



## Natural Heritage & Endangered Species Program

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Massachusetts Division of Fisheries & Wildlife

## Wright's Rosette-grass *Dichanthelium wrightianum* (Scribner) Freckmann

State Status: **Special Concern**

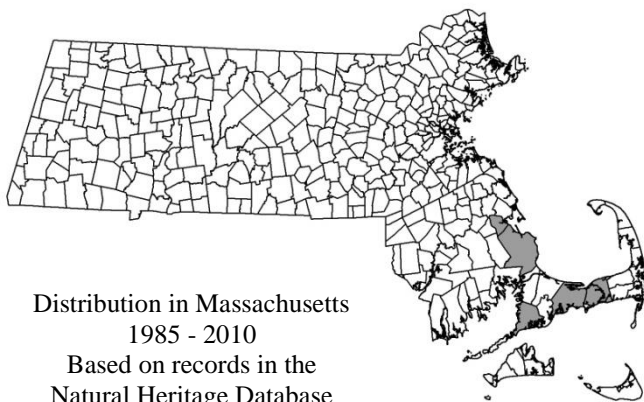
Federal Status: **None**

**DESCRIPTION:** Wright's Rosette-grass is a small, perennial grass (family Poaceae) of coastal plain pond shores in Massachusetts. One to several erect culms (stems) 15 to 50 cm tall arise from a basal rosette of short, ovate-lanceolate leaves which differ morphologically from the ascending to spreading narrowly lanceolate stem leaves. *Dichanthelium* means twice flowering, referring to a vernal (early season) phase with panicles (branched inflorescence) from upright stems and an autumnal (late season) phase with more profuse branching on sometimes decumbent stems. Like many other coastal plain pond associates, this species may be dormant during periods of high water, and seeds may persist in the seed bank; then, in years where the water levels drop enough to expose the shoreline habitat, Wright's Rosette-grass may appear in abundance.

**AIDS TO IDENTIFICATION:** Mature panicles with spikelets are necessary for identification. Wright's Rosette-grass has panicles 2.5 to 5.5 cm long, with a width that is 1/3 to 2/3 the length. The minute spikelets,



Photo showing the panicles and plant habit by Bruce A. Sorrie, NHESP.



Spikelet and seed illustration: Hitchcock, A.S. (rev. A. Chase). 1950. *Manual of the grasses of the United States*. USDA Miscellaneous Publication No. 200. Washington, DC. from USDA-NRCS PLANTS Database.

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

## Massachusetts Division of Fisheries & Wildlife

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which include two glumes (lower bracts) at the base of a single floret (lemma and palea), are 0.8 to 1.1 mm long. These can be puberulent (minute, soft hairs) to subglabrous (almost without hairs) and may be purplish in color. The cauline (stem) leaves are 2 to 4.5 cm × 2 to 5 mm, puberulent on the underside, and with finely appressed hairs on the upper side. The ligule is hairy, 1.5 to 3 mm. The nodes are slightly swollen and can be dark green or purplish.

**SIMILAR SPECIES:** Wright's Rosette-grass habitats often have several congeners and other similar grasses growing in them. The most outstanding differentiating character of the rare grass is its very small spikelets; also, it tends to be smaller overall than any other grass species found growing with it.

The most common similar species found are the following: Fascicled Rosette-grass (*Dichanthelium acuminatum* ssp. *fasciculatum*), Tangled Rosette-grass (*D. acuminatum* ssp. *implicatum*), Smooth Rosette-grass (*D. acuminatum* ssp. *spretum*), Warty Rosette-grass (*Panicum verrucosum*), and Northern Muhly (*Muhlenbergia uniflora*). See the chart below for differentiating characters.

**HABITAT IN MASSACHUSETTS:** In Massachusetts, Wright's Rosette-grass inhabits moist, acidic, peaty to sandy, coastal plain pond shores, often in low, dense herbaceous vegetation. Coastal plain ponds have no inlet or outlet, and are fed by groundwater and precipitation; they are characterized by pronounced water level fluctuations, acidic, nutrient-poor water and substrate, and (in periods of draw-down), an open, exposed

shoreline populated primarily by herbaceous plants. Associated plant species include several other species of conservation concern that are restricted in Massachusetts to coastal plain ponds; for example, Slender Marsh Pink (*Sabatia campanulata*; Endangered), Plymouth Gentian (*Sabatia kennedyana*; Special Concern), Pink Tickseed (*Coreopsis rosea*; Watch List), Black-fruited Spike-sedge (*Eleocharis melanocarpa*; Watch List), Annual Umbrella-sedge (*Fuirena pumila*; Watch List), and Hyssop Hedge-nettle (*Stachys hyssopifolia*; Watch List). Other, more common associated species include Thread-leaf Sundew (*Drosera filiformis*), Round-leaved Sundew (*D. rotundifolia*), Large Cranberry (*Vaccinium macrocarpon*), and *Sphagnum* spp.

**PHENOLOGY:** This species will grow and fruit when the water levels drop low enough to expose the dormant plants and the seed bank. In droughty years, this may occur as early as July, and in years when low water occurs in late summer, this may occur into October; however, most observations of fruiting plants are made in August and September. Vernal stems can potentially be observed from June through September, and autumnal forms from July into November.

**RANGE:** This species is known from Massachusetts south along the Atlantic coastal plain to Florida, and south to northern South America. It is at the northernmost part of its range in Massachusetts. It has not been found in Connecticut but has been documented from Rhode Island.

Species	Spikelet size	Leaf and sheath
Wright's Rosette-grass	0.8–1.1 mm	puberulent (no papillose hairs)
Fascicled Rosette-grass	1.5–2 mm	papillose hairs
Tangled Rosette-grass	1.1–1.6 mm	papillose hairs
Smooth Rosette-grass	1.3–1.9 mm	glabrous
Warty Rosette-grass	1.6–2 mm, warty	glabrous
Northern Muhly	1.3– 2.1 mm, purplish, sometimes 2 florets	short, hairy above, glabrous to slightly scabrous beneath

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**POPULATION STATUS IN MASSACHUSETTS:**

Wright's Rosette-grass is known only from Barnstable and Plymouth Counties on coastal plain pond shores. This Species of Special Concern and 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.

**THREATS/MANAGEMENT**

**RECOMMENDATIONS:** Preservation of Wright's Rosette-grass requires protection of the natural hydrology, water quality, and soil integrity of its habitat. Like other coastal plain pond shore species, it requires pronounced water-level fluctuations and acidic, nutrient-poor water and substrate free from major soil disturbance. Threats include water table drawdown from municipal wells, eutrophication resulting from nutrient inputs from septic systems, pet waste, and lawns, and trampling and soil disturbance due to recreational use of pond shores (i.e., ATVs, hiking, sunbathing, swimming, fishing, boat-launching, and raking or digging). Protection of Wright's Rosette-grass may require exclusion of new wells and septic systems, prohibitions on fertilizer use, and restrictions on recreational use of the pond shores. Recreational activities should be diverted from plant population locations by providing alternative locations for these activities.

Also, habitats should be monitored for exotic plant species invasions. The nature of coastal plain ponds makes them generally inhospitable to many exotic plants. However, they can become established at sites that have soil disturbance or heavy nutrient inputs. Exotic species that are known from the shoreline of coastal plain ponds include Common Reed (*Phragmites australis* ssp. *australis*), Gray Willow (*Salix cinerea*), and Purple Loosestrife (*Lythrum salicaria*).

The conservation of this species would benefit from further study of the methods of seed dispersal and colonization of ponds. Appropriate habitat in which Wright's Rosette-grass is undocumented should be searched, especially in low-water years.

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 & Endangered Species Program.

**Range of Time in Which Mature Florets May Be Present in Massachusetts**

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

Updated 2019

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