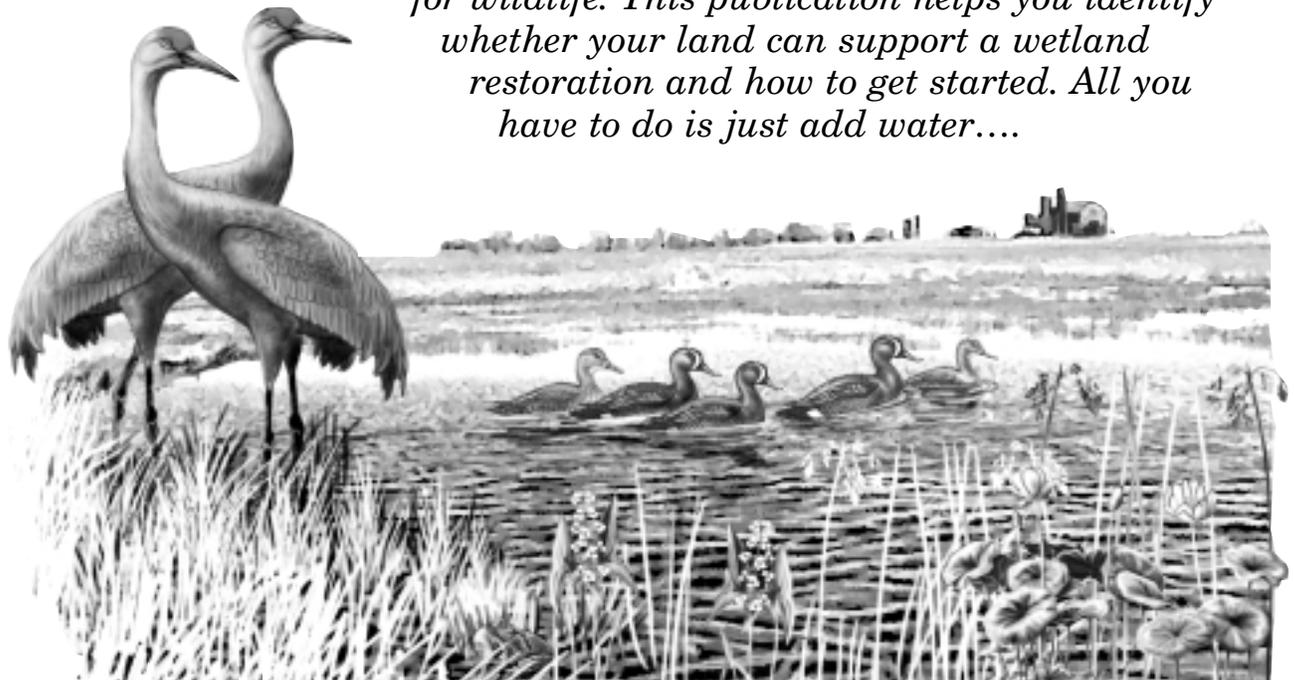


# Just Add Water!

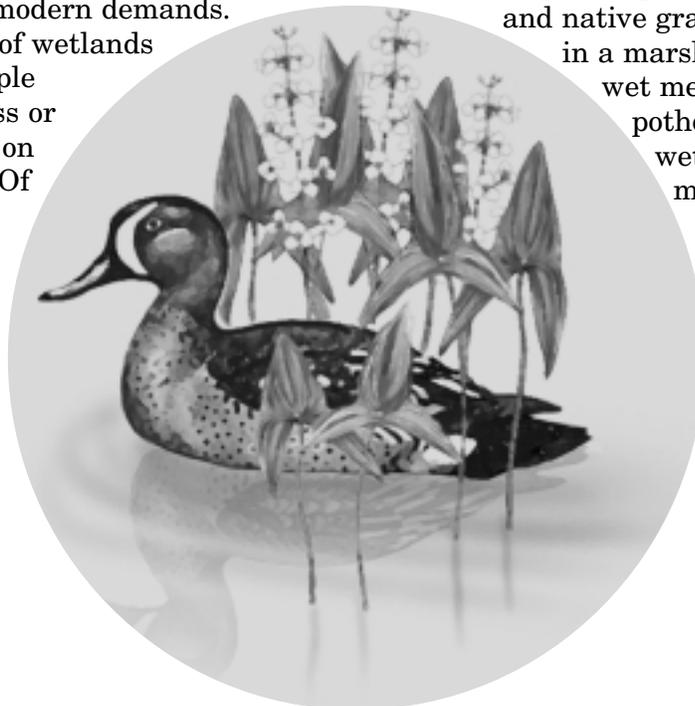
## *Restoring Shallow Wetlands for Wildlife*

*Listen. TerrrEeP, TerrrEEEP, Wheet....Wheet. Wheet. TerrrEEEp, terEEEp, Wheet....Wheet. Wheet. Those are the sounds of chorus frogs and spring peepers on a warm spring evening. On nights like these you'll hear their joyful song in marshes and ponds, seeps and sloughs all across Wisconsin. And that's not all that dwells in wetlands. Ducks, geese, pheasants, woodcock, snipe, songbirds and shorebirds live there too. Mink search from shore to shore for their favorite meal while muskrats mend their cattail huts. Sandhill cranes explore sedge meadows for tender roots, amphibians and rodents. Raccoons feast on frogs. Wild turkeys, deer, and other animals stop by for rest and water. Wetlands are busy places. In fact, more wildlife utilize wetlands than any other habitat. Restoring a shallow wetland on your land could be the most important thing you do for wildlife. This publication helps you identify whether your land can support a wetland restoration and how to get started. All you have to do is just add water....*



Wisconsin, wetlands and wildlife go together. We owe this heritage to the massive glaciers that once blanketed all but the southwest part of the state. As this icy sculptor melted about 10,000 years ago, it left behind the raw materials—water and lowlands—to form 10 million acres of wetlands—1/3 of Wisconsin’s total land area. This included many types of wetlands such as potholes, shallow wetlands, deep water marshes, bogs, fens and river bottoms. Even in the unglaciated southwest, the icy meltwaters created massive backwater sloughs along the Wisconsin, Chippewa, Black and Mississippi Rivers, and countless small wetlands around smaller drainage systems. All together, these wetlands provided breeding and feeding grounds for magnificent flocks of waterfowl, and food and cover for songbirds, shorebirds, herons, egrets, deer, foxes, raccoons, furbearers, amphibians and invertebrates.

The abundant wildlife described in stories told by the first European settlers lured more people to this new and “limitless” land. But as our population grew, so did the demands of agriculture and commerce. We drained, dredged and filled our wetlands to accommodate these modern demands. The perceived value of wetlands declined but few people worried about the loss or the potential impact on wildlife. The result? Of Wisconsin’s original wetlands, just half exist today, though in some southern counties the losses are over 75 percent.



## They’re All Wet!

There are many different kinds of wetlands, but they all have one thing in common—Water! Wetlands range from those that are seasonally saturated to those completely covered with standing water year-round. Water-loving plants thrive under these wet conditions. Wisconsin has four major categories of wetlands: fens, bogs, swamps and marshes.

💧 **Fens:** A fen is a grassy wetland fed by mineral-rich springs or groundwater. It is the rarest wetland type in Wisconsin.

💧 **Bogs:** Bogs are common in northern Wisconsin. They are characterized by acidic water, dense peat mats and unusual plants such as the insect-eating pitcher plant.

💧 **Swamps:** Swamps are forested or shrub-dominated. Southern bottomland forests, northern cedar or tamarack swamps and alder or willow thickets are types of swamps.

💧 **Marshes:** Marshes are areas of standing water that sustain water-loving plants such as cattail, sedge, arrowhead, bulrush and native grass. There are no trees in a marsh. Sedge meadows, wet meadows, prairie potholes and shallow wetlands are kinds of marshes.

## The Importance of Wetlands

*Wetlands are important for wildlife and people.*

### Nature's Nursery

Growing up wet is common for many kinds of wildlife. Muskies, northern pike and a variety of other fish spawn in wetlands. Muskrats, mink, beavers, otters, ducks, geese, swans, and a whole host of shorebirds and songbirds are born and raised in wetlands. So are turtles, snakes, frogs, toads and salamanders, and dragonflies, mayflies, snails and other invertebrates. Without wetlands, these animals could not survive. In addition, cattails, bulrushes, waterlilies and sedges are just a few of the plants that grow in wetlands. Many provide food and shelter for wildlife. For example, the cattail is known as the "supermarket of the swamp" because so many animals use it.

### Winged Waysides

The flyways of Wisconsin are filled with more than silver-winged airplanes. Each fall and spring, they come alive with a variety of migrating birds, from waterfowl to songbirds. Many members of this feathered jet-set fly non-stop from southern wintering grounds to Wisconsin's wetlands, reproduce, and then return to their wintering grounds. In spring, migrants tarry here as they wait for warmer weather to thaw frozen marshes further north.



### Flood Insurance

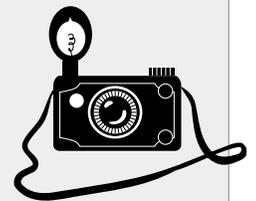
During periods of heavy rain, wetlands act as huge reservoirs that help prevent flooding downstream. A one-acre wetland, holding water to a depth of one foot, will store 330,000 gallons of water. These stored waters then trickle back into the earth and help recharge groundwater supplies.

### Frugal Filter

Wetlands do the same things as water treatment plants, only they don't charge for the service. Here's how. After a heavy storm, wetlands capture runoff waters in their lush tangle of plants. The stilled waters allow sediments and pollutants to drop out of suspension. Tiny underwater organisms attached to plants intercept nutrients and many pollutants, recycling them into new plant and animal life. This process works to prevent pollution of lakes and streams.

### Wetlands for You

No matter who you are—hunter or trapper, artist, bird watcher, photographer, teacher, student or nature lover—you know the importance of wetlands. Ducks and geese stock many a larder while muskrat, beaver, mink and other wetland furbearers provide the raw materials to make warm winter clothing. Cattails are a favorite fall decoration and cranberries and wild rice provide tasty and colorful seasonal fare. The wildlife and scenic vistas found in wetlands have inspired many awe-inspiring photos and lasting memories. And wetlands are favorite outdoor classrooms. Wetlands give us many things, but perhaps the most important thing they give us is not visible to the naked eye—peace of mind.



# Just Add Water!

## *Shallow Wetlands: Why we need them*

Shallow wetlands warm sooner than deepwater marshes and provide waterfowl, shorebirds, herons and egrets with an abundance of plants, frogs, salamanders and insects for food in early spring. This type of wetland also provides nesting and feeding habitat for waterfowl that prefer small, isolated wetlands. Ducks breed in adjacent grasslands and feed off the wetland bottom for insects and plants. When several of these wetlands are within close proximity to one another, a hen can play “musical-ponds” in search of food. More wetlands mean more food and cover variety, and that means better habitat—habitat that will also support deer, pheasants, songbirds, muskrats and more at some time during their life cycle.

Wetland restoration is one of the best ways to invite wildlife back to your land—Just Add Water!

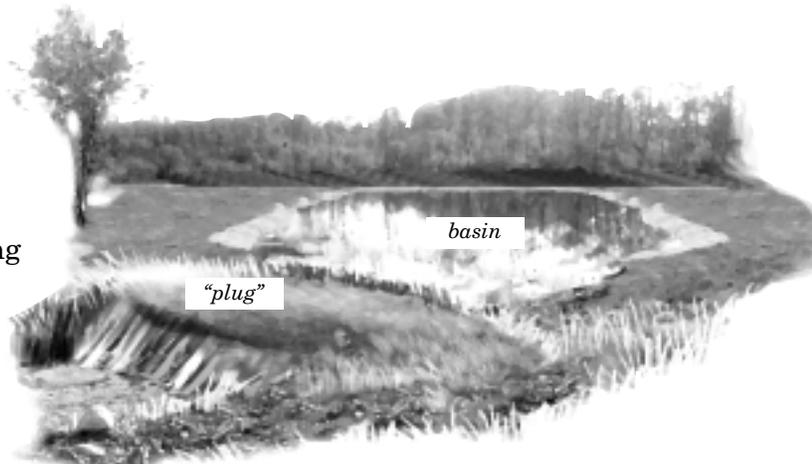
## *Restoration Methods*

Former wetlands come alive after water returns. Dormant seeds sprout and ducks reappear. Restoring a wetland is a modest investment you can make for wildlife and your land. Ditch-plugs and tile-breaks are the most commonly used and preferred techniques because they are the fastest, most efficient methods. Average costs are about \$500/acre. Other methods, such as constructing a dike or scraping out a wetland basin are used to *create* or *enhance* existing wetlands. They tend to cost more. These techniques are briefly defined below.

## Ditch-Plugs



Ditches were constructed to drain wetlands years ago. “Plugging” the ditch with heavy soil allows the water to collect in the wetland basin again—a true restoration.





## Tile-Breaks

Tile can be removed to allow water to collect in the wetland basin again. At least 50 feet of tile is usually removed.

In some cases, you may want to restore a wetland on your property, but your neighbors, who are also serviced by the same tile line, may not. In these cases, tile lines are fitted with special water control structures such as elbow riser-tubes or perforated bypasses, so that you *and* your neighbors' needs are met. These structures add costs to the wetland restoration project.



## Low-head Dikes

Low-head dikes or berms are used to *create* wetlands in areas with suitable topography and soils. Though they are similar in construction to ditch-plugs they differ because they are placed where they will most likely capture runoff. The trapped water creates the pool area for the new wetland.



## Wetland Scrapes

Wetland scrapes are used to *restore* or *enhance* wetlands that have filled with silt or to increase the depth of open water in existing wetlands. It involves digging a shallow, depressional area with a scraper (pictured below) and removing the spoil to an upland site. This process requires a permit. It is illegal to fill any wetland or deposit excavated soil into surrounding wetland soils. Scrapes can sometimes be used to create a wetland on sites that have suitable soils, elevation, and water conditions.



# Mucky Mess or “Field of Dreams?”



You may have a former wetland on your property and not even know it. The following questions can help you assess the suitability of turning that soggy part of your land into a wildlife “field of dreams.”

## 1. Assessing Your Land

- Are there depressions or potholes on your property that are drained by tiles or ditches? Good quality aerial photos often show field depressions or potholes, drainage ditches, and drain-tile systems.
- Can you see obvious changes in vegetation in your fields? For example, are there patches of stressed or drowned crops?
- Do you have a field that is difficult to plant because it’s too wet in spring and difficult to harvest because it’s too wet in the fall?
- Do patches of wetland plants such as cattail, sedge, or smartweed occur in your fields?
- Is the soil in the wet areas of your fields clay or claylike?

If you answered “yes” to any of these questions, then you *may* have a drained wetland on your property that could be restored with assistance from the DNR or a private contractor. If you answered “no” to these questions, don’t quit reading, you still may be able to *create* a wetland on your property or enhance an existing wetland if the soils and topography are right.

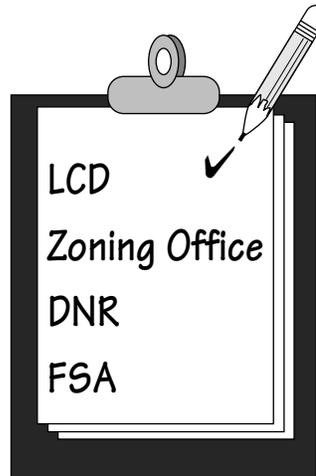
## 2. Getting Assistance

If you think you have a potential wetland restoration site, contact your DNR Wildlife or Private Lands Manager. They can further assess your land’s potential for a wetland restoration. On qualifying sites, they’ll assist with design and construction of wetlands. On other properties, they’ll get you started and direct you to the right programs and resource people. The Natural Resources Conservation Service keeps a list of private contractors that do wetland restoration work. There may even be financial assistance available.

The Wisconsin Department of Natural Resources, U.S. Fish and Wildlife Service, Farm Service Agency (FSA) and local Land Conservation Departments have cost-share dollars available for qualifying wetland restoration projects. These agencies will assist with wetland restoration plans and management questions. Funding varies from county to county. DNR wildlife managers may refer you to the Area Water Management Specialist. They can help you secure state permits necessary for wetland restorations and advise you on other permits. Permit requirements will vary depending on the wetland you restore and where it’s located.

You may need permits and/or approval from the following agencies. Either way, allow from two to eight months to complete this process.

- County Land Conservation Department
- County Zoning Office
- State Department of Natural Resources
- U.S.D.A. Farm Service Agency (FSA)
- U.S. Army Corps of Engineers (a list of Corps regulated activities can be obtained from DNR offices.)



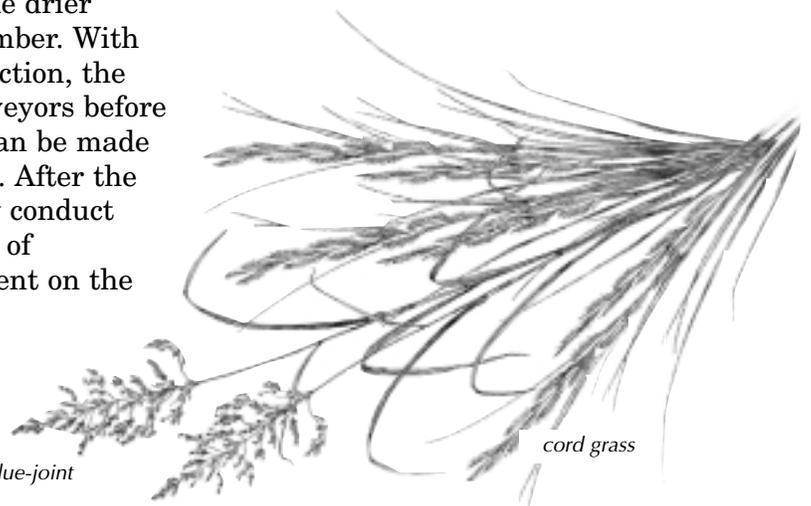
Remember, securing a permit does not guarantee a successful wetland restoration. It shows that your wetland will not adversely affect existing environmental and social conditions.

### ***3. Implementing Your Plan***

This is the fun part—the payoff from all the planning you’ve already done. By this point, you have acquired all the necessary permits and permissions, your neighbors have been contacted and are comfortable with your project, and you are confident that the DNR staff and/or contractors in charge of the project will deliver the results you expect.

Most restoration occurs during the drier months—July, August and September. With projects that involve dike construction, the work is evaluated by trained surveyors before completion so that adjustments can be made while the equipment is still there. After the project is complete, the DNR may conduct surveys to determine the number of waterfowl and other wildlife present on the new wetland.

*blue-joint*



*cord grass*

# Anatomy of a Shallow Wetland

The primary goal of shallow wetland restoration is wildlife enhancement. These wetlands typically occur on agricultural lands that were previously drained. If you proceed with a shallow wetland restoration, here's what you can expect.

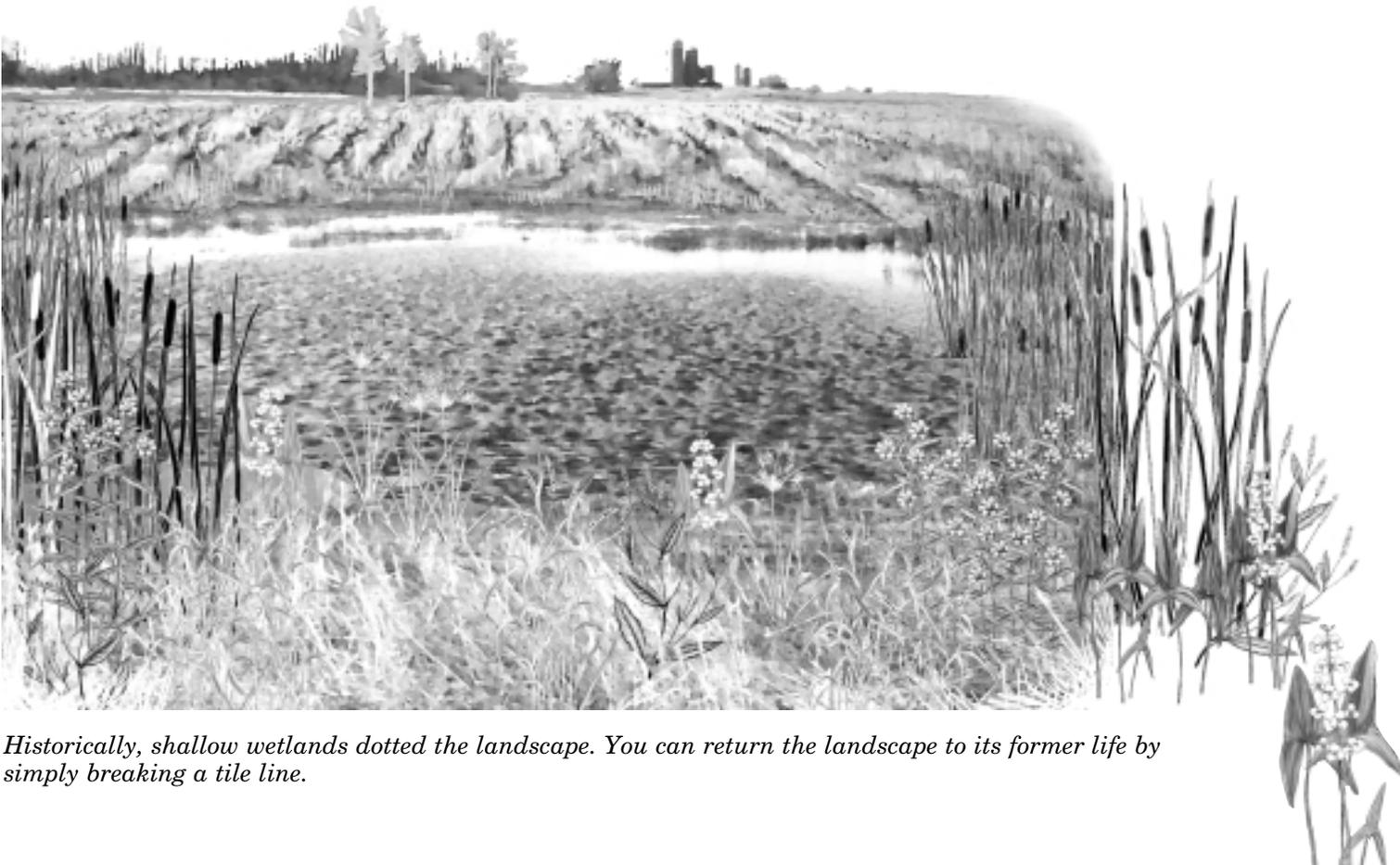
## *Depth and Shape*

Once tile is removed or a ditch is plugged, the water will return to its former depth and basin. Typically, these wetlands are no greater than 3 feet deep and have a gradual, sloping base. They usually dry up during the summer, though the deeper basins can hold water year-round. You can achieve the same result with a wetland scrape. If you choose the wetland scrape method, never exceed 3 feet and always strive for the most natural looking shape you can. Irregular edges are best.

## *Vegetation*

Good plant cover makes for good nesting, escape, resting and feeding habitat. In most cases, desirable wetland vegetation will grow without interference. Wetland seeds are already in the soil and just need water to germinate. If you live near wetlands, seeds will also blow in or be carried in by birds and mammals. Common plants you may see are cattail, smartweed, arrowhead, sedge, beggartick, and wild millet. Common native wetland grasses include blue-joint and cord grass.

If you're managing for waterfowl and pheasants you will want to maintain a grassland buffer around the wetland for nesting. For every one acre of wetlands, shoot for four acres of grassland. If you have the land, we recommend grasslands of at least 40



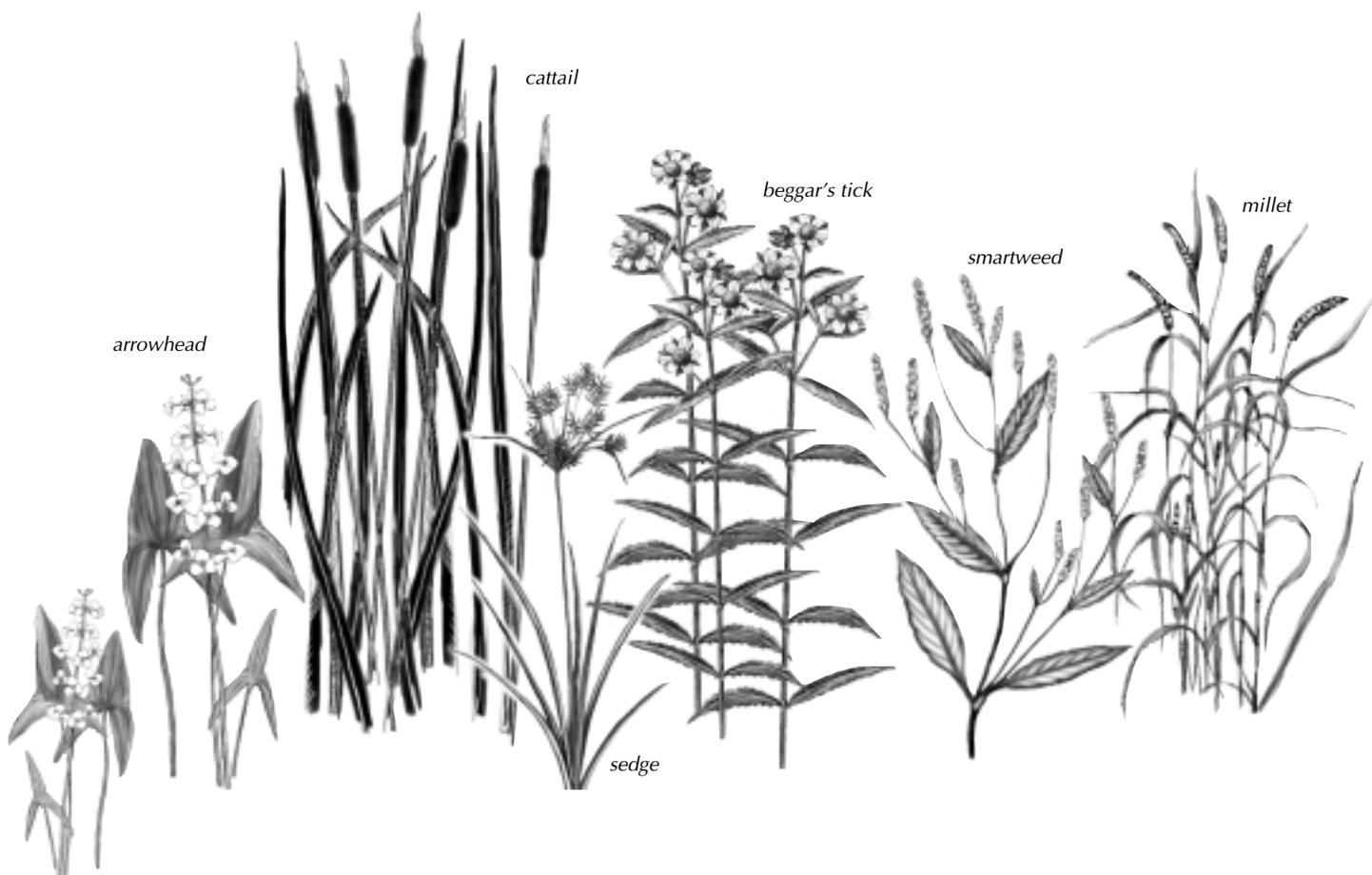
*Historically, shallow wetlands dotted the landscape. You can return the landscape to its former life by simply breaking a tile line.*

acres in size. This allows enough cover for birds to successfully hide their nests from predators. The bigger the better.

It is better and cheaper to allow local plants time to grow, but if you want to plant wetland flora, it's best to allow one growing season to pass. Then carefully select wetland plants which are available from specialty nurseries. Look at wetlands in the vicinity and see what is naturally occurring in your area.

While cattails grow naturally in wetlands and provide excellent cover for pheasants and songbirds, they can also choke out open water and reduce the attractiveness to waterfowl. If your wetland has more than 3 feet of water, muskrats will likely call your wetland home

and help keep cattail in check. Muskrats are natural "mowers". But as always, too much of a good thing is bad. Too many muskrats can "eat-out" a marsh of all cattail, which is not desirable for the pheasants and songbirds so many people want. Trapping is used in these cases to control muskrat numbers. Balance is the key.



## ***Problem Plants***

Purple loosestrife, an exotic plant from Europe, can infiltrate your wetland and choke out native, more desirable plants. Pull them out before they go to seed. Research has shown that this is the best method for controlling purple loosestrife in the long-run. Herbicides *have not* proven effective.

Reed canary grass is an aggressive non-native plant that once established, takes over a wetland. Do not plant this grass under any circumstances. Blue-joint, a native Wisconsin grass, is a better choice.



*purple loosestrife*

*reed canary grass*



### ***If you build it...***

By restoring a wetland, you can connect with Wisconsin's wetland and wildlife legacy; a legacy that dates back to the ice age. It's not a complicated process and does not require a lot of maintenance. And remember, if you build it, the wildlife will come. Ribbit!

## *Excavated Ponds*



*Though less attractive to wildlife, excavated ponds used for recreational and other purposes can still provide some benefits if constructed with an irregular edge and a gradual slope to invite wildlife to drink and take cover there.*

If restoring a shallow wetland is not possible on your land because of its characteristics, or your goals lean toward having a pond for fishing, swimming, livestock watering or other use, then an excavated pond may be for you. These ponds, often called dugouts, are usually characterized by steep sides and deep water. Though less attractive to wildlife, they can still provide some benefits if constructed with an irregular edge and a gradual slope to invite wildlife to drink and take cover there. In general, the more human uses your pond has, the less desirable it will be for wildlife. Excavated ponds are also more expensive to build. For these reasons excavated ponds are rarely cost-shared by government agencies. For more information about building a pond see the publication **Thinking about Building a Pond** available from your local DNR, Bureau of Water Regulation and Zoning.



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