Muhlenbergia richardsonis (Trin.) Rydb.

mat muhly



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Status: State threatened

Global and state rank: G5/S2

Other common names: muhly grass

Family: Poaceae (grass)

Synonyms: Muhlenbergia brevifolia (Nutt.) Nash.

Total range: *Muhlenbergia richardsonis* is abundant in the western prairies, and extends from the Yukon south to California and New Mexico, ranging eastward to Nebraska, Minnesota, Wisconsin, and Michigan. It also occurs through southern Canada to Anticosti Island in the Gulf of St. Lawrence, and south to Maine.

State distribution: Approximately a dozen records for mat muhly are scattered across southern Lower Michigan, the majority of these identified within the last two decades. In the Lower Peninsula this species is found primarily within the glacial interlobate region, where it forms a local groundcover in high quality prairie fens. One Washtenaw County site, a small local fen, has been badly degraded and is probably not viable. In the Upper Peninsula, this species is also found in localized abundance along portions of the Escanaba River in Delta County, where it occurs on alvar, and from a single site in Mackinac County, where it is found in a marl fen. An 1895 Farwell collection from Keweenaw County is considered by Voss (1972) to be suspicious, possibly representing an introduction from the West.

Recognition: *Muhlenbergia richardsonis* is a very slender, wiry grass that grows in loose to dense tufts or





Best Survey Period

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mats, sometimes forming a sod. The stems, which may reach 2-6 dm in height, arise from the prostrate bases of old stems or occasionally from stolons (horizontal aboveground stems), but not from rhizomes (underground stems), which are lacking in this species. The wiry, narrow, 1-2 m wide stem leaves are erect to ascending and infolded, with ligules (at the innter juncture of leaf sheath and blade) 1.5-3 mm long. Inflorescences, which are produced terminally, consist of several short, narrow, ascending, panicles. Tiny one-flowered spikelets (2.4-3.5 mm long), are borne on stalks less than twice their length. The glabrous and long tapering lemmas (tiny bracts at the base of on individual floret) lack hairs at their base.

M. cuspidata (plains muhly), a similar species known only from a 19th century collection in Keweenaw County (from rocky bluffs) has lemmas with minute hairs and ligules shorter than 0.5 mm. *M. uniflora*, a species that might occur with *M. richardsonis* in Upper Michigan, is a considerably smaller plant easily distinguished by its broad open panicle. All of our other species of *Muhlenbergia* can be distinguished by the presence of relatively long hairs at the base of the lemma.

Best survey time: This slender grass develops flowering stalks in the late summer, which may be visible by early August. However, this species is best sought from about mid-August through October.

Habitat: In southern Michigan, this species typically occurs in prairie fens (alkaline peatlands), often forming a dense turf with other prairie grasses such as *Andropogon gerardii* (big bluestem), *A. scoparius* (little bluestem), *Sorghastrum nutans* (Indian grass), and *Sporobolus*

heterolepis (prairie dropseed). Other frequent and characteristic associates include Potentilla fruticosa (shrubby cinquefoil), Larix laricina (larch), Salix candida (hoary willow), Carex buxbaumii (Buxbaum's sedge), C. stricta, (strict sedge), C. sterilis (sedge), C. sartwellii (sedge), C. prairea (sedge), Solidago ohioensis (Ohio goldenrod), Hierochloe odorata (sweet grass), S. riddellii (Riddell's goldenrod), *Muhlenbergia glomerata* (muhly grass), Eupatorium perfoliatum (boneset), E. maculatum (joe-pye-weed), and *Thelypteris palustris* (marsh fern), among numerous other forbs and woody plants. In Upper Michigan, *M. richardsonis* forms a dense turf with prairie dropseed on portions of the Escanaba River alvar, a globally rare, prairie-like grassland community that forms a thin turf of vegetation over limestone and dolomite bedrock. In other portions of its range, mat mully occurs in a variety of wet to dry, usually alkaline habitats and also in sandy prairies (Hitchcock 1951).

Biology: Mat muhly is a warm-season perennial, commencing growth relatively late in the spring and flowering from about mid-July through September. Fire is an important component of this species' ecology. Anderson and Bailey (1980) found that after annual spring burns on grassland in Alberta, *M. richardsonis* responded with increased seed head production.

Conservation/management: The Mackinac County locality lies in a proposed Research Natural Area within Hiawatha National Forest, and a Washtenaw County population is in a county nature park. Other colonies are partly or wholly on private land, several being maintained under informal protection agreement, and some populations are protected within preserves of The Nature Conservancy and other private organizations.

This species benefits from fire, as described above. Prescribed burning is also frequently important in southern Michigan fen habitats to control shrubs, which without management may encroach vigorously to the detriment of several plant and animal species.

Research needs: Monitoring to determine the response to prescribed fire and other management regimes is a principal research need at present. *Muhlenbergia richardsonis* is known in one southern Michigan State Game Area to support a newly described leafhopper (*Flexamia huroni* Hamilton & Bess); further inventories are thus necessary to determine the range and status of the leafhopper and its relationship and natural history with regard to *Muhlenbergia*.

Related abstracts: prairie fen, edible valerian, English sundew, prairie dropseed, prairie Indian plantain, small white lady's-slipper, Mitchell's saytr

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Abstract citation

Penskar, M.R. and P.J. Higman. 1999. Special plant abstract for *Muhlenbergia richardsonis* (mat muhly). Michigan Natural Features Inventory, Lansing, MI. 2 pp.

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Funding for abstract provided by Michigan Department of Natural Resources - Wildlife Division.

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