

Rhynchospora globularis

Globe Beaked-rush

Cyperaceae



Rhynchospora globularis by Theo Witsell, 2020

***Rhynchospora globularis* Rare Plant Profile**

New Jersey Department of Environmental Protection
State Parks, Forests & Historic Sites
Forests & Natural Lands
Office of Natural Lands Management
New Jersey Natural Heritage Program

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Life History

Rhynchospora globularis (Globe Beaked-rush) is a perennial sedge that grows in small tufts. The basal leaves are narrow (1–3 mm wide) and they often curl or twist. The culms, which are generally under 6 dm in height, may be erect or spreading. The spikelets are grouped into small clusters of 1–4 and the bristle-like bracts of the inflorescence generally don't extend beyond the outermost cluster. Multiple measurements may be required to distinguish *R. globularis* from the closely related *R. recognita*. On average, the spikelets of *R. globularis* are 2.5–3 mm long, scales of the fertile spikelets are 1.7–2.3 mm long, the stamens are 1.5 mm in length, and the achenes are 1.5–2.2 mm long (including the short tubercles, which consistently account for less than 0.5 mm of the total length). *R. recognita* is somewhat more robust overall, with slightly taller culms (6–10 dm), wider leaves (2–5 mm), more numerous spikelets and clusters, longer subtending bracts that surpass the outermost spikelets, and floral parts that are about 0.5–1.0 mm greater in length than those of *R. globularis*. *R. recognita* also has red-brown spikelets, while those of *R. globularis* are dark brown. (See Gale 1944, Fernald 1950, Gleason and Cronquist 1991, Kral 1999 & 2020). Some sources recognize multiple varieties of Globe Beaked-rush, with ours being var. *globularis*. The other subtaxa do not occur in New Jersey (see Synonyms section).



Left: Jake Smith, 2023. Right: Courtesy Peggy Romfh, Lady Bird Johnson Wildflower Center.

Rhynchospora globularis may flower and fruit from late spring to early fall (Kral 2020, Weakley et al. 2024). Plants in New Jersey have been found with mature achenes during late July and early August (NJNHP 2024).

Pollinator Dynamics

Most species in the Cyperaceae are wind-pollinated although insect pollination has been documented in a number of sedge genera, including *Rhynchospora*. Nearly all of the insect-pollinated sedges are also pollinated by wind (Goetghebeur 1998). Wind is the prevailing pollination mechanism for the majority of *Rhynchospora* species except for those in section

Dichromena: The flowers of plants in that group have pale, leafy involucre bracts, white glumes, and sticky pollen and use insects as their primary means of cross-fertilization (Lucero et al. 2014). Some New Jersey *Rhynchospora* species utilize a combination of insects and wind, but the floral morphology of *R. globularis* is indicative of wind pollination since the spikelets do not have any features that would be particularly attractive to insects (Buddenhagen et al. 2017, da Costa et al. 2021).

Seed Dispersal and Establishment

Rhynchospora seeds can be locally dispersed by gravity, wind, or water (Leck and Schütz 1994). Animals are probably the most important means of long-distance dispersal. *Rhynchospora* achenes are consumed by an assortment of ducks (McAtee 1918, Mabbott 1920, Stieglitz 1972). Gray et al. (1999a) selected *Rhynchospora globularis* for a productivity study because its seeds were so widely utilized by waterfowl, and achenes of the species are also commonly eaten by sparrows (Holimon et al. 2008). The dispersal of viable propagules following consumption by avian species has been well-documented in sedges. *Rhynchospora* propagules can also be transported to new locations on the muddy feet of migratory waterfowl, and the bristles at the base of the achenes permit them to adhere readily to feathers and fur (Leck and Schütz 2005, Bryson and Carter 2008).

Many species in the genus *Rhynchospora* maintain a persistent seed bank (Leck and Schütz 2005). Platt et al. (2006) observed that fire or canopy removal may stimulate the emergence of *R. globularis*. No further information was found regarding germination or establishment in Globe Beaked-rush but that does not appear to be a limiting life stage because it is reportedly one of the few *Rhynchospora* species that can become weedy (Bryson and Carter 2008).

Habitat

Rhynchospora globularis has been found in a variety of natural and artificial habitats but it does best in open sites with an abundance of light (Platt et al. 2006, Weakley et al. 2024). The sedge favors sandy or peaty depressions at elevations of 0–300 meters above sea level (Gale 1944, Kral 2020). Natural habitats include an assortment of herb-dominated wetlands including fens, wet meadows, prairies, savannas, streambanks, and sinkhole ponds (Gaddy 1982, Smith 1996, Morris 1997, Drew et al. 1998, Grace et al. 2000, Sorrie et al. 2006, Rosen 2007 & 2010, MacRoberts et al. 2009, Carr et al. 2010, Thomas 2017, Kral 2020). Allison and Stevens (2001) recorded the species on dolomite glades in central Alabama. *R. globularis* can also utilize an assortment of anthropogenic habitats such as old fields, clearings, borrow ponds, managed impoundments, road edges, and utility right-of-ways (Palmer 1970, Drew et al. 1998, Gray et al. 1999b, Shelingoski et al. 2005, Sorrie et al. 2006, Kral 2020, Weakley et al. 2024). New Jersey's only documented occurrence was situated in an abandoned gravel pit (NJNHP 2024).

Rhynchospora globularis is often found growing among assorted graminoid species, regularly co-occurring with the similar *R. recognita* or other member of the genus. Additional associates may include *Aletris farinosa*, *Calopogon tuberosus*, *Drosera intermedia*, *Ludwigia* spp.,

Polygala spp., *Spiranthes lacera*, or *Xyris torta* (Naczi et al. 1986, Morris 1988, McKenzie et al. 2009, Townsend and Ludwig 2020, NJNHP 2024). *R. globularis* appears to benefit from periodic fires that help to keep the canopy open (Carr et al. 2010, Glitzenstein et al. 2012, Townsend and Ludwig 2020).

Wetland Indicator Status

Rhynchospora globularis is a facultative wetland species, meaning that it usually occurs in wetlands but may occur in nonwetlands (U. S. Army Corps of Engineers 2022).

USDA Plants Code (USDA, NRCS 2025)

The code for *Rhynchospora globularis* is RHGL2. The USDA identifies it as *R. globularis* var. *globularis* (RHGLG).

Coefficient of Conservancy (Walz et al. 2020)

CoC = 6. Criteria for a value of 6 to 8: Native with a narrow range of ecological tolerances and typically associated with a stable community (Faber-Langendoen 2018).

Distribution and Range

The global range of *Rhynchospora globularis* includes parts of the United States, Cuba, and Jamaica. It is considered native in the central and eastern states but introduced in Hawaii and possibly in California (Bryson and Carter 2008, POWO 2025). Kral (2020) also noted its presence in Central America but did not identify any specific countries. The map in Figure 1 shows the extent of the sedge in North America. The California occurrences were depicted as false or unverified on another map provided by Kartesz (2015).

The USDA PLANTS Database (2025) shows records of *Rhynchospora globularis* in four New Jersey counties: Hunterdon, Mercer, Monmouth, and Warren (Figure 2). It has also been documented in Cape May County (NJNHP 2024). The data include historic reports and do not reflect the current distribution of the species.

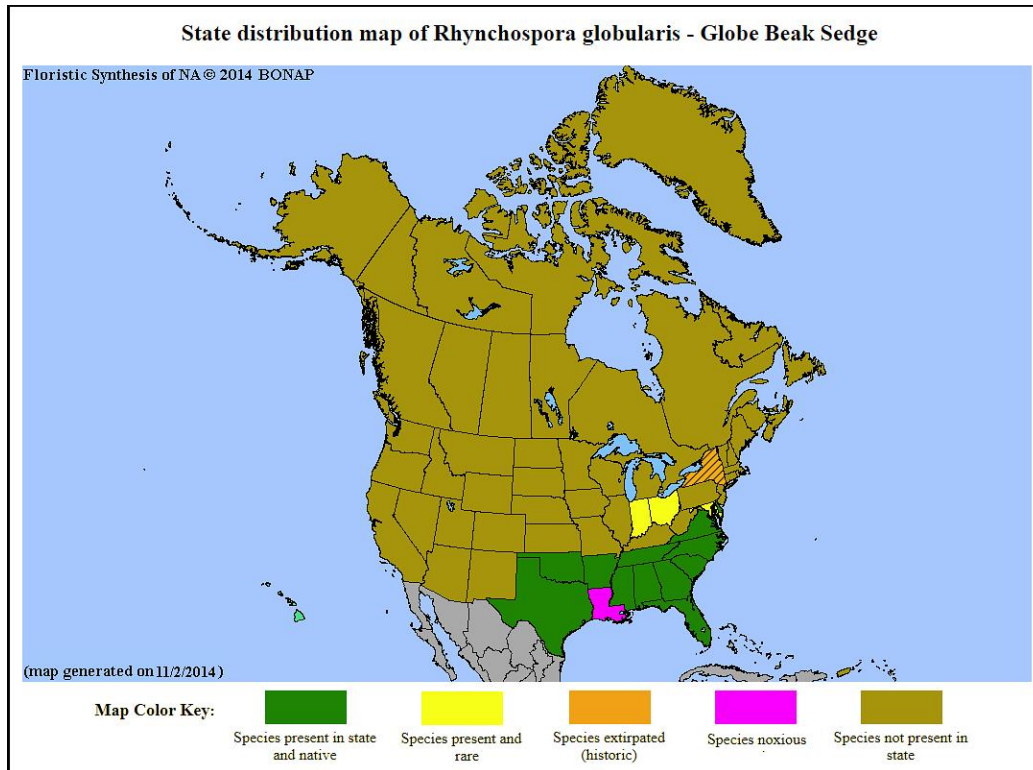


Figure 1. Distribution of *R. globularis* in North America, adapted from BONAP (Kartesz 2015). Cross hatching signifies a questionable presence.

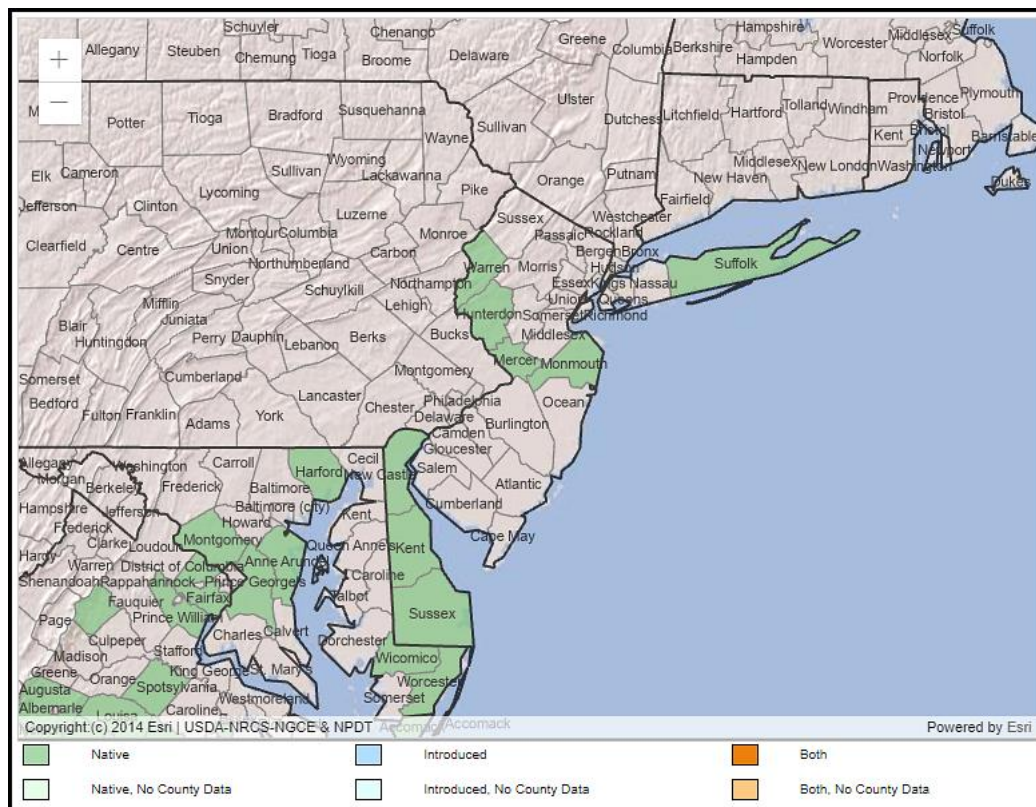


Figure 2. County records of *R. globularis* in New Jersey and vicinity (USDA NRCS 2025).

Conservation Status

Rhynchospora globularis is considered globally secure. The G5? rank means the sedge has a very low risk of extinction or collapse due to a very extensive range, abundant populations or occurrences, and little to no concern from declines or threats, although the question mark indicates that the status of the species is in need of review (NatureServe 2025). The map below (Figure 3) illustrates the conservation status of *R. globularis* throughout its range. The sedge is secure, apparently secure, or unranked in most of the places where it occurs but it is critically imperiled (very high risk of extinction) in two states. The species is also rare in several states where it has been identified as *R. globularis* var. *globularis*, and it is shown as critically imperiled in two of those (Delaware, Missouri) and imperiled (high risk of extinction) in Arkansas (NatureServe 2025).

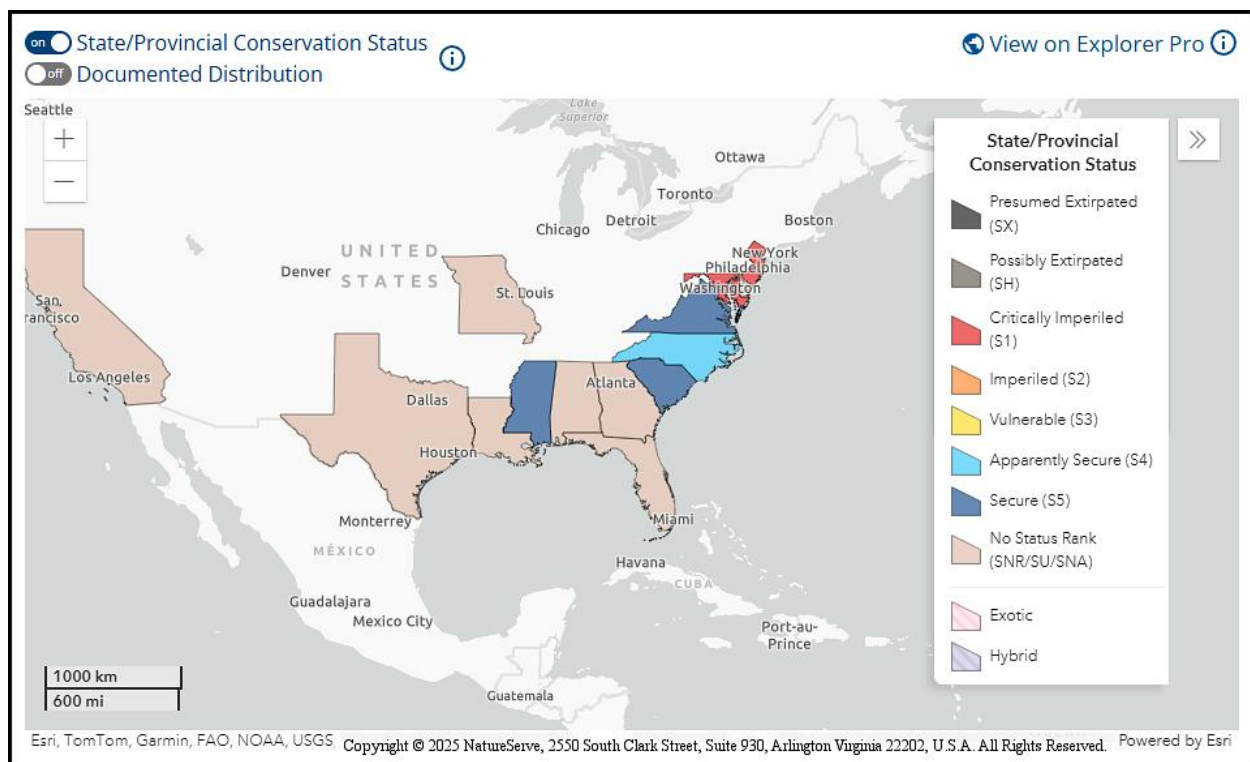


Figure 3. Conservation status of *R. globularis* in North America (NatureServe 2025).

Rhynchospora globularis is critically imperiled (S1) in New Jersey (NJNHP 2024). The rank signifies five or fewer occurrences in the state. A species with an S1 rank is typically either restricted to specialized habitats, geographically limited to a small area of the state, or significantly reduced in number from its previous status. *R. globularis* has also been assigned a regional status code of HL, signifying that the species is eligible for protection under the jurisdiction of the Highlands Preservation Area (NJNHP 2010).

Rhynchospora globularis is closely related to *R. recognita* and the two species have overlapping physical attributes, ranges and habitat preferences (Kral 2020). Before *Rhynchospora recognita* was described as a distinct species by Kral (1999) it was viewed as a variety of *R. globularis*. Any historical observations of *R. globularis* in New Jersey would likely have been identified as

var. *recognita* because var. *globularis* was thought to reach the northern limit of its distribution in Delaware (Gale 1944, Fernald 1950, Snyder and Vivian 1981, Hough 1983, Gleason and Cronquist 1991). *Rhynchospora recognita* is also critically imperiled in New Jersey, and close examination of one population during a monitoring visit resulted the first (and only) documented occurrence of *R. globularis* in the state (NJNHP 2024, Hafstad 2025).

Threats

The primary threat to *Rhynchospora globularis* throughout its range is habitat loss or degradation (NatureServe 2025). The amount of suitable habitat for New Jersey's sole known population has already been considerably reduced by natural succession, and the site where it occurs has been targeted for development in the near future (NJNHP 2024, Hafstad 2025).

Many *Rhynchospora* species are susceptible to smut fungi, and that is likely the case for *R. globularis*. *Cintractia montagnei* var. *major* has been documented on the closely related *Rhynchospora recognita* as well as other members of the genus. *Cintractia* species and similar smuts typically infect the ovaries of the sedge plants, where they are completely concealed by the glumes, and eventually fill the spikelets with a powdery blackish-brown spore mass (Ling 1950, Vánky 2010). When smut fungi attack the floral parts of graminoid species they generally destroy the seeds entirely (Fischer 1953), and Clark (2003) reported that smuts observed on other beak-sedges resulted in deformed spikelets that did not produce any achenes.

Herbivory by White-tailed Deer, which can take an outsized toll on small plant populations, does not appear to pose a significant threat to *Rhynchospora globularis*. Pickering et al. (2024) indicated that sedges are generally non-preferred browse material, and Duvall and Linnartz (1967) found that grazing had little effect on *R. recognita*.

Climate Change Vulnerability

Information from the references cited in this profile was used to evaluate the vulnerability of New Jersey's *Rhynchospora globularis* population to climate change. The species was assigned a rank from NatureServe's Climate Change Vulnerability Index using the associated tool (Version 3.02) to estimate its exposure, sensitivity, and adaptive capacity to changing climactic conditions in accordance with the guidelines described by Young et al. (2016) and the state climactic computations by Ring et al. (2013). Available data indicated that *R. globularis* is Moderately Vulnerable, meaning that it is likely to show some decrease in abundance or range extent in New Jersey by 2050, but the conclusion was reached with a low level of confidence due to insufficient information about the species' ecological requirements.

As the climate continues to warm, plant communities in New Jersey are increasingly exposed to higher temperatures, altered precipitation patterns that increase the frequency and intensity of local droughts and floods, and rising sea levels along the coast (Hill et al. 2020). The state's only known population of *Rhynchospora globularis* is located close enough to the coast to elevate its chances for exposure to storm-related tidal inundation or greater soil salinity (NJ Adapt 2025).

The sedge may have some capacity to withstand such episodes: For example, *Rhynchospora globularis* has been documented in sites that remain flooded for part of the year (Gray et al. 1999b) and has been found growing in some saline habitats (Holimon et al. 2008, MacRoberts et al. 2009). Unfortunately, the inconsistent recognition of subtaxa throughout the species' range makes it difficult to ascertain whether particular conditions reported for *R. globularis* in some other locations would be tolerated by New Jersey plants. The natural distribution of the sedge suggests that it will adapt to warmer temperatures but no information was found regarding its ability to withstand droughts. The proliferation of invasive flora is expected to become an even greater threat to native communities in the northeast as a result of climate change (Bellard et al. 2013, Salva and Bradley 2023), and that is likely to reduce the availability of suitable habitat for Globe Beak-sedge.

Management Summary and Recommendations

Since the only confirmed population of *Rhynchospora globularis* in New Jersey is in a place where it cannot be protected, the future of the species in the state appears to depend on its potential to occur in locations other than the one from which it is currently known. Hafstad (2025) pointed out the need to reexamine older state records and specimens that were identified as *R. recognita* before a clear distinction between the two species was established. Surveys of historical locations and potential habitat might turn up additional extant populations of one or both of the state-endangered sedges.

The characterization of *Rhynchospora globularis* as a weedy species (Bryson and Carter 2008) suggests that it may have some potential for northward range expansion in response to warmer temperatures and a longer growing season, but research is needed to evaluate the ways that climactic conditions can affect the sedge during its various life stages. As noted in the following section, there are also a few outstanding taxonomic questions that require resolution.

Synonyms

The accepted botanical name of the species is *Rhynchospora globularis* (Chapm.) Small. Orthographic variants, synonyms, and common names are listed below (Kral 2020, ITIS 2025, POWO 2025). Although *Rhynchospora obliterata* is shown as a synonym of *R. globularis* by a number of authors, Weakley et al. (2024) view it as a distinct species and Kartesz (2015) lists it as a synonym of *R. recognita*. Certain described varieties of *R. globularis* (var. *pinetorum*, var. *saxicola*) are now treated as separate species by some sources (Kartesz 2015, Weakley et al. 2024) but not by others (e.g. ITIS 2025, POWO 2025, USDA NRCS 2025).

Botanical Synonyms

Rhynchospora obliterata Gale
Rhynchospora globularis var. *obliterata* (Gale) Kük

Common Names

Globe Beaked-rush
 Globe Beaksedge

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