



Healthy Lakes & Rivers 350 ft² Native Shoreline Planting Companion Guide

Improve wildlife habitat, natural beauty and privacy, and decrease runoff.

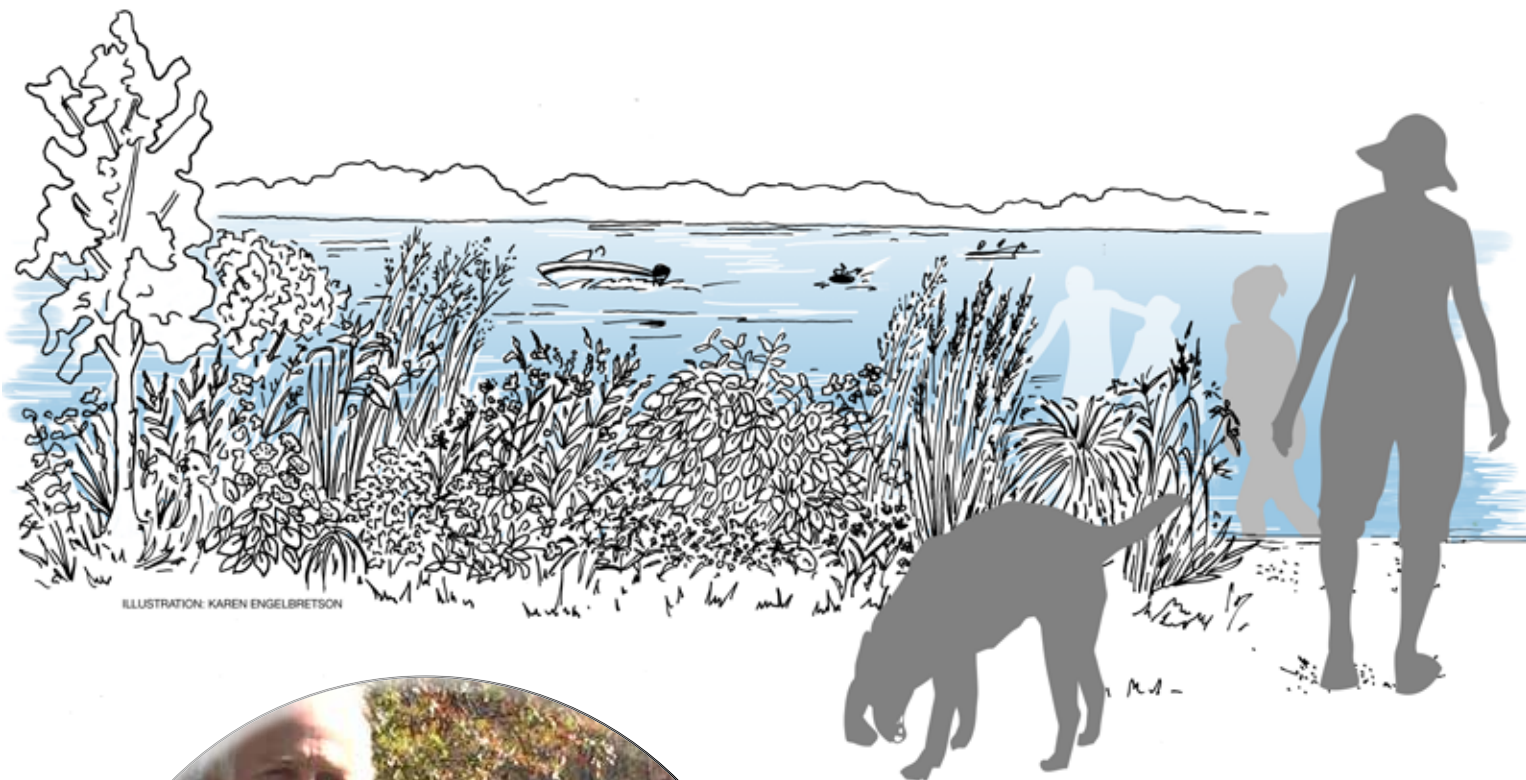


ILLUSTRATION: KAREN ENGELBRETTSON



Native shoreline plantings include grasses and wildflowers with shrubs and trees. Choose one of the six native plant options provided – based on your property specifications and interests – from bird/butterfly habitat to a low-growing native garden showcasing your view of the water.

How to Use this Guide

Follow the first three, simple steps. It is important not only to consider the best location and option for your property, but to carefully contemplate your own interests and goals for the project. Once you've decided which native shoreline planting option is right for you and your property, take the corresponding native plant list in this guide to your local greenhouse or landscaper to get started on your native garden.

Each prescribed native plant list (pages 9-19) details which plants and how many are required for Healthy Lakes & Rivers grant funding (find the substitution policy on page 20). They are based on Wisconsin's current technical standard (*Natural Resource Conservation Service*. 2001. Wisconsin biology technical note 1: shoreland habitat). According to these state standards, each native garden option listed in this guide must include the following:

- ☑ Woody component (1 tree and 2-3 shrubs, or 5 shrubs for the low-growing option)
- ☑ Grasses/Grass-like species (72-84 grasses, sedges and rushes)
- ☑ Wildflowers/Ferns (84-96 wildflowers and ferns)

The planting density for each native garden option in this guide is 50 plants per 100 ft² of space, or for the entire 350 ft² planting, a total of 168 native plants (plus a tree and shrubs). After you have chosen your native shoreline planting option, use the guidance provided in steps 4-7 to help create your native garden.

CHOOSE 1 OPTION

Choose from six native shoreline planting options (page 4) designed for a contiguous area of at least 350 ft². Each option has a corresponding list of prescribed native plants suited to the given soil conditions. Native shoreline plantings improve wildlife habitat, natural beauty and privacy, and decrease runoff. Each option described in this guide serves all of these functions to some degree, but one may be better than another given your property's unique site characteristics and areas of concern. For example, the bird/butterfly option includes flowers that attract these types of wildlife.

What is a native plant?

A native plant...

- Is well suited in local site conditions, eliminating the need for soil modifications or fertilizers.
- Can thrive without regular watering once established.
- Can attract more birds and butterflies - important pollinators for the food we eat.
- Creates a sense of place, preserving the natural character of the region.



Step 1: Map it out.

Where and what shape do you want your native shoreline planting?

Mark the area(s) you want your native shoreline plantings to be placed with spray paint, flagging, old garden hose, or stakes and twine. Leave the marking there a few days or weeks and try to envision what it will look like.

Keep in mind that the native shoreline plantings:

- ☑ Must total at least 350 contiguous square feet,
- ☑ Must be at least 10 feet wide in any direction,
- ☑ Must be adjacent to the shore unless the shoreline is already vegetated, and
- ☑ Can augment an existing area of vegetation as long as it is at least partially within 35 feet of the shoreline.

**Healthy Lakes & Rivers Tip**

Take advantage of areas you don't regularly use – places on the side of your yard or out of the way of foot traffic.

The orientation to the shoreline is up to you. In other words, your native shoreline planting could be 35 feet parallel to the shore and 10 feet landward, or 10 feet parallel to the shore and 35 feet landward. Each of the 350 ft² native shoreline planting options that follow showcases a different native garden shape to give you sense of the flexibility and possible look of the planting for your site over time.

Step 2: Determine sun exposure and soil type.

How much sun will your planting get, and how wet is your soil?



FULL SUN

At least 6 hours of direct, unfiltered sunshine daily



PARTIAL SUN

4-6 hours of direct sunlight
OR
Filtered sunlight all day



SHADE

Less than 4 hours of direct sunlight and heavily shaded



DRY-MEDIUM SOIL

Drains well and has no standing water



MOIST-WET SOIL

Regularly damp with standing water in the spring

Most of the options include two native plant lists - one for each of these soil types.

Healthy soil is the foundation of any productive landscape planting. Good quality soil holds water but drains well, is well-aerated, and is fertile enough to support plant growth. Soil serves many functions in a shoreline landscape. Most importantly, it provides a place for the exchange of water, nutrients, and air among plants, the earth, and the atmosphere. Soil anchors plants to the ground and filters out many pollutants before they reach groundwater or surface water.



Healthy Lakes & Rivers Resources

Soil assessment tools are described on pages 19-21 of the booklet *Controlling Runoff and Erosion from Your Waterfront Property: A Guide for Landowners* listed as the technical guidance under the Diversion best practice on the Healthy Lakes & Rivers website at healthylakeswi.com. The *Web Soil Survey* provides soil data and information produced by the National Cooperative Soil Survey. (<http://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm>) The website is updated and maintained as the single authoritative source of soil survey information.



Step 3: Select a planting option.

What do you want your native shoreline planting to do?

Choose the option that best fits your goals, sun exposure and soil type.

1. Shoreline Edge



Restore Vegetation at the Water's Edge



Go to page 8

2. Bird/ Butterfly



Attract Birds and Butterflies



Go to page 10

3. Bare Soil



Stabilize Areas of Bare Dirt



Go to page 12

4. Low-growing



Maintain a View of the Water (Ideal for Access Corridor)



Go to page 14

5. Deer Resistant



Deter Deer and Other Critter Browsing



Go to page 16

6. Woodland



Re-vegetate a Shady Area



Go to page 18

Healthy Lakes & Rivers Tip

In general, the more closely you match the environmental conditions of the source of your plant material to that of the planting site, the better it will grow. For example, a red maple from the deep south will not do well in northern Wisconsin. Also, a red maple from a lowland area will not do well if transplanted to an adjacent upland site.

Step 4: Order your plants and schedule a planting day.

Find a local native plant supplier or nursery.

- Contact your local county land and water conservation office
<https://wisconsinlandwater.org/members-hub/members>
- Consult "Native plant nurseries in Wisconsin"
<https://widnr.widen.net/s/rfsbfc22w6/nh0698>
- Find help from a native plant consultant, landscaper and/or nursery professional: "Restoration consultants in Wisconsin"
<https://widnr.widen.net/s/ccwrwvshvh/nh0699>

Native plants are often available in assorted pot sizes. If you are using smaller sized plant plugs from six-packs or 2-1/2" pots, you may get a little more mortality because the plants are not as mature or as vigorous as larger potted plants, like 4" deep pots or gallon-sized containers.

Step 5: Prepare your planting area.

Eliminate current non-natives (including lawn/turf grass).

This will give you more control over the native shoreline planting area and will help limit the need for weeding. Preparation for a new planting may require up to a full growing season on difficult, weed-infested sites.

CUTTING SOD



Plant in same growing season

How-to Tips

- Blade depth should be set deep to cut all grass roots. Be especially careful around tree roots.
- Either compost the cut sod or use it to patch open areas in the lawn elsewhere on the property.
- Erosion damage is a possible problem. You can utilize an assortment of erosion control blankets (coir fiber; wood fiber blanket; straw mat), biodegradable landscape fabric, or clean (weed seed free) straw mulch immediately after removing the sod to protect the bare soil.

SMOTHERING EXISTING TURF AND NON-NATIVES



Plant in next growing season

How-to Tips

- Cover the soil with heavy black plastic (at least 4mm thick), old carpet, cardboard, plywood, tarps or a thick layer of leaves or newspaper for an entire growing season.
- Make sure to secure the cover tightly. Seams should overlap about 6 inches to ensure complete coverage. It needs to remain intact in order to kill weeds and seeds near the soil surface. Do not cultivate or till deeper than 1-2 inches with this method to avoid bringing up weed seeds that will compete with the natives.

APPLYING HERBICIDES



Plant in same growing season

How-to Tips

- Apply a chemical herbicide, such as Rodeo, a short duration glyphosate herbicide, on upland areas. Obtain professional recommendations for a different formulation when working within 10 feet of the water's edge. *A DNR permit is required for use on aquatic or shoreline plants. For more information, contact your local DNR office.*
- Organic herbicides made from naturally occurring fatty acids are one option for eliminating grass. They kill plants by dehydrating the foliage. Learn more from the Wisconsin Department of Natural Resources here: <https://dnr.wisconsin.gov/topic/lakes/plants/factsheets>




Healthy Lakes & Rivers Tip

Diggers Hotline helps identify costly and dangerous utilities that can be buried just inches beneath your yard's surface. Call or click three working days before digging and have your lines marked so you can dig freely and safely. Dial 811 or <http://www.diggershotline.com>



Healthy Lakes & Rivers Tip

Be sure to avoid using heavy equipment because it will compact the soil and make it difficult for new plants to grow.



Healthy Lakes & Rivers Tip

You can plant directly into dead turf or patchy, lackluster grass without removing it. By leaving the dead or patchy turf in place it will help to prevent soil erosion. Just make sure the live plants are planted into soil and not in dead thatch.

Step 6: Plant your native garden.

The nursery where you purchase your material can provide detailed instructions for planting your native plants correctly. Here are a few general tips:

PREPARATION

- Plant within openings cut into erosion control fabric, or cover the area with shredded mulch and create small pockets within the mulch to plant the plugs, trees or shrubs.
- It is best to plant in spring or fall during cooler weather, but summer plantings can be successful if regularly watered.
- Use plugs and containerized plants.
- Keep plants watered and in the shade until planted.
- Soak thoroughly before removing from the container to plant. Tap the container upside down to remove the plant, and then gently pry the roots apart, and straighten and trim them, if necessary.

PLANTING DEPTH

- Dig a wide, shallow hole and make it a little shallower than the root ball so it rests about a half inch above the soil when planted. **Planting too deep can kill your precious native plants.**

WATERING

- Deep soaking is necessary to reach the root system. During the first year, water upland plants a minimum of one inch per week (unless there is rain). An empty tuna can set in the soil can help you gauge an inch of water. A good soaking (sprinkler for an hour) is better than frequent watering for briefer times. One of the great things about planting in the fall is that it rains frequently.

LABELING/STAKING

- Label a few plants of each species to avoid mistaking them later for weeds. Labeling allows you to track the success of your planting program.
- The bottom line is if the plant will stand up without a stake, don't give it one. Stake a plant only when it needs support, and connect the stake to the stem as low and loosely as possible. Staking a plant interferes with its natural ability to support itself.



Healthy Lakes & Rivers Tip

When planting large areas, a cordless drill equipped with a bulb auger can make the job easier and quicker. It works well to have one person do the drilling and others follow along and plant the plugs. Bulb augers can be purchased at your local nursery supply or home supply store. The cordless drill must be at least 12 volts. For those less inclined to go the power tool route, a hand trowel works well too.

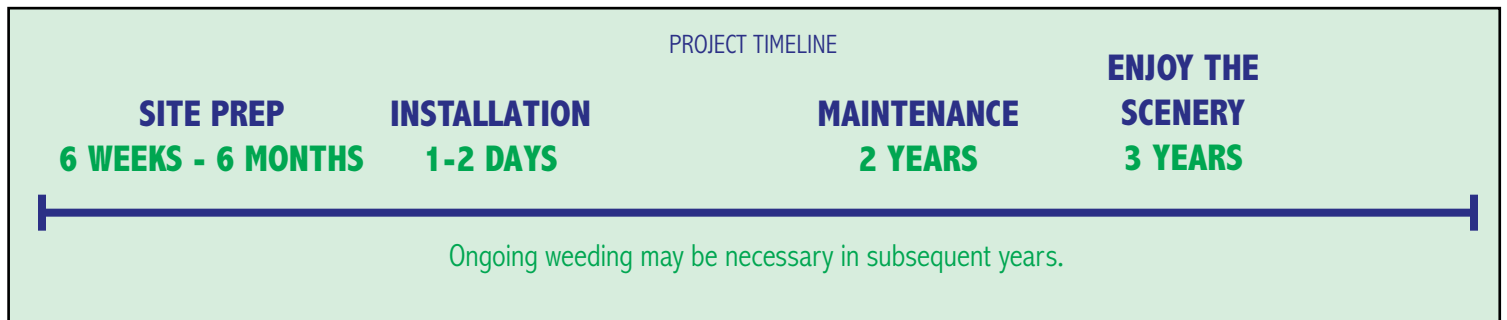


Step 7: Maintain your native garden.

Taking care of a natural shoreline takes less time and money than maintaining a lawn. Not to mention, it is more beneficial to your lake or river and the creatures that live there. However, all projects require some initial care.

Here are some tips to help your Healthy Lakes & Rivers native garden thrive:

- Water the plants a minimum of one inch per week (more during dry periods) for 1-2 years.
- Become familiar with weeds and invasive species, in particular, and remove them frequently.
- The standing dead plants may be left in place through the winter for wildlife cover and food.
- Native Shoreline Plantings must remain in place according to local zoning specifications, if within the vegetation protection area (i.e. buffer).
- The 350 ft² native shoreline plantings must remain in place for 10 years if funded through a Healthy Lakes & Rivers grant.
- Preventing critter damage will be important if you live in an area with abundant wildlife. We suggest a deer fence or wildlife repellent sprays to limit damage to your native plants (depending on where you live, this may be a requirement).
- Now, sit back and enjoy the scenery!



The Foley's installed this 350 ft² native garden on Beaver Dam Lake in 2015 with the help of a Healthy Lakes & Rivers grant.



1. Shoreline Edge

Restore vegetation at the water's edge.

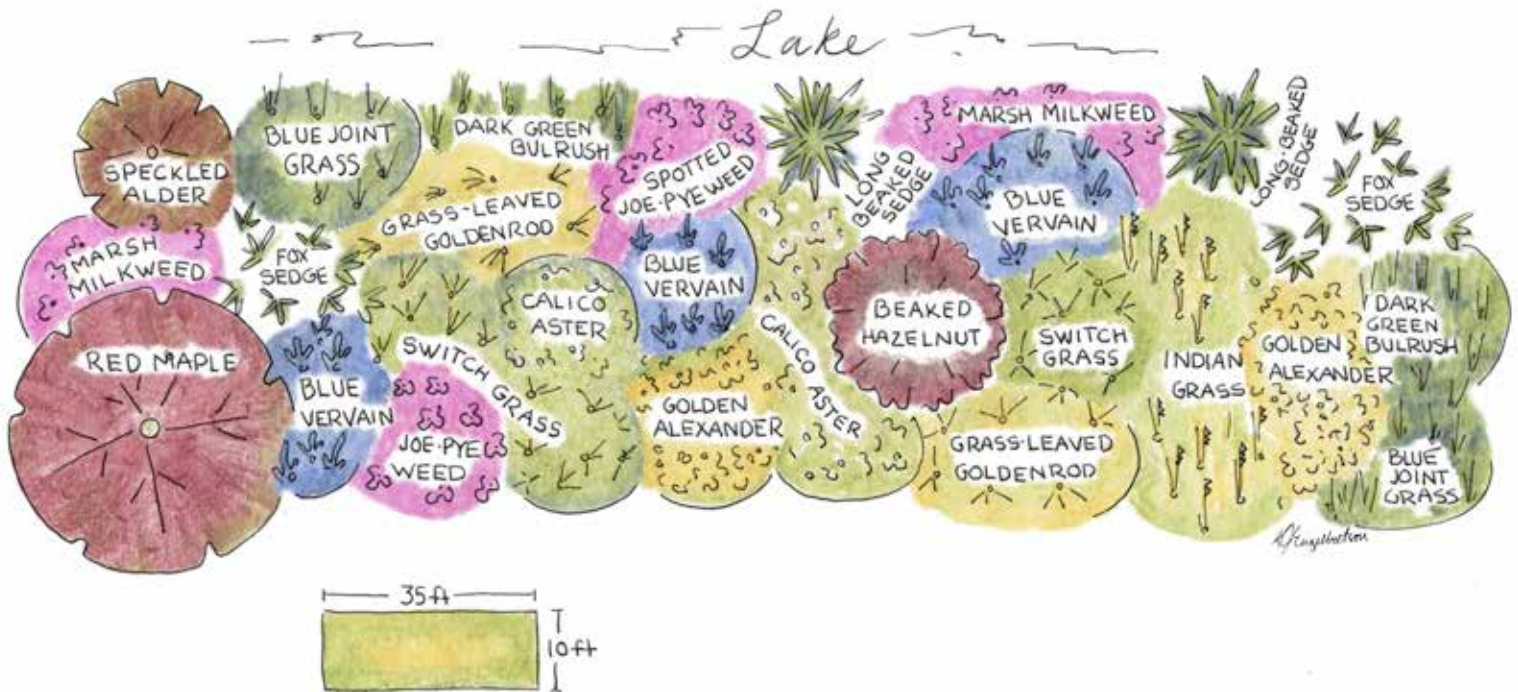


FULL SUN



PARTIAL SUN

If you would like to plant near the water's edge, where the soil is consistently wet, these natives will do the trick. This drawing shows a rectangular planting for moist-wet soil along the edge of a lake or river.



Golden Alexanders (*Zizia aurea*)



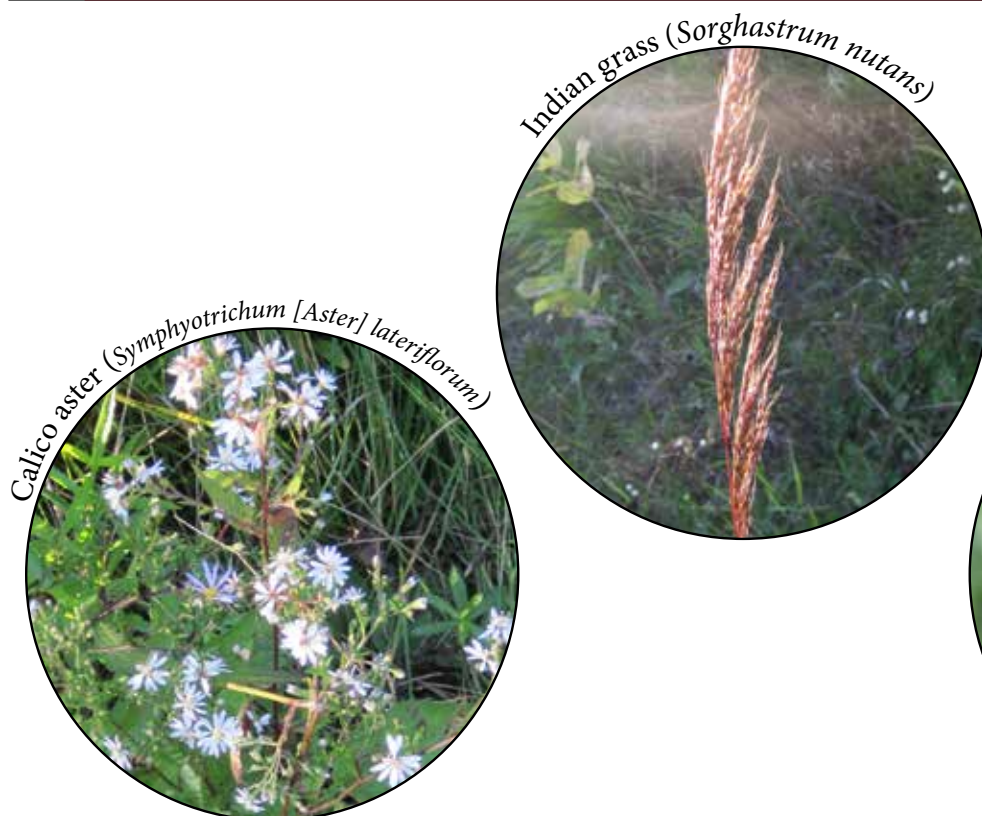
Red Maple (*Acer rubrum*)

Healthy Lakes & Rivers grant funding requires all the plants in the list to be used unless an approved substitution is made (page 20).



MOIST-WET SOIL

	PLANT TYPE	FLOWER COLOR	BLOOM TIME	HEIGHT RANGE	TOTAL PLANTS
Woody	Red maple (<i>Acer rubrum</i>)	Pink/red	May-June	70-90 feet	1 tree
	Beaked hazelnut (<i>Corylus cornuta</i>)	Reddish-brown	March-May	10-16 feet	1 shrub
	Speckled alder (<i>Alnus incana</i>)	Reddish-brown	March-May	12-24 feet	1 shrub
1 TREE AND 2 SHRUBS					
Grasses	Blue-joint grass (<i>Calamagrostis canadensis</i>)	Green leaves	June-Aug.	3-6 feet	6/spot x 2 spots = 12 total
	Dark-green bulrush (<i>Scirpus atrovirens</i>)	Green leaves	July-Aug.	3-5 feet	6/spot x 2 spots = 12 total
	Fox sedge (<i>Carex vulpinoidea</i>)	Green leaves	April-May	4-6 feet	6/spot x 3 spots = 18 total
	Indian grass (<i>Sorghastrum nutans</i>)	Green leaves	Aug.-Sept.	4-6 feet	6/spot x 2 spots = 12 total
	Long-beaked sedge (<i>Carex sprengelii</i>)	Green leaves	May-July	1-2 feet	6/spot x 2 spots = 12 total
	Switchgrass (<i>Panicum virgatum</i>)	Green leaves	May-Sept.	4-6 feet	6/spot x 3 spots = 18 total
84 GRASSES, RUSHES, & SEDGES					
Wildflowers	Blue vervain (<i>Verbena hastata</i>)	Blue	July-Sept.	3-5 feet	6/spot x 2 spots = 12 total
	Calico aster (<i>Symphyotrichum [Aster] lateriflorum</i>)	White	Aug.-Sept.	1-2 feet	6/spot x 3 spots = 18 total
	Grass-leaved goldenrod (<i>Euthamia graminifolia</i>)	Yellow	July-Aug.	1-3 feet	6/spot x 3 spots = 18 total
	Spotted Joe-pye-weed (<i>Eupatorium maculatum</i>)	Pink	July-Sept.	4-6 feet	6/spot x 2 spots = 12 total
	Marsh/red milkweed (<i>Asclepias incarnata</i>)	Red	June-Aug.	3-5 feet	6/spot x 2 spots = 12 total
	Golden Alexanders (<i>Zizia aurea</i>)	Yellow	May-July	2-4 feet	6/spot x 2 spots = 12 total
84 WILDFLOWERS					





2. Bird/Butterfly

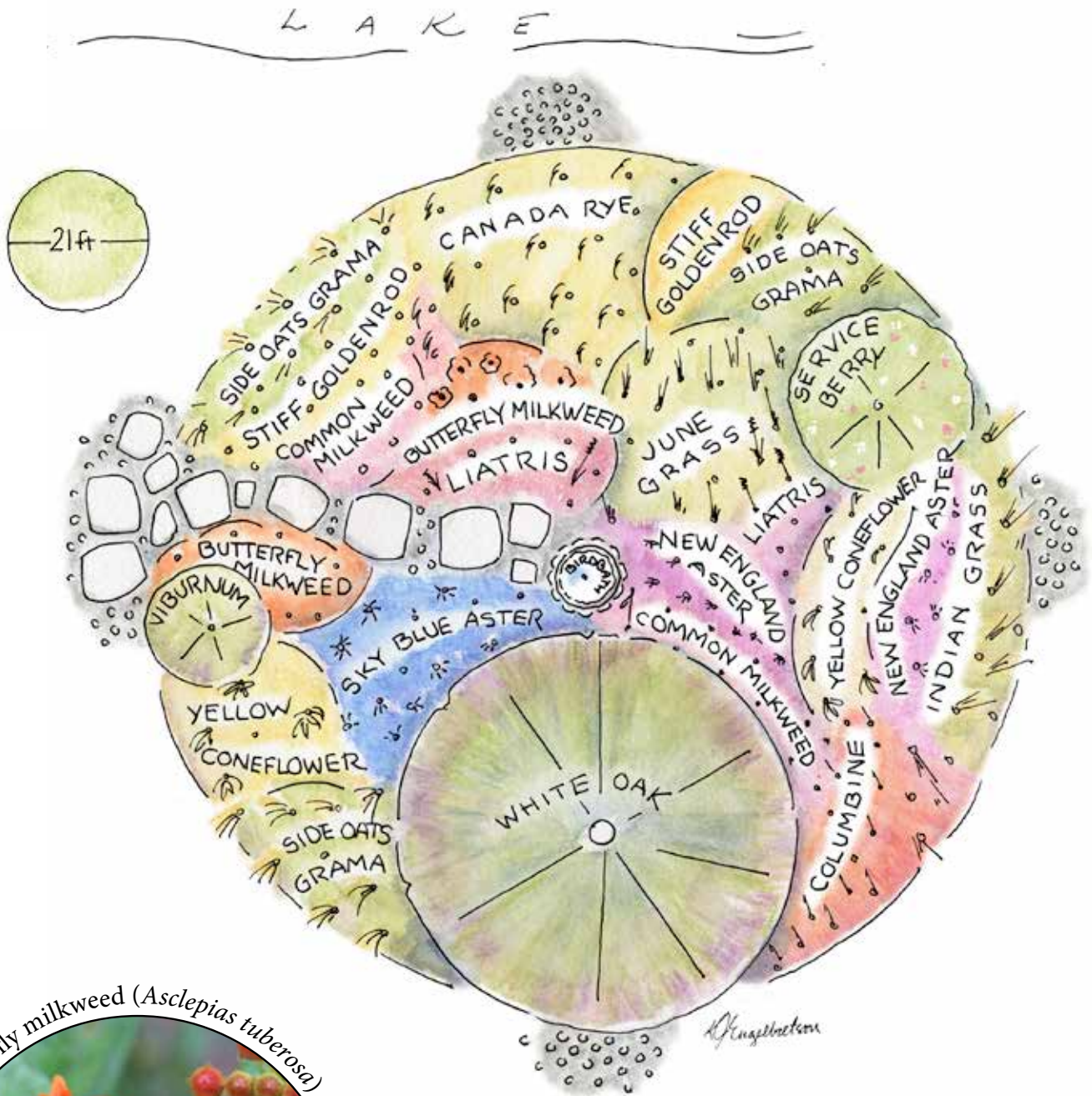
Attract birds and butterflies.



FULL SUN



PARTIAL SUN



If you would like to attract songbirds, moths, butterflies, and hummingbirds, this option has flowering plants that will do just that. This circular drawing for dry-medium soil invites a flow of pollinators and migratory birds.

Healthy Lakes & Rivers grant funding requires all the plants in the list to be used unless an approved substitution is made (page 20).



DRY-MEDIUM SOIL

	PLANT TYPE	FLOWER COLOR	BLOOM TIME	HEIGHT RANGE	TOTAL PLANTS
Woody	White oak (<i>Quercus alba</i>)	Pink/red	May-June	70-80 feet	1 tree
	Shadblow/service berry (<i>Amelanchier canadensis</i>)	White	April-May	up to 20 feet	1 shrub
	American highbush cranberry (<i>Viburnum opulus L. subsp. trilobum</i>)	White	May-June	3-15 feet	1 shrub
	1 TREE AND 2 SHRUBS				
Grasses	Side oats grama grass (<i>Bouteloua curtipendula</i>)	Tan leaves	June-Aug.	1-2 feet	6/spot x 3 spots = 18 total
	June grass (<i>Koeleria cristata</i>)	Tan leaves	July-Aug.	1-2 feet	6/spot x 3 spots = 18 total
	Indian grass (<i>Sorghastrum nutans</i>)	Brown leaves	Aug.-Sept.	4-6 feet	6/spot x 3 spots = 18 total
	Canada wild rye grass (<i>Elymus canadensis</i>)	Tan leaves	June-Oct.	3-5 feet	6/spot x 3 spots = 18 total
72 GRASSES, RUSHES, & SEDGES					
Wildflowers	Butterfly milkweed (<i>Asclepias tuberosa</i>)	Orange	July-Sept.	1-3 feet	6/spot x 2 spots = 12 total
	Common milkweed (<i>Asclepias syriaca</i>)	Pink to cream	June-Aug.	3-6 feet	6/spot x 2 spots = 12 total
	New England aster (<i>Aster novae-angliae</i>)	Purple	Aug.-Oct.	1-7 feet	6/spot x 2 spots = 12 total
	Rough blazing star (<i>Liatris aspera</i>)	Purple	Aug.-Oct.	2-4 feet	6/spot x 2 spots = 12 total
	Sky-blue aster (<i>Aster oolentangiensis</i>)	Blue	Aug.-Oct.	1-3 feet	6/spot x 2 spots = 12 total
	Stiff goldenrod (<i>Solidago rigida</i>)	Yellow	July-Sept.	3-5 feet	6/spot x 2 spots = 12 total
	Yellow coneflower (<i>Ratibida pinnata</i>)	Yellow	July-Sept.	4-5 feet	6/spot x 2 spots = 12 total
	Wild columbine (<i>Aquilegia canadensis</i>)	Red	April-June	1-3 feet	6/spot x 2 spots = 12 total
96 WILDFLOWERS					

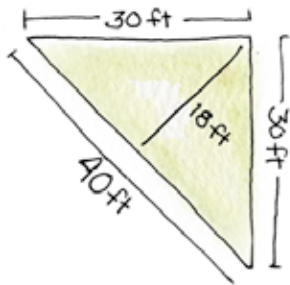


MOIST-WET SOIL

	PLANT TYPE	FLOWER COLOR	BLOOM TIME	HEIGHT RANGE	TOTAL PLANTS
Woody	Swamp white oak (<i>Quercus bicolor</i>)	Pink/red	May-June	80-100 feet	1 tree
	American hazelnut (<i>Corylus americana</i>)	Reddish-brown	April	6-8 feet	1 shrub
	Virgin's bower (<i>Clematis virginiana</i>)	White	July-Sept.	up to 9 feet	1 vine
	Pagoda dogwood (<i>Cornus alternifolia</i>)	White	May-July	15-25 feet	1 shrub
1 TREE AND 3 SHRUBS/VINES					
Grasses	Fox sedge (<i>Carex vulpinoidea</i>)	Brown leaves	April-May	2-3 feet	6/spot x 4 spots = 24 total
	Prairie brome grass (<i>Bromus kalmii</i>)	Tan leaves	June-July	2-3 feet	6/spot x 4 spots = 24 total
	Switchgrass (<i>Panicum virgatum</i>)	Tan leaves	May-Sept.	4-6 feet	6/spot x 4 spots = 24 total
72 GRASSES, RUSHES, & SEDGES					
Wildflowers	Black-eyed Susan (<i>Rudbeckia hirta</i>)	Yellow	June-Sept.	1-3 feet	6/spot x 2 spots = 12 total
	Cup-plant (<i>Silphium perfoliatum</i>)	Yellow	July-Sept.	4-9 feet	6/spot x 2 spots = 12 total
	Culver's root (<i>Veronicastrum virginicum</i>)	White	July-Aug.	3-5 feet	6/spot x 2 spots = 12 total
	Golden Alexanders (<i>Zizia aurea</i>)	Yellow	May-July	2-4 feet	6/spot x 2 spots = 12 total
	Great St. John's wort (<i>Hypericum pyramidatum</i>)	Yellow	May-July	4-6 feet	6/spot x 2 spots = 12 total
	Marsh/red milkweed (<i>Asclepias incarnata</i>)	Red	June-Aug.	3-5 feet	6/spot x 2 spots = 12 total
	Spotted Joe-Pye-Weed (<i>Eupatorium maculatum</i>)	Pink	July-Sept.	4-6 feet	6/spot x 2 spots = 12 total
	Wild bergamot (<i>Monarda fistulosa</i>)	Lavender	June-Aug.	2-4 feet	6/spot x 2 spots = 12 total
96 WILDFLOWERS					



PARTIAL SUN



12

Healthy Lakes & Rivers grant funding requires all the plants in the list to be used unless an approved substitution is made (page 20).



DRY-MEDIUM SOIL

	PLANT TYPE	FLOWER COLOR	BLOOM TIME	HEIGHT RANGE	TOTAL PLANTS
Woody	Hill's oak/northern pin oak (<i>Quercus ellipsoidalis</i>)	Pink/red	May-June	55-65 feet	1 tree
	Nannyberry (<i>Viburnum lentago</i>)	White	May-June	18-24 feet	1 shrub
	Dwarf bush honeysuckle (<i>Diervilla lonicera</i>)	Yellow	June-July	2-3 feet	1 shrub
1 TREE AND 2 SHRUBS					
Grasses	Little bluestem (<i>Schizachyrium scoparium</i>)	Green leaves	June-Aug.	3-6 feet	6/spot x 3 spots = 18 total
	Sand bracted sedge (<i>Carex muhlenbergii</i>)	Green leaves	July-Aug.	3-5 feet	6/spot x 3 spots = 18 total
	June grass (<i>Koeleria macrantha</i>)	Green leaves	Aug.-Sept.	4-6 feet	6/spot x 3 spots = 18 total
	Prairie dropseed (<i>Sporobolus heterolepis</i>)	Tan	Jul-Aug.	2-3 feet	6/spot x 3 spots = 18 total
72 GRASSES, RUSHES, & SEDGES					
Wildflowers	Hoary vervain (<i>Verbena stricta</i>)	Blue	July-Sept.	1-3 feet	6/spot x 2 spots = 12 total
	Field pussytoes (<i>Antennaria neglecta</i>)	White	April-June	6-12 inches	6/spot x 3 spots = 18 total
	False sunflower (<i>Heliopsis helianthoides</i>)	Yellow	June-Aug.	3-6 feet	6/spot x 3 spots = 18 total
	Smooth aster (<i>Symphyotrichum [Aster] laeve</i>)	Purple	Sept.-Oct.	2-4 feet	6/spot x 2 spots = 12 total
	Common milkweed (<i>Asclepias syriaca</i>)	Pink to cream	June-Aug.	3-6 feet	6/spot x 2 spots = 12 total
	Golden Alexanders (<i>Zizia aurea</i>)	Yellow	May-July	2-4 feet	6/spot x 2 spots = 12 total
84 WILDFLOWERS					



MOIST-WET SOIL

	PLANT TYPE	FLOWER COLOR	BLOOM TIME	HEIGHT RANGE	TOTAL PLANTS
Woody	River birch (<i>Betula nigra</i>)	Pink/red	May-June	70-80 feet	1 tree
	Red-osier dogwood (<i>Cornus stolonifera</i>)	White	June-Sept.	8-10 feet	1 shrub
	Speckled alder (<i>Alnus incana</i>)	Reddish-brown	March-May	12-24 feet	1 shrub
1 TREE AND 2 SHRUBS					
Grasses	Big bluestem (<i>Andropogon gerardii</i>)	Purple/Red leaves	Sept.-Oct.	4-6 feet	6/spot x 3 spots = 18 total
	Silky wild rye grass (<i>Elymus villosus</i>)	Tan leaves	June-July	3-5 feet	6/spot x 3 spots = 18 total
	Indian grass (<i>Sorghastrum nutans</i>)	Brown leaves	Aug.-Sept.	4-6 feet	6/spot x 3 spots = 18 total
	Brown fox sedge (<i>Carex vulpinoidea</i>)	Brown leaves	April-May	2-3 feet	6/spot x 3 spots = 18 total
72 grasses, rushes, & sedges					
Wildflowers	Blue vervain (<i>Verbena hastata</i>)	Blue	July-Sept.	3-5 feet	6/spot x 2 spots = 12 total
	Calico aster (<i>Symphyotrichum [Aster] lateriflorum</i>)	White	Aug.-Sept.	1-2 feet	6/spot x 3 spots = 18 total
	Grass-leaved goldenrod (<i>Euthamia graminifolia</i>)	Yellow	July-Aug.	1-3 feet	6/spot x 3 spots = 18 total
	Spotted Joe-pye-weed (<i>Eupatorium maculatum</i>)	Pink	July-Sept.	4-6 feet	6/spot x 2 spots = 12 total
	Marsh/red milkweed (<i>Asclepias incarnata</i>)	Red	June-Aug.	3-5 feet	6/spot x 2 spots = 12 total
	Golden Alexanders (<i>Zizia aurea</i>)	Yellow	May-July	2-4 feet	6/spot x 2 spots = 12 total
84 WILDFLOWERS					



4. Low-growing

Maintain a clear view of the water.



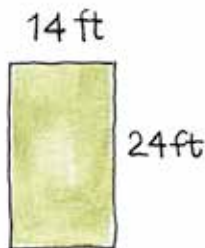
FULL SUN



PARTIAL SUN



Black-eyed Susan (*Rudbeckia hirta*)



If your property is fairly flat and you only have a small amount of shoreline frontage, this low-growing native garden is perfect to keep your view of the water. This drawing shows low-growing plants for moist-wet soil.

Healthy Lakes & Rivers grant funding requires all the plants in the list to be used unless an approved substitution is made (page 20).



DRY-MEDIUM SOIL

	PLANT TYPE	FLOWER COLOR	BLOOM TIME	HEIGHT RANGE	TOTAL PLANTS
Woody	Northern bush-honeysuckle (<i>Diervilla lonicera</i>)	Yellow	June-July	.5-3 feet	2 shrubs
	Pasture rose (<i>Rosa carolina</i>)	Pink	June-Aug.	2 feet	1 shrub
	Sweet fern (<i>Comptonia peregrina</i>)	Red	May-June	2-3 feet	2 shrubs
5 SHRUBS					
Grasses	Little bluestem grass (<i>Schizachyrium scoparium</i>)	Green leaves	June-Aug.	2-3 feet	6/spot x 3 spots = 18 total
	Path rush (<i>Juncus tenuis</i>)	Purple leaves	May-Aug.	up to 1 foot	6/spot x 3 spots = 18 total
	Purple love grass (<i>Eragrostis spectabilis</i>)	Purple leaves	July-Sept.	1-2 feet	6/spot x 3 spots = 18 total
	Side oats grama grass (<i>Bouteloua curtipendula</i>)	Tan leaves	July-Aug.	1-3 feet	6/spot x 3 spots = 18 total
72 GRASSES, RUSHES, & SEDGES					
Wildflowers	Arrow-leaved aster (<i>Aster sagittifolius</i>)	Blue	Sept.-Oct.	2-3 feet	6/spot x 2 spots = 12 total
	Black-eyed Susan (<i>Rudbeckia hirta</i>)	Yellow	June-Sept.	1-3 feet	6/spot x 2 spots = 12 total
	Calico aster (<i>Symphyotrichum [Aster] lateriflorum</i>)	White	Aug.-Sept.	1-2 feet	6/spot x 2 spots = 12 total
	Gray goldenrod (<i>Solidago nemoralis</i>)	Yellow	Aug.-Oct.	1-2 feet	6/spot x 2 spots = 12 total
	Harebell (<i>Campanula rotundifolia</i>)	Blue	June-Oct.	1-2 feet	6/spot x 2 spots = 12 total
	Hoary vervain (<i>Verbena stricta</i>)	Blue	July-Sept.	1-3 feet	6/spot x 2 spots = 12 total
	Golden Alexanders (<i>Zizia aurea</i>)	Yellow	May-July	2-4 feet	6/spot x 2 spots = 12 total
	Wild geranium (<i>Geranium maculatum</i>)	Purple	July-Sept.	up to 1 foot	6/spot x 2 spots = 12 total
96 WILDFLOWERS					



MOIST-WET SOIL

	PLANT TYPE	FLOWER COLOR	BLOOM TIME	HEIGHT RANGE	TOTAL PLANTS
Woody	Meadowsweet (<i>Spiraea alba</i>)	White	July-Aug.	5-6 feet	2 shrubs
	Steeplebush (<i>Spiraea tomentosa</i>)	Pink	July-Sept.	3-4 feet	2 shrubs
	Swamp rose (<i>Rosa palustris</i>)	Pink	June-Aug.	4-5 feet	1 shrub
5 SHRUBS					
Grasses	Common rush (<i>Juncus effusus</i>)	Brown leaves	May-July	1-2 feet	6/spot x 3 spots = 18 total
	Fox sedge (<i>Carex vulpinoidea</i>)	Brown leaves	April-May	2-3 feet	6/spot x 3 spots = 18 total
	Northern sweet grass (<i>Hierochloa odorata</i>)	Tan leaves	May-Sept.	1-2 feet	6/spot x 3 spots = 18 total
	Rattlesnake grass (<i>Glyceria canadensis</i>)	Tan leaves	May-July	1-3 feet	6/spot x 3 spots = 18 total
72 GRASSES, RUSHES, & SEDGES					
Wildflowers	Blue flag iris (<i>Iris versicolor-north; Iris virginica-south</i>)	Blue	May-July	1-3 feet	6/spot x 2 spots = 12 total
	Great blue lobelia (<i>Lobelia siphilitica</i>)	Blue	July-Oct.	2-3 feet	6/spot x 2 spots = 12 total
	Meadow anemone (<i>Anemone canadensis</i>)	White	May-July	1-2 feet	6/spot x 2 spots = 12 total
	Northern bedstraw (<i>Galium boreale</i>)	White	June-July	2 feet	6/spot x 2 spots = 12 total
	Spikenard (<i>Aralia racemosa</i>)	Green	July-Aug.	3-4 feet	6/spot x 2 spots = 12 total
	Turtlehead (<i>Chelone glabra</i>)	Cream	Aug.-Sept.	1-3 feet	6/spot x 2 spots = 12 total
	Water horehound (<i>Lycopus americanus</i>)	White	July-Sept.	2 feet	6/spot x 2 spots = 12 total
	Zig zag goldenrod (<i>Solidago flexicaulis</i>)	Yellow	April-June	2-3 feet	6/spot x 2 spots = 12 total
96 WILDFLOWERS					



5. Deer Resistant

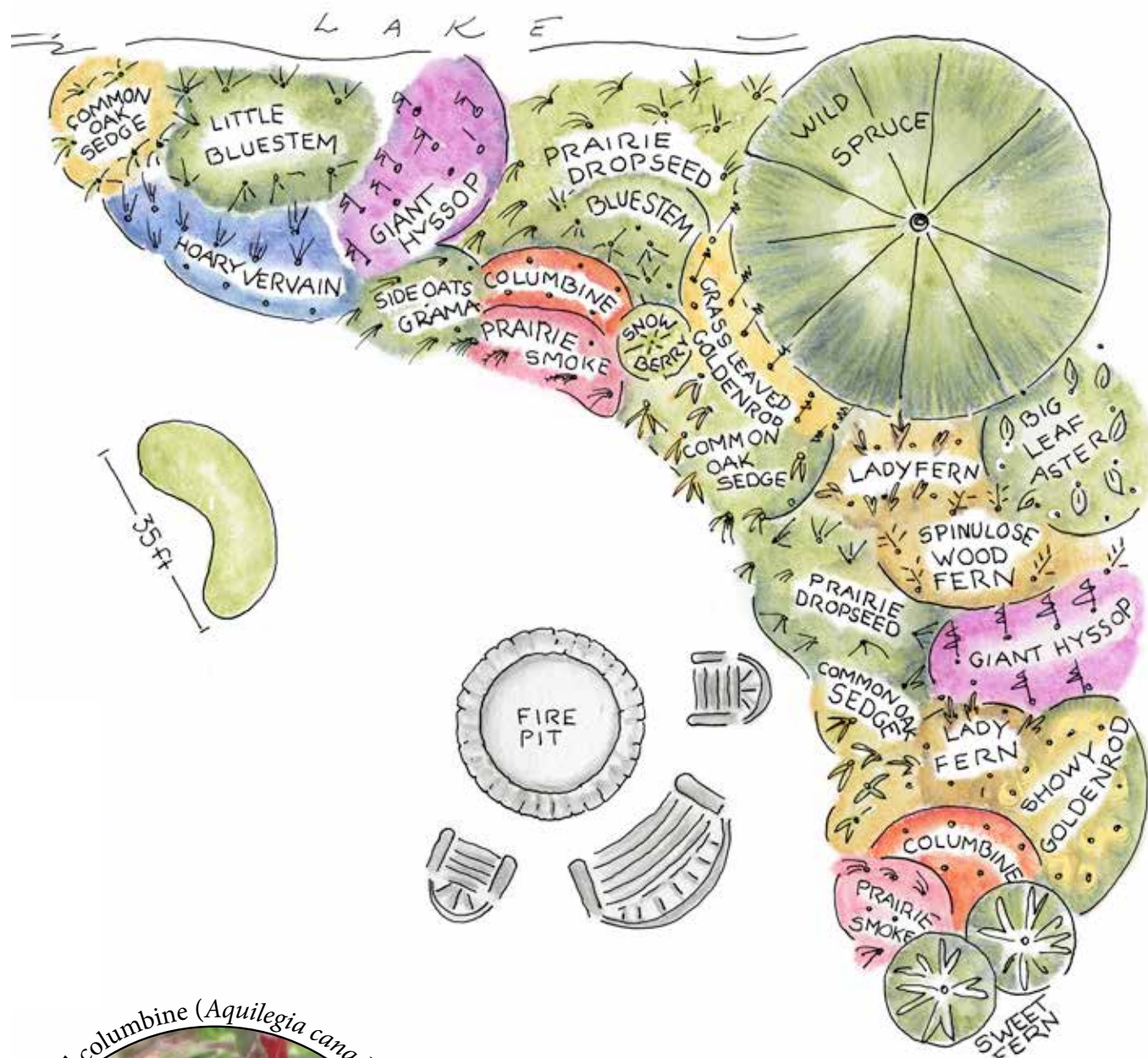
Deter deer and other critter browsing.



FULL SUN



PARTIAL SUN



If deer and rabbits are your greatest gardening challenge, don't fear, these natives can withstand browsing. Here is a drawing of a deer resistant planting for dry-medium soil along a lot corner.



DRY-MEDIUM SOIL

Healthy Lakes & Rivers grant funding requires all the plants in the list to be used unless an approved substitution is made (page 20).

	PLANT TYPE	FLOWER COLOR	BLOOM TIME	HEIGHT RANGE	TOTAL PLANTS
Woody	Wild spruce (<i>Picea glauca</i>)	Cones	May-June	90-110 feet	1 tree
	Common snowberry (<i>Symphoricarpos albus</i>)	White	June-July	2-3 feet	1 shrub
	Sweet fern (<i>Comptonia peregrina</i>)	Red	May-June	2-3 feet	2 shrubs
1 TREE AND 3 SHRUBS					
Grasses	Common oak sedge (<i>Carex pensylvanica</i>)	Green/Tan	May-June	.5-1 foot	6/spot x 3 spots = 18 total
	Little bluestem grass (<i>Schizachyrium scoparium</i>)	White	June-Aug.	2-3 feet	6/spot x 3 spots = 18 total
	Prairie dropseed (<i>Sporobolus heterolepis</i>)	Tan	July-Aug.	2-3 feet	6/spot x 3 spots = 18 total
	Side oats grama grass (<i>Bouteloua curtipendula</i>)	Tan	July-Aug.	1-3 feet	6/spot x 3 spots = 18 total
72 GRASSES, RUSHES, & SEDGES					
Wildflowers	Big-leaved aster (<i>Aster macrophyllus</i>)	White	Aug.-Oct.	1 foot	6/spot x 2 spots = 12 total
	Common lady fern (<i>Athyrium filix-femina</i>)	Brown sori	n/a	2-3 feet	3/spot x 2 spots = 6 total
	Grass-leaved goldenrod (<i>Euthamia graminifolia</i>)	Yellow	July-Aug.	1-3 feet	6/spot x 2 spots = 12 total
	Hoary vervain (<i>Verbena stricta</i>)	Blue	July-Sept.	1-3 feet	6/spot x 2 spots = 12 total
	Prairie-smoke (<i>Geum triflorum</i>)	Pink to purplish	April-June	4-16 inches	6/spot x 2 spots = 12 total
	Purple giant hyssop (<i>Agastache scrophulariaefolia</i>)	Pink	Aug.-Sept.	3-5 feet	6/spot x 2 spots = 12 total
	Showy goldenrod (<i>Solidago speciosa</i>)	Yellow	July-Oct.	3-5 feet	6/spot x 2 spots = 12 total
	Wild columbine (<i>Aquilegia canadensis</i>)	Red	April-June	1-3 feet	6/spot x 2 spots = 12 total
	Spinulose wood fern (<i>Dryopteris carthusiana</i>)	Brown sori	n/a	2-3 feet	3/spot x 2 spots = 6 total
96 WILDFLOWERS					



MOIST-WET SOIL

	PLANT TYPE	FLOWER COLOR	BLOOM TIME	HEIGHT RANGE	TOTAL PLANTS
Woody	Tamarack (<i>Larix laricina</i>)	Cones	(pollen shed)	40-80 feet	1 tree
	Beaked hazelnut (<i>Corylus cornuta</i>)	Reddish-brown	March-May	10-16 feet	1 shrub
	Black chokeberry (<i>Aronia melanocarpa</i>)	White	May-July	6-8 feet	1 shrub
1 TREE AND 2 SHRUBS					
Grasses	Common fox sedge (<i>Carex stipata</i>)	Brown leaves	June-July	1-3 feet	6/spot x 3 spots = 18 total
	Fox sedge (<i>Carex vulpinoidea</i>)	Brown leaves	April-May	2-3 feet	6/spot x 3 spots = 18 total
	Indian grass (<i>Sorghastrum nutans</i>)	Brown leaves	Aug.-Sept.	4-6 feet	6/spot x 3 spots = 18 total
	Prairie cordgrass (<i>Spartina pectinata</i>)	Tan leaves	Aug.-Sept.	6-8 feet	6/spot x 3 spots = 18 total
72 GRASSES, RUSHES, & SEDGES					
Wildflowers	Blue vervain (<i>Verbena hastata</i>)	Blue	July-Sept.	3-5 feet	6/spot x 2 spots = 12 total
	Common ironweed (<i>Vernonia fasciculata</i>)	Violet / purple	July-Sept.	2-6 feet	6/spot x 2 spots = 12 total
	Great St. John's wort (<i>Hypericum pyramidatum</i>)	Yellow	May-July	4-6 feet	6/spot x 2 spots = 12 total
	Interrupted fern (<i>Osmunda claytoniana</i>)	Brown sori	n/a	4-6 feet	3/spot x 2 spots = 6 total
	Ostrich fern (<i>Matteuccia struthiopteris</i>)	Brown sori	n/a	3-4 feet	3/spot x 2 spots = 6 total
	Spotted Joe-pye-weed (<i>Eupatorium maculatum</i>)	Pink	July-Sept.	4-6 feet	6/spot x 2 spots = 12 total
	Stiff goldenrod (<i>Solidago rigida</i>)	Yellow	Aug.-Oct.	3-4 feet	6/spot x 2 spots = 12 total
	Wild bergamot (<i>Monarda fistulosa</i>)	Lavender	June-Aug.	2-4 feet	6/spot x 2 spots = 12 total
	Yellow avens (<i>Geum aleppicum</i>)	Yellow	June-Aug.	2-3 feet	6/spot x 2 spots = 12 total
96 WILDFLOWERS					

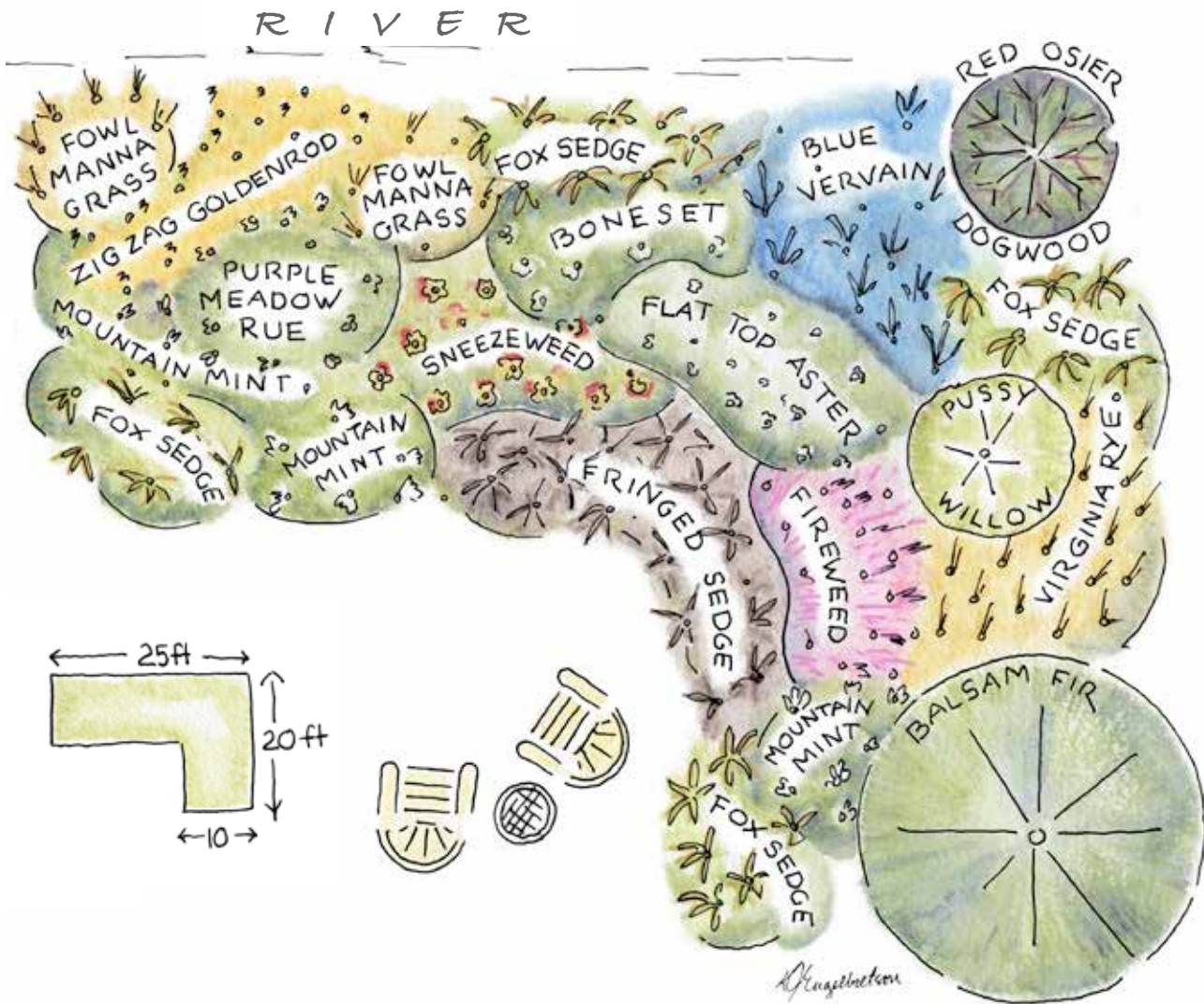


6. Woodland

Re-vegetate a shady area.



SHADE



If your shoreline is wooded and shady, these native plants are hearty enough to survive with less than four hours of sunlight each day. This drawing shows what you would plant in moist-wet soil in a shady corner.

Healthy Lakes & Rivers grant funding requires all the plants in the list to be used unless an approved substitution is made (page 20).



DRY-MEDIUM SOIL

	PLANT TYPE	FLOWER COLOR	BLOOM TIME	HEIGHT RANGE	TOTAL PLANTS
Woody	Wild black cherry (<i>Prunus serotina</i>)	White	April-May	75-80 feet	1 tree
	Smooth serviceberry (<i>Amelanchier laevis</i>)	White	April-June	10-16 feet	1 shrub
	Downy arrow-wood viburnum (<i>Viburnum rafinesquianum</i>)	White	May-July	10-15 feet	1 shrub
	1 TREE AND 2 SHRUBS				
Grasses	Bottlebrush grass (<i>Elymus hystrix</i>)	Green leaves	July-Aug.	3-4 feet	6/spot x 3 spots = 18 total
	Common oak sedge (<i>Carex pensylvanica</i>)	Green leaves	May-June	.5-1 foot	6/spot x 3 spots = 18 total
	June grass (<i>Koeleria macrantha</i>)	Tan leaves	June-Sept.	1-2 feet	6/spot x 3 spots = 18 total
	Silky wild rye grass (<i>Elymus villosus</i>)	Tan leaves	June-July	3-5 feet	6/spot x 3 spots = 18 total
72 GRASSES, RUSHES, & SEDGES					
Wildflowers	Big-leaved aster (<i>Aster macrophyllus</i>)	White	Aug.-Oct.	1 foot	6/spot x 2 spots = 12 total
	Bishop's-cap (<i>Mitella diphylla</i>)	White	May-June	3-4 feet	6/spot x 2 spots = 12 total
	Early meadow rue (<i>Thalictrum dioicum</i>)	Green	April-May	1-2 feet	6/spot x 2 spots = 12 total
	Grass-leaved goldenrod (<i>Euthamia graminifolia</i>)	Yellow	July-Sept.	3-4 feet	6/spot x 2 spots = 12 total
	Jacob's ladder (<i>Polemonium reptans</i>)	Blue	May-June	1-2 feet	6/spot x 2 spots = 12 total
	Wild geranium (<i>Geranium maculatum</i>)	Purple	July-Sept.	up to 1 foot	6/spot x 2 spots = 12 total
	Wild ginger (<i>Asarum canadense</i>)	Red	April-June	.5 feet	6/spot x 2 spots = 12 total
	Zig zag goldenrod (<i>Solidago flexicaulis</i>)	Yellow	April-June	2-3 feet	6/spot x 2 spots = 12 total
96 WILDFLOWERS					



MOIST-WET SOIL

	PLANT TYPE	FLOWER COLOR	BLOOM TIME	HEIGHT RANGE	TOTAL PLANTS
Woody	Balsam fir (<i>Abies balsamea</i>)	Cones	(pollen shed)	70-80 feet	1 tree
	Pussy willow (<i>Salix discolor</i>)	White to green	April-May	up to 25 feet	1 shrub
	Red-osier dogwood (<i>Cornus stolonifera</i>)	White	June-Sept.	8-10 feet	1 shrub
1 TREE AND 2 SHRUBS					
Grasses	Common fox sedge (<i>Carex stipata</i>)	Brown leaves	June-July	1-3 feet	6/spot x 3 spots = 18 total
	Fowl manna grass (<i>Glyceria striata</i>)	Tan leaves	May-June	1-5 feet	6/spot x 3 spots = 18 total
	Fringed sedge (<i>Carex crinita</i>)	Brown leaves	June-July	1-3 feet	6/spot x 3 spots = 18 total
	Virginia wild rye grass (<i>Elymus virginicus</i>)	Tan leaves	June-July	up to 4 feet	6/spot x 3 spots = 18 total
72 GRASSES, RUSHES, & SEDGES					
Wildflowers	Blue vervain (<i>Verbena hastata</i>)	Blue	July-Sept.	3-5 feet	6/spot x 2 spots = 12 total
	Boneset (<i>Eupatorium perfoliatum</i>)	White	July-Sept.	up to 4 feet	6/spot x 2 spots = 12 total
	Flat-topped aster (<i>Aster umbellatus</i>)	Cream	July-Sept.	4-5 feet	6/spot x 2 spots = 12 total
	Fireweed (<i>Epilobium angustifolium</i>)	Pink	June-Aug.	3-4 feet	6/spot x 2 spots = 12 total
	Mountain mint (<i>Pycnanthemum virginianum</i>)	White	July-Sept.	1-3 feet	6/spot x 2 spots = 12 total
	Purple meadow rue (<i>Thalictrum dasycarpum</i>)	Cream	June-July	3-5 feet	6/spot x 2 spots = 12 total
	Sneezeweed (<i>Helenium autumnale</i>)	Yellow	Aug.-Oct.	3-4 feet	6/spot x 2 spots = 12 total
	Zig zag goldenrod (<i>Solidago flexicaulis</i>)	Yellow	April-June	2-3 feet	6/spot x 2 spots = 12 total
96 WILDFLOWERS					

Substitution Policy

The plants utilized in these native shoreline planting options are suitable statewide because of their distribution and availability at most native plant nurseries. Sometimes you may not be able to find certain species locally or you may want to substitute a different native plant from one listed in the planting plan.

Native plant substitutions to the native shoreline planting options should follow these caveats:

- When substituting one native plant for another, please use a like species for the one you replace (i.e. a grass for grass, a sedge for a sedge, a woody plant for woody plant, etc.). These native shoreline planting options follow our state standards around shoreline plantings, which specify using each of these plant types: grasses, sedges, rushes, wildflowers, ferns, shrubs, and trees.
- Match the substituted plant to roughly the same bloom time, flower color, growth form, and plant height of the replaced plant to fit in with the planting option theme.
- Utilize local lists generated by master gardeners, land and water conservation departments, and UW-Extension. Ask a DNR, Extension, or county professional if you are not sure if the list is legitimate.
- Document the chosen native shoreline planting option and any substitutions in the *Other* section of the grant application, or contact a Healthy Lakes & Rivers Team member to verify it is acceptable.

Resources

OVERVIEW VIDEOS FROM UNIVERSITY OF MINNESOTA EXTENSION

- **Shoreland restoration: A growing solution**
This video outlines why natural shorelines help protect water quality and wildlife habitat, and introduces how shoreland property owners can restore natural functions to their shorelines. (Running time: 15:30). <https://www.youtube.com/watch?v=n5o9xjFLnvs>
- **Keeping our shores: Shoreland best management practices**
Introduces best management practices that shoreland owners can use to protect the water quality in a lake or river, including shoreline filter strips, proper septic maintenance, and appropriate lawn care practices. (Running time: 15:20). <https://www.youtube.com/watch?v=mfrSvWSKcIE>

WISCONSIN NATIVE PLANT NURSERIES

- <https://widnr.widen.net/s/rfsbfc22w6/nh0698>

WISCONSIN RESTORATION CONSULTANTS

(native plant consultants, landscapers, and nursery professionals)

- <https://widnr.widen.net/s/ccwrwvshvh/nh0699>

PLANT FINDER ONLINE TOOLS

- Langlade County: <https://www.co.langlade.wi.us/shoreland/>
- Prairie Nursery “plant finder” tool: <https://www.prairienursery.com/#.VDcFE7BOncs>
- Minnesota Blue Thumb Program “Plant Selector”: <http://www.bluethumb.org/plants/>

DNR PUB WY-002

updated 2024

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