

Species Status Assessment

Common Name marsh fimbry **Date Updated:** 2024-03-15
Scientific Name *Fimbristylis castanea* **Updated By:** Gregory J. Edinger
Family Cyperaceae

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

Marsh fimbry (*Fimbristylis castanea*), also called fimbry, is a perennial graminoid in the Sedge Family (Cyperaceae). There are three species of *Fimbristylis* in NY and all are native to the state (Werier et al. 2023).

Marsh fimbry grows in coastal salt marshes from Long Island south to the panhandle of Florida and west to South Texas. In NY, this species is currently known from eastern Suffolk County. There are eight existing populations of marsh fimbry in NY and most of them have 50 to 100 plants with one very large population of thousands of plants. In NY, marsh fimbry has been found exclusively in high salt marshes, often at the landward edge, and in adjacent areas of open salt shrub vegetation (NYNHP 2023, 2024).

The invasion of Old World reed grass (*Phragmites australis*) is the largest threat to marsh fimbry populations, but inadvertent trampling by hikers is a minor threat at one location. Most marsh fimbry populations have been doing well in the short term. There have been no recent surveys of the smaller populations to determine trends. This plant has always been rare in NY and while 3 populations are considered extirpated others have been rediscovered. The trend may be downward in the future without control of Old World reed grass (*Phragmites australis*). There is a need for research into the factors that control the population size of marsh fimbry (NYNHP 2023, 2024).

I. Status

a. Current legal protected Status

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

b. Natural Heritage Program

i. Global: G5
ii. New York: S2 **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:

Fimbristylis castanea is Threatened in New York (Ring 2023). In NY, there are eight existing populations of marsh fimbry and most of them have 50 to 100 plants with one very large population of thousands of plants. There are three additional populations from the early 1900s that have not been rediscovered and three populations from the late 1800s which are considered extirpated (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	T	
Connecticut	No	-	-	-		
Massachusetts	No	-	-	-		
New Jersey	Yes	Unknown	Unknown	Unknown	S2	
Pennsylvania	Yes	Unknown	Unknown	Unknown	SNR	
Vermont	No	-	-	-		
Ontario	No	-	-	-		
Quebec	No	-	-	-		

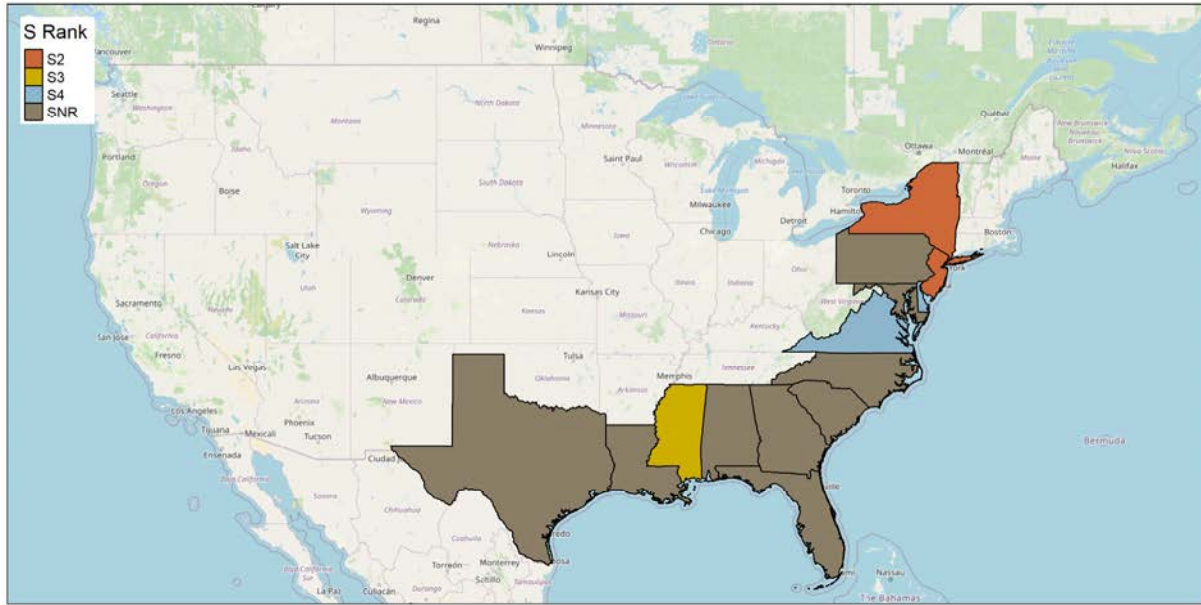


Figure 11: *Fimbristylis castanea* North American distribution.

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

Most marsh fimbry populations have been doing well in the short term. There have been no recent surveys of the smaller populations to determine trends. This plant has always been rare in New York and while three populations are considered extirpated others have been rediscovered. The trend may be downward in the future without control of Old World reed grass (*Phragmites australis*) (NYNHP 2023, 2024)

Details of historic and current occurrence

Marsh fimbry grows in coastal salt marshes from Long Island south to the panhandle of Florida and west to South Texas. There are some additional inland populations in North and South Carolina and Louisiana. It also extends south into Mexico and the West Indies. In NY, this species is currently known from eastern Suffolk County on Long Island and historically from Queens. There are old, unconfirmed reports from Staten Island and Westchester County (NYNHP 2023, 2024). There are an estimated 1000-2000 individuals in the state (NYNHP 2023).

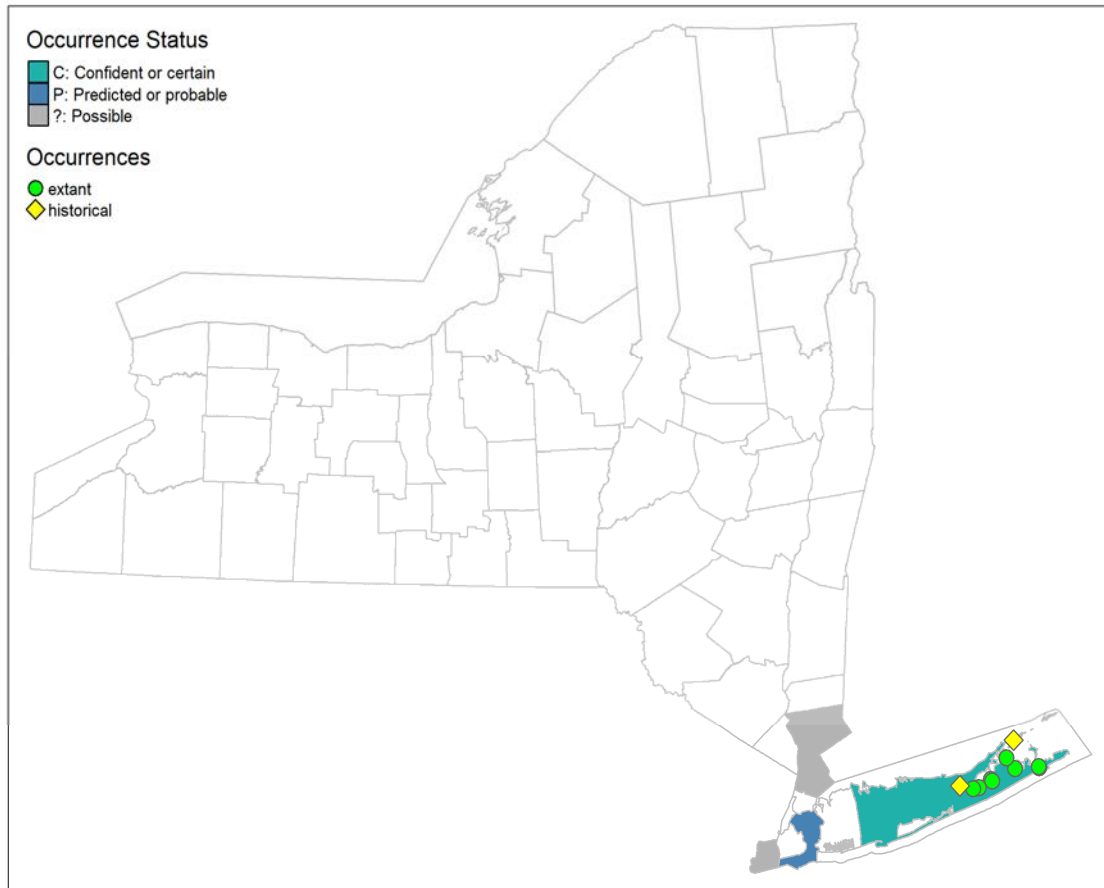


Figure 22: NYS distribution for *Fimbristylis castanea*.

Table 1. Number of records (element occurrences) of *Fimbristylis castanea* 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	9	9	0.9
1995-2004	4	4	0.4
2005-2014	3	3	0.3
2015-2023	2	2	0.2

Monitoring in New York

Two extant populations of marsh fimbry occur on State Park lands and are monitored on a ten-year rotation. None of the other populations have been regularly monitored. Two populations are on Suffolk County parkland and two are in preserves owned by The Nature Conservancy. The eight extant occurrences were last observed between 1987 and 2018 with five of those being last surveyed before the year 2000 (NYNHP 2023, 2024).

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

NYNHP Ecological Communities: High salt marsh, Salt shrub (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, marsh fimbry has been found exclusively in high salt marshes, often at the landward edge, and in adjacent areas of open salt shrub vegetation (NYNHP 2023, 2024). Salt marsh and brackish marshes inland (FNA 2002). Brackish coastal marshes, seldom in alkaline sites inland (Gleason and 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):*

In Florida dune swales, the halophytes, *Fimbristylis castanea* and *Paspalum distichum*, are replaced by *Eragrostis Elliottii* within 4 to 7 years after the beach tidepool is protected by a seaward dune ridge (Johnson 1997). Researchers in Florida found that *Spartina patens* excretes salts and allocates resources belowground, whereas *Fimbristylis castanea* maintains root-shoot and exhibits higher relative water content. Maintaining or allocating biomass below ground with increasing salinity may be important in future sea-level rise and saltwater intrusion scenarios as low-lying coastal systems are at higher risk of erosion. Reduction in plant size (aboveground biomass) may impact function of coastal grasslands (Kirschner and Zinnert 2020). Marsh fimbry demographic and life history information is lacking.

Table 2. Phenology of *Fimbristylis castanea* in New York State (NYNHP 2023).

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

VI. Threats

The impacts of Old World reed grass (*Phragmites australis*) establishment and spread is the largest threat to marsh fimbry populations, but inadvertent trampling by hikers is a minor threat at one location (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:

Control Old World reed grass (*Phragmites australis*) invasions in the salt marshes where marsh fimbry exists and prevent new populations from establishing. Natural buffers should be established around the salt marshes to decrease pollution runoff and other direct human disturbances (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 *Fimbristylis castanea*.

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 *Fimbristylis castanea*. Available from: <https://guides.nynhp.org/marsh-fimbry/>. Accessed January 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:

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.

Flora of North America Editorial Committee. 2002. *Flora of North America, North of Mexico*. Volume 23. Magnoliophyta: Commelinidae (in part): Cyperaceae. Oxford University Press, New York. 608 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.

Johnson, A. F. 1997. Rates of Vegetation Succession on a Coastal Dune System in Northwest Florida. *Journal of Coastal Research*, 13(2), 373–384. <http://www.jstor.org/stable/4298633> [Accessed 3/20/2024].

Kirschner, A. S., & Zinnert, J. C. 2020. Two low-lying coastal grassland species differ in mechanistic response to saline flooding stress. *Plant Ecology*, 221(6), 475–485. <https://www.jstor.org/stable/48741213> [Accessed 3/20/2024].

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.

USDA, Natural Resources Conservation Service, PLANTS Database [USDA PLANTS]. <http://plants.usda.gov/>. Accessed 2007.

USDA, NRCS. 2011. *The PLANTS Database* (<http://plants.usda.gov>, 25 January 2011). National Plant Data Center, Baton Rouge, LA 70874-4490 USA.