

Species Status Assessment

Common Name	orange milkwort	Date Updated:	2024-03-07
Scientific Name	<i>Polygala lutea</i>	Updated By:	Rachael A. Renzi
Family	Polygalaceae		

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

Orange milkwort is a perennial forb in the milkwort family (Polygalaceae). It is one of ten species in the genus *Polygala*, all of which are native to NY (Werier et al. 2023). However, three of these species are considered extirpated from the state, and another is threatened (Ring 2023). *Polygala lutea* is at the northeastern edge of its range in NY and all three of its extant records occur in Suffolk County, on Long Island (NatureServe 2023; NYNHP 2023, 2024). In NY, it grows in sandy soils in wet disturbed openings in pitch pine oak woods (NYNHP 2023, 2024). Continuing south along the coastal plain to FL and LA, *Polygala lutea* grows in sandy acidic swamps and bogs (Gleason & Cronquist 1991). The number of extant occurrences of this plant in NY have been in decline over the long term, as there are now only three existing populations (NYNHP 2023). While those three extant sites persisted for over 100 years, two of those sites have less than 15 plants (NYNHP 2023). Three additional sites have become extirpated due to destruction of their habitat, and four sites were last seen in the early 1900s (NYNHP 2023). The historical sites should be resurveyed for persistent populations and open habitat should be maintained at the extant sites.

I. Status

a. Current legal protected Status

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

b. Natural Heritage Program

i. Global:	<u>G5</u>		
ii. New York:	<u>S1</u>	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:

Polygala lutea is Endangered in New York (Ring 2023). There are three existing populations, but two of them have less than 15 plants (NYNHP 2023, 2024). The largest population has over 1000 plants (NYNHP 2023). There are four historical populations known from the early 1900s which need to be resurveyed (NYNHP 2023). Three other populations were extirpated when their habitat was destroyed (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	Yes	Unknown	Unknown	Unknown	S4	
Pennsylvania	Yes	Unknown	Unknown	Unknown	SX	
Vermont	No	-	-	-		
Ontario	No	-	-	-		
Quebec	No	-	-	-		

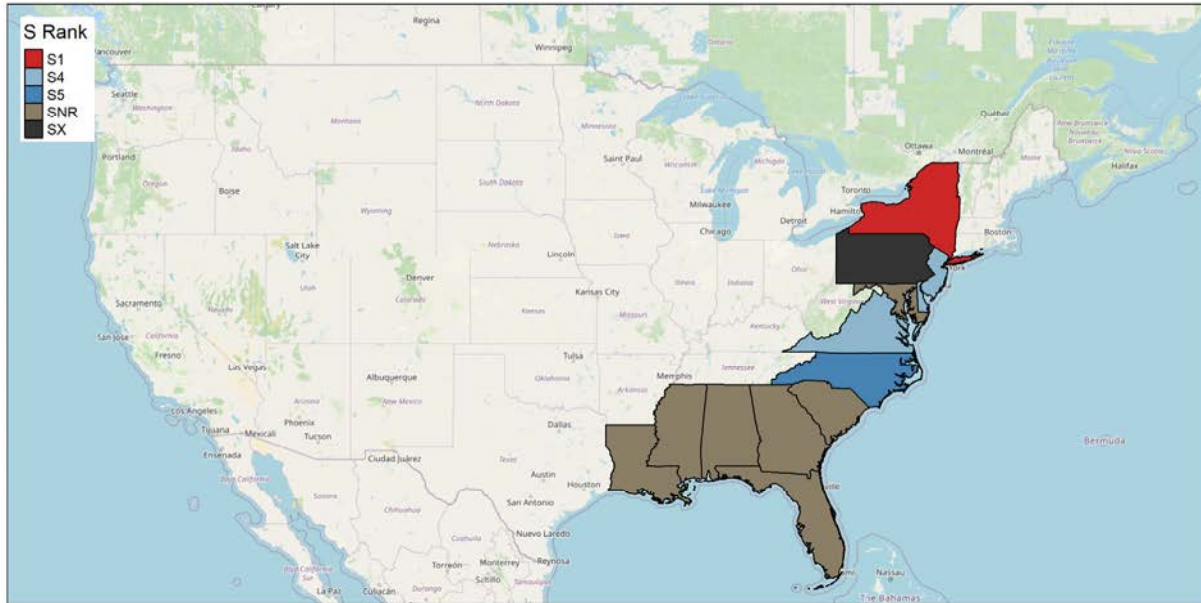


Figure 1. *Polygala lutea* North American distribution.

Percent of North American Range in NY	Classification of NY Range	Distance to core population, if not in NY
1-25%	Peripheral	≥500km

III. NY Rarity and Trends

Trends Discussion

This plant has always been very rare in New York, but it was once known from 10 different locations and now only survives at three of them (NYNHP 2023, 2024). Plant numbers fluctuate from year to year depending upon disturbance but recently, numbers have been reduced because of encroachment by woody plants into its habitat (NYNHP 2023, 2024).

Details of historic and current occurrence

Once ranging across Long Island and Staten Island this small herb has been extirpated from its historical range except in a small area of Suffolk County. One population has thousands of plants, while the other two have less than 15 (NYNHP 2023). There is another old unconfirmed report from Dutchess County but it is probably in error (NYNHP 2023, 2024). The populations in NY are at the northeastern edge of its range; it grows from NY south to FL and LA (NatureServe 2023).

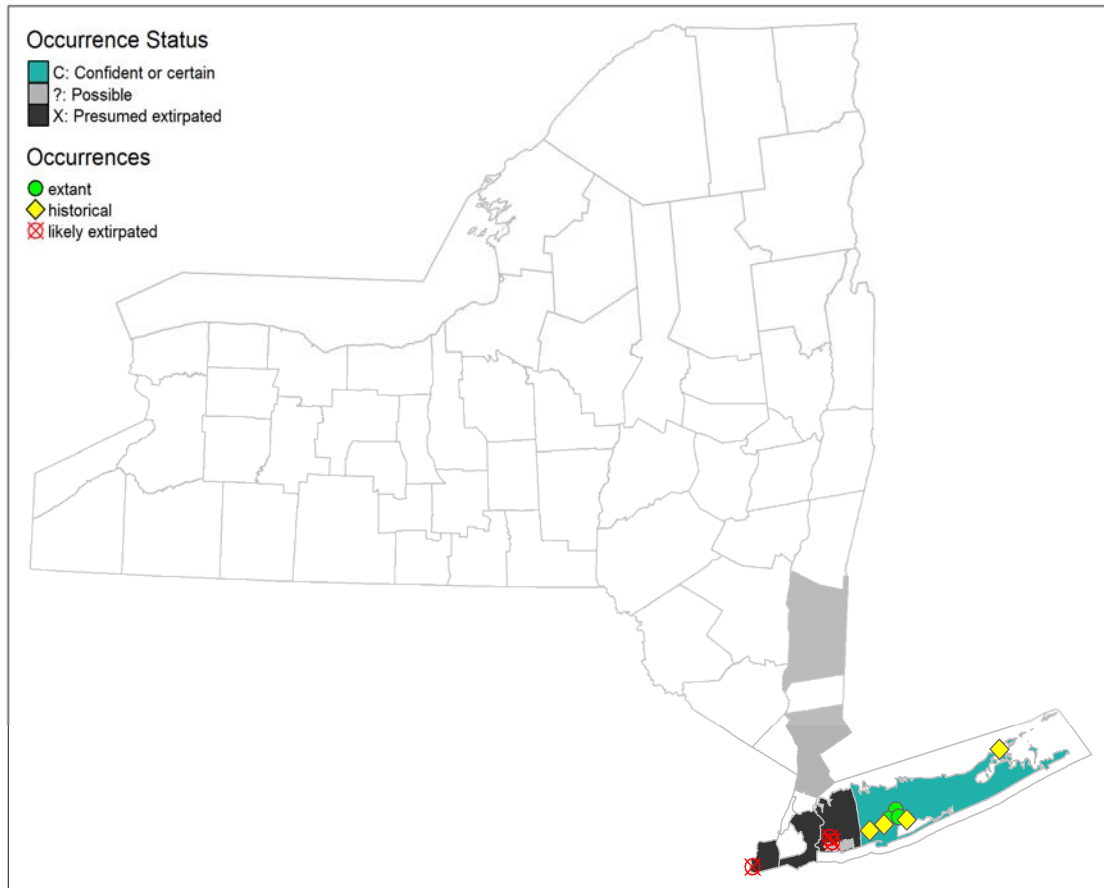


Figure 2. NYS distribution for *Polygala lutea*.

Table 1. Number of records (element occurrences) of *Polygala lutea* 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	10	10	1.0
1995-2004	3	1	0.1
2005-2014	3	1	0.1
2015-2023	3	1	0.1

Monitoring in New York

There are 10 populations known statewide; three are extirpated and four are historical (NYNHP 2023). Two of the three extant populations occur on NYS Park lands, which are monitored on a ten-year rotation (NYNHP 2023). All of the extant populations have been surveyed at least nine times since 1919 (NYNHP 2023).

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

Northeastern Habitat Classification Macrogroup: Central Oak Pine.

NY Ecological Communities: Pitch pine-oak forest (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:

The plants occur in wet disturbed openings in pitch pine oak woods in sandy soils (NYNHP 2023, 2024). Throughout North America, it occurs in sandy acidic swamps and bogs of the coastal plain (Gleason & Cronquist 1991).

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):

Polygala lutea is a perennial taprooted forb. It flowers from July through September and produces seeds with an eliasosome (NYNHP 2023, 2024; Kerr n.d.) These seeds are likely dispersed via myrmecochory, in other words: ants (Kerr n.d.). In NY, populations tend to fluctuate from year to year, which may be due to the availability of open habitat (NYNHP 2023, 2024). More research is needed on the relationship between the disturbance regime and long-term success of these populations (NYNHP 2023, 2024).

Table 2. Phenology of *Polygala lutea* in New York State (NYNHP 2023).

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

VI. Threats

Loss of a favorable disturbance regime from natural processes is the biggest threat to this species (NYNHP 2023, 2024).

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:

Maintain disturbance regimes that optimize population numbers.

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 *Polygala lutea*.

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:

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

New York Natural Heritage Program. 2024. Online Conservation Guide for *Polygala lutea*. Available from: <https://guides.nynhp.org/orange-milkwort/>. Accessed March 4, 2024.

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:

Clemants, Steven and Carol Gracie. 2006. Wildflowers in the Field and Forest. A Field Guide to the Northeastern United States. Oxford University Press, New York, NY. 445 pp.

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.

Kerr, Chris. No Date. Orange Milkwort. University of Florida IFAS Extension. Available from:
https://sfyl.ifas.ufl.edu/media/sfylifasufledu/duval/horticulture/homowner-hort-pdfx27s/Polygala_lutea.pdf

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.

Reschke, Carol. 1990. Ecological communities of New York State. New York Natural Heritage Program, New York State Department of Environmental Conservation. Latham, NY. 96 pp. plus xi.

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. 108 pp

Zaremba, Robert E. 1991. Corrections to phenology list of April 9, 1991.