

Species Status Assessment

Common Name Douglas' knotweed **Date Updated:** 2024-03-14
Scientific Name *Polygonum douglasii* **Updated By:** Rachael A. Renzi
Family Polygonaceae

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

Douglas' knotweed is an annual forb in the buckwheat family (Polygonaceae). It is one of ten species of the genus *Polygonum* in NY, but one of eight that are native to the state (Werier et al. 2023). It ranges from Yukon in the Northwest to Quebec in the northeast, south to California and New Mexico (NatureServe 2023). It is vulnerable or imperiled in much of its range in eastern North America (NatureServe 2023). In NY, *Polygonum douglasii* grows in exposed, often calcareous soils over bedrock in rocky outcrops, graminoid meadows, or forest openings (Werier et al. 2023; NYNHP 2023, 2024). There are ten known occurrences of *P. douglasii* in the state, four of which were discovered in 2022 or later (NYNHP 2023). The six other populations, all from 1987 or later, have been visited more than once (NYNHP 2023). There are over 2000 plants in the state, yet five of these have less than 100 plants (NYNHP 2023). It seems that *Polygonum douglasii* has been stable, or even increasing, over the short-term in NY, yet long-term data is lacking. Visits to historical sites are needed. In addition, studies of populations in the western US found that fire increased the frequency of this plant; a tailored fire regime may help encourage the growth of smaller populations (Seefelt et al. 2007; Laughlin et al. 2004).

I. Status

a. Current legal protected Status

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

b. Natural Heritage Program

i. Global: G5
ii. New York: S1S2 **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:

Polygonum douglasii is Threatened in New York (Ring 2023). There are ten verified occurrences in the state, four of which have more than 100 individuals (NYNHP 2023). There are 17 historical records, most of which have never been checked (NYNHP 2023, 2024). Four populations have been discovered in 2022 or later (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	T	
Connecticut	No	-	-	-		
Massachusetts	No	-	-	-		
New Jersey	No	-	-	-		
Pennsylvania	No	-	-	-		
Vermont	Yes	Unknown	Unknown	Unknown	S2	
Ontario	Yes	Unknown	Unknown	Unknown	S4	
Quebec	No	-	-	-		

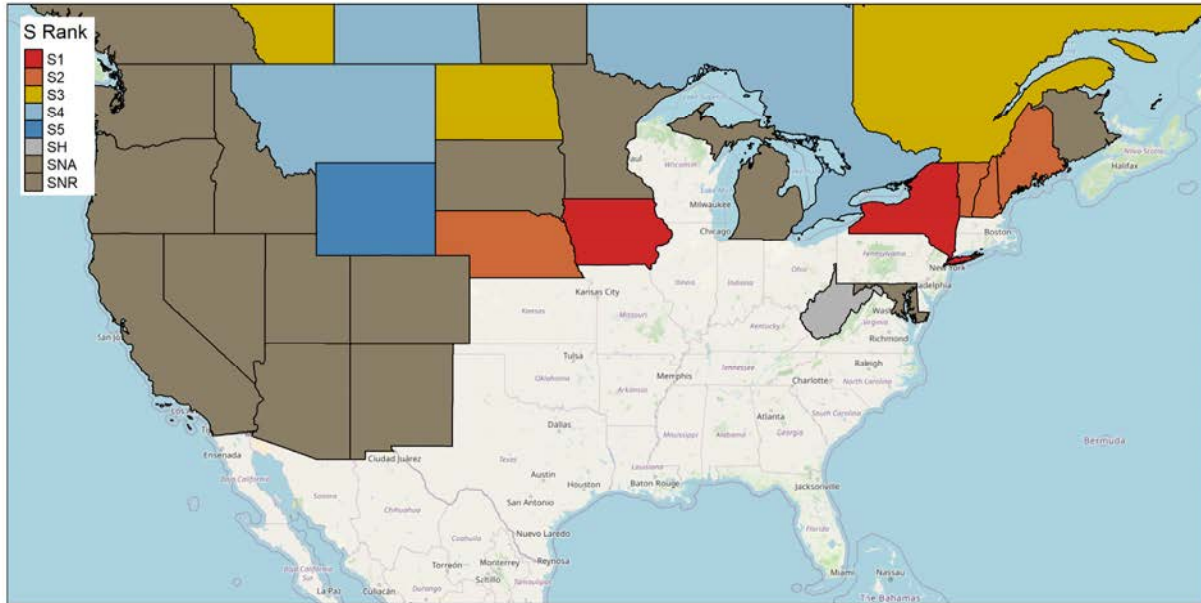


Figure 1. *Polygonum douglasii* North American distribution.

Percent of North American Range in NY	Classification of NY Range	Distance to core population, if not in NY
1-25%	Peripheral	≥1500km

III. NY Rarity and Trends

Trends Discussion

Populations of this plant were rediscovered in Jefferson County in 2022 and 2023, adding two extant populations, and two new populations were found in Warren County (NYNHP 2023). Previously, *Polygonum douglasii* was known only historically to grow in this county (NYNHP 2023). It is unclear whether these new populations reflect an increase in frequency or if the plants were simply overlooked. The verified occurrences of this species appear to have stable populations, as all populations found before 2023 have been visited more than once (NYNHP 2023, 2024). All populations occur on protected land, either on DEC land, or in a state park (NYNHP 2023). However, none of the extant populations were known before 1987, so this only holds true over the short-term (NYNHP 2023). In addition, many historical records which need to be checked. The long-term trends for this species are unclear.

Details of historic and current occurrence

There are historical records widely scattered in northern and eastern New York from Jefferson, and St. Lawrence Counties in the north, and a few in Ulster and Westchester Counties (NYNHP 2023, 2024). Verified occurrences are from Jefferson, Essex, Warren, and Washington counties in the northeast (NYNHP 2023, 2024). There are over 2300 plants total throughout the state (NYNHP 2023). The plant is more common in the western United States, as its range covers Northwest Territory and British Columbia to New Mexico, Nebraska and Oklahoma, east through Ontario and New York to Vermont (NatureServe 2023; MNAP 2021). It is disjunct to

New Brunswick (Blaney et al. 2023) It is vulnerable or imperiled in much of its range in eastern North America (NatureServe 2023).

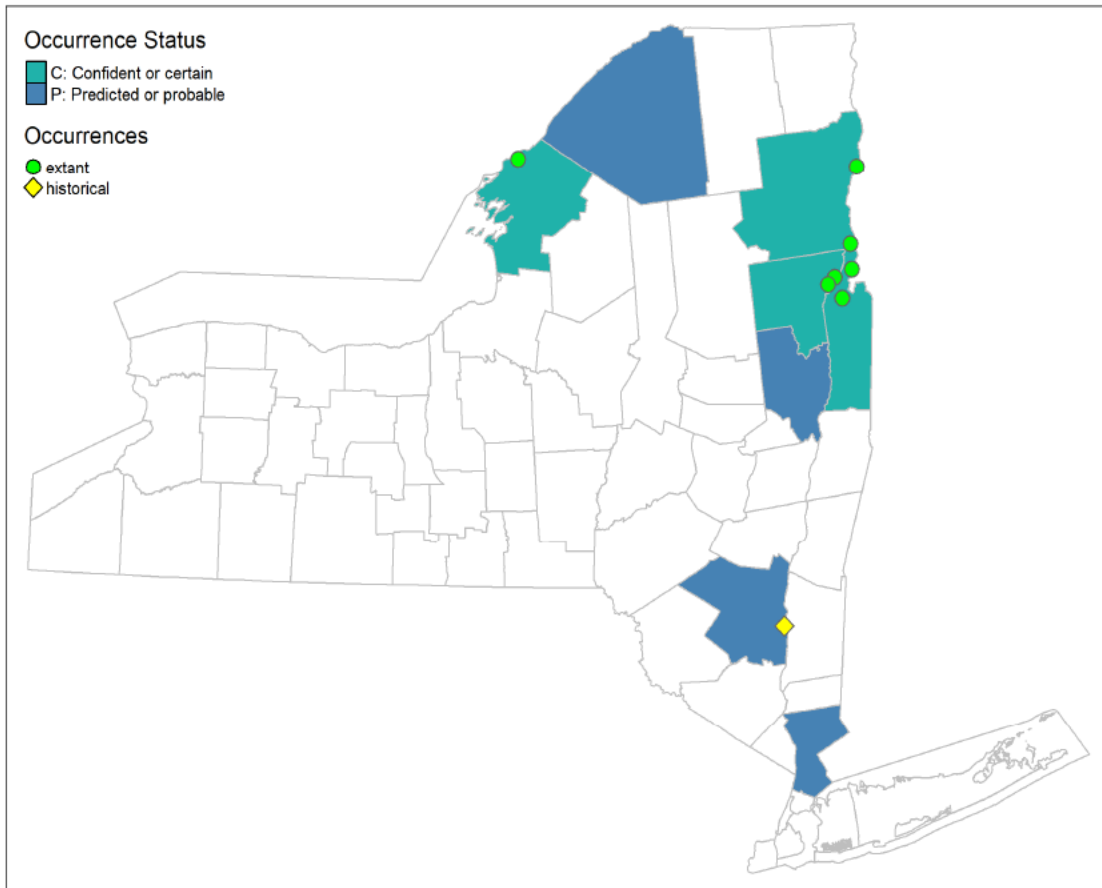


Figure 2. NYS distribution for *Polygonum douglasii*.

Table 1. Number of records (element occurrences) of *Polygonum douglasii* 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	5	6	0.6
1995-2004	2	3	0.3
2005-2014	3	4	0.4
2015-2023	6	3	0.3

Monitoring in New York

All populations are on protected land. Those that were known before 2023 have been visited more than once (NYNHP 2023). Two recently discovered populations are on State Park land, which will be visited on a 10-year cycle (NYNHP 2023). Eight populations are on DEC land (NYNHP 2023).

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

Northeast Habitat Classification Macrogroups: Outcrop and Summit Scrub, Central Oak-Pine Forest, Northern Hardwood and Conifer Forest.

NY Ecological Communities: Appalachian oak-hickory forest, Calcareous shoreline outcrop, Calcareous talus slope woodland, Northern white cedar rocky summit, Red cedar rocky summit (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 this plant is known from dry, often calcareous sites with shallow soils over bedrock, including soil-bearing cracks in exposed ledges, rocky summits, or non-shaded bedrock outcrops (NYNHP 2023, 2024; Werier et al. 2023). These sites are often in forest openings, woodlands, or graminoid dominated native meadows (Werier et al. 2023). Throughout its range, it is of sandy soil in open places, and dry rock outcrops (Voss 1985). In Maine, it has been described from rocky or gravelly slopes and open areas (Haines & Vining 1998).

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):

Polygonum douglasii in an annual forb of exposed sites with shallow soil (NYNHP 2023, 2024). It flowers from June through August, and sets fruit in the fall (NYNHP 2023, 2024). The plant was found to increase in frequency after a fire (Seefeldt et al. 2007; Laughlin et al. 2004). Greenhouse study of *P. douglasii* found that exposure to ozone reduced seed production (Harward & Treshow 1971). In the Rocky Mountains, Reynolds (1984a) found that growth and seed production was increased with a warmer temperature of 25°C as opposed to 15°C. Germination of *P. douglasii* required stratification and was aided by light (Reynolds 1984a). In another study, Reynolds (1984b) noted that 80% of viable seeds germinated in the spring, leaving little for a seed bank. More research is needed on the dispersal potential for *Polygonum douglasii* seeds.

Table 2. Phenology of *Polygonum douglasii* in New York State (NYNHP 2023).

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

VI. Threats

No immediate threats are apparent at the known sites for this species. The thin soil and in some cases steep slopes at the sites could make the plants vulnerable to erosion.

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:

It appears that disturbance, or at least an open habitat, plays a role in allowing this annual plant to reproduce. Its exposed habitat in NY allows for little competition and light, which encourages germination of this species (Reynolds 1984a). It is likely that fire will increase the frequency of this plant in areas where the population may be small, as it did in western states (Seefeldt et al. 2007; Laughlin et al. 2004).

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 *Polygonum douglasii*.

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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