

Species Status Assessment

Common Name marsh lousewort **Date Updated:** 2024-01-24
Scientific Name *Pedicularis lanceolata* **Updated By:** Rachael A. Renzi
Family Orobanchaceae

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

Pedicularis lanceolata is a perennial hemiparasitic herb in the broom-rape family. It is one of two species of *Pedicularis* in New York (Werier et al. 2023). Its range extends north into Canada, and west to Nebraska and Arkansas (NatureServe 2023). It is endangered at the southern extent of its range in Arkansas through North Carolina and is a species of conservation concern in most states east of the Ohio River, known only historically from Delaware and Kentucky (NYNHP 2024, NatureServe 2023). In NY, *P. lanceolata* locations are scattered south of the Adirondacks, primarily in the Hudson Valley and New York City (NYNHP 2023). It has also been found in the western part of the state near Buffalo and Rochester (NYNHP 2023, 2024). It inhabits calcium-rich wetland habitats with an open canopy (NYNHP 2023, 2024). Historic populations are likely extirpated due to development in heavily urbanized areas, such as NYC. Despite this decline in extant populations, additional sites were found elsewhere in the state (NYNHP 2024). There are likely 5,000-6,000 individuals extant in NY, but half of the populations have not been visited since before 2000, so current numbers are an estimate (NYNHP 2023). In MA and CT, populations have been in decline, likely due to closure or disappearance of wetland habitat (Allard 2001). Surveys to extant and historical populations are needed to better assess the plant's demography in NY. Conservation of *Pedicularis lanceolata* habitat, including establishing buffers, managing woody species, and removing invasive species, are needed to protect this regionally rare species.

I. Status

a. Current legal protected Status

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

b. Natural Heritage Program

i. Global: G5
ii. New York: S2S3 **Tracked by NYNHP?** On Active Tracking List

Other Ranks:

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

Status Discussion:

Pedicularis lanceolata is Threatened in New York (Ring 2023). There are 27 existing populations and about a third of these are in good to excellent condition with hundreds of plants each (NYNHP 2023). Many of the populations are in protected areas, either in preserves, management areas, or in land trusts (NYNHP 2023). This has not always been the case; about 15 of the 25 historical records have been extirpated by development around the New York City area (NYNHP 2023, 2024). There is, however, a small chance that a few historical records from the Lower Hudson region could be rediscovered.

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	S2	
Massachusetts	Yes	Unknown	Unknown	Unknown	S1	
New Jersey	Yes	Unknown	Unknown	Unknown	S3	
Pennsylvania	Yes	Unknown	Unknown	Unknown	S1	
Vermont	No	-	-	-		
Ontario	Yes	Unknown	Unknown	Unknown	S4	
Quebec	No	-	-	-		

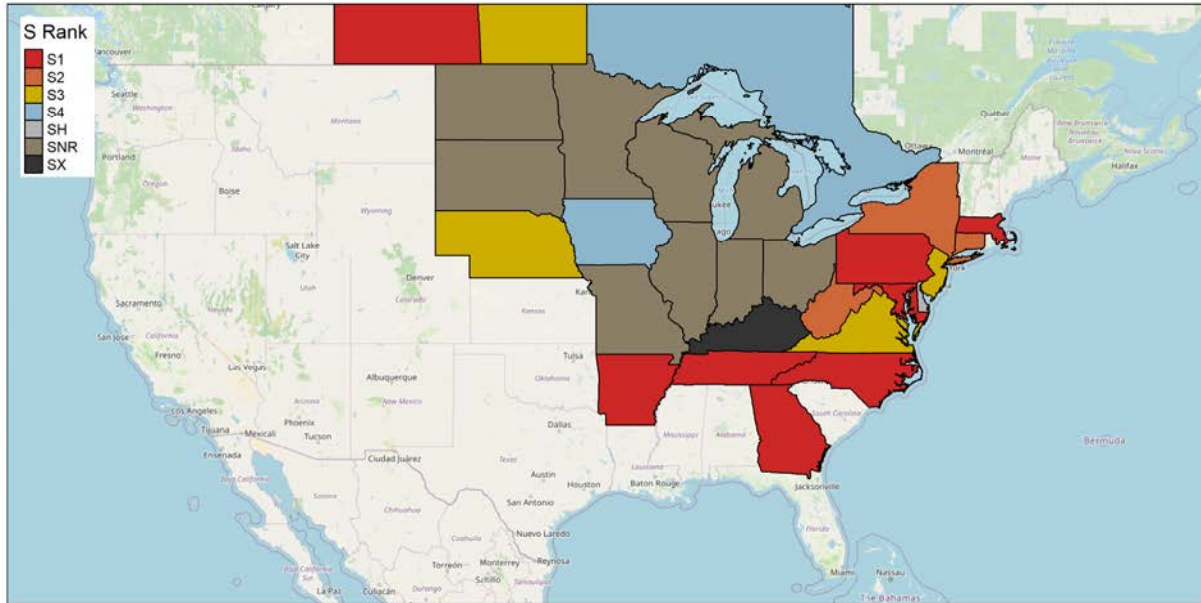


Figure 1. *Pedicularis lanceolata* North American distribution.

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

Many historic populations are considered extirpated in NY (NYNHP 2024, 2023). Though this indicates a negative trend, populations have been found in central and western NY (NYNHP 2023, 2024). It is difficult to determine a trend without verifying that historical population are no longer extant; surveys to historical populations are needed. One third of the extant populations have hundreds of individuals plants, but the remaining two-thirds have between two and 90 plants (NYNHP 2023, 2024). The large populations, especially those on protected land, will likely remain in good condition. Closure of the open fen or swamp habitat by succession or by invasive species, such as *Microstegium vimineum* threaten the extant populations.

Pedicularis lanceolata is a species of conservation concern in most states east of the Ohio River, and is known only historically from Delaware and Kentucky (NYNHP 2024, NatureServe 2023). In Massachusetts and Connecticut, populations have been lost to habitat modification or loss by invasive species, development, or succession (Allard 2001). NatureServe (2023) considers *P. lanceolata* to be secure through its range, which extends north into Canada, and west to Nebraska and Arkansas (NatureServe 2023). It is endangered at the southern extent of its range in Arkansas through North Carolina (NatureServe 2023).

Details of historic and current occurrence

Swamp lousewort has been found at scattered locations throughout the state south of the Adirondacks, primarily in the Hudson Valley, New York City, and in the western part of the state

near Buffalo and Rochester (NYNHP 2023, 2024). Historic populations are extirpated due to development in heavily urbanized areas, such as NYC (NYNHP 2023). However, additional populations were found elsewhere in the state, and now there are likely 5,000-6,000 individuals extant in NY (NYNHP 2023). Half of the populations have not been visited since before 2000, so current numbers are an estimate (NYNHP 2023).

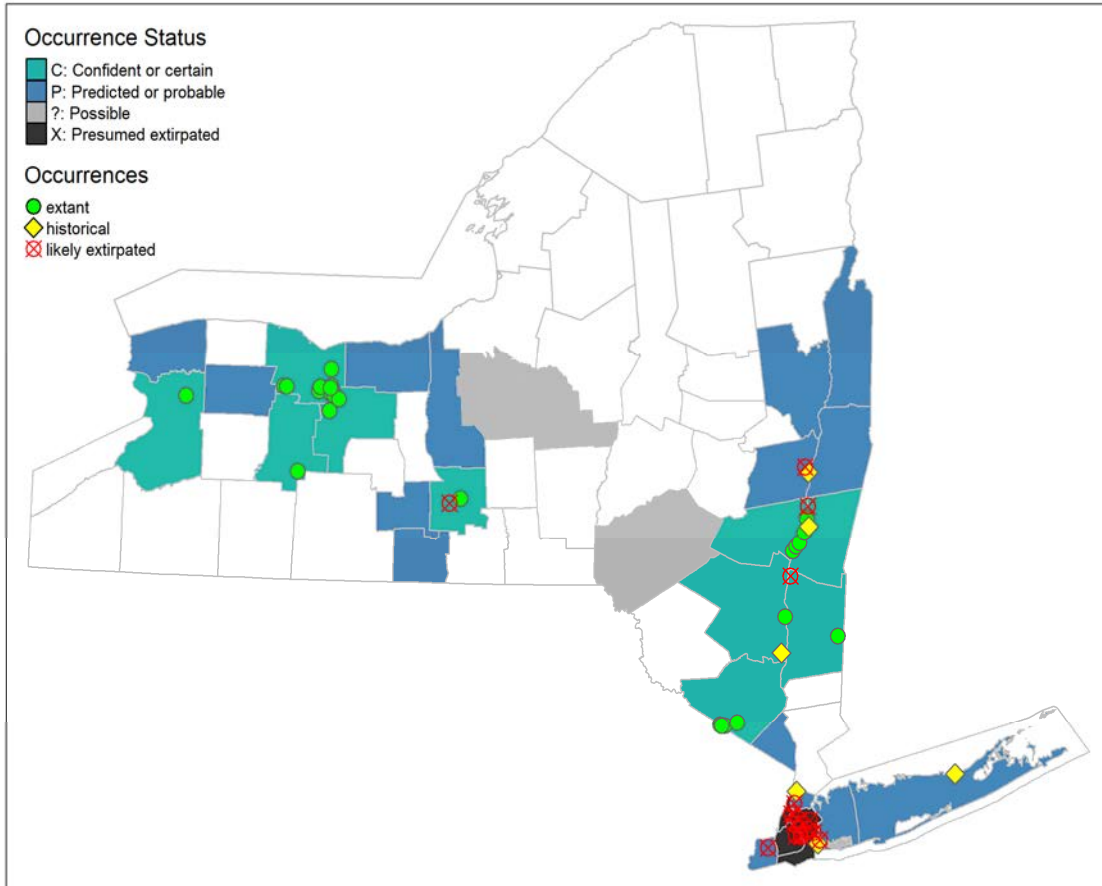


Figure 2. NYS distribution for *Pedicularis lanceolata*.

Table 1. Number of records (element occurrences) of *Pedicularis lanceolata* 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	36	28	2.8
1995-2004	6	5	0.5
2005-2014	8	7	0.7
2015-2023	6	6	0.6

Monitoring in New York

One population is on a State Historic Site, which is surveyed on a 10-year cycle. Five populations are in local or county parks, four are on land owned by private individuals, four are on land owned by private organizations, and four are on land owned by the DEC. Half of the populations have not been visited since before 2000 (NYNHP 2023).

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

Northeastern Habitat Classification Macrogroups: Tidal habitat, Central Appalachian and coastal peatland, Central hardwood swamp, Wet meadow / Shrub marsh.

NY Ecological Communities: Freshwater tidal swamp, Marl fen, Red maple-hardwood swamp, Rich graminoid fen, Shrub swamp (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, *Pedicularis lanceolata* occurs in a variety of wetland habitats, usually with an open or absent canopy. It occupies rich fens, where it may grow among *Sphagnum* with other calciphilic species, as well as in freshwater tidal marshes and swamps, and along the edges of ponds or shrub swamps. This species may benefit from some level of disturbance, as many of the known sites for it have been grazed or cut-over, or are along roadsides, rights-of-ways, and trails (NYNHP 2024). The habitat is also described as rich, often calcareous, meadows and shores (Fernald 1950) or swamps and wet soil (Gleason and Cronquist 1991).

NY Flora Atlas habitat description: Calcareous and marly fens, forested seeps; and swamps and margins of the Hudson River upslope from tidal influences (Werier et al. 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):*

Pedicularis lanceolata is a hemiparasitic perennial forb (NYNHP 2024). Dahlber (2022) found that marsh lousewort grew more vigorously when planting seeds with *Carex lacustris* or *C. atherodes*, but it is not host specific (Piel 1965). *Pedicularis lanceolata* may not flower in its first year, and it is unknown if resources or age triggers a plant to mature (Allard 2001). Bumblebees are the likely pollinators of the hooded flowers, which bloom in summer, and set fruit in fall (Macior 1969; NYNHP 2024). The dispersal mechanism for the seeds is unknown (Allard 2001).

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:

NatureServe. 2023. NatureServe Explorer: An online encyclopedia of life [web application]. Version 7.1. NatureServe, Arlington, Virginia. <http://www.natureserve.org/explorer>. [Accessed 12/14/2023].

New York Natural Heritage Program. 2024. Online Conservation Guide for *Pedicularis lanceolata*. Available from: <https://guides.nynhp.org/swamp-lousewort/>. Accessed January 23, 2024.

New York Natural Heritage Program, State University of New York College of Environmental Science and Forestry. 2023. Element Occurrence and Element Dataset. Albany, New York. [Exported 12/14/2023].

Werier, David, Kyle Webster, Troy Weldy, Andrew Nelson, Richard Mitchell, and Robert Ingalls. 2023 New York Flora Atlas. [S. M. Landry and K. N. Campbell (original application development), USF Water Institute. University of South Florida]. New York Flora Association, Albany, New York. [Accessed 11/21/2023].

Additional references:

Allard, Dorothy J. 2001. *Pedicularis lanceolata* Michx. (Swamp Wood-betony) Conservation and Research Plan. New England Wild Flower Society, Framingham, Massachusetts, USA.

Crow, Garrett E. and C. Barre Hellquist. 2000. Aquatic and Wetland Plants of Northeastern North America: A revised and enlarged edition of Norman C. Fassett's a Manual of Aquatic Plants. Volume One: Pteridophytes, Gymnosperms, and Angiosperms: Dicotyledons. The University of Wisconsin Press. Madison, Wisconsin. 536 Pages.

Dahlberg, Luke. 2022. Propagating Swamp Betony. Grassland restoration network.

Edinger, G. J., D. J. Evans, S. Gebauer, T. G. Howard, D. M. Hunt, and A. M. Olivero (editors). 2014. Ecological Communities of New York State. Second Edition. A revised and expanded edition of Carol Reschke's Ecological Communities of New York State. New York Natural Heritage Program, New York State Department of Environmental Conservation, Albany, NY. <https://www.nynhp.org/documents/39/ecocomm2014.pdf>

Fernald, M.L. 1950. Gray's manual of botany. 8th edition. D. Van Nostrand, New York. 1632 pp.

Gleason, Henry A. and A. Cronquist. 1991. Manual of Vascular Plants of Northeastern United States and Adjacent Canada. The New York Botanical Garden, Bronx, New York. 910 pp.

Holmgren, Noel. 1998. The Illustrated Companion to Gleason and Cronquist's Manual. Illustrations of the Vascular Plants of Northeastern United States and Adjacent Canada. The New York Botanical Garden, Bronx, New York.

Macior, L. W. 1969. Pollination adaptation in *Pedicularis lanceolata*. American Journal of Botany 56: 853-859.

Newcomb, Lawrence. 1977. Newcomb's Wildflower Guide: An Ingenious New Key System for Quick, Positive Field Identification of the Wildflowers, Flowering Shrubs, and Vines of Northeastern and North-Central North America. Little, Brown and Company. Boston.

Piehl, M. A. 1965. Studies of root parasitism in *Pedicularis lanceolata*. Michigan Botanist 4: 75-81.

Rhoads, Ann F. and Timothy A. Block. 2000. The Plants of Pennsylvania, an Illustrated Manual. University of Pennsylvania Press, Philadelphia, PA.

Ring, Richard M. 2023. New York Rare Plant Status Lists. New York Natural Heritage Program, State University of New York College of Environmental Science and Forestry, Albany, NY. December 2023. 108 pp.

Voss, Edward G. 1996. Michigan Flora Part III. Dicots Concluded (Pyrolaceae - Compositae). Cranbrook Institute of Science Bulletin 61 and University of Michigan Herbarium. 622 pp.