



Inland wetlands/water: Swamp

Description

Swamps are wetlands dominated by trees or shrubs with saturated soils during the growing season and standing or slowly moving water during certain times of the year. Swamps can be dominated by trees such as red maple (*Acer rubrum*), black ash (*Fraxinus nigra*), yellow birch (*Betula alleghaniensis*), northern white cedar (*Thuja occidentalis*) and tamarack (*Larix laricina*), or shrubs such as speckled alder (*Alnus rugosa*), buttonbush (*Cephalanthus occidentalis*), willow (*Salix sp.*), and dogwood (*Cornus sp.*). Composition and structure are influenced by disturbance factors such as flooding regime, windthrow, insect outbreak, and beaver (*Castor canadensis*).

General Condition of Feature

About 60% of the swamp area in the Eastern Upper Peninsula is considered to be in fair or good condition. Most of the remaining swamp areas are considered to be degraded. Swamp includes natural communities that are considered rare or uncommon in the State.

Associated Natural Communities

Hardwood-Conifer Swamp
Inundated Shrub Swamp
Northern Swamp
Poor Conifer Swamp

Rich Conifer Swamp
Southern Floodplain Forest
Wooded Dune and Swale Complex

Associated Species of Greatest Conservation Need

SNAILS

eastern flat-whorl (*Planogyra asteriscus*)
widespread column (*Pupilla muscorum*)
tapered vertigo (*Vertigo elatior*)
deep-throat vertigo (*Vertigo nylanderi*)
a land snail (*Euconulus alderi*)

CRAYFISH

devil crawfish (*Cambarus diogenes*)
digger crayfish (*Fallicambarus fodiens*)

INSECTS

Henry's elfin (*Callophrys henrici*)

AMPHIBIANS

blue-spotted salamander (*Ambystoma laterale*)
spotted salamander (*Ambystoma maculatum*)
four-toed salamander (*Hemidactylium scutatum*)
boreal chorus frog (*Pseudacris triseriata maculata*)
western chorus frog (*Pseudacris triseriata triseriata*)

REPTILES

eastern massasauga (*Sistrurus catenatus catenatus*)

REPTILES cont.

Blanding's turtle (*Emydoidea blandingii*)
wood turtle (*Glyptemys insculpta*)

BIRDS

American Black Duck (*Anas rubripes*)
American Bittern (*Botaurus lentiginosus*)
Great Blue Heron (*Ardea herodias*)
Green Heron (*Butorides virescens*)
Black-crowned Night-heron (*Nycticorax nycticorax*)
Osprey (*Pandion haliaetus*)
Sora (*Porzana carolina*)
Black-backed Woodpecker (*Picoides arcticus*)
Gray Jay (*Perisoreus canadensis*)
Golden-winged Warbler (*Vermivora chrysoptera*)
Northern Parula (*Parula americana*)

MAMMALS

arctic shrew (*Sorex arcticus*)
pygmy shrew (*Sorex hoyi*)
lynx (*Lynx canadensis*)
least chipmunk (*Tamias minimus*)
snowshoe hare (*Lepus americanus*)

Associated Threats

MODIFICATION OF NATURAL PROCESSES

- Altered fire regime: Natural fire regimes in swamp conifers contain long cycles; there is a lack of the use of fire to manage these systems.
- Altered hydrologic regimes: Changes in the hydrologic regime may influence species composition.

HABITAT CONVERSION

- Industrial, residential, and recreational development: Road construction may alter local hydrology and contribute to erosion.
- Incompatible natural resource management: After harvesting, species composition may change despite regeneration goals (e.g., the target community composition may be cedar, but balsam component grows instead).

CONSUMPTIVE BIOLOGICAL RESOURCE USE

- Forestry practices

BIOLOGICAL INTERACTIONS

- Invasive plants and animals: Species like emerald ash borer (*Agrilus planipennis*) may alter community composition.
- Other biological interactions: White-tailed deer (*Odocoileus virginianus*) and snowshoe hare (*Lepus americanus*) browse may hinder regeneration, especially of white cedar (*Thuja occidentalis*).

EDUCATION

- Lack of scientific knowledge: There is a lack of experience using fire for management in swamp conifer systems.

Conservation Actions Needed [Threats addressed]

LAND & WATER PROTECTION

- Expand conservation easement programs [variety of threats]
- Support and expand conservation purchase of high quality occurrences [variety of threats]

LAND, WATER & SPECIES MANAGEMENT

- Manage to approximate natural disturbance regimes using prescribed fire and by restoring water flow patterns. [Altered fire regime; Altered hydrologic regimes]
- Institute invasive species monitoring, prevention and control programs. [Invasive plants and animals]
- Manage white-tailed deer densities to allow for vegetation regeneration. [Other biological interactions]
- Work with land managers to develop priorities for swamp restoration and management. [Forestry practices; Incompatible natural resource management]
- Develop and implement forestry best management practices which address the value of swamps to wildlife. [Forestry practices]
- Develop strategies for the use of fire in swamp management and provide training in the use of fire to land managers. [Altered fire regime]
- Avoid motorized trail construction in cedar swamps and hardwood-conifer swamps [Industrial, residential, and recreational development; Incompatible natural resource management]
- Wetland roads and trail crossings should preserve cross drainage [Industrial, residential, and recreational development]
- Support Landowner Incentive Programs to foster conservation on private land [variety of threats]
- Maintain or establish riparian buffers of at least 50 ft., but 500 ft. or wider maximizes conservation benefits [wetland modifications]

LAW & POLICY

- Work with governmental agencies and county road commissions to develop road construction and maintenance strategies which minimize impacts to swamps. [Industrial, residential, and recreational development]

Research and Survey Needs

- Conduct a statewide wetlands inventory.
- Evaluate the impacts of modifications of natural hydrologic regimes and local water chemistry.
- A common classification system to define wetlands is needed.
- Determine the effects of microtopography on wetland function and its impact on wetland restoration.
- Determine the value to wildlife of intermittently flooded timber.
- Document the historic and current range of variation between swamps. This includes variables such as species composition and size.
- Identify invasive species and diseases that may degrade the value of swamps for wildlife. Develop techniques to control invasive species. Develop treatments for diseases that threaten swamps. Common invasive species include *common carp* (*Cyprinus carpio*).
- An inventory needs to be conducted to determine the location, condition, and classification of swamps and of the opportunities for restoration.
- Identify the characteristics of swamps that provide benefits to wildlife and which species may be affected by changes in these characteristics.
- Develop a classification system for lowland forest types (based on characteristics such as soil nutrients, moisture regimes, and successional pathways) similar to John Kotar's classification of upland forest types.

Monitoring

- Track swamp acreage and distribution across the landscape.
- Identify and track floristic composition and diversity.
- Track water level and flow fluctuations and its impacts on vegetation and wildlife.
- Track water chemistry and quality trends.