

CHAPTER 11. **NOW WHAT?**
MONITORING AND
CONSERVATION
ACTIVITIES

This chapter discusses simple ways to measure the progress of your wetland restoration using monitoring resources available to you. We also include suggestions for simple conservation activities and long-term protection of your wetland.

Evaluating Your Project



Jens von Sivers

The speed at which the plant community establishes itself in your wetland will be the most important change to evaluate. The plants that colonize the site can be used as a measure of progress toward achieving restoration goals. Primary objectives include restoring historic hydrology at the site and colonization by a high number of native plant species. As water levels stabilize and the plants become established, birds, amphibians, and mammals will make greater use of the wetland. The variety of wildlife using the wetland will depend on the location and size of your site and the habitats restored. You can monitor your wetland through a variety of activities. At a minimum, take photographs regularly and always watch for invasive species.



SPRING



WINTER

Take Photos

If you haven't already done so in the planning phase of your project, set up one or several permanent photo points on your site where you can view a large portion of the wetland. Use of a landmark or stake can help you maintain photo consistency. Take photos before restoration, immediately after restoration and, at a minimum, annually thereafter in the same season. For more detail, take a photo from each point each season. Carefully label the photos with the date and exact location. A notebook of photos is very useful information for documenting changes in your wetland over time.

Taking photos throughout the year is a good way to monitor changes in the restored wetland.

Look for Invasive Plants

Monitoring for the invasive plants discussed in Chapter 6 is critical to the health of your wetland. In particular, look for reed canary grass and purple loosestrife. Both plant species aggressively invade a wetland after a disturbance. Using the methods discussed in Chapter 6, immediately remove any invasive plants before they become a larger problem. These plants can be effectively eliminated if discovered and treated early in the restoration process.

Revisit Your Project Goals and Objectives

Refer to your original goals and "vision" plan occasionally to evaluate your restoration. Many sites take several years before beginning to achieve the vision. Upon project completion, and for subsequent years, review the site map you drew before construction. Draw a new map outlining major plant community types, areas dominated by open water, cattails, sedges, grasses, shrubs, or trees. Compare this to your project goal and use it over time to plan additional site management activities.

Inspect the Plantings

Keep close watch over any plantings. This is particularly critical in the first year when plants are growing root systems and are under stress. Wilting plants may need mulch or water. You can expect a certain percentage of

loss, and may want to fill in gaps where plants or rootstock did not survive. Rapidly growing “colonizer” plant species may quickly dominate a site and overwhelm your plantings. Mowing 6 to 8 inches high after plants begin to grow may discourage unwanted species.

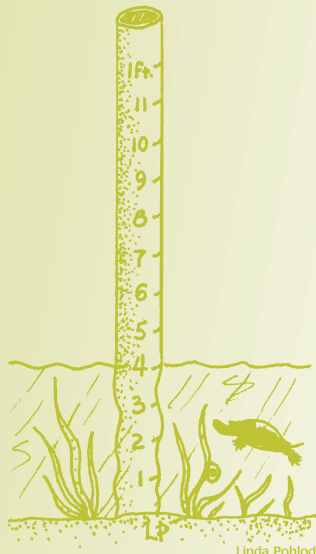
Notice Bare Ground

In the first year of restoration you may notice spots with little vegetative cover. These should fill in by the second year. If these areas remain without vegetation for several years, especially if they are not flooded, then it may indicate poor soil in that area. You may need to bring in organic topsoil from elsewhere on your site and re-seed the area with appropriate species.

Measure Water Depths

During site construction drive several lengths of hollow and uncapped PVC piping, marked with permanent markings at 1-foot intervals, into the ground at several points in the wetland. Three pipes set in a line over an area anticipated to be covered with water provides a good range. At different times over the years, this will allow you to record the depth of the water at each point following construction. Read the marks with binoculars or, if accessible, measure with a ruler from the ground surface to the height of the water.

If you have the time and interest, take a reading every other week during the spring, summer, and early fall. Even infrequent data collection can be important. Be aware that frost heaving can raise and lower pipes affecting year-to-year comparisons of data. You may observe seasonal or annual fluctuations that are normal to wetlands, or you may document that your site has a hydrologic problem. You may need to discuss your water level information with a wetland specialist. Consult Chapter 1 for more information on normal water level fluctuations.



Linda Pohlod

Water gauges put into the wetland during the restoration process will provide opportunities to monitor water level changes seasonally and annually.

Maintain a Wetland Journal

In Chapter 2, we recommended keeping a journal for assessing your wetland. You can expand that journal once your restoration is under way. Each time you visit the site record the date, time, weather conditions, and recent precipitation that may have influenced your wetland. List observations of animals, birds, insects, and plants, starting with what interests you most. What you notice can be seasonal. Remember that winter is an excellent time to find tracks of animals that are otherwise secretive. Spring is ideal for hearing frogs and migratory birds. In the summer you can watch for plants, butterflies, and birds, and when trees drop their leaves in fall you can observe bird nests.



Charles W. Schwartz

Assistance With Monitoring



Marsh Monitoring Program

The Marsh Monitoring Program (MMP) provides training materials to assist you in monitoring frog, toad, and bird species in a wetland. There is no fee required to join the MMP, and volunteers can choose to conduct annual surveys for birds or amphibians. The program involves compiling useful baseline information on the population status of Great Lakes marsh birds and amphibians that can be identified by their calls.

The yearly program begins in spring when volunteers count frog and toad songs. The MMP will send you tapes of the calls and a guide for counting them. You are responsible for sending in your data at the end of the season. Because there are only 12 frog and toad calls to learn in Wisconsin, this program can be easily mastered by an amateur.

The MMP also seeks volunteers to identify by sight and sound at least 50 marsh birds. Standardized training materials are provided that guide volunteers and help them polish their bird identification abilities. These programs provide everyone—from amateur naturalists to professional biologists—a unique and rewarding opportunity to learn about and conserve Great Lakes amphibians and marsh birds and their threatened habitats.

Local Scientists

By contacting local scientists about your project, you may interest someone in helping monitor your wetland. Because the science of wetland restoration is in its infancy, monitoring and evaluating wetland restorations are important ways to learn about restoration. Possible places to find a local scientist include: the biology departments at local colleges or universities, local naturalists or volunteers at nature centers or environmental organizations, the biology teacher at the closest high school, or wetland specialists at your local NRCS or Wisconsin DNR office. Local chapters of the National Audubon Society, various regional or statewide conservation organizations, and the Wisconsin Society for Ornithology may have competent wetland specialists as members. The WWA Wetland Resource Directory lists many wetland specialists in Wisconsin and can be found at www.wiscwetlands.org/.

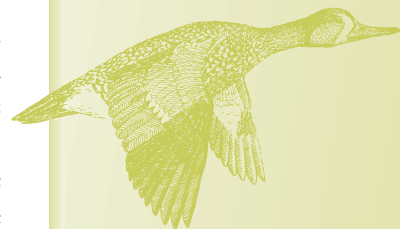
CONTACT:

**Aquatic Surveys Officer
Marsh Monitoring Program
Bird Studies Canada**

**P.O. Box 160
Port Rowan, ON
Canada N0E 1M0**

**(888) 448-2473 or
(519) 586-3531
(519) 586-3532 (fax)**

**aqsurvey@bsc-eoc.org
www.bsc-eoc.org**



Simple Conservation Activities



A variety of relatively inexpensive and simple conservation activities may improve the health of your wetland. You need to be aware of which factors contribute to the degradation of a wetland in order to help correct them. The following conservation and management recommendations target the negative effects of past and present disturbance to your wetland.

Develop a Buffer Area

Before human activities altered the landscape, a continual expanse of uninterrupted vegetation linked uplands and wetlands. Historically, land use practices have tended to alter or develop upland areas, creating abrupt boundaries between upland and wetland at the wetland edge. By establishing a buffer zone, you can recreate the vegetation continuum and minimize the abrupt boundary between cultivated or grazed lands and wetlands. A buffer area can protect wetlands from siltation, excess nutrients, and pollution from chemicals such as pesticides and herbicides applied to neighboring agricultural fields. We recommend that you establish an unmowed swath of vegetation at least 100 feet wide around your wetland. If you cannot maintain 100 feet, a narrower buffer is better than none at all. Further suggestions are found in Chapter 5. If reed canary grass occurs or becomes established in the buffer area, this may pose a management problem that may require a mowing schedule to manage the stand (see discussion on invasive species in Chapter 6).

Landscape the Buffer with Native Plants

High quality uplands can provide important habitat for many wetland wildlife species. Planting a buffer around your restored wetland is also an important way to protect it from the impact of nutrients and sediments over time. Developing and maintaining diverse upland plant communities will increase the health and diversity of your wetland. Planting a variety of native warm season species (e.g., prairie grasses and prairie wildflowers) in your upland buffer zone may be appropriate depending on your area of the state. Planting native shrubs and trees provides important nesting habitat, food, and shelter. Consult with a native plant nursery in your area to select the best plantings for your site. Further suggestions are found in Chapter 5.



A vegetated buffer protects wetlands from the impacts of siltation, pollution, excessive nutrients, and livestock damage.



**NO
BUFFER**



**100-FOOT
BUFFER**

Linda Pohlod



Avoid Mowing to the Edges of Lakes or Streams

The vegetated wetland edge of a lake or stream is important habitat for fish, reptiles, amphibians, songbirds, waterfowl, and mammals. The shoreline of all waterbodies should not be disturbed or mowed. Native plants along the shoreline will buffer wave action and help cool shallow water, while their roots bind the soil to resist erosion. This unmowed shoreline edge also protects water quality by filtering and slowing runoff from the upland areas.



Delay Mowing until after the Nesting Season

Many species of birds and butterflies depend upon tall grassy areas for feeding and breeding. If the adjacent land must be mowed for hay or brush removal, we suggest that you wait to mow until after the grassland-bird nesting season. Blue-winged teal

and mallards nest in grassy uplands near ponds and wetlands and can suffer tremendous nest failure and mortality when fields are mowed before eggs hatch. As a general rule, do not mow before mid-July. If possible, hold off mowing until early August to allow fledging of young birds.

Fence Out Livestock

If cattle, horses, or other livestock graze in or near the wetland, fence them out 100 or more feet from the wetland's edge. If a pond or the wetland serves as drinking water for livestock, find an alternative water source. Cattle trampling can destroy sensitive wetland plants and break wetland sod, providing an opportunity for invasive species to become established. Additionally, invasive plant seeds can hitchhike into the area by clinging to the hooves of livestock. Some species of wetland grasses and wildflowers are favorite food items of grazing livestock and quickly disappear under grazing pressure. Manure can quickly become a source of excess nutrients and unwanted seeds. Undesirable plants, like reed canary grass, often establish themselves in grazed wetlands and along their edges.

Use Silt Fencing in All Construction Projects

Any construction activity at a higher elevation than the wetland can lead to erosion of the exposed soil into the wetland. Use properly installed and maintained silt fencing below areas with bare soil to protect your wetland from silt and sediment. Inspect the fencing after each rainfall to make sure it is trapping silt, and have it reinstalled if necessary. Keep the fencing



Ron Gatti

SELECTED BIRD NESTING SEASONS FROM THE WISCONSIN BREEDING BIRD ATLAS

Blue-winged teal

April 30-July 12

Mallard

April 2-August 19

Ring-necked pheasant

April 2- June 15

Bobolink

May 12-July 13

Meadowlarks

May 1-July 16



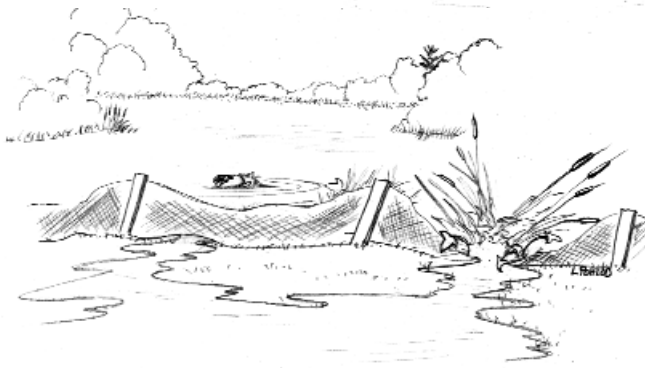
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in place until vegetation is restored, but remove it after it is no longer needed, as the fence can block the movement of small animals in and out of the wetland.

PROPERLY MAINTAINED SILT FENCE



Construction sites near wetlands should have well-maintained silt fences to keep runoff rich in sediments from entering wetlands.



POORLY MAINTAINED SILT FENCE

Control Sources of Chemical Pollution

Agricultural activities, yard maintenance, septic systems, and storm drains can divert excess nutrients and undesirable substances into wetlands. Because wetlands, streams, rivers, and lakes are “downhill” from most inhabited areas, they can act as a “sink” for many chemicals that are transported in water. Look to reduce chemical use in and near your wetland, including the adjoining yard, garden, and agricultural fields. Talk with neighbors about their use of fertilizers and pesticides to minimize impacts on your wetland. Maintain your septic system so it functions properly.

Control Sources of Excess Water Entering the Wetland

Drain pipes, culverts, and ditches are intended to drain upland sites of excess water. They often empty into wetlands, inundating important lowland communities. Although wetlands are water-dependent, excessive water can damage the integrity of a wetland. For example, excess water in urban areas may flood a sedge meadow causing native plants to be replaced by non-natives or by cattails.

Upland runoff may carry large amounts of nutrients like manure or commercial fertilizer, petroleum products, salt, or other compounds (e.g., pesticides, herbicides, fungicides, etc.). These pollutants may stress and even kill sensitive wetland plants and animals. If possible, divert runoff to other areas or spread the water evenly over the landscape so that it slowly filters into the wetland. As an alternative, excess stormwater can be



diverted into a buffer zone to slow its velocity and allow sediment and nutrients to settle before the water drains into your wetland.

If you have a wetland that is being negatively impacted by a significant change in stormwater coming from a neighboring landowner, common law provides recourse and you can file suit in civil court. However, bear in mind that you will need more than anecdotal evidence to win your case. Photos, stormwater studies, and other evidence will be required to substantiate your arguments. You will undoubtedly want to seek legal and technical help for a problem of this nature.

To be proactive and to protect your wetland from changes in hydrology you need to be involved at the local level if nearby development is proposed that might impact your property. Discuss your concerns with local government officials and at public meetings. If the development is being permitted by the Wisconsin DNR, go directly to the Wisconsin DNR to raise your concerns.

Control Water Outlets

Many wetlands have historically been drained through ditching, dredging, and underground drain tiles. Look for signs of past drainage attempts such as a ditch, an outflow conduit or pipe. All that may be required to restore the hydrology of your wetland is to plug a ditch or drain conduit. However, undoing drainage systems on your wetland may be a complicated endeavor. Further suggestions are outlined in Chapters 3 and 4.

Use Heavy Equipment for Logging or Other Activities Only During the Winter

Avoid logging or taking heavy equipment into your wetland until the ground is frozen to avoid damaging the soil surface and plant community. Construction matting may help alleviate compacting the soil. Carefully consider the impacts before cutting trees in swamp forests. Forested wetlands were severely degraded by logging in the late 1800s to early 1900s, and in some parts of the state the open wetlands that resulted have not yet recovered. Be aware that county zoning ordinances may regulate the removal of trees and vegetation in shoreland zones.

My Wetland's Future: Is it Secure?

Long-term Protection Options for Landowners

A well-restored wetland should last forever, therefore long-term security of your wetland should be considered. A variety of long-term protection options are described below and can include donation of your land to a private or public agency, conservation easements, or deed restrictions that follow the land in perpetuity. The time, energy, and expense of restoring your wetland can be for naught if the next landowner does not care for the site or if it is not permanently protected.



Alice Thompson



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**GATHERING
 WATERS** is a statewide clearinghouse for land trust organizations you can contact for more information on how land trusts can protect your land.

Gathering Waters Conservancy
 211 S. Patterson, Suite 180
 Madison, WI 53703
 (608) 251-9131
 elkin@gatheringwaters.org
 www.gatheringwaters.org



David Kopitzke



DNR Archive Photo

Donation

Donation of land is an effective and simple way to protect it. A donor can give land to a qualified charitable organization or governmental agency for conservation purposes. The gift is tax-deductible with variations depending on the particular situation. A tax attorney or accountant should be consulted to analyze the tax advantages of your case.

Before you donate your wetland, find an organization or agency that shares your philosophical view of your land. It is important to discuss how the property might be used and managed. If the organization wants to reserve the right to sell the property in the future, you may want to consider granting a conservation easement to a third party to ensure that the land will be protected by future owners or arrange for permanent deed restrictions on the property. There are non-profit land trusts developing across the state dedicated to preserving open space and natural lands. For more information on a land trust that serves your area, contact Gathering Waters Conservancy (see left).

Conservation Easements

A conservation easement is a voluntary agreement used to transfer certain rights of use to a qualified non-profit organization, governmental body, or other legal entity without transferring title of the land. Conservation easements contain permanent restrictions that run with the land for a set period of time. An easement is a flexible and effective means of protecting the property while you still own it and does not grant public access unless you specifically allow it.

To be eligible for a tax deduction, conservation easements must be granted in perpetuity by the landowner. Contact a tax advisor for tax information before drawing up a conservation easement, perhaps with the assistance of an attorney familiar with conservation easements. Discussions with a local assessor are also advisable. The various federal programs described in Chapter 8 often require your restored site to be placed under easement.

Deed Restrictions and Covenants

Deed restrictions are clauses placed in deeds restricting the future use of land. When property containing a wetland is transferred, deed restrictions can prohibit uses or activities by the current and subsequent owners that would destroy, damage, or modify wetlands. A deed restriction should be developed with the aid of an attorney. Unlike a conservation easement, which provides long-term protection because of third-party monitoring, the enforcement of deed restrictions is less reliable and a future landowner can petition the court to vacate the deed restriction or just ignore it. In deed restrictions, the loss in market value due to the restriction may not be claimed as a charitable deduction on income tax returns.



Sale

Sometimes landowners must sell their land containing wetlands for financial or other reasons. If you must sell your wetland but are concerned about its future protection, you can consider using some of the tools described above to protect your wetland from future activities.

You can also seek a purchaser who shares your values and goals for the wetland's protection and management. Consider advertising in publications that target people who share your values such as environmental, sporting, hunting, and fishing publications. Try not to limit your search for a buyer to individuals. Nonprofit organizations (such as The Nature Conservancy), local land conservancies, hunting clubs, and land trusts may be interested in your property. In addition, state and federal government agencies or local units of government may be interested in your property for the purpose of preserving community open space and passive recreation areas, especially if your property lies adjacent a public area or in a planned environmental corridor.

What Is Right for Me?

The options listed above can be pursued individually or in combination with one another. What works for you depends on a variety of factors, and you need to consider each option carefully before acting. You can use the following list of questions as a guide in helping to make your decision.

- Do you want to continue to own your wetland?
- Do you want to manage the property exclusively?
- Do you want compensation for the property?
- Do you want to restrict future use of the wetland when property title is transferred?
- Do you want tax breaks for your property?

Voluntary protection efforts have increased in recent years due to income and property tax reductions as an incentive. However, the greater driving force may be the conservation sentiment of the landowner. Landowners with a strong sense of stewardship continue to seek ways to protect their land in the long term, allowing future generations to enjoy the beauty of wetlands. 