



Natural Heritage & Endangered Species Program

www.mass.gov/nhesp

Massachusetts Division of Fisheries & Wildlife

Two-flowered Rush *Juncus biflorus* Elliott

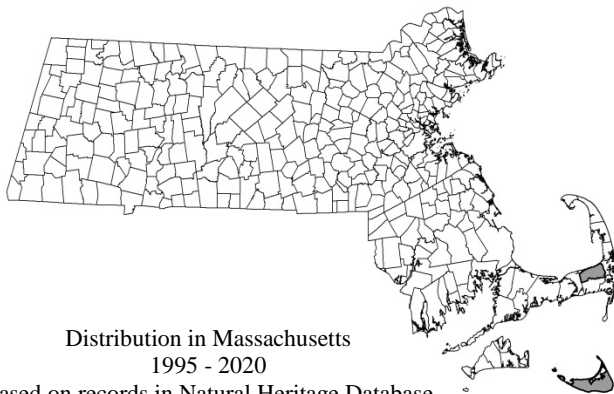
State Status: **Threatened**
Federal Status: **None**

GENERAL DESCRIPTION: Two-flowered Rush (*Juncus biflorus*) is a grass-like, perennial herb ranging in height from 1.5 to 3.5 feet (0.5 to 1.2 meters). It has an unbranched stem, with clusters of dark shiny fruits at the top. The stout, round stems thicken at the base and are attached to short thick rhizomes (underground stems). Stems arise singly from the rhizome, close to one another, but not in dense clusters. Unlike many rushes, this species has flat leaf blades, which are ¼ inch (4 - 6 mm) wide, with 5 veins.

AIDS TO IDENTIFICATION: To identify Two-flowered Rush and other members of the genus *Juncus*, a technical manual should be consulted. Rushes in the genus *Juncus* are distinguished by their small brown or green flowers, which have six tepals (three sepals and three petals that all look alike). They are also characterized by having dry fruit (a capsule) that splits open along three sutures. The Two-flowered Rush belongs to a group of rushes which have flat leaf blades and flowers borne in small clusters (glomerules) at the top of their stems.



Photo by Louise Barbeau



Distribution in Massachusetts
1995 - 2020

Based on records in Natural Heritage Database
Map updated 2020

Other characters to use to identify Two-flowered Rush include a pair of small bracts at the base of the flower clusters or glomerules. These small bracts are ovate with a sharp tip, compared to those on Grass-leaved Rush, a more common related species, which has lanceolate bracts which taper gradually to a sharp tip. The seed

A Species of Greatest Conservation Need in the Massachusetts State Wildlife Action Plan

Massachusetts Division of Fisheries & Wildlife

1 Rabbit Hill Rd., Westborough, MA; tel: 508-389-6300; fax: 508-389-7890; www.mass.gov/dfw

Please allow the Natural Heritage & Endangered Species Program to continue to conserve the biodiversity of Massachusetts with a contribution for 'endangered wildlife conservation' on your state income tax form, as these donations comprise a significant portion of our operating budget.

www.mass.gov/nhesp

capsule is sub-globose (a little longer than it is around) and is often flecked with red.

SIMILAR SPECIES: Members of this genus are difficult to distinguish from one another, and the Two-flowered Rush superficially resembles other rushes. This species was previously considered to be a variant of a common species, Grass-leaved Rush (*Juncus marginatus*). In 2008, research by Knapp and Naczi indicated that it is a separate species. This species is larger all around compared to Grass-leaved Rush. It is taller and has wider leaves (*See comparison table below*). Several flowering stems can arise from the same rhizome of Two-flowered Rush.



Photo by Louise Barbeau

HABITAT: Two-flowered Rush is found in association with Coastal Plain Pondshores and abandoned cranberry bogs. It is currently known only in Barnstable and Nantucket counties. The plants require the fluctuating water levels, such as in coastal plain ponds, to maintain their habitat sufficiently open. The preferred substrate is often wet peaty soil, but often includes sand as well. Plants in this habitat often grow more vigorously during years when water levels are lower. Several years with high water may depress the population.

Associated species include those typical of Coastal Plain Pondshore communities, including: Canada Rush (*Juncus canadensis*), Soft Rush (*J. effusus*), Sallow Sedge (*Carex lurida*), Northern Meadow-beauty (*Rhexia virginica*), Woolgrass (*Scirpus cyperinus*), *Sphagnum* spp., Canada Bluejoint Grass (*Calamagrostis canadensis*), Slender-leaved Flat-topped Goldenrod (*Euthamia caroliniana*), Swamp-candles (*Lysimachia terrestris*), Devil's Pitchforks (*Bidens frondosa*), Boneset (*Eupatorium perfoliatum*), and Poison Ivy (*Toxicodendron radicans*).

This species has also been observed in association with other rare plant species, including Redroot (*Lachnanthes caroliniana*), Wright's Panic-grass (*Dichanthelium wrightianum*), Plymouth Gentian (*Sabatia kennedyana*), Terete Arrowhead (*Sagittaria teres*), Long-beaked Beaksedge (*Rhynchospora scirpoides*), Pondshore Knotweed (*Persicaria puritanorum*) and Maryland Meadow-beauty (*Rhexia mariana*). Watch-listed Coastal Plain Pondshore plant species may also occur with Two-flowered Rush.

RANGE: Massachusetts is the only state in New England with Two-flowered Rush, where the species reaches its northeastern extent. It extends south to Florida and west to Texas and Missouri, and northwest to Ontario.

POPULATION STATUS IN MASSACHUSETTS: Two-flowered Rush is listed under the Massachusetts Endangered Species Act as Threatened. All listed species are protected from killing, collecting, possessing, or sale, and from activities that would destroy habitat and thus directly or indirectly cause mortality or disrupt critical behaviors. In Massachusetts, Two-flowered Rush is found only in the southeast in Barnstable and Nantucket Counties. It has not been observed in Dukes

A Species of Greatest Conservation Need in the Massachusetts State Wildlife Action Plan

Please allow the Natural Heritage & Endangered Species Program to continue to conserve the biodiversity of Massachusetts with a contribution for 'endangered wildlife conservation' on your state income tax form, as these donations comprise a significant portion of our operating budget.

County (Martha’s Vineyard), or Bristol or Plymouth counties and additional surveys are needed.

MANAGEMENT RECOMMENDATIONS: Potential threats for all coastal plain pond plant species include potential destruction by anthropogenic activities: trampling, altering the hydrology of the ponds, addition of non-native species to the pond, etc. Another threat is the growth of dense shrubs and trees to the edge of the water, shading out potential habitat for the herbaceous coastal plain pond species such as Two-flowered Rush. These may include native species such as Tupelo (*Nyssa sylvatica*), Highbush Blueberry (*Vaccinium corymbosum*), Northern Arrowwood (*Viburnum dentatum*), Sweet Pepperbush (*Clethra alnifolia*), Water-willow (*Decodon verticillatus*), Common Greenbrier (*Smilax rotundifolia*), and Smooth Alder (*Alnus serrulata*). Invasive plants are also a concern, particularly Gray Willow (*Salix cinerea*), which tolerates high water for long periods, and Glossy Buckthorn (*Frangula alnus*), Multiflora Rose (*Rosa multiflora*), Common Reed (*Phragmites australis*), and cattails (*Typha* spp.) Climate change and wide swings in the

water levels of coastal plain ponds may depress or eliminate populations.

All active management of rare plant populations (including invasive species removal) is subject to review under the Massachusetts Endangered Species Act, and should be planned in close consultation with the Massachusetts Natural Heritage and Endangered Species Program.

MATURE FRUITS PRESENT:

Jan	Feb	Mar	Apr	Ma	Jun	Jul	Aug	Sep	Oct	Nov	Dec

REFERENCES:

Haines, A. 2011. *Flora Novae Angliae*. Yale University Press, New Haven, CT. New England Wild Flower Society, Framingham, MA.
 Knapp, W.M., and R.F.C. Naczi. 2008. Taxonomy, Morphology, and Geographic Distribution of *Juncus longii* (Juncaceae). *Systematic Botany* 33(4): pp. 685-694.

Comparison	Leaves flat, width	# of glomerules	Lowest leaf sheath length	Plant height	Anthers	Width at Base of stem
Two-flowered rush, <i>Juncus biflorus</i>	2.6 to 5.4 mm (5 veins)	20 to 200	32 to 97 mm	27.2 to 100 cm	exerted beyond tepals	3.4 to 12 mm
Grass-leaved Rush, <i>Juncus marginatus</i>	1.3 to 3.5 mm (3 veins)	2 to 30	17 to 47 mm	19.2 to 56.8 cm	concealed by tepals	0.4 to 6 mm

A Species of Greatest Conservation Need in the Massachusetts State Wildlife Action Plan

Please allow the Natural Heritage & Endangered Species Program to continue to conserve the biodiversity of Massachusetts with a contribution for ‘endangered wildlife conservation’ on your state income tax form, as these donations comprise a significant portion of our operating budget.