

Wetlands and Conservation Easements

If you read closely through your conservation easement, you'll likely run across several references to wetlands. They are often listed as a "conservation value" of the property. In the Prohibited Uses Section, most easements state that "natural water courses, lakes, wetlands, and other bodies of water may not be altered." In the Permitted Uses Section, there is often language stating something like "the owner is required to obtain Federal, State, or Local permits that might be mandatory for activities in wetlands" (a permit is required for dredging, draining, filling, or construction activities in wetlands hydrologically connected to a Great Lake, inland lake, or stream).

What is a Wetland?

Features like lakes and streams are pretty evident to everyone, but wetlands can be much less so. Wetlands are defined in Michigan's Wetland Protection Act as "land characterized by the presence of water at a frequency and duration sufficient to support, and that under natural circumstances does support, wetland vegetation or aquatic life and is commonly referred to as a bog, swamp, or marsh." More simply put, wetlands are a transition area between uplands and aquatic habitats. It is estimated that half of wetlands have been lost, both in Michigan and nation-wide.

Basic Types of Wetlands

The three basic types of wetlands are defined as follows (although sometimes the difference between each are not clear-cut, and each wetland is ultimately unique).

Marsh - A wetland dominated by grass-like vegetation (including true grasses as well as rushes, reeds, sedges, and cattails).

Swamp - A wetland dominated by trees and/or shrubs. A conifer swamp is dominated by trees such as cedar, balsam fir, or tamarack. A hardwood swamp is dominated by species like red maple, black ash, American elm, or balsam poplar. Many swamps are a mixture of hardwoods and conifers. A shrub swamp is dominated by species like alder, willow, viburnum, and dogwood.

Bog - Acidic, peat accumulating wetlands dominated by sphagnum mosses and other acid-tolerant vegetation. "True" bogs form in basins isolated from ground water or surface runoff, and have very acidic water chemistry. A **fen** is a similar peat-accumulating wetland that forms in very wet areas, often with a cool microclimate, but which has some connection with groundwater or receives mineralized surface runoff. As such, water chemistry in fens can range from slightly acidic to basic. A better collective name for both these wetland types are **northern peatlands**. Peat is a type of organic soil wherein the conditions are too wet for the vegetation to decompose much, and so bits of roots, stems, leaves, etc. are recognizable.

Why are Wetlands Worth Protecting?

Wetland provide the following important ecological functions and socio-economic values:

- Fish and wildlife habitat
- Threatened/endangered species habitat
- Water pollution protection
- Erosion and sedimentation control
- Water supply
- Flood storage
- Hunting, fishing, and trapping
- Food and fiber production

- Education and research
- Recreation
- Aesthetic values
- Historic/archaeologic significance

Wetland Regulation in Michigan

Under Michigan's Wetland Protection Act, a permit from the Michigan Department of Environmental Quality (MDEQ) is required for dredging, draining, filling, or construction activities in certain wetlands. In counties with a population less than 100,000 (basically, Northern Michigan counties) permits are required for those types of activities only in wetlands that extend to within 500 feet of a lake, stream, or pond larger than one acre (termed contiguous wetlands). A joint MDEQ/U.S. Army Corps of Engineers permit is needed for those types of activities in wetlands that extend to within 1,000 feet of a Great lake and certain other navigable waterways.

Identifying Wetlands

Whether the need to protect wetlands arises out of regulatory requirements or voluntary desire, wetlands must first be identified in order to be protected. Standardized methods for identifying and delineating wetlands based on a site's hydrology, soils, and vegetation have been developed by scientists in collaboration with State and Federal agencies.

The extended presence of water at or on the soil surface during the growing season is termed **wetland hydrology** and is the most important factor for classifying the land as either an upland or a wetland. Wetland hydrology is present when the soil is continually saturated or inundated (a.k.a. ponded) for about two weeks during the growing season which runs roughly from mid-May to early-October in northern Michigan.

In Michigan there are about 400 types of soils (called soil series). Soils that form in the presence of wetland hydrology, called **hydric soils**, have distinct colors, patterns, textures, odors, or chemical characteristics. County soil surveys published by the Natural Resource Conservation Service can help identify hydric soils on your property.

Only vegetation with specific physiological adaptations can survive in saturated soils for extended periods during the growing season. Such vegetation is termed **hydrophytic or wetland-tolerant vegetation**. The wetland-tolerance of every plant species has been determined. An area is considered to be a wetland when more than half the dominant vegetation in each vegetation strata (tree, sapling, shrub, and herbaceous plants) consists of wetland-tolerant species.

Of course, not everyone has the training and skills needed to identify the common vegetation species or soil types. Consultants are available to help provide precise identification and delineation of wetlands. In lieu of that, here is a list of some "common sense" indicators to the presence of wetlands on your property:

- Low-lying areas along streambanks or lakeshores
- Depressions where water commonly pools
- Low-lying areas with distinctly different plants than surrounding higher areas
- Areas with seepages or springs
- Low areas where you would likely get stuck driving off-road vehicles
- Places where your white tennis shoes get black and mucky
- Wherever the ground is soggy underfoot for extended periods from May to October

Enjoying and Protecting Your Wetland

If you received this newsletter, you likely have already taken a very important step in protecting wetlands that may be present on your property by having a conservation easement in place—congratulations and thank you! Beyond that, simply being mindful that wetlands are sensitive habitats where almost any human activity will have some type of negative impact and acting accordingly by avoiding or minimizing damaging activities can help. Specifically, these might include:

- Minimize tree removal. Even small openings can let in more wind, resulting in blow-downs of shallow-rooted trees in wetlands. Large-scale tree removal can cause permanent changes in hydrology, causing the land to become permanently wetter (because the transpirational effects of trees are lost)
- Maintain a well-vegetated buffer in the upland around the wetland
- Keep pollutants out of wetlands (the fact that water is pervasive and near the surface in wetlands makes it more susceptible to pollution from fertilizers, wastewater, trash disposal, etc.)
- Avoid vehicle use or even other types of recreational over-use, as wetlands soils are often soft, weak and easily damaged.
- Obtain permits for regulated activities (in spite of the generally bad reputation of the regulatory processes, agency staff review can result in positive suggestions for more successful projects).

Wetlands are interesting and often unusual places to explore and enjoy. Here are some activities to consider pursuing in your wetland:

- Watch birds, fish, dragonflies or other wildlife
- Hunt, fish, or trap
- Identify or photograph wetland plants
- Install nest boxes for waterfowl, owls, or other wildlife
- Participate in the State-wide Spring frog and toad survey
- Ski or snowshoe in winter (winter is a great time to explore wetlands, when water and muck is frozen and insects are absent)

Constructing trails through wetlands.

Trails are a commonly desired and sometimes permissible activity on easement properties. However, when trails cannot avoid wetlands, a boardwalk may be needed both to facilitate foot travel and protect wetland soils and vegetation.

LTC has about 25 nature preserves with maintained trail systems totaling about 40 miles. Although we try to avoid constructing trails through wetlands, our trails none-the-less contain quite a few boardwalk sections. We typically construct small, simple boardwalks using two to four 2" X 12" treated lumber planks laid on 6" X 6" treated lumber cross-ties placed at 3' to 4' intervals (see photo). We've found that this safe, effective technique for conveying pedestrians through wetlands has minimal wetland impact and is relatively low-cost (about \$8.00 per linear foot).

If you're considering a trail construction project in a wetland, be sure to read your easement closely to determine if trails and wetland boardwalks are allowed. Also, be aware that permits are needed for all structures built in regulated wetlands, even boardwalks and fences. Please don't hesitate to contact us if you need help interpreting your easement. LTC

Stewardship staff would also be happy to give you some help and advice on identifying and delineating wetlands and on design and permitting of appropriate boardwalks.

Although most trails through wetlands are usually lumped into the same category and referred to as “boardwalks,” there are actually eight basic types of trail structures commonly built to cross wetlands:

corduroy “road” - logs laid side-by-side perpendicular to the trail route directly on the ground

turnpike - a trail built on fill excavated from ditches paralleling the trail

causeway- similar to a turnpike, but without the ditches (the fill originating elsewhere)

puncheon - hewn logs laid parallel to the trail route on log cross-ties

gadbury - similar to a puncheon, but with a combination of hewn and whole logs

bog bridge - similar to a puncheon but with milled plank lumber laid on cross-ties

boardwalk - a more elaborate, linear, deck-like structure usually supported by widely-spaced piers and often with a curb and hand rail

floating trail - a boardwalk or dock-like structure on buoyant floats through ponded areas

The technique we most commonly use on our preserves would most accurately be labeled a bog bridge. We typically use two to four 2" X 12" treated lumber planks laid on 6" X 6" treated lumber cross-ties placed at 3' to 4' intervals. The accompanying diagram and photo shows this technique. We've found that this is a safe, effective technique for conveying pedestrians through wetlands, has minimal wetland impact, and is relatively low-cost (about \$8.00 per linear foot).

Please remember that permits are needed for all structures built in regulated wetlands, even “boardwalks” and fences. If you're anticipating a trail construction project in a wetland, LTC Stewardship staff would be happy to give you some advice on design and permitting.

Resources for More Information

Books

Cwikel, Wilfred. *Michigan Wetlands—Your's to Protect: A Citizens Guide to wetland Protection* (Third Edition). Tip of the Mitt Watershed Council, Petoskey, MI 278 pages (A comprehensive for the average citizen or landowner, available for the super bargain price of \$5.00—call 231-347-1181 for ordering information)

Eastman, John. *Swamp and Bog: Trees, Shrubs and Wildflowers of Eastern Freshwater Wetlands*. Stackpole Books, Mechanicsburg, PA. 237p. (Contains lots of natural history about wetlands and the plants found there)

Mitsch, William J. and James Gosselink. *Wetlands* (fourth edition) Van Nostrand Reinhold Co. Inc. New York, NY 2007. 582 pages (If you really want to learn about wetland ecology, this is the most comprehensive textbook on the subject)

Websites

A database containing a list of Michigan plants and their wetland status, compiled by the Michigan DNR's Natural Heritage Program, is available online at:
http://www.dnr.state.mi.us/publications/pdfs/HuntingWildlifeHabitat/FOA_C_database.pdf

Lists of hydric soils for Michigan (and other states) can be found online at:
(<http://soils.usda.gov/use/hydric/lists/state.html>)

The U.S. Department of Transportation–Federal Highway Administration has a comprehensive wetland trail design manual available on-line at:
<http://www.fhwa.dot.gov/environment/fspubs/01232833/toc.htm>

Information about Michigan's wetland resources and all aspects of the State's management and regulatory programs, including on-line permit applications, are available at:
http://www.michigan.gov/deq/0,1607,7-135-3313_3687---,00.html