Species Status Assessment

Common Name	smaller fringed gentian	**Date Updated:**	2024-02-13
Scientific Name	*Gentianopsis virgata* ssp. *virgata*	**Updated By:**	Gregory J. Edinger
Family	Gentianaceae		

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

Smaller fringed gentian (*Gentianopsis virgata* ssp. *virgata*), also called lesser fringed gentian, is an annual or biennial forb/herb in the Gentian Family (Gentianaceae). There are two species of *Gentianopsis* in NY and both are native to the state (Werier et al. 2023).

Smaller fringed gentian ranges from New York and Quebec in the east, west through southern Ontario and Manitoba, and south from the Dakotas through the Midwest to Pennsylvania. In NY, it occurs along the St. Lawrence and Niagara Rivers, and there is an additional historical record just south of Rochester (NYNHP 2023, 2024).

There are nine existing populations of smaller fringed gentian in two areas of the state with over 1000 plants total. However, only two populations have more than 100 plants and two are very small with fewer than ten plants. There are three other historical occurrences that are considered extirpated by development (NYNHP 2023, 2024).

Some cliff populations of smaller fringed gentian in NY are threatened by rock removal, erosion of the cliff faces, and trampling by off-trail hikers. Riverside and cliff top populations are threatened by a succession of shrubs and trees, trampling by anglers, and invasion by exotic species like purple loosestrife (*Lythrum salicaria*) and Old World reed grass (*Phragmites australis*) (NYNHP 2023, 2024).

Invasive species need to be suppressed around existing smaller fringed gentian populations. Populations should be evaluated before any rock removal is attempted. Open areas should be kept free of tree and shrub succession. Research is needed to see if smaller fringed gentian populations can be augmented by propagation (NYNHP 2023, 2024).

I. Status

a. Current legal protected Status

i. Federal: **Candidate:**

ii. New York: Endangered

b. Natural Heritage Program

i. Global: G5TNRQ

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:

Gentianopsis virgata ssp. *virgata* is Endangered in New York (Ring 2023). There are nine existing populations of smaller fringed gentian in two areas of the state with over 1000 plants total. However, only two populations have more than 100 plants and two are very small with fewer than ten plants. There are three other historical occurrences that are considered extirpated by development (NYNHP 2023, 2024).

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	SX	
Vermont	No	-	-	-		
Ontario	Yes	Unknown	Unknown	Unknown	SNR	
Quebec	No	-	-	-		

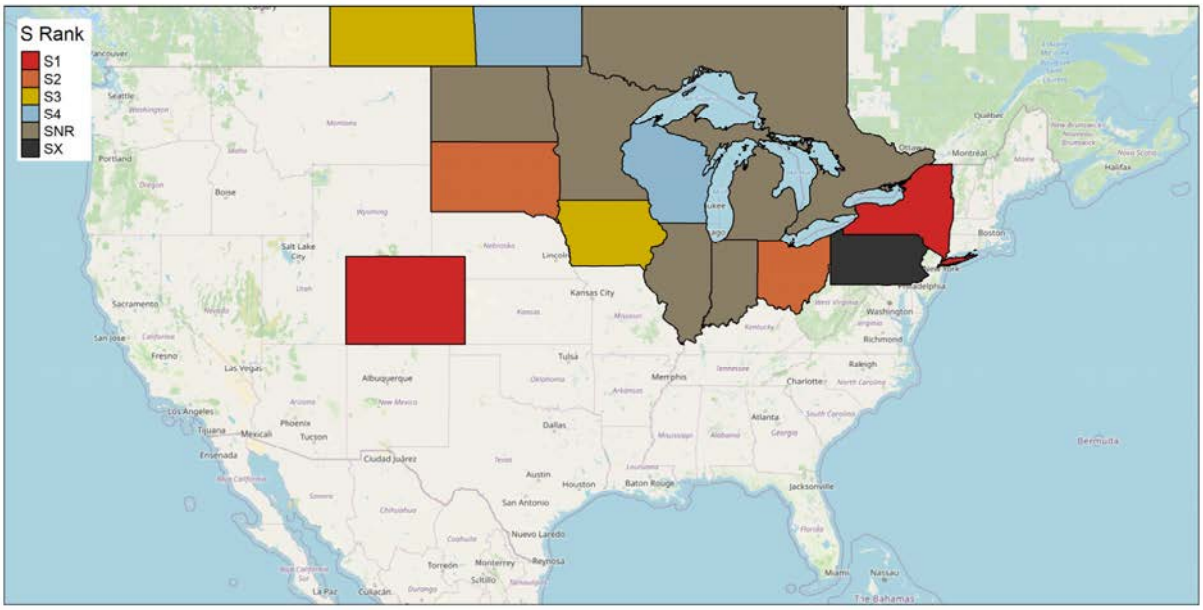

Figure 11: Gentianopsis virgata *ssp.* virgata *North American distribution. This map uses NatureServe information for* Gentianopsis procera.

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

The short-term trend for existing smaller fringed gentian populations appears stable although they occur in fragile environments (NYNHP 2023, 2024).).

Details of historic and current occurrence

There are nine existing populations of smaller fringed gentian in two areas of the state with over 1000 plants total. However, only two populations have more than 100 plants and two are very small with fewer than ten plants. There are three other historical occurrences that are considered extirpated by development (NYNHP 2023, 2024).

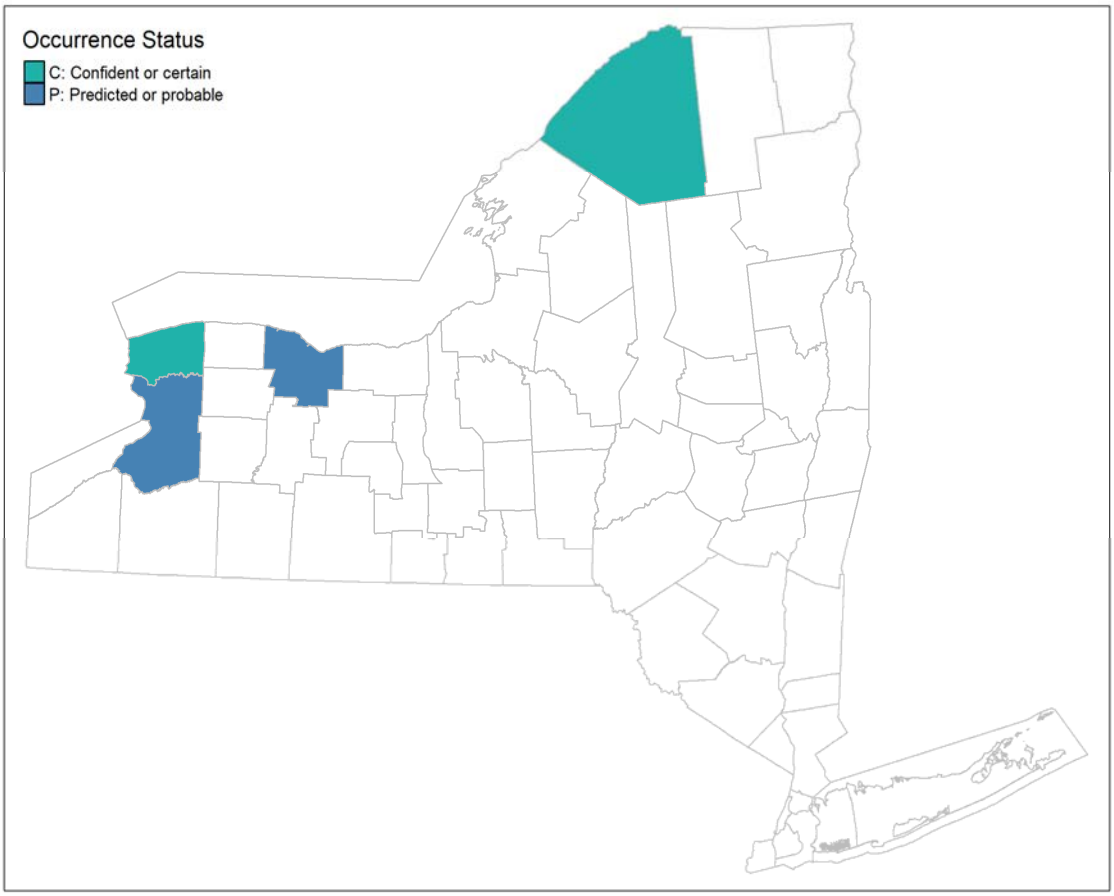

Figure 22: *NYS distribution for* Gentianopsis virgata *ssp.* virgata.

Table 1. *Number of records (element occurrences) of* Gentianopsis virgata *ssp.* virgata *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	4	2	0.2
1995-2004	7	2	0.2
2005-2014	2	1	0.1
2015-2023	1	1	0.1

Monitoring in New York

Eight of the nine extant populations of smaller fringed gentian occur on State Park lands and where a ten-year rotation is planned for monitoring efforts. However, as of March 2024 none of the eight State Park populations have been checked since 2009 and five of those were last surveyed in 2002. The one other extant population on NY Power Authority property has not been regularly monitored and was last observed in 2009 (NYNHP 2023).

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

Northeastern Terrestrial Habitat Classification Macrogroups: Central Appalachian and Coastal Peatlands, Cliff and Talus, Glade and Savanna, Laurentian-Acadian Northern Hardwoods, FOrestOutcrop and Summit Scrub

NYNHP Ecological Communities: Alvar pavement grassland, Alvar shrubland, Alvar woodland, Calcareous cliff community, Calcareous shoreline outcrop, Calcareous talus slope woodland, Cobble shore, Limestone woodland, Rich sloping fen (Edinger et al. 2014, NYNHP 2023, 2024).

Habitat or Community Type Trend in New York

Declining: **Stable:** **Increasing:** **Unknown:** ✓

Time Frame of Decline/Increase:

Habitat Specialist **Yes:** ✓ **No:**

Habitat Discussion:

In NY, *Gentianopsis virgata* is known from a variety generally moist, limey, rocky habitats. These include calcareous cliffs and ledges as well as seeps in limestone gorges, talus slopes, and rocky flats (NYNHP 2023). A calciphile of sandy, gravelly, rocky, and marly shores, wet meadows, crevices in limestone (or dolomite) pavements; interdunal hollows and calcareous flats along the Great Lakes (Voss 1996). Bogs, meadows, and wet shores, especially in calcareous regions (Gleason and Cronquist 1991). Boggy prairies, sandy swamps, borders of sloughs, wet calcareous rocks, etc. (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):*

Smaller fringed gentian is an annual or biennial forb/herb, and as such it completes its life cycle, from germination to the production of seeds, within one or two growing seasons, and then dies. The extant locations of smaller fringed gentian in NY with at least two surveys have persisted from two to over 50 years with one documented occurrence surviving for almost 170 years! Most occurrences when checked appear to be stable for at least ten years (NYNHP 2023).

Table 2. *Phenology of* Gentianopsis virgata ssp, virgata *in New York State (NYNHP 2023).*

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

VI. Threats

Some cliff populations of smaller fringed gentian in NY are threatened by rock removal, erosion of the cliff faces, and trampling off-trail hikers. Riverside and cliff top populations are threatened by a succession of shrubs and trees, trampling by anglers, and invasion by exotic species, such as purple loosestrife (*Lythrum salicaria*) and Old World reed grass (*Phragmites australis*) (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:

Invasive species need to be suppressed around existing smaller fringed gentian populations. Populations should be evaluated before any rock removal is attempted. Open areas should be kept free of tree and shrub succession. Research is needed to see if smaller fringed gentian populations can be augmented by propagation (NYNHP 2023, 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* Gentianopsis virgata *ssp.* virgata.

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 *Gentianopsis virgata*. Available from: https://guides.nynhp.org/lesser-fringed-gentian/. Accessed February 6, 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:

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.

MICHIGAN FLORA ONLINE. A. A. Reznicek, E. G. Voss, & B. S. Walters. February 2011. University of Michigan. Web. Accessed March 8, 2013. http://www.michiganflora.net/

Mitchell, Richard S. and Gordon C. Tucker. 1997. Revised Checklist of New York State Plants. Contributions to a Flora of New York State. Checklist IV. Bulletin No. 490. New York State Museum. Albany, NY. 400 pp.

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, E.G. 1996. Michigan Flora. Part III. Dicots (Pyrolaceae-Compositae). Cranbrook Institute of Science Bulletin 61 and Univ. Michigan Herbarium. Ann Arbor, Michigan. 622 pp.