



Living on the Edge

Where the Water Meets the Land: The Importance of Shoreland Restoration

Scenic lakes have lured families to their shores for generations to fish, boat, and swim. Once at the lake, people discover that there is much more to the lake experience than fishing, boating, and swimming. The lake has an intangible attraction fostered by wildness and natural beauty: the enchanting call of a loon, the fun of seeing a family of otters playing among the lily pads, the majestic site of a Bald Eagle soaring above sparkling blue waters. The appeal of living on Wisconsin's shorelands is provided largely by the native plant and animal life that make the shores their home, and that in and of itself, makes shorelands extremely valuable.



The constant activity of shoreland wildlife offers a window on Nature for people of all ages. Children are drawn to the water's edge, where they examine animal tracks and peer into the water at tiny creatures swimming and wiggling in the lush vegetation. Adults are equally fascinated by loons and ospreys patrolling the water body. On shorelands, a quiet observer can sometimes see a mink, raccoon, or otter exploring nooks and crannies among tree roots, hollow trees, or overhanging banks.



Plants at the water's edge provide beauty and color to the shoreland environment. Cool, moist shoreline soils provide habitat for Blue Flag Iris, Marsh Marigold, Swamp Rose, and Sweet Flag. Additionally, Cup-Plant, Swamp Milkweed, New England Aster, Great Blue Lobelia, Monkeyflower, and Ironweed provide beauty, diversity, and stability to the water's edge. Water Shield, Water Celery, Hardstem Bulrush, Pickerel Weed, and White Water Lily also create underwater habitat important for spawning fish.



Wildlife depends on both live and dead plants for habitat. Dead trees on the shore and logs lying in the water provide perches for Eastern Kingbirds, Belted Kingfishers, Eastern Phoebe, and Green Herons. Floating logs are loafing sites for Painted Turtles, sometimes stacked three deep in the midday sun. The tangle of dead tree branches underwater protects newly spawned fish from predators. Shoreland plants, both dead and alive, help protect the shoreline by absorbing the energy of waves that might otherwise erode the soil.

A thriving plant and animal community on the water's edge contributes to another attribute: good water quality. Native plant communities in the water and on the shoreline filter rainwater and melting snow that drain into the lake for the surrounding

watershed. When that water contains pollutants, the vegetation helps purify it.

For people living along relatively undisturbed shorelines, enjoying the native plants and wildlife of a lake with clean water is a daily reward for good land stewardship. Unfortunately, decades of traditional lawn management have led to conventional ideas about what the "perfect shoreland lot" should look like. Expansive lawns mowed all the way to the water's edges, and no aquatic vegetation are all too often the norm. Landscaping shoreland lots to achieve this ideal has led to a serious loss of natural shoreland habitat and deteriorating quality on thousand of lakes.

Many shoreland property owners now realize that something is amiss on their lake or river. They notice fish populations declining. They see fewer Belted Kingfishers, frogs, and wading birds along the shore. They complain about Canada Geese and muskrats as nuisances. They see more bank erosion, more shoreline heaving, huge trees along the shoreline starting to lean towards their house, and generally less and less of what attracted them to their shoreland property originally. They spend more time mowing their lawn, painting their shutters, and fighting Nature, than they spend fishing. They have unknowingly created a shoreland environment that is ecologically dysfunctional.

Happily, there is an easy solution to this complicated and disheartening problem. Landscaping for wildlife and water quality, which is also known as "lakescaping", holds the key to restoring Wisconsin's shorelands to a natural state. At the heart of the lakescaping concept is the creation of a buffer zone along the shoreline. A buffer zone is a natural strip of vegetation along at least 75% of a property's frontage that extends 50 feet onto the land, and then out into the water as well.

The goal of creating a buffer zone is to restore the shoreline, both on shore and in the water, with the vegetation that occurred there naturally in the first place. This includes native trees, shrubs, wildflowers, ferns, shoreline plants, vines, sedges, grasses, and emergent and submersed aquatic vegetation. The buffer zone restores ecological functions that are reduced or eliminated by traditional lawns planted to the water's edge. With a buffer zone, the shoreland once again becomes important as wildlife habitat for nesting, perching, feeding, and brood-rearing. When this happens, the shoreline then begins to regain its value, and to quote Mr. Aldo Leopold, "By value, I of course mean something far broader than mere economic value; I mean value in a philosophic sense".

A shoreland buffer zone can return many desirable features to your shoreland property and present you with a seasonal array of colors, textures, aromas, and continual wildlife activity. Lakescaping for wildlife and water quality will allow you to live at peace with a more natural shoreland, instead of trying to make it conform to traditional landscape ideals that throw the lake ecosystem out of whack.

Creating a Shoreline Restoration Plan

[How do I know what plants are going to grow on my site?](#)



To ensure that the native plantings in your Shoreland Restoration Plan have the best chance of survival, it is very important to consider the conditions that Mother Nature gave your property. Some of the most important things to consider are soil type, soil moisture, sun exposure, and the slope of the land. Every shoreland property is different, therefore a "one size fits all" approach to Shoreland Restoration will not work. Natural factors WILL dictate what grows on your property, therefore it is better to work with Mother Nature than against her.



The first step to deciding what native plants are going to thrive on your shoreland property is to determine the site conditions of all of the areas of your property that are in need on restoration. In each area that is going to be restored, examine the soil type, soil moisture, sun exposure, and the slope unique to that portion of your property. If you have questions on how to determine the soil type, soil moisture, sun exposure, and the slope, or if you would like to know what criteria are used for each category, click on the "Criteria for Site Conditions" below. This is a very simple and extremely important step in restoring your shore.



[Click here for Criteria for Site Conditions \(coming soon\)](#)

Once you obtain this site condition information, you will be ready to customize your Shoreland Restoration Plan to your specific likings. By clicking on the "customizing" tool below and entering all of your site condition information, this program will take all of the information that you have compiled and give you a listing of only the native plants that will grow in that specific setting, complete with pictures of each plant and information on what value and importance they have in the ecosystem. Since this tool shows you pictures of all of the appropriate plants that will grow in each ecotype, you can decide what plants you want to include or exclude from your shoreland restoration, based purely upon your personal likings. However, it is crucial to the health of the water body that your plantings be diverse. Try planting some plants from all of the categories; trees, shrubs, wildflowers, ferns, shoreline plants, vines, grasses, sedges, and emergent and submersed aquatic vegetation. This will not only make your shoreland property healthier, but it will give it more character and charm.



[Click here to customize your Shoreland Restoration Plan](#)



[OK, I've figured out the plants that I want, now where can I buy them?](#)

There are many wonderful native species of trees, shrubs, wildflowers, ferns, shoreline plants, vines, grasses, sedges, and emergent and submersed aquatic vegetation that are available for the public to buy. To alleviate the headaches associated with finding nurseries and greenhouses that sell the native plants that you are looking for, we have enclosed a listing of growers that sell native plants. But don't assume that they carry every plant that you want. Calling ahead and ordering earlier in the year are recommended. Furthermore, it is important to prepare your site for planting before you purchase the plants.



[Click for information on local greenhouses and nurseries that sell native plants](#)

[Site Preparation](#)

[Eliminating Invasive Weeds:](#)

The essential first step in establishing native plantings is to eliminate competition from lawn grasses, sod, and weeds. The removal of problem species like Reed Canary Grass, Purple Loosestrife, Crown Vetch, and Common Buckthorn, takes time and requires persistence. It is entirely possible for the eradication process to take an entire growing season. However, this step is essential to ensure the success of your native shoreland plantings. In most cases, a shoreland property owner is given a 3-year grace period before they are required to have completed their shoreland restoration, so it is better to take your time and do it right, then hastily implement your Shoreland Restoration Plan.

[Click for more information on eliminating invasive weeds \(coming soon\)](#)

[Soil Preparation:](#)

Beyond eliminating lawn grasses, sod, and invasive plants, no soil preparation is required for the installation of live native plants. By using the customizing tool, appropriately selected plants should thrive in the soil conditions that exist on the site. The incorporation of soil amendments such as black dirt, peat moss, manure, &/or fertilizer are not necessary, and in fact, are often detrimental to the success and the spirit of the shoreland restoration plantings. Amendments that enrich the soil favor weed growth and cause native plants to grow fast and then flop over. Furthermore, many of the nutrients in these amendments runoff into the water and thereby cause future problems. The exception to this rule is restoration in areas that are wooded and shady. These areas often benefit from the addition of compost or manure, however, fertilizers and black dirt are not needed.

[Click for more information on soil preparation \(coming soon\)](#)

[Planting Tips:](#)

Detailed instructions for the installation of plants and seeds can be obtained from the nursery where the plants are purchased, but a few important points are worth mentioning to help you establish shoreland plants successfully. For more information on planting tips, click on the link below.

[Click here for more planting tips \(coming soon\)](#)

[Mulching:](#)

The prevention of soil erosion in order to protect water quality is a prime benefit of revegetating shorelands with native plants. The



deep fibrous roots of many shoreland plants help hold the soil in place. But when the soil is disturbed to install these plants, care must be taken to keep it from washing or blowing into the lake. This can be done by applying mulch to planting beds. Mulch not only prevents soil erosion, but also benefits the plantings by controlling weeds and holding moisture in the soil. Weed seeds need light to germinate, and the mulch keeps these seeds in the dark. Mulch also makes a planting look cleaner.

[Click here for more information on mulching \(coming soon\)](#)

Maintenance:

A significant advantage of having native plants along your shoreline rather than lawn or traditional annual and perennial plants is a reduction in the time and effort needed for maintenance. After a native planting is established, care is reduced to the control of invasive weeds. Watering, regular mowing, fertilizing, and the use of harmful insecticides are eliminated. Diligent management the first two seasons while the plants are still small is critical. This initial investment of time will reward you with a vigorous and attractive low maintenance planting for years to come.

[Click here for more information on maintenance \(coming soon\)](#)

Supplemental Plantings:

Inevitably, in any planting, a few plants will not live through the first year, therefore it is important to budget monies for future supplemental plantings. Where large gaps in a planting develop and where erosion may occur, it is important to replant as quickly as possible. Use this as an opportunity to plant more of the native species that were especially successful, or use it as a chance to try a few new ones. A continuous vegetative cover is the goal.

[Click here for more information on supplemental plantings \(coming soon\)](#)

Why Natural?

It is important for shoreland property owners to understand why their shoreland restoration has to be done with all native plants. One of the most important things to consider is the fact that our native shoreland plants have evolved in Wisconsin, and therefore are more hearty than exotic species of plants that evolved elsewhere. Wisconsin has a very harsh climate. It can reach 100 degrees in the summer and -40 in the winter. Therefore, any plant able to evolve in such conditions must be tough. Another reason that the plantings have to be native is because certain species of exotic plants can be very invasive. When an invasive plant is introduced into an ecosystem, it can dominate native plants to the point where it kills them all off. Although some people see this just as another logical step in the evolutionary process, we have to remember that all of the wildlife we enjoy in Wisconsin evolved with the native plants, and therefore are dependent upon them. Exotic plants usually destroy the niches that many species of native flora



and fauna need, rather than creating new niches.

Rock Riprap Versus Bioengineering:

On many lakeshores the impact of waves and ice on the shoreline is substantial, and over time the shoreline erodes. Riprap is commonly used to control erosion along stream banks and lakeshores, however, it should only be used in the extreme cases where vegetation is not sufficient to prevent erosion caused by high water or wave action. Riprap is very expensive, often installed incorrectly, unsightly, and overused. Furthermore, rock riprap eliminates the extremely delicate and vital vegetative link between water and land, and thereby eliminates one of Wisconsin's most valuable and important habitat types. For these reasons the Wisconsin Department of Natural Resources is not permitting rock riprap along shorelands as freely as they have in the past.

In contrast to rock riprap, bioengineering provides erosion control through the use of emergent and submersed aquatic vegetation. Bioengineering can be used to create a more natural, environmentally friendly shoreline, for pennies on the dollar of the price of rock riprap. In addition to stabilizing the shoreline, bioengineering offers other benefits that rock riprap does not. Because bioengineering uses vegetation, it creates wildlife habitat for birds, fish, and amphibians, whereas rock riprap destroys habitat.

Maintaining Aquatic Plants:

Plants installed within lake waters require little maintenance. The trick to aquatic plantings is getting them established. Because of the force of waves, emergent and submersed aquatic plants must be protected in order for them to root down where they are planted. The Langlade County Land Records and Regulations Department has "buffer blockers" that can be used to ensure the success of your aquatic plantings.

[Click here for more information on the "buffer blocker"](#)

Seaweeds or Aquatic Vegetation: Vital or a Nuisance:

The first thing to understand about all of the emergent and submersed aquatic vegetation in Wisconsin is that they are not "seaweeds", since Wisconsin has only freshwater lakes, rivers, and streams and thereby has no seas. Secondly aquatic plants are an indispensable part of a water ecosystem. Nevertheless, some shoreland property owners are frustrated by dense beds of aquatic plants and consider them a nuisance.

Defining a nuisance based upon its impacts to human activities is difficult. Each lake user has a different tolerance of aquatic plant densities. Anglers correlate lush aquatic plants with good fishing. Duck hunters, trappers, and wildlife watchers also consider aquatic plants beneficial. People who grew up swimming in lakes with moderate densities of aquatic plants don't mind swimming through the fine stems of Wisconsin's native aquatic plants.

Nuisance aquatic plant conditions are typically an indication of



bigger problems. Shallow, nutrient-rich lakes with plenty of human disturbances in their watershed are great candidates for heavy plant growth. Activities that remove shoreland vegetation and expose soil, such as construction, logging, and agriculture, allow sediments to move into the water, creating a source of nutrients for unnaturally high plant growth. Leaking septic tanks and lawn fertilizers can add even more nutrients.



It is important to consider the benefits of aquatic plants as well as the potential cost to recreational use. Protecting and enhancing native plant populations makes good sense, both for the lake ecosystem and the value of the surrounding property. Directing well-planned management toward nuisance aquatic plant conditions also makes good environmental and financial sense.

Simply stated, a lake would die without aquatic plants. Emergent and submersed aquatic plants are the "trees of the water". A good rule of thumb to use when creating a Shoreland Restoration Plan is to make room for aquatic plants, and also leave room for recreation. This can simply be done by planting aquatic plants on one side of the dock and leaving the other area open for recreation. This scenario gives you the best of both worlds.



How to attract fish and game to your shoreland property

Any self respecting angler knows how important aquatic plants are to fish. Habitat created by aquatic plants provides food and shelter for both young and adult fish. Invertebrates living on or beneath plants are a primary food source for fish. Some fish, particularly bluegills, also graze directly on leaves and stems.



Bass and bluegills use shallow plant beds for spawning. They clear the immediate nest site, but the surrounding vegetation helps buffer wave action and is important cover for insect larva and juvenile fish. Northern pike also seek shoreline vegetation for spawning.

The significance of aquatic plants to waterfowl is often underestimated. Emergent and submersed aquatic plants offer food, shelter, and nesting material. A diversity of plants provides food throughout the seasons. Waterfowl and shoreland birds also eat the invertebrates that live on these plants.



Many ducks make seasonal changes in their diets. Breeding hens switch from foliage to invertebrates before laying their eggs. Ducklings move from a diet rich in invertebrates when they are young to seeds, tubers, and shoots as they get older. Migratory ducks rely on a high-energy carbohydrate diet during fall migration.

Shoreland emergent aquatic vegetation also provides camouflage and protection from wave action for young waterfowl. Their buoyant leaves also make ideal nesting material. Common Loons use available plant matter to build their mounded nests on the shoreline.

Any self respecting duck hunter knows how important emergent and submersed aquatic vegetation are, not only quality waterfowl habitat, but also for quality duck hunting. Ducks want to land in areas where there is areas of emergent and submersed aquatic vegetation for concealment and feeding, and the duck hunter knows this. The duck hunter also takes advantage of the concealment offered by the emergent aquatic vegetation to camouflage his or her blind.



The planting of emergent and submersed aquatic vegetation is one of the easiest and least expensive ways to promote quality fishing and hunting grounds. Emergent and submersed aquatic vegetation are normally very inexpensive as compared to their terrestrial cousins. Furthermore, once the vegetation is established through the benefit of a "buffer blocker", there is no maintenance. Some people travel hundreds of miles for a quality fishing or hunting experience. For pennies on the dollar you can create a comparable environment on your own shoreland property.



[Click here for information on plants that attract fish and game](#)

[Restoring Your Shore is For the Birds:](#)

One of the wonderful benefits of restoring your shoreland property is all of the birds and butterflies that will come for a visit. Most everyone has a favorite species of bird and butterfly, and shoreland properties are a wonderful place to promote their habitat.



To create an environment friendly to birds on your shoreland property, you are going to have to understand a certain amount about their lifecycles. Young birds sometimes eat vastly different things that do their parents, so to create an environment friendly to them it is best to plant those species of native trees, shrubs, ferns, wildflowers, vines, grasses, sedges, and emergent and submersed aquatic vegetation that will attract all ages of a particular bird.

Butterflies are even more particular then birds are. In many species of butterflies, the larva require far different plants then do the adults. Therefore, to create an environment friendly to a certain species of butterfly, the proper plant foods must be available for all stage of life.

If you would like to create your Shoreland Restoration Plan around either your favorite species of bird, butterfly, or both, simply click on the appropriate tool below. This will bring you to a listing of the majority of birds and butterflies in Langlade County. This listing will tell you everything about the lifecycle of your favorite bird or butterfly, and more importantly, what should be planting on your shoreland property to create appropriate habitat for them.

However, the same rules still apply as for all shoreland restorations. All plants cannot grow in all places, so it is better to figure out what plants will grow on your shoreland environment first, and then, using that information, see what plants both correlate with the site conditions and the requirements of a particular bird or butterfly.

Sadly, due to the natural conditions that Mother Nature gave your shoreland property, it may be impossible to create a habitat that benefits your favorite bird or butterfly, but with the diversity of Wisconsin's native birds and butterflies, it is easy to bring in many equally beautiful species. For those shoreland property owners whose property is shady and full of mature trees, it may be next to impossible to create an environment friendly for species of birds and butterflies that like open spaces. Conversely, for those shoreland property owners who have open and sunny property, it is not impossible to create a woodland setting on their shoreland property to bring in those birds that require thick woodlands, however, it will take time.

[Click Here For Information on Landscaping for Birds](#)

[Click Here For Information on Landscaping for Butterflies](#)

on Shoreland Property

How to make a deer resistant Shoreland Restoration Plan:

There is no doubt that one of the major reasons that people build on shoreland properties is because of all of the wonderful native wildlife. The ideals of shoreland restoration is to create areas that not only preserve or restore the natural balance of the shoreland community, but also attract native animals by restoring their habitat.

However, when a shoreland property owner performs a wonderful restoration only to have it denuded by the appetites of White-tailed Deer, the ideals of shoreland restoration create a Catch 22 with the reality of Northwood's wildlife. To state this more simply, "How does one restore a shoreland property to attract wildlife, but at the same time create a restoration that is not too attractive to White-tailed Deer?".

If you think that White-tailed Deer may eat your shoreland restoration out of house and home, then I suggest planting species of native trees, shrubs, wildflowers, ferns, vines, grasses, sedges, and emergent and submersed aquatic vegetation that White-tailed Deer find unpalatable.

[Click Here for Information on Deer Resistant Plants](#)

Feedback

The Langlade County Land Records and Regulations Department encourages you to email your comments on what worked on your shoreland restoration site and what did not work. It will be an invaluable tool for future property owners who have to restore their shoreline. If you would like to ask a question, email Langlade County's Shoreland Protection Specialist, Ben Niffenegger, bniffenegger@co.langlade.wi.us

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 Taxonomy,
 Aquatic Vascular Plant Taxonomy, and Plant Physiology.
<http://wisplants.uwsp.edu/>

Hanson's Garden Village and Nursery
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The Prairie Nursery
 PO Box 306
 Westfield, Wisconsin, 53964
 1-800-476-9463
<http://www.prairienursery.com/>

J & J Tranzplant Aquatic Nursery
 PO Box 227
 Wild Rose, Wisconsin 54984-0227
 1-800-622-5055
<http://www.tranzplant.com/>

The Wisconsin Department of Natural Resources
<http://www.dnr.state.wi.us/>

The Minnesota Department of Natural Resources
<http://www.dnr.state.mn.us/>

Lakescaping for Wildlife and Water Quality
 Minnesota DNR Non-game Wildlife Program

Attracting Butterflies and Hummingbirds to Your Backyard
 Sally Roth: A Rodale Organic Gardening Book
<http://www.organicgardening.com/>

Smithsonian Birds of North America
 Fred J. Alsop III: DK Publishing
<http://www.dk.com/>

Through the Looking Glass: A Field Guide to Aquatic Plants
 Susan Borman, Robert Korth, Jo Temte
 DNR Publication #FH-207-97

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 James G. Harris & Melinda Woolf Harris

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Edited by Curt Meine & Richard L. Knight
University of Wisconsin Press

Michigan Trees
Burton V Barnes & Warren H. Wagner Jr.
The University of Michigan Press

Jung's Seed Company
<http://www.jungseed.com/>

Canoe Country Flora: Plants and Trees of the North Woods and Boundary Waters
Mark Stensaas & Jeff Sonstegard
Pfeifer-Hamilton Publishers

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