



Wetlands

A wetland is an area with water at, near, or above the land's surface long enough to support aquatic or hydrophytic (water loving) vegetation. Once considered wastelands, wetlands were drained and filled for much of the last century. Estimates vary, but most resource managers agree that Wisconsin has lost over half its wetlands to both urban and rural development since settlers first arrived 200 years ago. Today, wetlands enjoy special protection because science has revealed their benefits.

“Swamps and wetlands are a necessary part of the ecological creation. An owner of land has no absolute and unlimited right to change the essential natural character of his land so as to use it for a purpose for which it was unsuited in its natural state and which injures the rights of others.”

*Justice Hallows
Wisconsin Supreme Court
Just vs. Marinette County,
1972*

Flood Protection: Wetlands store and slowly release stormwater and snowmelt runoff. Even small wetlands have the ability, depending on their shape and plant community, to absorb millions of gallons of stormwater that would otherwise continue down stream and potentially cause flooding. Community planners and developers now recognize this flood protection value and are preserving existing wetlands and restoring others that have been drained or filled.

Clean Water: Wetlands act as nature's kidneys. By intercepting and slowing polluted runoff as it passes through vegetation, sediment in the stormwater settles out and excess nutrients are used by the plant community. Cleaner water is then discharged gradually.

Habitat Protection: Wetlands support diverse plant and animal communities. Over half of Wisconsin's plants and animals are found in wetlands or their fringes. Even small urban wetlands provide opportunities for those who wish to view or study our plant and animal species.

The following discussion gives direction for restoring wetlands on your open space. Restoring a degraded wetland or one previously drained for farming is challenging but your well planned efforts can have a very positive effect. All existing natural wetlands on your open space should be permanently protected. Most efforts to create a completely new wetland on an upland site are futile and not recommended.

Suitable sites

Wetlands need water at, or above the surface of the ground for at least some portion of an average year. Poorly drained lowlands along stream margins, ponds, or lakes are often suitable sites for preserving existing natural wetlands or for restoring degraded ones.

Wetland plants sort themselves into ecological communities based on the depth and duration of water they can tolerate. Sites that receive excessive water from ditches and culverts should generally be avoided since the fluctuating water levels create difficult conditions for most wetland plants. Upland runoff may also contain excess nutrients, organic matter or harmful chemicals detrimental to plants and animals. Divert potentially damaging runoff away from the proposed wetland restoration area to a detention pond or spread the water over an area where it will slowly filter into the ground before reaching the wetland.



Wetlands

Establishing a Wetland

Many wetland restorations are attempted in low lying abandoned farm fields. Usually these areas have black muck soil, a plant cover of reed canary grass (or other non-native plants) and a drainage ditch nearby. These conditions indicate that a former wetland was drained (via underground drain tile) to permit crops to grow when the ground was dry enough to support a tractor. Farming these drained wet areas was a way to make a profit on land that was, at that time, considered wasteland.

There are three common options for restoring drained wetlands (be aware that state and local permits may be required for this kind of work): 1) breaking buried drainage tiles to restore pre-drainage water levels in conjunction with plugging ditches.

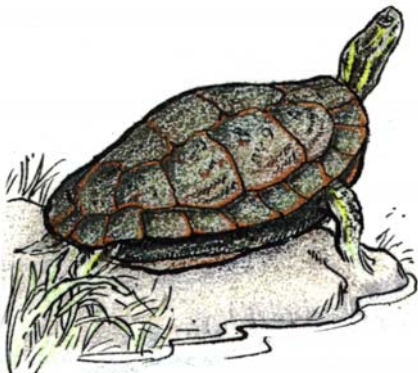
2) Scrape away a thin (6-12 inch) layer of soil to create a shallow depression where water can accumulate. 3) Work with existing water levels and restore a 'drier' wetland community than was formerly on the site (eg. plant a wet prairie in place of a the historic — and wetter — sedge meadow or shallow marsh community). Professional help may be obtained through one of the contacts listed on the back page.



Wetlands once covered much more of Southeast Wisconsin before they were drained for farming and development.

Maintaining a Wetland

The goal of maintenance is to make the wetland a sustainable community with the least amount of effort. The key to sustainability is controlling competitive invasive species like purple loosestrife, glossy buckthorn, reed canary grass. Even native cattail may become aggressive and crowd out desirable wetland plants. Control methods include; mowing, hand cutting or pulling, chemical treatment, burning or bio-control (such as using certain beetles to control purple loosestrife) Methods for controlling specific plants are found in the "Invasive Species" section of this manual.



Attracting Wildlife

One of the most visible benefits of wetlands is the animal life they attract. Wetland communities provide water, food, shelter and reproduction sites for countless animals from dragonflies to turtles to minks. If you protect and maintain a wetland (or build a new one) you will be guaranteed to have wildlife. Add bird houses and you will attract special birds like, wood ducks, screech owls and swallows. Migrating birds will use the wetland as critical resting and refueling stops on their long distance flights in spring and fall.

Wetlands

Wetland Types

There are over a dozen types of wetlands found in southeast Wisconsin. They vary based on water depth and plant composition. The state-of-the-art for restoring many of these communities leaves much to be desired. For some types like bogs, fens and swamps restoration techniques are non-existent or only in the experimental stage. More is known about restoring wet prairies, sedge meadows, and shallow marshes. One should never expect a restored wetland to match a natural one.

SWAMPS

Swamps are characterized by the presence of woody plants and water levels varying from waterlogged soils to depths of one foot above the ground for at least a portion of the year. Tree dominated communities include Tamarack Swamps (tamaracks and poison sumac), Cedar Swamps (white cedar) and Hardwood Swamps and Floodplain Forests (black willow, silver maple, green and black ash, American elm, and cottonwood) Shrub dominated wetlands include Alder Thickets (tag alder), and Shrub Swamps (red osier and silky dogwoods and shrubby willows).



Hardwood Swamp

MARSHES

Marshes are open wetlands lacking trees or shrubs. They are dominated by herbaceous plants adapted to varying water depths. Deep Marshes have six inches to six feet of water during the growing season. Common plants are cattail, bulrushes, and pond lilies. Shallow marshes are waterlogged or have up to six inches of water during the growing season. Major dominants are cattails, bulrushes, water plantain, arrowhead and sedges.



Deep Marsh

WET MEADOWS

This is a large category is characterized by waterlogged soils with typically no standing water during the growing season. Non-woody plants dominate and sort themselves out in communities based on duration and depth to the groundwater in the soil. **Fens** have a continuous flow of calcium rich groundwater at or near the surface of the soil. They are characterized by calcium loving plants such as shrubby cinquefoil, Ohio goldenrod, certain sedges, grass-of-Parnassus and white slipper orchid. **Sedge Meadows** may have standing water for a short time in spring but generally water is at or slightly below the ground for most of the growing season. Sedges plants dominate the community often forming foot-high hummocks composed of large tufts of roots and stems making for difficult walking. **Low (wet) Prairies** have water levels most often below the surface of the ground during the growing season. Dominate plants are big bluestem grass, cordgrass, blue joint grass plus a host of showy wildflowers. **Fresh Meadows** are saturated somewhat below the surface of the soil. This community has had some disturbance or change of water level in the past. Plants are a mix of native and non-native lowland species—red top grass, reed canary grass, cordgrass, sedges, goldenrods, asters and common milkweed.



Sedge Meadow invaded by shrubs

BOGS

A bog community is a floating wetland on loosely packed, waterlogged, acid peat (partially decomposed plant matter). Walking on a bog is like walking on a giant sponge or water bed. Plants are adapted to cold, acid conditions. Notable species are sphagnum moss, leather leaf, cranberry, bog bean, and the carnivorous species—pitcher plants, sundew and bladderworts.



Bog

Wetlands



Trails and Paths.

The presence of water may limit the access to the wetland itself but a path along the upland shoreline can provide enjoyment of the sights and sounds. A dirt trail or a mowed path is easy to build and maintain as long as they are kept off of wet and muddy ground. Boardwalks and observation platforms may alleviate the wet ground problem and add to the overall enjoyment of the experience. (Permits may be required for structures placed in wetlands.)

Contacts:

Department of Natural Resources — Bureau of Wildlife Management

Natural Resources Conservation Service — County Office

US Fish and Wildlife Service — Madison Regional Office

Wisconsin Wetland Association — www.wiscwetlands.org (608-250-9971)

Consulting firms and wetland plant sources. These companies often have their own publications and catalogs describing procedures for prairie establishment. See the enclosed pamphlet: Wisconsin Native Plant Sources & Nursery Sources for Natural Landscaping. ??????????

Publications and other sources of information:

Living With Wetlands, 1998 The Wetlands Initiative, Chicago, IL
www.wetlands-initiative.org

Wetland Planting Guide for the Northeastern United States, Gwendolyn A. Thunhorst, 1993, Environmental Concern Inc., St. Michaels, Maryland, 410-745-9620

Wetland Restoration Handbook for Wisconsin Landowners, 2004, Pub-SS-989
Wisconsin DNR, Madison WI

Wisconsin Native Plant Sources & Nursery Sources for Natural Landscaping, 2004,
Wisconsin DNR, Madison WI ??????????????

Just Add Water! Restoring Shallow Wetlands for Wildlife, (From the series: *Wildlife and Your Land*) Pub-WM-229, Wisconsin DNR, Madison WI

Wetland Restoration on Private Lands in Wisconsin, U.S. Fish & Wildlife Service,
<http://partners.fws.gov>

Backyard Conservation, Natural Resources Conservation Service
<http://www.nrcs.usda.gov/feature/backyard/BkYrdHit.html>

Option for Open Space

A resource guide for private and public land owners and managers.

Produced by the Southeast Wisconsin Fox River Partnership Team to protect, restore and enhance the natural resources of the Fox River basin.

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