Selecting Native Plants for Native Shoreline Garden

Before you can select the plants for your native shoreline garden, you need to take a close look at site conditions such as soil, sun exposure, and soil moisture. You may also need to take into consideration any areas with wind and wave extremes. It is very possible that you will find several different types of conditions within your planting area, these are called microclimates. While there are some native plants that will grow well under a wide range of conditions, many plants have more specific requirements.

Soil Texture

Soil texture refers to the size of the soil particles. It is very rare to find a soil composed of a single soil texture. The four basic classifications are sands, silts, clays and loams, although there is a wide range of each type with varying proportions of each component. The soil texture will affect the movement of water and air, root penetration, and workability of the soil. Different plants, native and nonnative will grow best in the soil texture they are adapted to so it is important to know what soil texture you will be planting in.

Sandy Soils: Sandy soils have the largest particle sizes. Generally, they drain readily, are low in nutrients, more acidic than loams and clays and easy to work. Sandy soils will feel gritty and will fall apart when formed into a ball.
Clay Soils: Clay consists of very small, tightly packed soil particles, which feel sticky and plastic-like when wet. Slow to drain, clay soils have a high water holding capacity, however when they do dry, clay soils can be extremely hard. They are rich in nutrients and can be very productive. Clay soils can be formed into a ribbon if wet, the longer the ribbon the more clay content.
Silt Soils: Silt soil particles are intermediate in size between clay and sand and feels silky when wet. It has average nutrients and drainage ability. Silty soils will not form a ribbon when wet and have a floury appearance when dry.
Loamy Soils: Loams are considered the best soils because they are composed of a mix of sand, silt and clay. They combine to give the best of fertility and moisture-holding capacity with good drainage. Easier to work than clay and better consolidated than sands, loamy soils make an excellent growing medium. Loam will feel somewhat gritty. It will hold it's shape if formed into a ball when wet but breaks apart easily.

If you have doubts about your soil type you may wish to have the soil tested. *Soil testing is highly recommended to assess the soil pH, fertility, organic material as well as soil type.* For assistance with obtaining a soil test contact your County Extension office http://www.uwex.edu/, County Conservation office, http://www.co.walworth.wi.us/ or the state lab, http://uwlab.soils.wisc.edu/.

Soil Moisture

Once you have determined your soil type, you should have an idea of the moisture conditions on your planting site. However, you will also need to consider if you have areas that pool water during the year or areas that tend to be very dry. When choosing plants from the native plant lists you will need to match your conditions with plant moisture preferences.
Wet-Wet Mesic – these soils have a generous amount of water in the subsoil throughout the growing season. They may have periods of standing water in the spring or fall.
Mesic soils include well-drained loams and clays. These soils may have standing water for short periods after a hard rain.
Dry- Dry Mesic - soils include sandy and gravelly soils that drain readily and never have standing water, even after a heavy rain.

Light Exposure

Full Sun = at least 8 hours of sun per day
Part sun = at least 4 hours of sun per day
Full Shade = no direct sun
Note: Afternoon sun is more intense than morning sun so if a plant prefers shade, it may do well with some morning sun but afternoon sun will probably kill it.

Once you have determined site conditions of your planting area you can begin choosing native plants. If there are undeveloped sites around your lake, you may also wish to identify the natives that are growing there. Try to find areas that have similar conditions to those on your shoreline. As you are observing what native plants are growing, take note of whether they are growing in large groupings or more spaced out? This information will help you space the same type of plants in your own buffer.

When looking at the list of native plants in this publication, start by considering plants that are listed for moisture preferences and light exposure that match your site conditions.

Plant Type	Genus and species	Common Name	***Moisture Regime***	***Exposure***	Blooming Period	Mature Plant Height
Sedge	Carex comosa	Bottlebrush sedge	WM,W	Full sun - Part sun	May - July	1-2 ft
Forb	Echinacea pallida * R	Purple coneflower *	M	Full sun	June - July	2-3 ft
Grass	Panicum virgatum	Switchgrass	D,DM,M,WM	Full sun - Part sun	Summer - early fall	4-6 ft

Once you have found plants on the native plant list that match the site conditions of your site, look in a plant identification guide, nursery catalog, or the Wisconsin State Herbarium website at http://www.botany.wisc.edu/herbarium/ to find out what each plant looks like. You will want to consider the mature height, when it blooms, and if it has any poisonous parts (important for children and animals). Please note that some native plants can be quite aggressive and should be planted with other aggressive plants so that they do not become a nuisance and take over the entire area.

Plants vs. Seeds

Seeding is not recommended for areas less than 15 feet from the water due to erosion associated with open soil. Seeds are certainly more economical, especially for very large sites. Plant plugs will have a higher initial cost than seeds, however, using plant plugs will allow you to see results the first season. If you plant seeds you should expect to wait at least 3-4 seasons before your planting will start looking good. In addition, when you seed an area, the mulch layer must be light enough so you can see the soil, otherwise the seeds will not germinate. The light layer of mulch does not give adequate protection against weeds or drying or the soil, so expect to spend a lot more time watering and weeding. When you use plants for your native garden, a 2-3 inch layer of mulch will provide good moisture and weed protection from the start. Certainly, seeding can be successful, it is the method used by farmers when they retire a field and plant a prairie restoration. Just be advised that a seeded buffer will take a good deal more time and effort. If the area is very large, and therefore the cost of plants quite high, consider breaking the buffer into sections. You can plant a section each year and spread the cost over several years.

If you decide to use seed, be sure that you purchase only Pure Live Seed (PLS) from a reputable dealer. **Do not** purchase any of the boxed wildflower mixes sold at many retail stores. These "mixes" can be full of non-native invasive species. Whether you buy seeds or plants, **ALWAYS** use the scientific name, not the common name. You will find that common plant names can be the same for entirely different plants so in order to be sure that you get the native plant you want always use the scientific name.

Where to buy

There are several native plant sources which are listed in the Wisconsin Native Plant Sources by Gretchen Messer, University of Wisconsin-Extension http://clean-water.uwex.edu/.

Many of the sources in this publication are close enough for a visit. You can also call and request a catalog from many of the companies listed. In order to obtain species that are truly native to the area it is best to always order by the scientific name and to purchase plants from nurseries within a 200 mile range of your site.

How Many Plants Do I Need?

In order to determine how many plants you will need to purchase, use the following plant density worksheet, which was taken from the U.S. Department of Agriculture Natural Resources Conservation Service shoreland restoration standards. The woodland has a nearly complete canopy of trees while the barrens/prairie and wetland are more open. Plant numbers are to be calculated based on the area in square feet to be reestablished and the appropriate density. The area to be reestablished should be calculated for each layer.

Conservation Plan Assistance Plant Calculation Worksheets for Calculating Plant and Seed Needs
In the Wisconsin Biology Technical Note 1: Shoreland Habitat, you will find two pages used for calculating plant and seed requirements. Make copies of those pages and using this example, fill out those sheets. Submit those calculations with the conservation plan. NOTE: Keep copies for your reference.

Worksheet 1: Area Calculations

Table 1. Shoreland Habitat Planting Densities

	Woodland		Wetland or Barrens/Dry Prairie/Wet Prairie	
Layer	**Minimum Number of Species**	**Density**	**Minimum Number of Species**	**Density**
Trees	**2**	0.5 –5 per 100sq. ft.	**0**	0-0.2 per 100 sq. ft.
Shrubs	**3**	1-4 per 100 sq. ft. If clumped, maintain min. 2 foot spacing	**2**	0.2-0.5 per 100 sq ft. If clumped, maintain min. 2 foot spacing
Herbaceous Cover[1]				
Plant Plugs	**3**	25-75 plants per 100 sq. ft.	**5**	50-100 plants per 100 sq. ft.

Worksheet 1: Area Calculations

	Total Area of Shoreland Habitat (Square Ft) length x width of shorelyard		**Total Area of Viewing/Access Corridor** View Corridor can be 30% of shoreline length – max 40 ft Note – The altered area = 8 ft		**Total Area of Existing Layer to Preserve as is and/or Natural Recovery Zone** In this example – only 8 ft total was being altered – The rest is left "as is" 35 ft – 8 ft = 27 ft		**Total Area to be Planted**
Tree Layer	80 ft x 35 ft = **2800 sq ft**	-	24 ft x 8 ft = **192 sq ft**	-	27 ft x 80 = **2160 sq ft**	=	**448 Sq Ft**
Shrub Layer	80 ft x 35 ft = **2800 sq ft**	-	24 ft x 8 ft = **192 sq ft**	-	27 ft x 80 = **2160 sq**	=	**448 Sq Ft**
Herbaceous Layer- Plants	80 ft x 35 ft = **2800 sq ft**	-	24 ft x 8 ft = **192 sq ft**	-	27 ft x 80 = **2160 sq**	=	**448 Sq Ft**

Worksheet 2: Plant Densities

	Total Area To Be Planted From worksheet 1		**Density Factor From Table 1,** (page 4)		**Plant Densities from Table 1** (page 4)		**Total Plants**
Tree Layer	**448 Sq Ft**	÷	100	x	0 - 0.2	=	0 - 1
Shrub Layer	**448 Sq Ft**	÷	100	x	0.2 – 0.5	=	1 - 2
Herbaceous Layer- Plants	**448 Sq Ft**	÷	100	x	50 – 100 plants per 100 sq. ft.	=	224 - 448

https://efotg.sc.egov.usda.gov/treemenuFS.aspx or
https://efotg.sc.egov.usda.gov/references/public/WI/Biology-TN-1.pdf