat infrequently, the highest density of the plant occurs in Ohio and Kentucky (NatureServe 2023).



**Figure 21.** NYS distribution for *Nabalus crepidineus*.

**Table 1.** Number of records (element occurrences) of *Nabalus crepidineus* 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  | 3            | 4                   | 0.4                 |
| 1995-2004 | 0            | 0                   | 0.0                 |
| 2005-2014 | 0            | 0                   | 0.0                 |
| 2015-2023 | 1            | 1                   | 0.1                 |

### Monitoring in New York

Since its discovery in 2021, the one extant population of *Nabalus crepidineus* has been visited again in 2022 (NYNHP 2023).

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

NatureServe broad habitat types: Woodland - Hardwood, Forest/Woodland, Forest - Hardwood, Riparian (NatureServe 2023).

Northeastern Habitat Classification Macrogroup: Mixed Northern Hardwoods / Northern Hardwood and Conifer

NY Ecological Communities: Forested mineral soil wetlands; Floodplain forest (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:**

In New York, *Nabalus crepidineus* was historically reported from oxbow habitat, rich floodplain forests, moist, rich, deciduous woods, lowland or upland woods, thickets, low prairies, and wet areas in rich soil (NYNHP 2023; Reznicek 2011; FNA 1993). Throughout its range, it is found in shaded to open areas, often alluvial soils, in rich woods, along streams and prairies. In one site it is associated with moist seepages in mesic-dry oak-maple forest and in semi-shade. It has also been noted at the base of northern facing slopes in mixed oak/hickory forest (P. Hyatt, pers. comm. to Kathy Crowley 1996 see NatureServe 2023). In western Pennsylvania an extant population is kept free of large woody vegetation by scouring of the flood plain by ice slabs during late winter. This is not an annual process but does happen often enough to keep the area clear of woody shrubs and small trees.

Throughout its range, *N. crepidineus* is associated with *Acer saccharinum*, *acer negundo*, *Platanus occidentalis*, *Urtica sp.*, *Aster sp.*, *Solidago sp.*, and *Lobelia sp.* Associated geologic elements include ordovician dolomite bedrock and upper cambrian sandstone; soil is Baraboo silt loam (P. Hyatt, pers. comm. to Kathy Crowley 1996 see NatureServe 2023).

#### **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):

*Nabalus crepidineus* is a perennial forb/herb. Populations are scattered throughout its range, and often have less than 1,000 individual plants. Non-blooming plants may senesce early, giving the population an appearance of having fewer plants around flowering time.. Unfortunately, no successful sexual reproduction has been observed of the three known plants in New York, as flowering stalks were eaten by deer. If seed set occurs, they are wind dispersed. How three individual plants have survived in a secondary forest in central New York, far from the core of its range, certainly raises many questions about its distribution as well as its biology. The interaction of the plant's biology with its ecosystem is not well understood.

**Table 2:** Phenology of *Nabalus crepidineus* in New York Stat (NYNHP 2023).

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

## VI. Threats

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:**

*Nabalus crepidineus* showed severe deer herbivory in New York in 2022, precluding fruiting. To increase changes of successful seed set, physical protection such as deer exclosure fencing should be considered. Throughout its range, plants face competition from invasive species such as garlic mustard.

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 *Nabalus crepidineus*.

| 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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