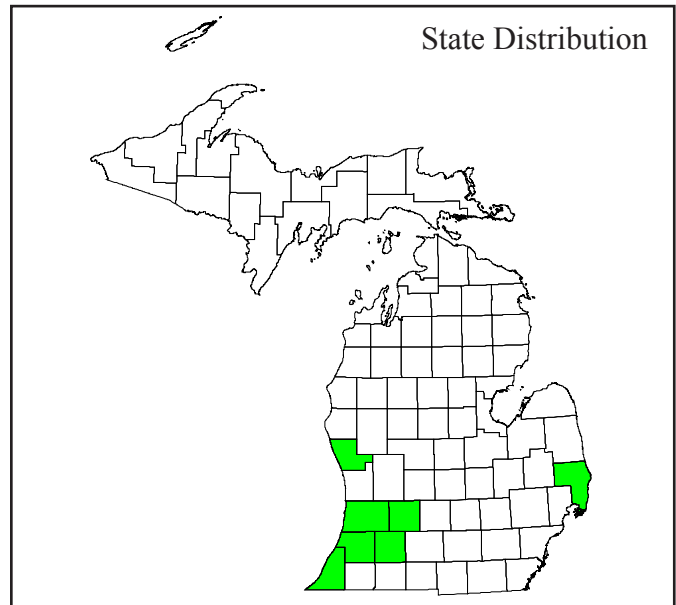
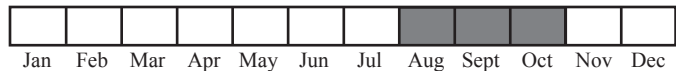


Photo by Bradford S. Slaughter



Best Survey Period



Status: State threatened

Global and state rank: G5/S2

Other common names: needle-pod rush; round-headed rush

Family: Juncaceae (rush family)

Synonyms: *Juncus echinatus* Muhl.; *J. scirpoides* var. *compositus* R.M. Harper; *J. scirpoides* var. *genuinus* Buchenau; *J. scirpoides* var. *macrostemon* Engelm.; *J. scirpoides* var. *meridionalis* Buchenau

Taxonomy: The Juncaceae is a family of ca. 350 rhizomatous or cespitose, sedge-like herbs characterized by terete or grass-like leaves (or leaves absent), inflorescences of headlike clusters or single bisexual, radially symmetrical flowers with 3 or 6 stamens and 1 pistil, and loculicidal (dehiscing along the midrib), 3-valved capsules. Nine genera (2 in North America) occur in this family. Within the genus *Juncus*, scirpus-like rush is placed in the subgenus *Septati*, a group of ca. 80 species that consists of species that (usually) lack bracteoles, bear terete or compressed, septate leaves, and produce small capsules with seeds untailed or bearing short tails (Gleason and Cronquist 1991, FNA Editorial Committee 2000).

Range: Scirpus-like rush is primarily a species of the Atlantic and Gulf coastal plains, ranging from Rhode Island south to Florida, and west in the interior to Kentucky, Missouri, Oklahoma, and Texas, with outlying populations in Kansas and Nebraska in the central United States and Illinois, Indiana, and Michigan in the Great Lakes region. The species is considered vulnerable in Nebraska, imperiled in West Virginia, Indiana, Michigan, and Kansas, and critically imperiled in New York, Pennsylvania, and Illinois (NatureServe 2009).

State distribution: Scirpus-like rush is known from approximately 20 occurrences concentrated in western Lower Michigan, where the species has been documented from Berrien, Van Buren, Kalamazoo, Allegan, Barry, and Muskegon counties. The species is also known from two sites in St. Clair County in southeastern Michigan.

Recognition: Scirpus-like rush is a **slender, erect, perennial rhizomatous herb** to 80 cm, bearing **terete, regularly cross-partitioned leaves** 1-2 mm in width. The inflorescence is a **terminal, compact to divaricately branched panicle** of one to 20 or more **globose or lobed heads** 8-12 mm thick, each of which contains 20-60 flowers. Flowers lack prophylls (bracteoles), and consist of **green to straw-colored**



lance-subulate tepals 2-3.5 mm long bearing acuminate apices and **3 stamens**. Fruits are **slender, exserted, 1-locular capsules** to 3-4 mm long that taper gradually to a **prominent beak 0.5-1 mm long that equals or exceeds the tepals**. Capsules remain **united at the apex after dehiscence**. Oblong, **yellow-brown seeds lack tails**. Scirpus-like rush is superficially similar to several other *Juncus* species that bear multi-flowered heads. *Juncus canadensis* (Canadian rush) can be distinguished from scirpus-like rush by its seeds, which bear pale appendages or “tails” at each end. *Juncus torreyi* (Torrey’s rush) bears 6 stamens (as opposed to 3 stamens in *J. scirpoides*) and has tepals 4-6 mm long and capsules measuring 4.3-5.7 mm with valves that separate at dehiscence. *Juncus nodosus* (joint rush) is similar to Torrey’s rush, but bears heads less than 1 cm wide and tepals 2.5-3.5 mm long.

Best survey time/phenology: Scirpus-like rush is most identifiable when it is in flower and fruit in August through October. In sterile condition, the species may be confused with several other rushes that bear terete leaves with hard cross-partitions.

FQI Coefficient and Wetland Category: 9, FACW+

Habitat: Scirpus-like rush is characteristic of seasonally moist or wet, peaty sands on lakeshores and in open wetlands on sandy soils that experience seasonal water table fluctuation, such as coastal plain marsh, interdunal wetland, intermittent wetland, wet-mesic sand prairie, lakeplain wet prairie, and lakeplain wet-mesic prairie. The species also occurs in moist, sandy excavations (e.g., borrow pits) that experience similar water level fluctuations. The sandy soils that support scirpus-like rush are acidic and often contain significant organic content. Characteristic associates include *Agalinis purpurea* (purple gerardia), *Aletris farinosa* (colic root), *Andropogon gerardii* (big bluestem), *A. virginicus* (broom-sedge), *Eleocharis melanocarpa* (spike-rush), *E. tricostata* (three-ribbed spike-rush), *Euthamia remota* (lakes flat-topped goldenrod), *Fimbristylis autumnalis* (autumn sedge), *Hypericum canadense* (Canadian St. John’s-wort), *Juncus biflorus* (two-flowered rush), *Liatis spicata* (marsh blazing star), *Lycopodiella subappressa* (northern clubmoss), *Panicum virgatum* (switch grass), *Pycnanthemum virginianum* (common mountain mint), *Rhynchospora capitellata* (beak-rush), *Spartina pectinata* (cordgrass), *Sorghastrum nutans* (Indian grass), *Spiraea tomentosa* (steeplebush),

Spiranthes cernua (nodding ladies’-tresses), *Viola lanceolata* (lance-leaved violet), *Xyris difformis* (yellow-eyed-grass) and *X. torta* (yellow-eyed-grass). One historic population was noted from an “open sandy oak grove,” likely remnant oak barrens. Associates of presumably similar dry sites in the Chicago region include *Carex muhlenbergii* (sedge), *Coreopsis palmata* (prairie coreopsis), *Cyperus filiculmis* (slender sand sedge), *Eragrostis spectabilis* (purple love grass), *Euphorbia corollata* (flowering spurge), *Hieracium gronovii* (hairy hawkweed), *Lechea villosa* (hairy pinweed), *Lespedeza capitata* (round-headed bush-clover), *Monarda punctata* (horsemint), and *Panicum oligosanthes* (panic grass) (Swink and Wilhelm 1994).

Biology: Scirpus-like rush is a rhizomatous perennial rush. Plants flower in summer and fruit in fall.

Conservation/management: Conservation of scirpus-like rush requires maintenance of groundwater and surface water dynamics. Hydrologic alteration, including shoreline modification, lake level stabilization, and dredging or substrate removal for the purposes of creating permanent bodies of water may result in shifts in community composition and structure, potentially eliminating habitat for scirpus-like rush. Use of off-road vehicles is another threat to the species. Off-road vehicles may directly destroy plants and/or alter their habitat by compacting soils, altering microtopography (and hydrology), disturbing the seed bank, and providing conduits for the establishment of invasive species. Measures to restrict off-road vehicle access should be undertaken at all sites that support scirpus-like rush and its sensitive habitat. Fire suppression may be another threat to scirpus-like rush. Several of the wetland types that support the species occur in fire-dependent landscapes that were historically characterized by oak barrens, oak-pine barrens, and oak-dominated or oak- and pine-dominated forests (Kost and Penskar 2000, Kost et al. 2007). Fires that burned these landscapes may have had a role in limiting establishment of aggressive perennials, shrubs and trees in embedded wetland habitats, particularly during long periods of dry conditions. Lack of fire may foster establishment of these aggressive species, which may eliminate habitat for scirpus-like rush. Occasional application of prescribed fire should be considered to manage habitat for scirpus-like rush and associated wetland and prairie species. Lack of fire may be mitigated by periods of high water, which kills trees and shrubs that do establish.



Comments: Michigan and northern Indiana populations of scirpus-like rush are somewhat disjunct from the core range of the species, which stretches along the Atlantic and Gulf coastal plains and inland locally to southern Indiana, central Illinois, and Missouri. Many of the Michigan sites that support scirpus-like rush are characterized as coastal plain marsh or wet-mesic sand prairie, both state-imperiled communities that support numerous other plant species that are disjunct from their core ranges in the coastal plain. One Indiana site is characterized by a series of interdunal pannes with bicarbonate-rich waters (Hiebert et al. 1986), indicating the species is not restricted to acidic substrates.

Research needs: The primary need is monitoring to assess the impacts of habitat management on populations of scirpus-like rush. Research on the impacts of fire and other management techniques on populations of the species will provide land stewards with methods for maintaining and enhancing populations. Research on the population biology of the species, including the drivers of population fluctuations and the importance of the seedbank in persistence of the species at a site during unfavorable hydrologic conditions, would improve conservation efforts, including assessments of population viability.

Related abstracts: Coastal plain marsh, interdunal wetland, intermittent wetland, lakeplain oak openings, lakeplain wet prairie, lakeplain wet-mesic prairie, oak barrens, round-fruited hedge hyssop, black-fruited spike-rush, chestnut sedge, few-flowered nut-rush, Gattinger's gerardia, gentian-leaved St. John's-wort, Hall's bulrush, meadow-beauty, mermaid-weed, northern appressed clubmoss, panicle screw-stem, pink milkwort, rose-pink, short-fruited rush, Skinner's gerardia, tall green milkweed, three-awned grass, Vasey's rush, whorled mountain-mint, American bitter, eastern massasauga, marsh wren, spotted turtle

Selected references:

- DeFilipps, R.A. 1964. A taxonomic study of *Juncus* in Illinois. *American Midland Naturalist* 71: 296-319.
- Flora of North America Editorial Committee, eds. 2000. *Flora of North America North of Mexico*, Volume 22: Magnoliophyta: Alismatidae, Arecidae, Commelinidae (in part), and Zingiberidae. Oxford University Press, New York. 352 pp.

Gleason, H.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.

Hiebert, R.D., D.A. Wilcox, and N.B. Pavlovic. 1986. Vegetation patterns in and among pannes (calcareous interdunal ponds) at the Indiana Dunes National Lakeshore, Indiana. *American Midland Naturalist* 116: 276-281.

Kost, M.A., and M.R. Penskar. 2000. Natural community abstract for coastal plain marsh. Michigan Natural Features Inventory, Lansing, MI. 5 pp.

Kost, M.A., D.A. Albert, J.G. Cohen, B.S. Slaughter, R.K. Schillo, C.R. Weber, and K.A. Chapman. 2007. *Natural Communities of Michigan: Classification and Description*. Michigan Natural Features Inventory, Report No. 2007-21, Lansing, MI. 314 pp.

NatureServe. 2009. NatureServe Explorer: An online encyclopedia of life [web application]. Version 7.1. NatureServe, Arlington, Virginia. Available <http://www.natureserve.org/explorer>. (Accessed: August 31, 2009).

Swink, F., and G. Wilhelm. 1994. *Plants of the Chicago Region*, 4th Ed. The Morton Arboretum, Lisle, IL. 921 pp.

Voss, E.G. 1972. *Michigan Flora. Part I: Gymnosperms and Monocots*. Cranbrook Institute of Science and University of Michigan Herbarium, Ann Arbor, MI. 488 pp.

Abstract citation:

Slaughter, B.S. 2009. Special Plant Abstract for scirpus-like rush (*Juncus scirpoides*). Michigan Natural Features Inventory, Lansing, MI. 3 pp.

Copyright 2009 Michigan State University Board of Trustees.

Michigan State University Extension is an affirmative-action, equal-opportunity organization.

Funding for abstract provided by the Michigan Department of Transportation.

