What Makes a Good Restoration Site?

* Restorable hydrology
* Upstream of lakes, streams, or rivers that will benefit
* Contains rare plant communities
* Near other protected habitat to create larger habitat areas
* Confined within the property lines of willing landowners

Restoration Process

1. Site Assessment and Evaluation: Knowledgeable natural resource professionals meet with the interested landowner(s) to discuss feasible restoration options and the benefits that would result from them.

2. Site Selection. Because funding is often limited, the candidate projects with the greatest environmental benefits are pursued.

3. Project Planning and Design. A hydrologic assessment, delineation, and survey is completed. From that, a design is compiled and reviewed with the landowner(s). This is often an iterative process.

4. Permitting. Any disturbance to wetland hydrology, even if part of restoration efforts, requires securing the appropriate permits prior to construction. Project managers help with this process to ensure all bases are covered.

5. Construction. Project installation techniques vary widely depending on the type of restoration that's pursued. In some cases, large construction equipment may be necessary to excavate filled wetlands or to block/reroute man-made drainage systems. In other cases such as invasive species removal, less equipment is needed.

6. Establishment and Management. Wetland restorations often require ongoing monitoring and management to ensure hydrology responds as it should and native vegetation establishes effectively. In many cases, invasive species may require follow-up treatment. Water level manipulations can be done to mimic natural disturbances.

7. Protection. Once the wetland restoration is completed, it may be required to be legally protected. This is particularly true of the owner is being paid to restore the wetland by government programs. There are several options, such as placing the restoration site into a wetland reserve or conservation easement, or signing an agreement to protect and maintain the site.

Technical Help

Each county's Soil and Water Conservation District (SWCD) offers technical assistance to landowners wishing to do a wetland restoration. They can meet with you to discuss feasibility, methods, and funding. They work with experts at state and federal agencies as needed.

SWCD's in the Rum River watershed include:

Aitkin SWCD	218-927-7284
Anoka Conservation District	763-434-2030
Benton SWCD	320-968-5300
Crow Wing SWCD	218-828-6197
Isanti SWCD	763-689-3271
Kanabec SWCD	320-679-1391
Mille Lacs SWCD	320-983-2160
Morrison SWCD	320-631-3551
Sherburne SWCD	763-220-3434

Funding Options

Funding for wetland restoration is widely available from local, state, and federal programs. Programs vary by location and year. Your local SWCD can help you find a program that fits you. Some commonly available programs include:

Local Cost Share— Often available through local SWCDs. This option is simple & local, even though the dollars are usually coming from the State. The owner or the SWCD may coordinate construction.

BWSR Wetland Restoration Programs— The MN Board of Water and Soil Resources (BWSR) will often pay the entire cost of a wetland restoration project while also providing payment for a conservation easement. These projects protect priority resources or offset wetland losses from road projects.

Establishing a Wetland Bank— In MN, the unavoidable filling or draining of wetlands must be offset by wetland restoration elsewhere. BWSR's wetland banking program allows those who have restored wetlands to generate wetland credits, then sell those credits to developers in need. The program requires landowners pay all restoration costs and comes with financial risk, but the revenue can be up to $100,000 per credit depending on the location and market.

Federal Farm Program—Available through the Natural Resource Conservation Service (NRCS), which works closely with local SWCDs and is primarily focused on land which has been in agricultural production. There are periodic sign ups.

USFWS Programs—The US Fish and Wildlife Service offers funding and design assistance. They typically work in coordination with SWCDs.

Non-profits—Some non-profits like The Nature Conservancy or the MN Land Trust have programs to encourage wetland restoration.

Prepared by the Anoka Conservation District

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WETLAND RESTORATION

Enhance Your Property's Ecological Value

Conservation Starts at Home

Rum River Watershed Partnership

Introduction

Once considered wastelands, wetlands are now valued for the many functions they provide in our landscape, benefiting both wildlife and people. Since the 1800s, humans have filled or drained more than 50% of Minnesota's wetlands for the sake of development, transportation, and agriculture, with some regions losing more than 90%.

The passing of wetland regulations in recent years has stemmed the tide of wetland loss. Even so, many remaining wetlands exist in a deteriorated state from historic and present-day impacts. The goal of wetland restoration is to return a former or degraded wetland to its natural functions — biologically, chemically, and physically. By restoring a wetland on your property, you can enjoy enhanced natural resources. Wetland restoration can also be financially lucrative.

Benefits of Wetland Restoration

Flood Reduction- Wetlands absorb snowmelt and stormwater runoff and then release it at a slower rate. Restoring the water-holding capacity of a wetland can help reduce flooding.

Wildlife Habitat– Healthy wetlands contain a diversity of plants and animals including birds, fish, amphibians, reptiles, and invertebrates.

Groundwater Recharge- Wetlands are often a hydrologic connection between surface water and groundwater. Some wetlands recharge groundwater supplies while others are fed by groundwater.

Water Quality- Wetlands filter water before it goes into lakes and rivers. Restoring wetlands is often critical to clearer, cleaner waters that are used for recreation.

Recreation– Wetlands provide opportunities for bird-watching, photography, hiking, canoeing, kayaking, hunting, and fishing. They are critical places for fish spawning and waterfowl production.

Erosion Control- Wetlands, and the vegetation they contain, along lakeshores and streambanks dissipate energy from waves and currents that otherwise cause erosion.

Carbon Sequestration– Wetlands are rich in vegetation which pulls carbon from the atmosphere through photosynthesis and traps it in the wetland soils.

Wetland Impacts in Minnesota

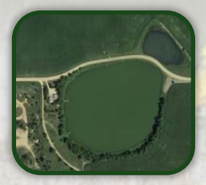
Many direct and indirect impacts have reduced the quantity and quality of Minnesota's wetlands over time.

Agriculture: Millions of Minnesota's wetland acres were drained to make productive cropland. This was achieved by establishing vast networks of drainage tile and ditches to re-route water to nearby lakes and rivers. This both eliminated critical habitat and increased the quantity of floodwater and pollutants reaching larger bodies of water. Many of these artificial drainage features and their impacts remain today.

Urbanization: In developed or developing areas, many wetlands have been drained or modified to increase useable land for transportation and urban infrastructure.

Invasive Species: Several non-native plant species such as narrow-leaf and hybrid cattail, reed canary grass, buckthorn, and purple loosestrife have been introduced to Minnesota's wetlands through human activity. These species grow quickly and densely, often choking out native species and forming monocultures which alter wetland hydrology, habitat, & water quality.

Pollution: Human activity in both agricultural and urban landscapes contributes pollutants such as excess sediment and nutrients, chloride, herbicides, and pesticides to wetland ecosystems. These impact vegetation and aquatic organisms at the base of wetland food webs.



Signs of Wetland Restoration Potential

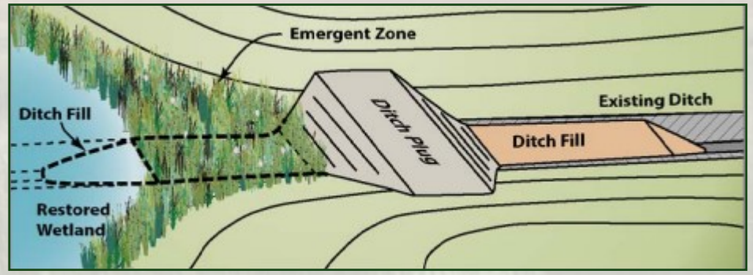
Look for signs in the water, vegetation, and soils on your property. Restoring a drained or damaged wetland can be easier than creating one where it never naturally existed.

Restoration Options

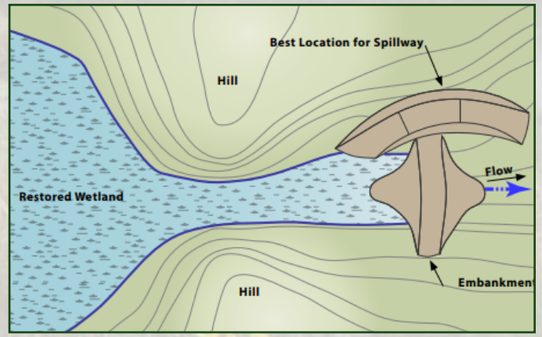
Restoring hydrology is often the first and most critical step in the wetland restoration process; soils, vegetation, and wildlife are all dependent on it. Hydrologic restoration techniques vary based on the type of disturbances impacting the wetland.

Drainage System Modification

Given the abundance of manmade drainage systems originally designed to drain wetlands and lower water tables, many restoration efforts involve manipulating or abandoning existing drainage features. In some cases, a ditch plug is all that's needed to hold back water and restore wetland hydrology.



In other cases, earthen structures such as embankments, dikes, spillways, and berms are needed to manage the depth or volume of water flowing to and through the wetland. Wetland outlets are carefully designed to ensure flood waters don't exceed the wetland boundaries.



Scrapes, or Other Excavations

Many shallow or drained wetlands have gradually filled in with soil over time. Excavations, even with a shallow scrape, can restore wetland functions. Wetland restorations are often as shallow as 6 inches to 6 feet deep to maximize ecological value through plant growth, and should not be confused with pond digging.

Vegetative Restoration

In some cases, a wetland's hydrology is intact but the habitat is degraded due to the dense growth of non-native species, warranting vegetative restoration. Scraping, herbicide treatment, tilling, & seeding are options for removing non-native species and improving the wetland's native plant community. Most hydrologic restorations also include vegetative restoration efforts.