

Species Status Assessment

Common Name	northern bent	Date Updated:	2024-02-16
Scientific Name	<i>Agrostis mertensii</i>	Updated By:	Richard M. Ring
Family	Poaceae		

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

Agrostis mertensii (northern bent) is a perennial species in the grass family. It is one of eight species of *Agrostis* known from New York. The species is circumboreal, growing in arctic regions around the world, extending its range in the Americas south, on high mountain summits, as far as northwestern South America (Flora of North America 1997). In New York, it occurs only on alpine summits of the Adirondack high peaks (NYNHP 2023), generally in alpine meadow natural communities. There are seventeen known extant populations in New York, with two historical sites presumed extirpated. Recent surveys have not censused the entire population, which is estimated to total 3000 to 4500 plants, but estimates from sample plots suggest the populations have been increasing from 2006 to 2019 (Howard et al 2021). Damage from recreational use, and at least at one site, invasive species, are potential threats to this species, in New York, although ongoing stewardship efforts have facilitated recovery of these fragile habitats. Climate change will further reduce the amount of available habitat of this alpine, boreal species. Continued monitoring and stewardship activity is needed.

I. Status

a. Current legal protected Status

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

b. Natural Heritage Program

i. Global:	<u>G5</u>		
ii. New York:	<u>S2</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:

Agrostis mertensii is Threatened in New York (Ring 2023). There are seventeen known extant populations of *Agrostis mertensii* in New York, all located on open alpine summit habitat in the High Peaks area of the Adirondacks in Essex County (NYNHP 2023). In recent decades several new locations for the species have been documented. Only two of the known historical locations appear to have been extirpated. the populations occur in very limited alpine habitat on the higher mountains of the High Peaks region of the Adirondacks. All of the sites are on protected in designated Wilderness Areas and monitored through the Adirondack Mountain Club’s Summit Steward Program. This program has supported at least partial recovery of populations of northern bent and its alpine habitat following severe habitat degradation from trampling and extremely high visitation in the late 20th century (NYNHP 2023). However, climate change is a threat to these cold-dependent, high-elevation species (Howard *et al.* 2021), and the two historical locations which seem to be extirpated are the two lowest in elevation (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	S1	
Ontario	Yes	Unknown	Unknown	Unknown	S2	
Quebec	No	-	-	-		

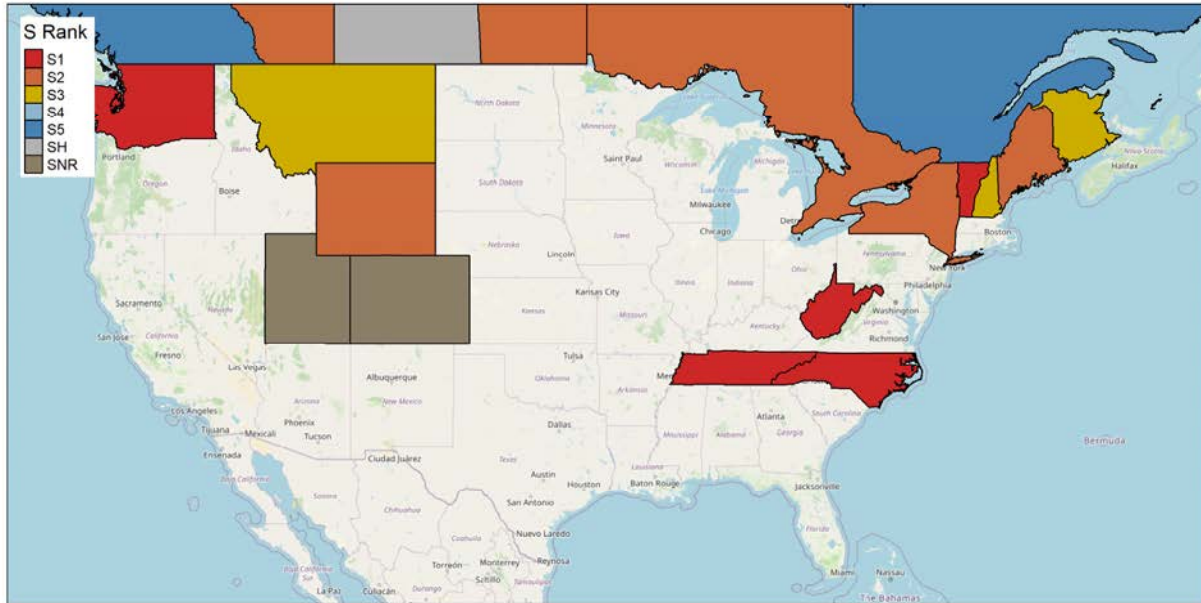


Figure 1 1: *Agrostis mertensii* North American distribution.

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:

Short Term Trends (<100 years)

Howard *et al.* (2006) found *Agrostis mertensii* to have increased in abundance, overall, from 2006 to 2019 among 15 alpine summits surveyed. Many of the most popular summits among hikers suffered habitat degradation via trampling, but the Summit Steward program of the Adirondack Mountain Club, funded through the NY Department of Environmental Conservation, has successfully promoted protection and recovery of these sites since its inception in 1989. The same program has been responsible for the discovery of this species at additional summits where it had not been previously documented. The short-term trend for northern bent has thus fluctuated in terms of habitat quality, and presumably population size, but has increased in terms of number of sites (NYNHP 2023).

Long Term Trends

Population size trends are unknown over the long term but are suspected to be stable, while the number of sites has increased.

Details of historic and current occurrence:

Comments on range: In New York, this species is found only on mountain summits in the alpine zone the high peaks region of the Adirondacks. It also occurs on alpine summits in northern New England. With increased botanicals surveys and documentation of these ecological communities by the ADK Summit Steward Program, beginning in 1989, the number of known populations has increased in recent decades. Two known historical locations appear to have been extirpated.

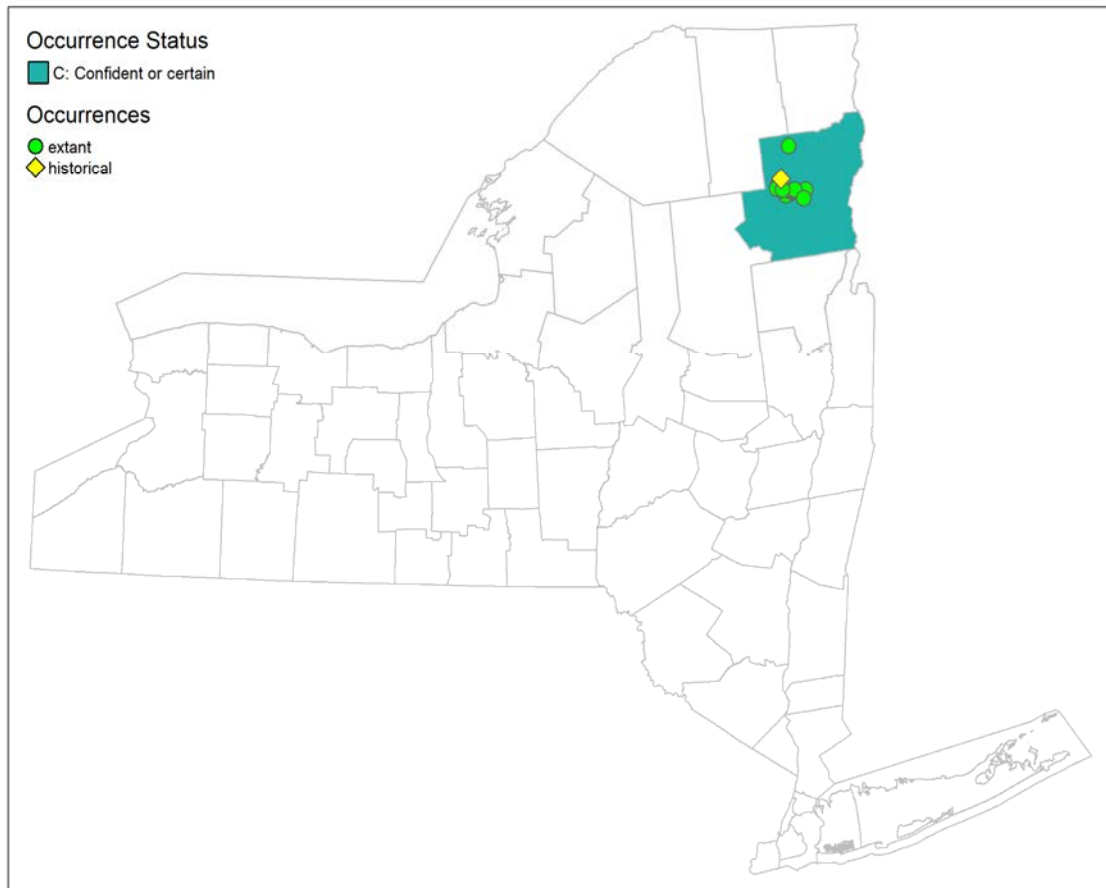


Figure 2 2: NYS distribution for *Agrostis mertensii*.

Table 1. Number of records (element occurrences) of *Agrostis mertensii* 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	12	5	0.5
1995-2004	10	4	0.4

Years	# of Records	# of distinct quads	% of quads in State
2005-2014	14	5	0.5
2015-2023	1	1	0.1

Monitoring in New York

There is monitoring of Northern Bent every six years at about fifteen of the largest alpine summits. However, this monitoring is only of vegetation in established plots, and can provide relative trend data but not overall population size. The other known locations are not regularly monitored.

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

NatureServe broad habitat types: Cliff, Grassland/herbaceous, Riparian (NatureServe 2023).

NY Ecological Communities: Open alpine community (Edinger *et al.* 2014).

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 species is restricted to the alpine areas (above treeline) in the high peaks of the Adirondacks. In this area it occurs predominantly in open, often rocky alpine meadows as well as in openings in krummholz. It occurs in similar habitats on New England alpine summits. (NYNHP 2023, 2024). NY is near the southern edge of its range, except for some disjunct alpine summits in the southern Appalachians. Further north, the species is more common and can occur on Sometimes it occurs on rock ledges banks and gravel bars in river and lake valleys, and on open grasslands and rocky slopes of mountains and cliffs (Harvey 2007). Rocky soil, moist, peaty areas (Haines and Vining 1998). Peaty or rocky soil (Gleason and Cronquist 1991). Gravelly or rocky open soil (Fernald 1950).

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):*

Agrostis mertensii is a perennial, cespitose (clump-forming) grass species. Like all grasses it is wind-pollinated. The seeds have long awns (extended, sharp tips) which may assist in their dispersal by animals (Chaplin 2022, Harvey 2007). Clumps of this species may survive for many years, although the life span of individual plants is unknown. Conservation efforts by the Summit Steward program on NY's Adirondack High Peaks have shown the ability of Northern Bent to colonize areas formerly denuded of vegetation by foot traffic. Dispersal is unlikely to be limiting for this species as it is present to some degree in nearly all the available alpine habitat in NY (NYNHP 2023).

Table 2. Phenology of *Agrostis mertensii* in New York (NYNHP 2023).

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

VI. Threats

Many of the populations are threatened by trampling from hiker traffic. Climate change is an intensifying threat to this boreal species in New York. One population is potentially threatened by non-native species (NYNHP 2024, Howard *et al* 2021).

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:

The Summit Steward program, which works to inform hikers of the fragile nature of alpine plants is a critical program which is helping to reduce trampling of alpine vegetation. This program and has been very successful and its crucial to sustaining these fragile ecosystems and the rare species they support. At least at one site, non-native plants should be controlled where they are growing with the northern bent (NYNHP 2024).

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 *Agrostis mertensii*.

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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