

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 muhly 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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