

Michigan's natural communities



PRAIRIE FEN

Global and state rank: G3/S3

conservation profile

Locations of Prairie Fens (Conservancy Owned)

- Blue Creek Fen
- Bakertown Fen
- Paw Paw Prairie Fen
- Ives Road Fen Preserve
- Grand River (Liberty) Fen Preserve
- Nan Weston Nature Preserve at Sharon Hollow (small patches)
- Dayton Prairie
- Tamarack Swamp

Locations of Prairie Fens (Conservancy Partnerships)

- Shiawassee Basin
- Park Lyndon
- Concord Fen
- Faye Lake
- Skiff Lake
- MacCready Reserve
- Golden Preserve

Indicator Species

- Tamarack
- Poison sumac
- Grass-of-parnassus
- Shrubby cinquefoil
- Virginia mountain mint
- Ohio goldenrod
- Riddell's goldenrod
- Indian grass



Fens are home to many species including this carnivorous pitcher plant (*Sarracenia purpurea*). © Michael D-L Jordan



The Ives Road Fen Preserve near Tecumseh contains high quality prairie fen. © D. Scott Boven

What is a Prairie Fen?

Prairie fens result when outwash plains, moraines, and ice ridges have increased hydraulic conductivity, forcing the groundwater to the surface. The groundwater can form local springs or broad seeps or depressions around lake and stream edges. The wettest part of a prairie fen can have up to one foot of standing water. There is also a naturally occurring draining system which functions by diffusion through either surface flow or stream flow into small lakes, headwater streams, and rivers.

The groundwater that prairie fens produce is calcareous; meaning it is rich in calcium and magnesium bicarbonate. As groundwater flows through limestone bedrock or coarse textured glacial deposits it

dissolves calcium and magnesium ions. Once on the surface this bicarbonate forms marl, a calcium bicarbonate mud. As a result of the ionic groundwater, the vegetation is dominated by species that are adapted to living in an alkaline environment including tall grass prairie species, fringed gentian and a variety of sedges. As the grasses and sedges die they fall to the ground where they partially decompose before becoming part of the soil. Because the ground is constantly saturated decomposition is anaerobic (occurs in the absence of oxygen) and is therefore extremely slow. Eventually the vegetation forms sapric peat, which can vary from one foot to thirty-six feet deep.

Originally, fires started by the Native Americans or lightning strikes burned across the upland and spread into adjacent prairie fens. The fires burned surface vegetation which inhibited shrub encroachment and maintained the fen's open structure.

What is The Nature Conservancy doing?

The Nature Conservancy of Michigan is employing a variety of restoration actions to rehabilitate prairie fens including removing invasive species, conducting prescribed fires, and in some cases restoring natural water flow. To restore hydrology, drain tiles have been removed and ditches have been filled. The Nature Conservancy also utilizes manual, mechanical, and chemical methods to remove invasive species such as glossy buckthorn, purple loosestrife, reed canary grass, and phragmites. In addition, The Nature Conservancy's land managers are utilizing prescribed fire to restore native species, and reintroduce a natural process on which fen species depend.



Conservancy staff collect seeds at Grand River Fen Preserve to be used in restoration projects. © Michael D-L Jordan

Research Needs

- What are the vegetational differences of structure and species diversity?
- Why does fen structure and species diversity vary across the region?
- What is the historical fire frequency? (This is needed to determine when to produce controlled fires.)
- What are the varying degrees of hydrological disruption that effect patterns of prairie fen vegetative structure?
- What are the associations of rare species that exist within prairie fens?
- What are the most effective management practices to restore flora (plants)and fauna (animals)?

Global and State Ranks	
G1 S1	At high risk because of extremely limited and/or rapidly declining numbers or range, making it highly vulnerable to global extinction or extirpation.
G2 S2	At risk because of very limited and/or declining numbers, range, and/or habitat, making it vulnerable to global extinction or extirpation.
G3 S3	Potentially at risk because of limited and/or declining numbers, range, and/or habitat, even though it may be abundant in some areas.
G4 S4	Uncommon but not rare, and usually widespread. Apparently not vulnerable in most of its range, but possibly cause for long-term concern.
G5 S5	Common, widespread, and abundant. Not vulnerable in most of its range.

The Nature Conservancy is an international, private, nonprofit organization whose mission is to preserve the plants, animals and natural communities that represent the diversity of life on Earth by protecting the lands and waters they need to survive.

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