



Wetlands: Fen

Description

Fens are peat-accumulating wetlands that receive much of their water and nutrients from groundwater rich in calcium and magnesium carbonates. Fens tend to have relatively high pH and nutrient levels, hence supporting a great diversity of grasses, sedges (*Carex sp.*), rushes (*Juncus sp.*), and wildflowers. Open conditions are maintained by seasonal water fluctuations, fire, and beaver-flooding.

General Condition of Feature

This habitat is considered 100% in good to excellent condition.

Associated Natural Communities

Northern Fen
Patterned Fen
Poor Fen

Associated Species of Greatest Conservation Need

INSECTS

muskeg damer (*Aeshna subarctica*)
incurvate emerald dragonfly (*Somatochlora incurvata*)
ebony boghaunter (*Williamsonia fletcheri*)
ringed boghaunter (*Williamsonia lintneri*)
Subarctic bluet (*Coenagrion interrogatum*)

FISH

Specific associations with this landscape feature were not found in the literature

AMPHIBIANS

pickerel frog (*Rana palustris*)

REPTILES

eastern box turtle (*Terrapene carolina carolina*)

Associated Threats

MODIFICATION OF NATURAL PROCESSES

- Altered hydrologic regimes: Hydrologic alterations; Draining (low threat)
- Climate change: Water levels dropping due to climate change (low threat)

HABITAT CONVERSION

- Riparian modifications: Road construction; Development; Shoreline development and filling
- Wetland modifications: Draining

BIOLOGICAL INTERACTIONS

- Invasive plants and animals: (low threat)

Conservation Actions Needed (Threats addressed)

LAND & WATER PROTECTION

- Create and expand conservation easements (variety of threats)
- Support land conservancy purchase of undeveloped land (variety of threats)
- Support landowner incentive programs to foster conservation on private land (variety of threats)

LAND, WATER & SPECIES MANAGEMENT

- Close roads during breeding seasons or install tunnels along migration pathways to allow amphibians and reptiles access to breeding areas (riparian modifications, species issue)
- Control and prevent invasive aquatic species introductions and establishments (invasive plants and animals)
- Maintain or establish riparian buffers of at least 50 ft., but 500 ft. or wider maximizes conservation benefits (riparian modifications)
- Maintain or rehabilitate natural corridors between fens and other significant habitats to amphibians and reptiles (riparian modifications, species issue)
- Maintain or rehabilitate natural hydrology (altered hydrologic regimes)
- Protect existing natural wetlands and rehabilitate degraded wetlands (wetland modification)
- Restore native flora (wetland modification)

LAW & POLICY

- Encourage clustered development and green space planning (riparian modifications)
- Include wetland protections in zoning and planning ordinances (wetland modification)
- Limit water withdrawals in flow limited or groundwater fed systems (altered hydrologic regimes)
- Protect and rehabilitate groundwater recharges by requiring that all development-related runoff be captured by infiltration basins (altered hydrologic regimes)
- Restrict dredging and draining of fens (wetland modification)
- Strengthen wetland regulations, mitigation requirements, and enforcement (wetland modification)

MICHIGAN'S WILDLIFE ACTION PLAN
AQUATIC SYSTEMS: LAKE SUPERIOR BASIN

- Work with local governments to develop and refine planning and zoning regulations and ordinances that consider natural processes (variety of threats)
- Work with local ordinances on setback and buffer ordinances (riparian modifications)

EDUCATION & AWARENESS

- Educate legislators, other policy makers, and the public on the benefits and ecological services provided by wetlands and the species that use them, especially fens (variety of threats)

Research and Survey Needs

- Conduct statewide wetlands inventory
- Determine effective restoration techniques
- Determine how threats effect vegetative structure, patterns, and species
- Determine unknown life histories of those SGCN that use fen
- Determine other aquatic species associated this landscape feature
- Investigate alternatives to water withdrawals and diversions
- Investigate historical frequency of fire disturbance in fens
- Inventory road and stream crossings and repair those that are interfering with stream flows
- Model hydrologic flow of entire watersheds

Monitoring

- Draining and channelization
- Riparian modifications
- Water withdrawals
- Wetland modification