



# Stormwater Ponds

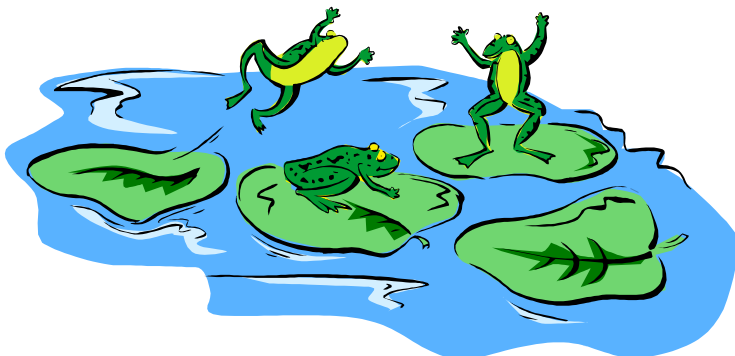
Stormwater ponds are manmade features generally located within or near residential, commercial and industrial developments. They are designed to mimic the ecological function of naturally occurring ponds and wetlands. These ponds may discharge their water into a manmade waterway, a lake, river, stream or wetland. Depending on the age of the pond, it may serve one or two stormwater management functions. Older ponds were designed to slow the flow of stormwater and discharge it at a rate to minimize downstream flooding. Newer ponds are designed to manage water volume as well, but also provide a water quality benefit. A properly designed stormwater pond will remove a substantial amount of sediment and other non-point source pollutants from stormwater before releasing this water downstream.

*Stormwater means  
stormwater runoff, snow melt  
runoff, and surface runoff  
and drainage.*

*U.S. Environmental  
Protection Agency  
1990*

Despite the considerable time and money it takes to design and build a stormwater pond, many fail to function as planned. Water levels are sometimes too high, causing erosion, or too low, killing aquatic plants. Water can move too quickly through the pond preventing sufficient retention time for pollutants to settle out. Sediment can fill ponds at a faster rate than expected and cause premature failure. Because many ponds require additional engineering and construction before they work properly, this section will assume that the pond or waterway under consideration for open space management is one that functions properly.

Your stormwater pond has the ability to provide habitat for a very diverse wildlife population and plant community. This section will briefly discuss ways to enhance that diversity to benefit water quality and wildlife. Properly landscaped and maintained stormwater ponds provide viewing opportunities for native plants and wildlife. In addition, good design and management techniques result in reduced geese and mosquitoes populations. Although there are a variety of landscape projects and maintenance operations that may be performed by property owners, we strongly suggest contacting professionals before undertaking any major stormwater pond alterations or landscaping.



## The Watershed

The watershed or drainage basin of a stormwater pond is the total land area that drains into it. (In most cases the pond will be designed so that the surrounding subdivisions is its watershed.)

## Stormwater Ponds

### Natural Landscaping Benefits

Enhances the ponds ability to remove non-point pollutants by providing habitat for micro-organisms that remove nutrients and even toxic compounds dissolved in the water.

Improves the pond's appearance by disguising water level changes and floating debris.

Provides habitat for insects such as dragon flies that eat mosquitoes..

Discourages resident flocks of ducks and especially geese.

Makes the pond less attractive and accessible for wading and swimming.

### *The Watershed Continued.. .*

To protect the water quality and health of the pond it is important to remember that whatever pollutants are washed off of the land in your watershed end up in the pond. Non-point source pollutant such as sediment, fertilizers, herbicides, pesticides, gas, oil and pet waste can all end up in the pond after a storms. The prevention of this type of pollution may be the single most important factor in the long term health of the pond. Included in this manual are a number of fact sheets that deal with non-point pollution including preventative steps homeowner can take.

### Landscaping: Establishing the Plant Community

Next to being properly designed to store and convey stormwater, landscaping is the most critical component in the proper functioning of the stormwater pond. Although most ponds have a landscaping plan at the time of construction, they may be inadequate or designed for "sales appeal" and not for the long term benefit of the pond. Mowed grass to the waters edge on all shorelines means the pond is not providing its full ecological value. Un-mowed vegetative borders or "buffers" are essential to long term health of ponds and waterways. Buffers should also extend into the pond where possible using emergent wetland plants.

The most important factor when designing a buffer is to choose the proper vegetation for the slope and soils. The buffer should include a diverse plant community that provides both habitat and aesthetic appeal. The proper buffer will provide both a water quality and wildlife component:

**Water Quality:** The proper plant community will prevent shoreline soil erosion (bank slumping) around the pond. It will also prevent herbicides and pesticides from going directly into the pond. Eliminating the need for fertilizers and frequent mowing will reduce the potential for algae blooms.

**Wildlife:** A diverse plant community will provide habitat for a variety of wildlife, including predatory insects, amphibians and birds which keep mosquito populations in check. Tall native grasses or a prairie buffer will also discourage Canada Geese from taking over the pond and adjacent lawns.

### Trails and Paths

Trails provide access for viewing and photographing birds, enjoying wildflowers, fall colors and for short strolls. They can be as simple as a footpath around the pond, or a winding mowed trail among the clusters of planted trees and shrubs. Trails should be set well above the shoreline so they don't flood when the water in the pond is high. Benches and bird blinds may be added as amenities for users.

### Maintenance

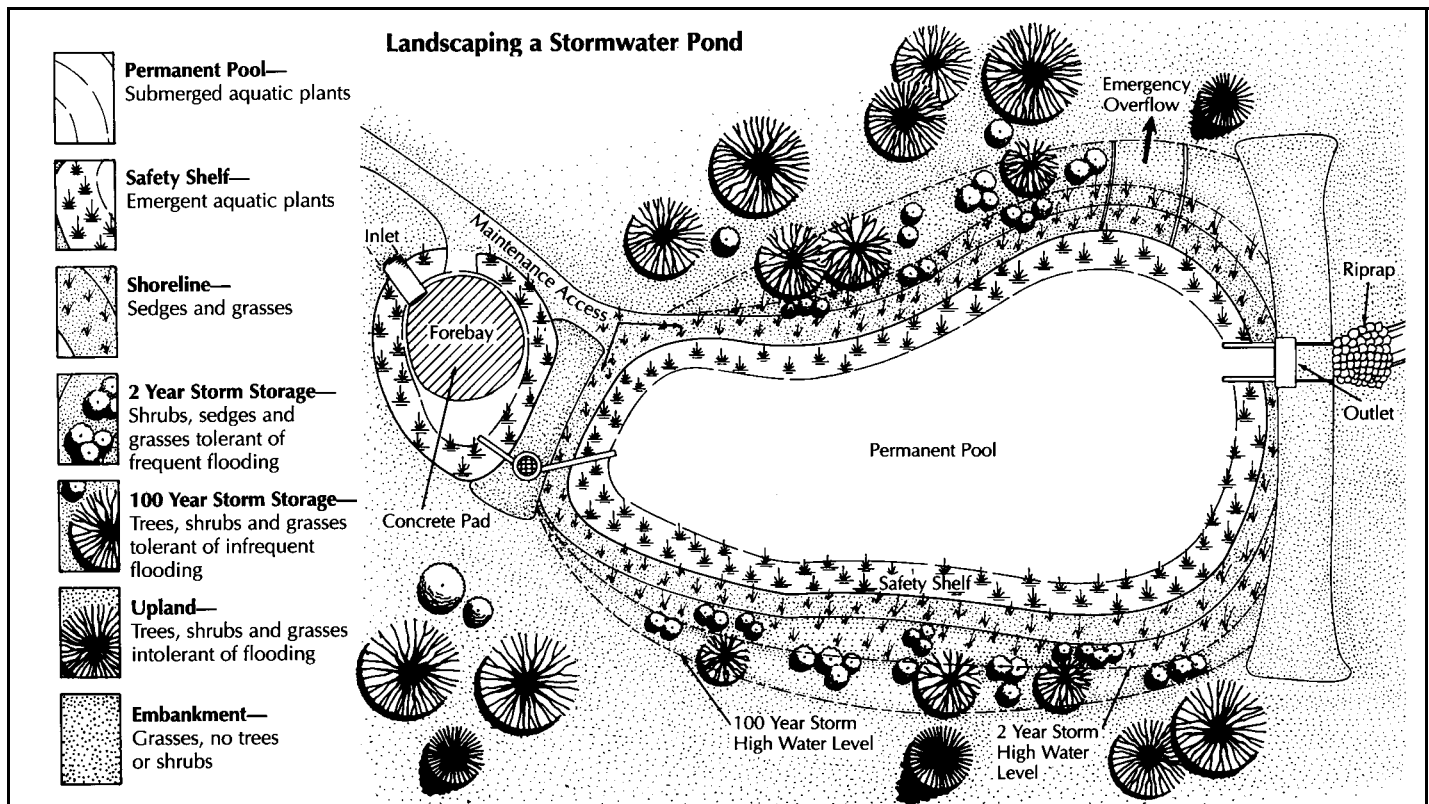
In pond maintenance, such as sediment and aquatic plant removal may require the equipment and expertise of a professional in the field.



## Stormwater Ponds

Many of them are willing to work with associations on long term maintenance projects. Native plant buffers around the pond and its discharge waterway will require maintenance to prevent non-native invasive species from taking over. This early stage is critical because the native plants often require more time to become well established than the weedy species. Debris removal and weeding will be required as small plants develop. Plant identification is very important for this operation since it is difficult in the beginning to distinguish between the non-native and native plants. If starting with potted plants, leave the plastic tags with the plants for the first year. Invasive plant removal will be an annual task but will diminish as the native plants fill in. Some sites may benefit by an occasional burning after they are well established (see Prairies). Once again, it is helpful to work with a professional for the first few years (see list).

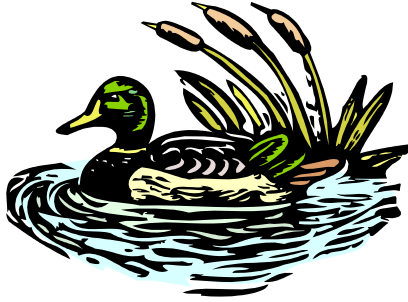
Stormwater Pond  
Picture



### Landscaping Ring by Ring . . .

Your neighbors may prefer a neatly mowed landscape for their nearby yard, but a natural landscape may appeal to them for the local stormwater pond, especially when they understand the water quality and wildlife benefits native plants provide. This drawing shows a potential landscape plan for a typical stormwater pond. Two vegetation rings are in the pond itself. In the center of the pond, aquatic plants such as wild celery and sago pondweed grow under the water. Around the pond's edge, a ring of wetland plants such as bulrushes emerge from the shallow water. Above the pond, additional rings of vegetation enhance the pond even more. Along the shoreline is a ring of sedges and other plants adapted to wet conditions. Just upslope, above the highwater mark for an average two year storm, is a ring of red osier dogwood and other plants that can tolerate frequent flooding. The outermost ring, in the storage for the 10 year storm, contains shrubs like silky dogwood and grasses such as fescue that can tolerate limited flooding. Beyond this ring is upland vegetation including tall grasses, wildflowers, shrubs, and even trees.

## Stormwater Ponds



### Contacts:

**Wisconsin Department of Natural Resources:** Offer a wealth of knowledge and experience when it comes to stormwater ponds.

**Wild Ones Natural Landscapers:** A national organization with local chapter devoted to encouraging the use of native plants in urban, suburban and rural landscapes. On the web at: [www.for-wild.com](http://www.for-wild.com)

**University of Wisconsin- Extension:** Various publications about birds. On the web at: <http://cecommerce.uwex.edu/>

### Contacts for Plants

**Native plant nurseries:** See the enclosed list or contact the DNR's Bureau of Endangered Resources at [www.dnr.state.wi.us/org/land/er/invasive/info/nurseries.htm](http://www.dnr.state.wi.us/org/land/er/invasive/info/nurseries.htm).

**DNR Bureau of Forestry:** Sells individual tree and shrub seedlings plus wildlife packets containing a variety of woody plants. Contact your local DNR forester for their Spring Tree & Shrub Application Form 2420-031.

### Publications and other sources of information:

Backyard Wildlife Habitat Program. National Wildlife Federation, 8925 Leesburg Pike, Vienna, VA 22184-0001 (<http://www.nwf.org/nwf>)

Landscape Plants That Attract Birds, Scott Craven and Robert Ellarson, UW-Extension, G1609

Wildlife Habitat: Make a home for birds, butterflies, and nature's other creatures. Backyard Conservation Series. USDA Natural Resources Conservation Service; National Association of Conservation Districts. Wildlife habitat Council. USDWS, Office of Public Affairs, Washington, D.D. 20240. ([www.fws.gov/~r9mbmo/pamphlet/pamphlets.html](http://www.fws.gov/~r9mbmo/pamphlet/pamphlets.html)) or (<http://www.nrcs.usda.gov/feature/backyard/>)

### 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.

Major assistance from the Wisconsin Department of Natural Resources, the University of Wisconsin Cooperative Extension and Siepmann Realty Corporation.

For more information please contact:

SE WI Fox River Partner Team  
N25 W27534 Oak Street  
Pewaukee, WI 53072  
414-290-2431

<http://basineducation.uwex.edu/southeastfox/>

