Shoreline Buffer Restoration

A Guide for Landowners

Burnett County Land and Water Conservation Department

Siren, WI

February 2014

Prepared By

Harmony Environmental	Amery, WI
Leaning Pine Native Landscapes	South Range, WI
Design/DTP – Karla Schnorf	Minneapolis, MN
Cover Art – Sarah McCuker	Superior, WI

Table of Contents

Restore Your Shore 2
Using This Guidebook 3
Shoreline Buffer Restoration and Preservation Standards 3
- "No-Touch Zone" 3
- "Minimum Maintenance Zone" 4
- "Viewing/Access Corridor" 4

Extent of Buffer 4
Re-establishing Native Vegetation 5
- Natural Recovery 5
- Accelerated Recovery — (Planted Buffers) 5

Why Choose Native Plants? 5
Addressing Your Concerns 6
- Fire Prevention 6
- Runoff Control 6
- Cost of Buffer Installation 7

Site Preparation 7
- Removing Existing Vegetation 8
- Soil Preparation 9
- Avoid Soil Erosion — Leave Dead Vegetation In Place 9

Preventing Erosion of Exposed Soils 10
- Netting Instructions 10
- Silt Fence Instructions 11

Shrub and Tree Planting Steps 12
Steps for Planting Seedlings 13
Steps for Planting Seeds 14
Care and Maintenance 15
- "No-Touch Zone" 15
- "Minimum Maintenance Zone" 15
- Initial Maintenance of Planted Groundcovers 15
- Year One 15
- Year Two 17
- Year Three and Beyond 17

Equipment and Supply Sources 18
Natural Shorelines Landscapers 19
Plant and Seed Sources 20
Additional Resources 22
- Web Sites 22
- Available from Burnett County 23

To Reach Us 23
Plant Lists 24
- Prairie/Upland Meadow 24
- Wet Meadow 28
- Moist Woodland Edge 32
- Maple Forest 34
- Pine or Oak Forest 36
- Woodland Edge – Oak/Pine Barrens 38

Restore Your Shore

Although tourism and second home development has slowed along with recent nationwide housing declines, their impact on Burnett County remains strong. When we live and play near water we generally clear vegetation, build structures, and add hard surfaces. The results can be striking – less habitat, more runoff of nutrients and sediment, and ultimately declines in water quality.

There are many compelling reasons to reverse these changes:

Keep the water clean

A thick cover of vegetation and an intact duff layer of leaves and pine needles serve to slow water flow allowing runoff water to soak into the soil or be filtered by the vegetation. The deep roots of native grasses and shrubs help to hold soil in place. Soil carries nutrients, which are better kept on your shore than in the lake, where they can fuel algae growth.

Provide a home

Diverse mixtures of native trees, shrubs, and groundcovers are important for the creatures that make their homes near the water. Trees and shrubs along the water's edge provide shade for fish and places for shoreline birds to nest and find food. Plants in the water and near the shore provide cover for fish, frogs, salamanders, turtles, and the aquatic insects that feed them.

Think about how your waterfront experience is enhanced by the sight of a loon or heron on the water, a turtle sunning itself on a log, or the call of a frog at dusk. All of these creatures depend on vegetation near the shore.

Create natural beauty

Buffers of natural vegetation screen views to and from the lake and create a wonderful sense of privacy. Take a look at your property from the water. Does it create the northwoods atmosphere you were looking for when you bought property here?

What is a Shoreline Buffer?

A shoreline buffer is a zone of native vegetation that extends from the ordinary high water mark inland. A buffer restoration seeks to restore functions originally provided by the natural vegetation.

Do Your Part

Many landowners are deciding to voluntarily restore shoreline buffers. These landowners and their human and animal neighbors will be reaping the benefits for years to come. Financial incentives are available to help pay for plants, materials, and labor for planting shoreline buffers. Additional incentives are available when you agree to permanently protect your shoreline. Call the Land and Water Conservation Department or visit the Burnett County web site for details.

Burnett County Shoreline Buffer Restoration

Burnett County requires that a natural zone of vegetation at least 35 feet deep be left intact next to the water. However, on many shoreline parcels, the protective zone of vegetation has been removed or greatly altered. To help mitigate the impacts that occur when structures closer than the allowed setbacks are enlarged or altered, the buffer zone must be reestablished.

Using This Guidebook

The landowner guidebook is designed to help you restore your shoreline buffer. It includes a summary of county buffer standards; instructions for preparing the site, planting, and maintaining the buffer; and information about plant selection and sources of plants, seeds, and supplies.

Shoreline Buffer Restoration and Preservation Standards

Shoreline buffer restoration and preservation standards are available from the Burnett County Land and Water Conservation Department.

Standards have been developed to ensure that adequate natural buffers are planted and preserved. The standards apply to both voluntary sites where cost sharing and/or incentives are provided and to sites where a buffer restoration is required for permitting modifications to a nonconforming structure. The standards are summarized below. Copies of the complete standards are available from the Land and Water Conservation Department.

The vegetation protection area (the buffer) must consist of a mix of native trees, shrubs, and groundcovers. A 35 foot minimum buffer depth is established in state rule. Burnett County has clarified these requirements in the Shoreland Zoning Ordinance. There are three major zones of a buffer.

"No-Touch Zone"

The "no-touch" or no-mow zone is an area where natural vegetation is allowed to grow.

Once the buffer is established, vegetation removal and land disturbing activities are prohibited in this area that begins at the ordinary high water mark and extends 35 feet inland. Since mowing, raking, and cutting trees are not allowed, minimal labor is needed to maintain the no-touch zone. Removal of dead trees or limbs is allowed only if there is a significant safety hazard, and permission from the county Zoning Office or Land and Water Conservation Department is required.

"Minimum Maintenance Zone"

Limited pruning and mowing are allowed in this area. In general, the minimum maintenance area begins 35 feet from the ordinary high water mark and extends inland. Exceptions to this rule are made for some setbacks as described under "buffer depth." A minimum maintenance zone must have a groundcover, but lawn grasses are acceptable here. Trees and shrubs may be less dense than in the no-touch zone.

"Viewing/Access Corridor"

The viewing/access corridor extends from the lake inland, more or less perpendicular to the shore. It may be up to 30 feet wide. Clear cutting, filling, grading, and other land disturbing activities are not permitted in the corridor. Limited tree removal, pruning, and mowing are allowed. Walkways, pathways, and stairs must be located in the corridor; and piers, wharfs, and lifts must be placed in the water immediately in front of the corridor. Viewing corridors on adjacent properties must have a minimum 30 foot separation of buffer area between them.

Extent of Buffer

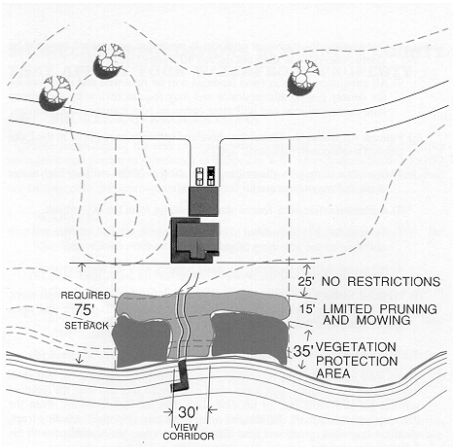
Buffer length

The buffer must extend the entire length of the lot along the shoreline except that a single viewing/access corridor up to 30 feet wide is allowed.

Buffer depth

Building setbacks greater than 60 feet

The buffer must extend from the ordinary high water mark to within 25 feet of the structure (for nonconforming setbacks) or to within 25 feet of the required structure setback. The no- touch zone must be at least 35 feet deep. The remainder may be minimum maintenance zone.



REMOVAL OF SHORELINE COVER

Building setbacks between 50 and 60 feet

The buffer must extend from the ordinary high water mark, 35 feet inland. The no-touch zone makes up the entire buffer.

Building setbacks less than 50 feet

The buffer must extend from the ordinary high water mark, 35 feet inland. The no-touch zone must extend to within 15 feet of the primary structure.

Re-establishing Native Vegetation

Selecting the appropriate technique for establishing native vegetation depends on an assessment of the existing vegetative cover and site conditions. There are two general techniques to choose from to establish native vegetation.

Natural Recovery

The cheapest way to restore a shoreline buffer is to simply allow vegetation to grow.

Native vegetation will recover naturally when the site is protected from disturbance and where adequate seed and/or root sources and appropriate site conditions are present. Natural recovery areas, or "no-mow" zones are encouraged to save time, effort, and money. Wet shoreline margins, where turf grasses are not well established, are particularly suited to natural recovery. Results may be slower than for planted buffers, but there is virtually no cost, and the end result may appear more natural.

An area where a dense growth of turf grasses has been maintained for several years is usually not well suited to natural recovery. Turf grasses frequently out-compete native vegetation, and the area may lack native seed sources. Areas of bare sand may lack native seeds and plant roots and may take many years to revegetate naturally. Areas with extensive stands of invasive weeds should also not be left to recover naturally. Web sites and other resources to assist with identification of invasive weeds are included at the back of this book.

Accelerated Recovery — (Planted Buffers)

Native vegetation must be seeded or planted in areas not well suited to natural recovery or where quick results are desired. Planting standards are established for native tree, shrub, and groundcover layers in the buffer restoration standards. The focus of this guidebook is to provide instructions for planted buffers.

On many sites, natural and accelerated recovery techniques can be combined. For example, natural recovery might be used along the shoreline where there are native plants, and accelerated recovery used for the remainder of the restoration, where turf grasses dominate.

Why Choose Native Plants?

Native plants have evolved for thousands of years with the local soils, climate, and shoreline environment. They provide the essential elements of food, shelter, and space for wildlife and fish species. Stands of native plants also act as an efficient sponge, soaking up rain and snowmelt runoff and maximizing groundwater recharge. Many have deep root systems that will stabilize soil and prevent erosion. There are many beautiful native plants to choose from to enhance the aesthetic value of your property. Once established, native plants will require little or no maintenance.

Addressing Your Concerns

You are likely to have a variety of questions and concerns about restoring a shoreline buffer.

Your questions are addressed when you receive assistance with a shoreline restoration design.

Will there be a place to swim?

It is possible to leave a place for swimming and to allow a clear line of sight to see children that are near the water. However, groundcover vegetation must remain – clearing should not be to bare sand.

How will the restoration affect my view?

Restoration plantings can be arranged to frame rather than block desirable views.

Will mosquitoes increase?

Mosquitoes increase with added standing water, not increased vegetation.

How soon can I expect results?

The time it takes to see results varies with soil moisture, nutrients, and sunlight. Planting seedlings rather than seeding an area generally speeds up results. Planting larger trees and shrubs results in a more finished project, sooner.

Fire Prevention

Portions of Burnett County are prone to forest fires. Popular residential and recreational lakes and rivers are located in these areas in Northern Burnett County. Conifer (evergreen) trees are especially susceptible to fire. To reduce fire danger, avoid planting conifers close to structures – especially when planting on the landward side of the house.

Runoff Control

Runoff should be maintained in sheet flow (not channels) to the greatest extent possible. The very sandy soils in Burnett County infiltrate water quickly when runoff is directed to areas where it can soak into the ground.

Runoff from impervious surfaces (such as driveways and patios) and roof gutter downspouts should be directed to maximize infiltration. Rain gardens are one option for infiltration. Rain gardens are sunken areas planted with flowers designed to soak in runoff water. This practice is explained along with other possibilities for runoff control in the booklet: ***Controlling Runoff and Erosion from Your Waterfront Property***. It is available from the Land and Water Conservation Department.

Pay special attention to how water will run after the buffer is created. The desired end result is for runoff water to filter through rather than run around the buffer zone. A low berm placed above the viewing corridor opening can direct water flow through the buffer.

Cost of Buffer Installation

Costs for planting a shoreline buffer vary greatly. Establishing natural recovery or no-mow zones to encourage native plant growth in all or part of the buffer greatly reduces costs. Seeding groundcovers is generally cheaper than planting seedlings, but results will take longer to see and seeds require very frequent watering. Do-it-yourself installation costs for buffers have ranged from nothing for establishing no-mow zones and transplanting shrubs to over two dollars per square foot for professional installation. Costs of native plants and planting supplies only can generally be kept below one dollar per square foot. Professional landscapers charge more, but using an experienced contractor may result in a more successful project.

Planting shrubs or trees as bare-root stock greatly saves on the cost. Burnett County sponsors a shrub and tree sale annually in April. Shrubs and trees purchased through the sale are usually less than one dollar each. Order forms are available beginning in January. The County also sponsors a native wildflower and grass seedling sale with orders taken through March and distribution in early June. A tray of 48 seedlings will cover approximately 50 to 75 square feet. Additional sources of native plants and seeds are found in the back of this publication.

Burnett County offers economically priced trees, shrubs, and native plants each year.

Site Preparation

Proper site preparation is one of the most important steps in establishing a native plant landscape. Native plantings can survive on poor, sandy soils and eventually will require little maintenance. However, you might need to lessen the competition on the site by first removing the existing vegetation. Turf grasses can quickly out-compete newly planted native grasses and wildflowers if left in place.

Remove thick turf grasses to reduce competition for newly planted native plants.

Sometimes removing existing vegetation is not necessary, and it is possible to plant among existing scattered native plants and/or poor grass cover or to leave zones of vegetation intact. The moist zone near the water's edge often consists mostly of native plants because turf grasses are flooded out. Seeds and underground stems may quickly revegetate the area if allowed to grow. Selected native flowers, grasses, and shrubs can usually be planted among existing native vegetation to fill in bare spots or to add color and variety. Stands of invasive plants like reed canary grass or purple loosestrife should be removed from wet areas.

Sometimes removing existing vegetation is not necessary, and it is possible to plant among existing scattered native plants and/or poor grass cover.

Ask for assistance with site evaluation if you are unsure if removing existing vegetation will be necessary.

Removing Existing Vegetation

You can remove existing vegetation by smothering, applying herbicide, or a combination of the two.

Smothering – Use Black Plastic

Covering a site with black plastic removes vegetation without chemicals.

Black plastic spread over vegetation eliminates light and creates heat that kills existing plants. This method is suitable for almost any site, but works best in sunny locations. In areas with high exposure to wind, extra care must be taken to anchor the plastic in place. Explain the purpose of the plastic to your neighbors; they might wonder!

1. You will need
   - 3.5 mil or thicker black plastic to adequately cover the area, plus extra to overlap sheets at least 6 inches.
   - 4 inch or longer, 11 gauge or heavier U-shaped metal staples. (enough to space 1 foot apart where plastic overlaps and at the edges).
   - Heavy objects like logs, cement blocks, boards, or tires to hold the plastic in place.
2. Prepare the site by mowing, weed whacking, or trimming vegetation to be removed.
3. If the soil is dry, water thoroughly.
4. Lay down the plastic. Get some help and choose a calm day. Overlap the plastic at least 6 inches if using more than one piece. Go around or cut holes for any existing plants you wish to preserve.
5. Anchor the plastic firmly in place using long U-shaped staples and heavy objects to be sure it stays there. All seams and edges must be firmly anchored to exclude light.
6. Leave plastic in place at least 6-8 weeks during the summer. Make certain there is no sign of living vegetation before removing it. Best results are obtained by leaving plastic in place for most of the growing season.
7. Remove plastic and plant directly into dead vegetation without tilling.

In full shade areas, smothering with black plastic is less effective and an herbicide application may be necessary.

Applying Herbicide

Herbicide is a much faster way to remove vegetation, but it must be used carefully and according to label instructions.

1. A glyphosate herbicide like Roundup® is recommended. These herbicides only affect plants directly sprayed, and will break down into harmless substances rapidly. Vegetation must be actively growing for this herbicide to be effective, and temperatures generally need to be above 50 degrees F. To encourage growth, mow grass and allow it to regrow several inches.
2. When applying an herbicide, shield and spray around existing native plants. Avoid drift of herbicide to water.
3. Timing of herbicide application is crucial. Do not apply when rain is forecast within the next 24 hours or on a windy day.
4. Wait at least 7 to 10 days before planting native plants. Be certain that vegetation is dead before planting. If turf is still green or yellow-green, a repeated application is recommended.
5. Leave dead plant material in place. It will serve as mulch for the new plants by holding moisture, anchoring soil, reducing weed growth, and contributing organic matter to the soil.

Soil Preparation

In most cases soil preparation is not required to plant native plants as long as they are chosen to match the soil, moisture, and light conditions at the site. Adding black dirt or manure can be detrimental to shoreline plantings. These soil amendments may favor weed growth, and the native plants may grow more quickly and be less sturdy.

Occasionally, soil amendments are necessary. It is wise to have the soil tested if you have any questions concerning its type, pH, or fertility. Contact the University of Wisconsin Extension office for a soil test kit. In highly acidic soils (less than 5.5 pH), adding lime may encourage plant growth. Fertilizers may also be required for soils with low nutrient levels.

Avoid using fertilizer with phosphorus near the water. Phosphorus is the second number listed (6-0-6) on the label.

Soil amendment use is recommended where mulches are used because they demand nitrogen as they decompose. Fertilizer should never be broadcast due to the potential for runoff into the lake. Instead, apply a very small amount of organic soil amendment in each planting hole. For a 6-0-6 NPK ratio, use one teaspoon of organic soil amendment per grass or wildflower plant and ¼ cup per shrub or tree. Up to one cup can be added to larger shrub or tree planting holes. An organic soil amendment rather than a chemical fertilizer will release nutrients more slowly and is less likely to burn plant roots or run off into the lake. Use phosphorus-free or very low phosphorus products. Phosphorus levels are adequate in most soils, and phosphorus can increase algae growth in the lake. Phosphorus is the middle number of the three given on the product bag. Composted leaves add organic matter and help to retain moisture when added to very sandy soils.

Soybean meal is a good organically-based fertilizer with appropriate nutrient levels, but it may attract animals that dig up plants to get the soybean meal. Composted animal manures or sewage sludge are less likely to attract animal pests and may, in fact, repel them.

Avoid Soil Erosion — Leave Dead Vegetation in Place

Dead vegetation left in place after smothering or an herbicide application does not need to be removed. Leave the dead material to serve as a mulch to capture moisture, reduce weed growth, and add organic material to the soil. If planting seedlings, plant directly through the dead material. Be sure that the roots are buried in soil and not in the thatch of dead lawn, where the plant would quickly dry out and die. If seeding, additional soil preparation will be necessary as described in "Steps for Planting Seeds" on page 14.

Preventing Erosion of Exposed Soils

Bare soils must be stabilized to avoid serious erosion problems. Bare soils may be present because of erosion from runoff, bank instability, heavy use, or construction activities. Eliminate or minimize the cause of the bare soil and then stabilize the area following the guidelines below. Any bare sand or dirt should be planted with seeds and/or seedlings and mulched. Additional stabilization methods are necessary on sloped areas.

Seeding Rates per 1,000 ft²
Annual Rye: 0.5 – 1 lb. (after August 1)
Oats: 0.5 – 1 lb. (until August 1)
Canada Wild Rye: 1 oz.

All sites	Seed or plant permanent vegetation and mulch
After Sept. 15	Temporary seeding of annual rye Permanent seeding next growing season
Slopes >12%	Companion seeding of oats, annual rye, or Canada wild rye
Slopes >20%	Companion seeding of oats, annual rye, or Canada wild rye Mulch, net, and plant

Netting Instructions

Check with the Land and Water Conservation Department or the Zoning Office before adding fill or topsoil.

Sources of erosion control materials are listed on page 18.

1. Divert channelized water from above (such as from a rain gutter downspout) to an infiltration area to help establish vegetation and minimize erosion.
2. Rake to an even slope. If it is not possible to even the slope, bring in small amounts of topsoil or sand to even the slope where it has eroded. Check with the Land and Water Conservation Department or the Zoning Office before adding fill or topsoil. Filling is regulated in the shoreland zone.
3. Seed a temporary cover of oats, annual rye, or Canada wild rye. Complete permanent seeding in this step unless seedlings are to be planted in step 6. Seeding instructions are included on page 14.
4. Cover with an excelsior (wood fiber) erosion control mat. For best stabilization, unroll the netting parallel with the slope. Overlap netting 4-6 inches.
5. Dig a 4-6 inch deep trench on the uphill side of the slope and bury the uphill edge of the erosion blanket in place.
6. Stake mat or netting in place using 6 inch or longer no. 8 gauge or heavier wire staples to hold it in place. Staples should be spaced every 3 feet along the edge and where the nets or mats overlap.
7. Plant plugs of seedlings of native grasses and flowers through mulch. Choose plants from the appropriate list based on sunlight and soil moisture in back of this guidebook. Space seedlings 1 foot apart. Use at least 50 percent native grasses such as little bluestem, side oats grama, and big bluestem. The deep roots of the grasses will help to stabilize the slope. Additional instructions for planting seedlings are included on page 13.
8. You may need to replace mulches, mats, and nets after periods of prolonged rainfall. Replace mulch, netting, or matting as soon as possible to maintain suitable coverage and prevent erosion until permanent vegetation is established.
9. Installation of silt fences may be necessary to capture sediment below exposed slopes.

Silt Fence Instructions

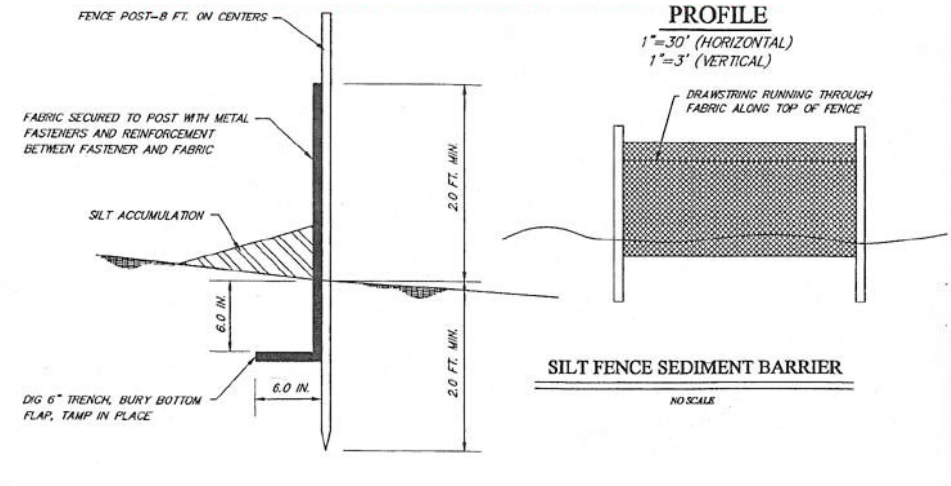
Silt Fence Materials

- Geotextile mesh fabric
- Fence stakes
- Trencher
- Compactor or tamper

Step-by-step Instructions

1. Determine the position of the proposed silt fence, and dig a trench along this line. The trench should be at least 6 inches wide and 6 inches deep, and should be shaped like a "C" or a "J" from the top view to prevent runoff from going around the end of the fence.
2. Hammer the fence stakes in on the far side of the trench, away from the source of the runoff. Put at least 6 inches, or 1/3 of the length of your fence stakes, in the ground. For added support, metal fence stakes may be used. The stakes should be spaced between 2 and 10 feet apart, depending on the heaviness of the expected runoff (closer together if heavy).
3. Attach the fence fabric, if you are not using pre-attached fabric. The fabric may have tie strings or pockets where the fence stakes will fit in.
4. Fill the trench back in, making sure that at least 6 inches of fabric is underground.
5. Pack down the soil in the trench using a compacting machine or an iron hand tamper.

Silt fences are used to capture sediment in runoff. They must be buried in the soil to be effective.



Adapted from http://www.ehow.com/how_4705596_install-silt-fence.html

Shrub and Tree Planting Steps

Potted shrubs may be planted any time the soil is not frozen.

1. ***Keep bare root stock moist and cool before planting.*** Dormant bare root shrubs can be ordered in the fall or winter for delivery in the spring. Plant bare root stock as soon as it arrives. If you must wait to plant, store bare root stock close to 34 degrees Fahrenheit to avoid breaking dormancy. Keep roots moist by periodically sprinkling with water. Do not soak roots in water because this will deprive them of oxygen.
2. ***Dig the hole deeply enough*** so that the roots won't curl or bunch up. The trees and shrubs should be planted about one half inch deeper than they were in the nursery. Paler colored bark and a slight swelling on the stem mark the old soil line.
3. ***Pack soil firmly but gently around the roots.*** Air pockets left around the roots will dry them out.
4. ***Water regularly*** to keep soil moist but not saturated.
5. ***Mulch*** a two-foot diameter circle around each plant 2 to 3 inches deep with wood chips, straw, or leaves. This will reduce competition with other plants. Keep this area free of other growth by weed wacking or hand pulling weeds for the first couple of years.

Transplanting Trees and Shrubs

The best time to transplant trees and shrubs is in the spring before they leaf out.

It is best to transplant when trees and shrubs are dormant in the early spring or late fall. It might help to identify and label trees and shrubs when leaves are on the plant. Dig up as much of the root as possible. Replace the duff layer of leaves and stems to reduce erosion at the site. Only dig up trees and shrubs if they are part of a large stand or if the seedlings are numerous.

Steps for Planting Seedlings

1. *Assess existing vegetation.* It might be possible to plant among existing native vegetation or into a poorly established lawn. Ask for assistance from the Land and Water Conservation Department if you are unsure. If native vegetation dominates or lawn grasses are poor, skip step 2.
2. *Remove non-native competing vegetation* such as turf grasses and invasive weeds through smothering or applying herbicide as described earlier.
3. *Plan your planting scheme.* Spacing plants 8 – 12 inches apart is recommended for very sandy soils. Spacing of 12 – 18 inches is adequate for moist soils.
4. *Lay mulch down prior to planting.* Spread 3 inches of straw, leaves, or pine needles to conserve moisture and reduce weed growth. If you use oak leaves, we recommend chopping them up by running over them with a mower or through a leaf shredder. Avoid using field hay because it generally contains weed seeds. Two inches of wood chips or shredded bark can be used only in areas with moist, rich soils. Wood chips tend to shed moisture, retard spreading of plants, and demand nitrogen as they decay.
5. *Be ready to water.* Watering plant plugs is critical to their success. Be ready with hoses and sprinklers before you begin to plant.
6. *Dig holes for plants.* This will speed up planting. A bulb planter or bulb auger drill bit attached to an electric drill work well for planting. Make sure the holes for the plants penetrate the dead grass.
7. *Amend the soil.* A small amount of organic, phosphorus-free or very low phosphorus soil amendment is recommended. The second number on the label indicates the percentage of phosphorus. For a 6-0-6 NPK ratio, place a teaspoon in each plant hole. Excess nutrients will encourage weed growth.
8. *Place live plants in the ground soon after you they are brought to the site.* To hold plants a few days before planting, keep them in an area with partial sun such as on the east side of a building or under a deciduous tree. Do not leave them in a dark area for long periods; this will weaken plants. Water once or twice a day to keep packs moist.
9. *Plant in the cool hours of the day.* Plants will have a greater survival rate if planted on a cool day or during the morning or evening hours. To plant, separate the mulch, dig a hole, sprinkle organic soil amendment, place the plant plug in the hole, press the soil gently around the plug, and replace the mulch, being careful to keep mulch ½ inch from the stem of plants.
10. *Water.* Don't forget this important step to give your plants a good start! Water immediately after planting. Plan to water daily for the first few weeks or until plants are well established. Water at least twice a week throughout the growing season if soils are very sandy. If plants wilt or droop, a repeated watering during the day may be necessary. Once plants are established, water only if prolonged dry periods occur.

Plant seedlings from May 15 until September 15. A planting density of 70-120 plants per 100 square feet is recommended.

Plant at least 30 percent grasses to stabilize the soil and provide an attractive backdrop for flowers.

Watering new seedlings regularly is extremely critical for their survival.

Steps for Planting Seeds

Seed groundcovers from May 20 th through August 10 th. The best time to plant is in June.

1. *Remove non-native competing vegetation* by smothering or applying herbicide as described in the site preparation section. Rake or till only enough to expose soil for planting seed – no more than 1-2 inches deep. Deep tilling can bring up weed seeds and makes soil more prone to erosion.
2. *Select seed.* Use 3-8 ounces of seed for every 1,000 square feet. Greater amounts of seed will result in denser growth and a better chance of success. Include 1 ounce of Canada wild rye per 1,000 square feet as a companion seeding or cover crop if desired. This seed will germinate readily to indicate areas where seeding is successful and help to hold the soil in place. Canada wild rye is a short-lived native perennial grass.
3. *Mix seeds with slightly moist sand.* Fill an ice cream pail or similar one gallon bucket two thirds full with moist, but not wet, sand. Add up to 4 ounces of seed and mix well. The seeds will adhere to the sand, so they can be spread more thinly and evenly.
4. *Broadcast the seed/sand mixture.* Use half of the seed/sand mixture to cover the entire area. Sow the remaining half by walking perpendicular to the line of the first pass to assure good seed distribution throughout the area you wish to plant. The sand will make it easier to see places that have not been seeded.
5. *Press seed in* by tamping down the soil with a rake or lightly raking the seeds in. You may also roll the site with a water-filled roller to insure good soil/seed contact. Never roll when soil is wet, this will compact the soil, decrease oxygen levels in the soil, and reduce seed germination.
6. *Mulch lightly* with ½ inch of weed-free straw. Do not use field hay, as it contains numerous weed seeds. Soil must be visible between the straw stems, or the mulch is too thick to allow seedlings to grow.
7. *On steep slopes,* hold the mulch in place by staking down a jute or plastic net. An excelsior erosion control blanket up to ½ inch thick may be used as an alternative to mulching and netting.
8. *Water* immediately following seedling. Don't forget this important step to give your plants a good start! Watering seeds and small seedlings after sprouting is critical for sandy soils. Plan to water daily, preferably in the morning, for the first few weeks or until plants are well established. Check to see that soil is moist beneath the mulch. Very sandy sites may require watering more than once daily for the first few weeks. Water at least twice a week throughout the growing season if soils are very sandy. Once plants are established, water only if prolonged dry periods occur.

Care and Maintenance

The easiest and most ideal buffer maintenance is to simply leave the buffer zone alone. Do not fertilize, do not mow, do not rake, do not "clean up" fallen limbs or trees. Allow natural vegetation to regrow.

In areas not well suited for natural recovery, some initial maintenance of planted buffers will lead to better results. Pulling invasive weeds around native shrubs, trees, and groundcovers the first year or two eliminates competition and will help to give them a good start. Buffers must be maintained over the long-term according to the shoreland ordinance requirements described below.

"No-Touch Zone"

Once the buffer is established, vegetation removal and land disturbing activities are prohibited in this area except for noxious or problem weed removal. The duff layer, made up of fallen leaves and pine needles, must be left intact. This layer covers the soil, thereby conserving moisture, preventing erosion, and allowing water to infiltrate into the soil.

For the greatest benefit to wildlife and lake water quality, extend the no-touch zone into the lake. Aquatic vegetation provides food and habitat and breaks the force of waves.

"Minimum Maintenance Zone"

Limited pruning and mowing are allowed in this area.

Initial Maintenance of Planted Groundcovers

Weeding and watering the first two years will insure long-term success. In time, your maintenance duties will ease and you will have time to enjoy the scenic beauty you have brought back to the shoreline.

Year One

Watering

Regular watering in the first two months of a spring or summer planting is one of the most important factors for success. Without supplemental watering, roots may not reach the soil moisture they need. Watering at least 30 minutes each day allows vigorous root growth for plants to become well established. Timers to turn water on and off automatically are available from hardware and garden supply stores.

Pumps may be placed in the lake for watering your new planting. Timers can aid in watering when you are away. Both are available from most hardware stores.

If drainage is poor, water less often and only in the morning, not at night when evaporation is reduced. Fungal diseases that start with excess moisture can kill young seedlings. This should not be a concern in the sandy soils that border many Burnett County lakes. Use lake water if feasible, since this water is often warmer and more nutrient-rich than well water. Pumping water from the lake is allowed in Wisconsin as long as no type of structure is left in the lake.

Protection against Deer Browsing

Whitetail deer and other animals frequently damage plantings, especially trees and shrubs. Protect against damage by physical or chemical means. Surround newly planted trees and shrubs with 4 – 8 feet high, galvanized wire mesh fence supported with wooden stakes or fence posts, or cover plants with bird netting.

Landscape products sprayed on plants deter browsing through strong tastes or odors. Red pepper spray is an example. Use of these products may need to be varied as deer become accustomed to their taste or smell. A few of these products are listed below. This listing does not constitute endorsement by Burnett County. Look for these and similar products at local hardware stores and nurseries.

Tree Guard distributed by Becker Underwood (www.nortechforest.com/products)
Hot Pepper Wax distributed by Hot Pepper Wax, Inc (1-800-627-6840 or www.hotpepperwax.com)
Ro-pel Mammal and Bird Repellent available through Forestry Suppliers, Inc. (1-800-647-5368 or www.forestry-suppliers.com) and Ben Meadows Company (1-800-241-6401 or www.benmeadows.com)

Home remedies include mixtures of Tabasco, water, egg, and sometimes soap and even human hair or urine. Protection against deer browsing is particularly important if deer are fed on the site or nearby. Deer feeding is discouraged near restoration areas.

Weeding

Weeding the first year will help to get native plants well established.

Native plants are typically either slow-growing or warm season plants. Cool season weeds can crowd out natives by getting a quick start in the spring before natives have had a chance to grow. Weeds deprive native plants of water, light, nutrients, and space. Check for weeds once every two weeks. Pull them out immediately being careful to not disturb the native plants. Do not allow non-native invasive species like purple loosestrife, spotted knapweed, mullein, lamb's quarter, quack grass, reed canary grass, bluegrass, and others to take over the planting. Ask if you need assistance identifying weeds. Web sites to assist with identification of weeds (invasive plants) are included at the back of this book.

Weeding Seeded Groundcovers

Seeded groundcovers are a special challenge because it can be difficult to tell the weeds from the natives. Sprouting a small sample of the native seeds in a plant tray can help to identify their seedlings and make it easier to recognize and pull weeds. Cut off flowering heads of weeds before they go to seed. An alternative is to repeatedly trim weedy vegetation to 6 to 8 inches with a weed whacker. Remove clippings immediately if they cover the native seedlings.

This will discourage weed growth, remove shade, and allow native seedlings to grow. Your investment of time will pay off next year and in following years. Be patient, the perennial natives will eventually out-compete annual weeds that sprout from seed.

Fertilizing And Applying Insecticides

Fertilizers and insecticides should be avoided. Applying fertilizers may encourage weed growth. If native plants are selected appropriately, supplemental fertilization should not be required. Also avoid applying insecticides since so many are non-specific and can harm or even kill non-target species.

Vegetative Cover

At the end of the first season, allow all dead vegetation to remain in place. It becomes a valuable seed source for next year's growth, provides cover and food for wildlife, and will help to cover the soil and slow spring runoff. The grass and dried flower heads also add appeal to the native landscape in the winter months.

Leave dead vegetation in place to provide seeds for birds and next year's growth.

Year Two

Watering

Water only during periods of severe drought.

Weeding

Thoroughly weed early in the summer. After this initial weeding, check for weeds and pull them once a month.

Year Three and Beyond

No watering or weeding should be necessary except for extreme drought conditions or stubborn invasive weed problems. Leave vegetation in place in the fall and through the winter months.

Tree thinning or removal of dead or diseased trees requires special approval from the County Conservationist or the Zoning Administrator.

Trimming of groundcover in prairie areas may be allowed once every three to five years. Special approval may be necessary. Mow after July 15 to minimize adverse effects on wildlife. Groundcovers should be cut no less than 8 inches high.

Put away your mower and rake and let nature take her course.

Vehicles should be excluded from the buffer except for limited use in the viewing access corridor.

Docks should be stored outside the buffer or in the viewing/access corridor, if possible.

Equipment and Supply Sources

Hardware Stores

Look for: Black plastic, planting tools, Round-up® herbicide, phosphorus-free soil amendments, landscape staples, pumps, timers, and mulch[1]

Ace Hardware of Webster, Webster 715-866-8666
Burnett Dairy Co-op, Grantsburg 715-689-2467
Danbury Hardware Hank, Danbury 715-656-3100
Do It Best Hardware, Frederic 715-327-5664
Jenneman's Hardware Hank, Siren 715-349-5350
The Grainery/Webster Hardware Hank, Webster 715-866-4333

Mulch materials [2]

Austin Lake Greenhouse, Webster *(straw, shredded bark, wood chips)* 715-866-7261
Village of Siren *(shredded yard waste)* 715-349-2493

Equipment Rental

Do It Best Hardware and Rental Center, Frederic 715-327-8656
The Grainery /Webster Hardware Hank, Webster 715-866-4333
Ace Hardware of Webster, Webster 715-866-8666

Erosion Control Materials (silt fence, woven erosion mats, etc.)

Austin Lake Greenhouse, Webster 715-866-7261
Burnett County Land and Water Conservation Department, Siren ... 715-349-2186
PK Forest Farms, Minong 715-466-5246
American Excelsior Company, Minneapolis 817-640-1555
American Excelsior Company, Rice Lake 715-234-6861

[1] Call for specific availability
[2] Check classified ads for sources of straw. Tree-removal services may drop off wood chips at no charge.

Natural Shorelines Landscapers [1]

Design and Installation Services

Austin Lake Greenhouse
26604 Lakeland Avenue N
Webster, WI 54893
Contact: Kyle Werdier
715.866.7261
austinlakegreenhouse@gmail.com
www.austinlakegreenhouse.com

Evergreen Landscaping
Siren, WI 54872
Contact: Nate D'Jock
715-349-2877

Golden Pond Landscapes
3799 S. Peninsula Road
Webster, WI 54893
Contact: John Childs
715-866-5099
715-491-8557 (cell)
goldenpondlandscapes@centurytel.net
www.goldenpondlandscapes.com

Leaning Pine Native Landscapes
3130 S. Camp Amnicon Road
South Range, WI 54874
Contact: Paul Hlina
715-398-5453
phlina4@gmail.com

Rivers North
6028 Devils Lake Road
Webster, WI 54893
Contact: Chuck Brookshaw
715-733-0029
chuck@rivers-north.com
www.rivers-north.com

Shoreline Designs
10608 Glenwood
Hayward, WI 54843
Contact: Carl Kozak
715-634-2219
CEKHH@CHEQNET.NET

[1] These landscapers have either completed a course about the Burnett County Natural Shorelines program and how to design and install buffers, or have equivalent experience.

Plant and Seed Sources*

Nursery	Seeds	Plants	Aquatics/ Wetland	Prairie – Grasses/Forbs	Woodland Plants	Woodland Trees/Shrubs	Other Comments	Catalog Available
Austin Lake Greenhouse Webster, Wisconsin *—715-866-7261*		✿		✿		✿		
Burnett County Land and Water Conservation Dept. Siren, Wisconsin —715-349-2186	✿	✿		✿		✿	Order: beginning in January Pick-up: trees and shrubs – late April grasses/forbs – early summer	
Dragonfly Gardens Amery, Wisconsin —715-268-7660 www.dragonflygardens.net	✿	✿	✿	✿	✿	✿	Wide selection of prairie and wetland plants. Native trees, shrubs, and woodland plants available	✿
Great Lakes Nursery Co. Gleason, Wisconsin —888-733-3564 www.greatlakesnursery.com		✿			✿	✿	Bare root deciduous and evergreen trees and shrubs	✿
Ion Exchange Harpers Ferry, Iowa —800-291-2143 www.ionxchange.com	✿	✿	✿	✿	✿		More than 250 species of seeds and greater than 100 plant plugs Carries no-mow grass seed	✿
Itasca Greenhouse Cohasset, Minnesota —800-538-8733 www.itascagreenhouse.com						✿	Trees/shrubs are grown in styrofoam blocks or square plant bands, all containerized. Animal repellents are available	✿
J&J Aquatic Nursery Wild Rose, Wisconsin —800-622-5055 www.tranzplant.com	✿	✿	✿	✿	✿		Source for most wetland grasses, sedges, rushes and shrubs, also carries Pennsylvania sedge Seed as mixes only	✿
Landscape Alternatives Shafer, Minnesota —651-257-4460 www.landscapealternatives.com		✿		✿	✿		Seed source collected within 100 miles of St. Paul/Minneapolis	
Kester's Wild Game Food Nursery Omro, Wisconsin —920-685-2929 www.kestersnursery.com	✿	✿	✿	✿			In business almost 100 years Prairie species in seed only	✿
Oak Prairie Farm Pardeeville, Wisconsin —800-894-3884 www.oakprairiefarm.com	✿			✿			Collected seeds, great variety Carries no-mow grass seed	✿
Prairie Nursery Westfield, Wisconsin —800-476-9453 www.prairienursery.com	✿	✿		✿	✿		Catalog has great photos of native grasses and flowers; carries a few woodland edge species. Carries no-mow grass.	✿
Prairie Moon Nursery Winona, Minnesota —866-417-8156 www.prairiemoon.com	✿	✿	✿	✿	✿	✿	Specializes in prairie plants, and has several woodland edge species. Carries bare root and potted plants.	✿
Prairie Restoration Scandia, Duluth, and Princeton, Minnesota —769-389-4342 www.prairieresto.com	✿	✿	✿	✿	✿	✿	Several specialized seed mixes. Installation ser vices available.	✿

*Many of these websites have great photos of native plants.

Nursery	Seeds	Plants	Aquatics/ Wetland	Prairie – Grasses/Forbs	Woodland Plants	Woodland Trees/Shrubs	Other Comments	Catalog Available
Chief River Nursery Grafton, Wisconsin —800-367-9254 www.chiefrivernursery.com		✿				✿	Bare root trees/shrubs, minimum order of $25	✿
Wildlife Nurseries Oshkosh, Wisconsin —920-231-3780	✿	✿	✿				Specializes in wetland species for waterfowl and other wildlife species	✿
Winter Greenhouse Winter, Wisconsin —715-266-4963 www.wintergreenhouse.com		✿	✿	✿	✿	✿	Selection of native woodland plants suited for the northwoods—does not ship plants	✿

Additional Resources

Web Sites

Plant Identification and Photos

http://www.botany.wisc.edu/herbarium

Vascular Plants of Wisconsin is produced by the Herbarium, Department of Botany, UW-Madison. This is probably the best and most complete site for Wisconsin plants. Search by scientific name, habitat type, status, county, family, genera, or common name. The results give a detailed description of the plant and most have a photo and distribution map. Also available is a link to the *Atlas of Wisconsin Prairie and Savanna Flora* and a key to WI conifers and rare lichens of WI.

http://bluethumb.org/plants/

The Blue Thumb Plant Selector is a great tool. It allows you to choose the purpose, type, soil, sun, and bloom time and color to select plants.

http://www.wiplants.org

Wisconsin Plant of the Week developed by a WI DNR employee. The features provide excellent photos of the plant as well as a detailed life history. The archive of past-featured plants is listed by scientific name.

http://plants.usda.gov

Search for plants found throughout the United States by common or scientific name. The search produces photos, life history, and range maps. Another feature lists literature references specific to the plant. Sponsored by the USDA - Natural Resources Conservation Service.

Invasive Plant (Weed) Identification

http://dnr.wi.gov keyword: invasive

This site includes an extensive photo gallery of invasive plant photos and species information. Some of these plants are native to Wisconsin but tend to spread and out-compete other plants.

http://ipaw.org

Site of the Invasive Plants Association of Wisconsin. A list of Wisconsin invasive plants is included. Invasive plants are defined as non-native species or strains that become established in natural plant communities and wild areas and replace native vegetation.

http://www.wssa.net/Weeds/ID/PhotoGallery.htm

Weed Science Society of America developed this web site. The Photo Herbarium includes over 200 common American herbs, plants, and weeds. The photos are listed alphabetically by common name. You can choose from either high or low-resolution photos. This site also has information on invasive plants.

Available from Burnett County

Controlling Runoff and Erosion from Your Waterfront Property. A Guide for Burnett County Landowners

This guide describes methods for controlling runoff from waterfront property. It describes methods for minimizing hard surfaces, vegetating, diverting water, and infiltrating runoff.

Top Ten Native Shoreline Plants for Burnett County

This guide includes favorites of Burnett County staff, consultants and advisors for use in restoration projects. Nice plant photos and sketches and plant growing characteristics are included.

Top Ten Native Shrubs for Wildlife

Favorite shrubs for wildlife are pictured. The guide provides advice about best site conditions for planting and wildlife features for each shrub.

A Guide for Developing and Managing Shoreland in Burnett County

An overview of the county shoreland zoning requirements and recommendations for shoreline property.

Burnett County Natural Shorelines Program

A presentation that describes the benefits of natural shorelines; gives examples of buffer types and components; and provides details of Burnett County financial and technical assistance, tax incentives, and education for natural shorelines.

For Additional Assistance

The Burnett County Land and Water Conservation Department offers technical and financial assistance for shoreline buffer restoration. Call the office to get information about plants, shrubs, and trees appropriate for your property and and directions on how to get them established. Native plant identification guides are available to borrow. Additional copies of this handbook are also available.

To Reach Us

Burnett County Land and Water Conservation Department
7410 County Road K, #109
Siren, WI 54872

715-349-2186

LWCD@burnettcounty.org

www.burnettcounty.com

Burnett County Native Plant Lists

Prairie/Upland Meadow

Dry to medium soils **Full sun 8 hours**

Common Name	Scientific Name	Height	Flower Color	Bloom Time	Butterflies	Hummingbirds	Songbirds	Waterfowl	Game Birds	Reptiles/Amphibians	Small Mammals	Deer
Grasses												
Big bluestem °	*Andropogon gerardii*	3-8'	NA	NA			●		●	●	●	●
Blue grama*	*Bouteloua gracilis*	1-2'	NA	NA			●		●			●
Bottlebrush grass	*Elymus hystrix*	3'	NA	NA								
Canada wild rye	*Elymus canadensis*	3-6'	NA	NA	●						●	●
Indian grass °	*Sorghastrum nutans*	3-6'	NA	NA	●		●		●			
June grass*	*Koeleria macrantha*	1-2'	NA	NA								●
Little bluestem*	*Schizachyrium scoparium*	2-3'	NA	NA	●		●					●
Needle grass*	*Stipa spartea*	3-4'	NA	NA			●				●	●
Prairie dropseed*	*Sporobolus heterolepis*	2-4'	NA	NA			●		●		●	●
Side oats grama*	*Bouteloua curtipendula*	2-3'	NA	NA			●		●			●
Wildflowers												
Anise hyssop*	*Agastache foeniculum*	2-4'	Lavender	June-Oct	●							
Bergamot* °	*Monarda fistulosa*	2-4'	Lavender	July-Aug	●	●		●				●
Black-eyed Susan*	*Rudbeckia hirta*	1-3'	Yellow	June-Oct	●							
Bush clover*	*Lespedeza capitata*	3-4'	Green	July-Oct			●		●			●
Butterfly weed*	*Asclepias tuberosa*	2-3'	Orange	June-Sept	●							
Canada milk vetch	*Astragalus canadensis*	2-3'	White	June-Aug					●		●	●
Dotted mint	*Monarda punctata*	1-3'	Lavender	June-Sept	●							
False sunflower* °	*Heliopsis helianthoides*	2-5'	Yellow	June-Oct	●							
Fireweed	*Epilobium angustifolium*	2-6'	Pink	June-Aug	●	●					●	
Frost aster °	*Aster pilosus*	1-3'	White	Aug-Oct	●		●	●	●		●	●
Harebell* °	*Campanula rotundifolia*	4-20"	Purple	June-Sept		●						
Heath aster	*Aster ericoides*	6-36"	White	Aug-Oct	●		●	●	●		●	●
Heart-leaf golden alexander	*Zizia aptera*	1-3'	Yellow	May-June	●							
Hoary vervain*	*Verbena stricta*	2-3'	Blue	June-Sept	●		●				●	

° = Clay tolerant
* = Best for driest sites
NA = Not Applicable – no flowers or inconspicuous flowers

Lance-leaf coreopsis*	*Coreopsis lanceolata*	2-3'	Yellow	June-Aug	●						●	●
Leadplant*	*Amorpha canescens*	2-3'	Blue	June-July	●		●				●	●
Lupine*	*Lupinus perennis*	1-2'	Blue	May-July	●						●	●
Pasque flower*	*Anemone patens*	2-14"	Lavender	Mar-May								
Prairie coreopsis	*Coreopsis palmata*	1-2'	Yellow	June-Oct	●						●	●
Prairie phlox	*Phlox pilosa*	1-2'	Pink	May-June	●						●	●
Prairie sage*	*Artemesia ludoviciana*	2-3'	White	July-Oct			●				●	
Prairie smoke*	*Geum triflorum*	6-13"	Red	May-June								
Prairie violet	*Viola pedatilfida*	6-8"	Blue	May-June	●		●		●		●	
Pearly everlasting*	*Anaphalis margaritacea*	1-2'	White	June-Aug								
Purple prairie clover*	*Dalea purpurea*	1-3'	Purple	May-Sept	●						●	●
Rough blazing star* °	*Liatris aspera*	2-3'	Purple	Aug-Sept	●						●	●
Showy goldenrod °	*Solidago speciosa*	2-4'	Yellow	Aug-Oct	●		●		●		●	●
Smooth blue aster	*Aster laevis*	2-3'	Blue	Aug-Oct	●		●		●		●	●
Sky blue aster	*Aster oolentangiensis*	1-4'	Blue	Aug-Oct	●		●		●		●	●
Spike lobelia*	*Lobelia spicata*	8-40"	Lavender	June-Aug	●							●
Stiff goldenrod °	*Solidago rigida*	1-5'	Yellow	Aug-Sept	●		●		●		●	●
Upland white aster	*Solidago ptarmicoides*	1-2'	White	June-Sept			●		●		●	●
Western sunflower*	*Helianthus occidentalis*	2-3'	Yellow	June-Sept			●		●		●	●
White prairie clover*	*Dalea candida*	1-3'	White	May-Sept	●						●	●
Yarrow* °	*Achillea millefolium*	2-3'	White	June-July					●		●	
Shrubs												
New Jersey tea*	*Ceanothus americanus*	1-3'	White	May-June							●	
Prairie rose	*Rosa arkansana*	2-3'	Pink	June-Aug			●		●		●	●

° = Clay tolerant
* = Best for driest sites
NA = Not Applicable – no flowers or inconspicuous flowers

Wildlife information sources:

Craven, Scott R. and Edward R. Hasselkus. *Landscape Plants that Attract Birds*. University of Wisconsin Extension.

Martin, Alexander C. et.al., *American Wildlife and Plants, a Guide to Wildlife Food Habits; the Use of Trees, Shrubs, Weeds, and Herbs by Birds and Mammals in the United States.* 1951.

Shaw, Daniel and Rusty Schmidt. *Plant Species Selection for the Upper Midwest.* Minnesota Pollution Control Agency. 2003.

Connecticut Botanical Society web site: www.ct-botanicalsociety.org

Illinois Wildflowers web site: www.illinoiswildflowers.info

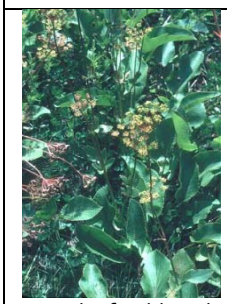
NPIN: Native Plant Database: www.wildflower.org

For a pdf copy of this handout, go to Burnettcounty.com/shoreline

Selected Species

Prairie/Upland Meadow

Dry to medium soils **Full sun 8 hours**

Big bluestem *(Andropogon gerardii)*	Bottlebrush grass *(Elymus hystrix)*	Indian grass *(Sorghastrum nutans)*
Little bluestem *(Schizachyrium scorparium)*	Side oats grama *(Bouteloua curtipendula)*	Bergamot *(Monarda fistulosa)*
Black eyed Susan *(Rudbeckia hirta)*	False sunflower *(Heliopsis helianthoides)*	Fireweed *(Epilobium angustifolium)*
 Heart leaf golden alexander *(Zizia aptera)*	Lupine (*Lupinus perennis*)	Prairie coreopsis *(Coreopsis palmata)*

Prairie phlox *(Phlox pilosa)*	Pearly everlasting *(Anaphalis margaritacea)*	Purple prairie clover *(Dalea purpurea)*
Rough blazing star *(Liatris aspera)*	Smooth blue aster *(Aster laevis)*	Sky blue aster *(Aster oolentangiensis)*

Photo Source: "Wisconsin Botanical Information System" UW Madison Wisconsin State Herbarium

Wet Meadow

Moist to wet soils **Full sun 8 hours**

Common Name	Scientific Name	Height	Flower Color	Bloom Time	Butterflies	Hummingbirds	Songbirds	Waterfowl	Game Birds	Reptiles/Amphibians	Small Mammals	Deer
Grasses and Sedges												
Blue joint grass	*Calamagrostis canadensis*	3-5'	NA	NA			●	●				●
Bottlebrush sedge*	*Carex comosa*	1-2'	NA	NA	●		●	●			●	●
Broad-leaved cattail*	*Typha latifolia*	5-9'	NA	NA	●		●	●			●	
Caterpillar/Fringed sedge*	*Carex crinita*	2-5'	NA	NA			●	●	●		●	●
Fox sedge	*Carex vulpinoidea*	1-3'	NA	NA			●	●			●	●
Green bulrush	*Scirpus atrovirens*	3-5'	NA	NA			●	●			●	
Hard-stem bulrush*	*Schoenoplectus acutus*	3-9'	NA	NA			●	●				
Lake sedge*	*Carex lacustris*	24-42"	NA	NA	●		●	●	●	●	●	●
Path rush	*Juncus tenuis*	2-14"	NA	NA			●		●			
Pointed broom sedge	*Carex scoparia*	6-30"	NA	NA	●		●	●	●		●	●
Prairie cordgrass	*Spartina pectinata*	4-8'	NA	NA	●			●			●	●
Rattlesnake manna grass*	*Glyceria canadensis*	2-3'	NA	NA								
Retrorse sedge	*Carex retrorsa*	16-40"	NA	NA			●	●	●		●	●
River bulrush*	*Scirpus fluviatilis*	3-6'	NA	NA			●	●			●	●
Soft rush*	*Juncus effusus*	18-48"	NA	NA			●	●	●		●	●
Soft-stem bulrush*	*Scirpus validus*	3-9'	NA	NA			●	●			●	
Spike rush*	*Eleocharis palustris*	2-3'	NA	NA			●				●	
Sweet flag*	*Acorus calamus*	2-3'	NA	NA			●				●	
Switch grass°	*Panicum virgatum*	3-5'	NA	NA	●		●	●	●			●
Tussock sedge*	*Carex stricta*	1-4'	NA	NA			●	●	●		●	●
Wool grass	*Scirpus cyperinus*	3-5'	NA	NA			●	●			●	
Wildflowers												
Bergamot°	*Monarda fistulosa*	2-4'	Lavender	July -Aug	●	●		●				
Blue flag iris	*Iris virginica*	18-30"	Blue	June-July	●		●	●	●			
Blue vervain	*Verbena hastata*	2-6'	Blue	June-Sept	●		●				●	
Boneset	*Eupatorium perfoliatum*	3-4'	White	June-Aug	●		●	●	●	●	●	
Bottle gentian	*Gentiana andrewsii*	18-30"	Blue	Aug -Oct	●	●	●					●
Cardinal flower	*Lobelia cardinalis*	2-5'	Red	July -Oct	●	●	●					

° = Clay tolerant plant

* = Best for wettest sites where standing water exists for extended periods of time

NA = Not Applicable – no flowers or inconspicuous flowers

Common Name	Scientific Name	Height	Flower Color	Bloom Time	Butterflies	Hummingbirds	Song Birds	Water Fowl	Game Birds	Reptile/Amphibians	Small Mammals	Deer
Wildflowers (cont.)												
Culver's root	*Veronicastrum virginicum*	3-6'	White	June -Sept	●							
Cup plant°	*Silphium perfoliatum*	3-8'	Yellow	July -Sept	●	●	●		●	●	●	●
Fireweed	*Epilobium angustifolium*	2-6'	Pink	June-Aug	●	●					●	●
Flat-topped aster°	*Aster umbellatus*	1-5'	Cream	July -Aug			●		●		●	●
Golden alexander	*Zizia aurea*	1-3'	Yellow	May-July	●							
Great blue lobelia	*Lobelia siphilitica*	1-4'	Blue	July -Oct	●	●	●					●
Green headed coneflower	*Rudbeckia laciniata*	3-12'	Yellow	July -Sept	●		●		●			
Ironweed	*Vernonia fasciculata*	4-6'	Purple	July-Sept	●							
Joe pye weed°	*Eupatorium maculatum*	4-6'	Pink	July -Sept	●		●		●	●	●	
Grassleaf goldenrod	*Euthamia graminifolia*	2-3'	Yellow	July -Oct					●		●	●
Monkey flower	*Mimulus ringens*	1-3'	Violet	July -Sept	●		●					
Mountain mint	*Pycnanthemum virginianum*	20-36"	White	July-Sept	●							
Narrow-leaf loosestrife°	*Lysimachia quadriflora*	1-2'	Yellow	July -Aug								
New England aster°	*Aster novae-angliae*	2-5'	Purple	Aug-Oct	●		●	●	●		●	●
Northern blue flag iris	*Iris versicolor*	1-3'	Blue	June-July	●	●		●		●	●	
Obedient plant°	*Physostegia virginiana*	2-5'	Pink	July -Oct	●	●						
Panicled aster°	*Aster lanceolatus*	2-3'	White	Aug -Oct	●		●	●	●		●	●
Sawtooth sunflower	*Helianthus grosseserratus*	3-12'	Yellow	July-Oct	●		●		●		●	●
Showy tick trefoil[1]	*Desmodium canadense*	2-5'	Pink	June-Sept	●				●		●	●
Sneezeweed°	*Helenium autumnale*	2-5'	Yellow	July-Oct	●		●		●			
Swamp aster°	*Aster puniceus*	2-6'	White	Aug-Oct	●		●	●	●		●	●
Swamp milkweed	*Asclepias incarnata*	3-4'	Pink	June-Aug	●		●					
Tall blazing star°	*Liatris pycnostachya*	2-4'	Purple	July-Sept	●						●	●
Turtlehead	*Chelone glabra*	3-4'	Cream	July-Oct	●	●						
Shrubs												
Meadowsweet°	*Spiraea alba*	3-6'	White	June-Aug	●		●		●			●
Steeplebush°	*Spiraea tomentosa*	2-4'	Pink	July-Aug	●		●		●			●

° = Clay tolerant plant

* = Best for wettest sites where standing water exists for extended periods of time

NA = Not Applicable – no flowers or inconspicuous flowers

[1] Note: Showy tick trefoil has beautiful pink flowers that bloom from June – September. Be aware that later in the season the seeds that form will stick to clothing and pets and are difficult to remove.

Selected Species

Wet Meadow

Moist to wet soils **Full sun 8 hours**

 Bottlebrush sedge *Carex comosa*	 Blue joint grass *Calamagrostis canadensis*	 Indian grass *Sorghastrum nutans*
 Prairie cordgrass *Spartina pectinata*	 Lake sedge *Carex lacustris*	 Bergamot *Monarda fistulosa*
 Blue flag iris *Iris virginica*	 Blue vervain *Verbena hastata*	 Boneset *Eupatorium perfoliatum*
 Culver's root *Veronicastrum virginicum*	 Fireweed *Epilobium angustifolium*	 Cardinal flower *Lobelia cardinalis*

 Joe pye weed *Eupatorium maculatum*	 Monkey flower *Mimulus ringens*	 New England aster *Aster novae-angliae*
 Obedient plant *Physostegia virginiana*	 Sneezeweed *Helenium autumnale*	 Swamp milkweed *Asclepias incarnata*
 Tall blazing star *Liatris pycnostachya*	 Meadowsweet *Spiraea alba*	 Steeplebush *Spiraea tomentosa*

Photo Source: "Wisconsin Botanical Information System" by the UW Madison Wisconsin State Herbarium

Wildlife information sources:

Craven, Scott R. and Edward R. Hasselkus. *Landscape Plants that Attract Birds*. University of Wisconsin Extension.

Martin, Alexander C. et.al., *American Wildlife and Plants, a Guide to Wildlife Food Habits; the Use of Trees, Shrubs, Weeds, and Herbs by Birds and Mammals in the United States.* 1951.

Shaw, Daniel and Rusty Schmidt. *Plant Species Selection for the Upper Midwest.* Minnesota Pollution Control Agency. 2003.

Connecticut Botanical Society web site: www.ct-botanicalsociety.org

Illinois Wildflowers web site: www.illinoiswildflowers.info

NPIN: Native Plant Database: www.wildflower.org

For a pdf copy of this handout, go to Burnettcounty.com/shoreline

Moist Woodland Edge

Medium, loamy to wet, organic soils **Partial shade 4-8 hours**

Common Name	Scientific Name	Height	Flower Color	Bloom Time	Butterflies	Hummingbirds	Songbirds	Waterfowl	Game Birds	Reptiles/Amphibians	Small Mammals	Deer
Groundcover												
Awl fruit sedge	*Carex stipata*	12-42"	NA	NA	●		●	●	●		●	●
Blue joint grass	*Calamagrostis canadensis*	3-5'	NA	NA			●	●			●	●
Caterpillar sedge	*Carex crinita*	2-5'	NA	NA			●	●	●		●	●
Fox sedge	*Carex vulpinoidea*	18-30"	NA	NA	●		●	●	●		●	●
Fringed brome	*Bromus ciliatus*	2-4'	NA	NA			●	●	●		●	●
Prairie cordgrass	*Spartina pectinata*	4-8'	NA	NA			●		●		●	●
Virgina wild rye	*Elymus virginicus*	2-4'	NA	NA			●	●	●			●
Shrubs												
Am. mountain ash	*Sorbus americana*	to 28'	White	June			●		●			
Black chokeberry	*Aronia melanocarpa*	3-6'	White	May	●		●		●		●	●
Chokecherry°	*Prunus virginiana*	to 25'	White	May-June	●		●		●		●	●
Elderberry°	*Sambucus canadensis*	3-9'	White	June-July			●		●		●	●
Highbush cranberry	*Viburnum trilobum*	10-13'	White	June	●		●		●		●	●
Ironwood	*Carpinus caroliniana*	to 30'	NA	NA	●		●		●		●	●
Meadowsweet°	*Spiraea alba*	3-6'	White	June-Aug	●		●		●			●
Nannyberry°	*Viburnum lentago*	to 20'	White	June			●		●		●	
Northern bayberry	*Myrica gale*	3-4'	NA	NA			●		●			●
Pussy willow	*Salix discolor*	10-25'	White	April-May	●		●	●	●	●	●	●
Red osier dogwood°	*Cornus stolonifera*	4-10'	White	May-Aug	●		●	●	●		●	●
Sandbar willow	*Salix interior*	6-15'	White	April			●	●	●	●	●	●
Speckled alder	*Alnus incana*	10-25'	NA	NA			●	●	●		●	●
Steeplebush°	*Spirea tomentosa*	2-4'	Pink	July-Aug	●		●		●			●
Winterberry holly	*Ilex verticillata*	to 10'	White	June			●		●		●	●
Trees												
Black ash°	*Fraxinus nigra*	to 50'	NA	NA			●	●	●		●	●
Black willow°	*Salix nigra*	to 60'	NA	NA	●		●	●	●		●	●
Green ash°	*Fraxinus pensylvanica*	to 60'	NA	NA			●	●	●		●	●
Northern white cedar	*Thuja occidentalis*	to 70'	NA	NA			●				●	●
Paper birch	*Betula papyrifera*	to 70'	NA	NA			●		●		●	●
River birch	*Betula nigra*	to 75'	NA	NA			●	●	●		●	●
Silver maple°	*Acer saccharinum*	to 80'	NA	NA			●	●	●		●	●
Tamarack	*Larix laricina*	to 80'	NA	NA			●		●		●	●
White spruce°	*Picea glauca*	to 100'	NA	NA			●				●	●
Yellow birch	*Betula alleghaniensis*	to 80'	NA	NA			●	●	●	●	●	●

NA = Not Applicable - no flowers or inconspicuous flowers

° = Clay-tolerant plant

Selected Species

Moist Woodland Edge

Medium, loamy to wet, organic soils **Partial shade 4-8 hours**

Awl fruit sedge *(Carex stipata)*	Blue joint grass *(Calamagrostis canadensis)*	Fox sedge *(Carex vulpinoidea)*
Chokeberry *(Aronia melanocarpa)*	Chokecherry *(Prunus virginiana)*	High bush cranberry *(Viburnum trilobum)*
Meadowsweet *(Spiraea alba)*	Nannyberry *(Viburnum lentago)*	Red osier dogwood *(Cornus stolonifera)*
Steeplebush *(Spiraea tomentosa)*	Tamarack *(Salix nigra)*	Yellow birch *(Betula alleghaniensis)*

Photo Source: "Wisconsin Botanical Information System" UW Madison Wisconsin State Herbarium

Maple Forest

Medium sandy to silt loam soils **Less than 4 hours sun**

Common Name	Scientific Name	Height	Flower Color	Bloom Time	Butterflies	Hummingbirds	Songbirds	Waterfowl	Game Birds	Reptiles/Amphibians	Small Mammals	Deer
Groundcover												
Cinnamon fern	*Osmunda cinnamomea*	2-5'	NA	NA		●			●			
Lady fern	*Athyrium felix-femina*	18-24"	NA	NA			●		●		●	●
Maidenhair fern	*Adiantum pedatum*	3-4'	NA	NA						●		●
Early meadow rue°	*Thalictrum dioicum*	8-28"	Green	May -June								●
Ostrich fern	*Matteuccia struthiopteris*	3-4'	NA	NA			●		●		●	●
Pennsylvania sedge	*Carex pensylvanica*	6-18"	NA	NA	●		●		●		●	●
Red baneberry	*Actaea rubra*	1-2'	White	May -June					●		●	
Sensitive fern	*Onoclea sensibilis*	1'	NA	NA			●		●		●	●
White baneberry	*Actaea pachypoda*	1-2'	White	May -June			●		●		●	
Wildflowers												
Bellwort	*Uvularia grandiflora*	1'	Yellow	May-June								●
Big-leaf aster°	*Aster macrophyllus*	6-12"	Lavender	Aug-Oct			●		●		●	●
Bloodroot	*Sanguinaria canadensis*	2-6"	White	April- June								
Columbine°	*Aquilegia canadensis*	8-24"	Pink	May-June	●	●	●					
False lily of the valley	*Maianthemum canadense*	3-6"	White	May-June			●		●		●	
False solomon's seal	*Maianthemum racemosa*	18-24"	White	May-June			●		●		●	●
Jack-in-the-pulpit	*Arisaema triphyllum*	1-3'	Green	May-June			●	●	●		●	
Jacob's ladder	*Polemonium reptans*	8-24"	Blue	May-June	●							
Sessile-leaved bellwort	*Uvularia sessilifolia*	10"	Yellow	May-June								
Solomon's seal	*Polygonatum biflorum*	1-5'	White	May-June								
Trillium	*Trillium grandiflorum*	1'	White	May							●	●
Wild geranium°	*Geranium maculatum*	1-2'	Lavender	May-June					●		●	●
Wild ginger	*Asarum canadense*	4-8"	Red	May-June	●							
Woodland strawberry	*Fragaria vesca*	4-6"	White	May- June			●		●		●	●
Shrubs												
Bush honeysuckle°	*Diervilla lonicera*	2-3'	Yellow	June-Sept	●	●			●			●
Chokecherry	*Prunus virginiana*	to 25'	White	May-June	●		●		●		●	●
Ironwood	*Carpinus caroliniana*	to 30'	NA	NA	●		●	●	●		●	●
Red-berried elder	*Sambucus pubens*	to 6'	White	May			●		●		●	●
Serviceberry/Juneberry	*Amelanchier laevis*	15-25'	White	April-May			●		●		●	●
Trees												
Balsam fir	*Abies balsamea*	to 60'	NA	NA			●		●		●	●
Black cherry	*Prunus serotina*	80'	NA	NA	●		●		●		●	●
Red maple	*Acer rubrum*	to 90'	NA	NA	●		●		●		●	●
Sugar maple	*Acer saccharum*	to 100'	NA	NA			●		●		●	●
Basswood	*Tilia americana*	100'	NA	NA				●	●		●	●

NA = Not Applicable – no flowers or inconspicuous flowers
° = Clay-tolerant plant

Selected Species

Maple Forest

Medium sandy to silt loam soils **Less than 4 hours sun**

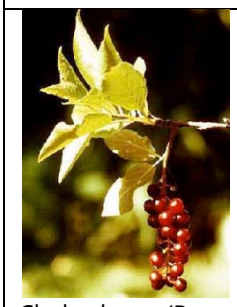
Lady fern *(Athyrium felix-femina)*	Ostrich fern *(Matteuccia struthiopteris)*	Pennsylvania sedge *(Carex pensylvanica)*
Columbine *(Aquilegia canadense)*	False Solomon's seal *(Smilacina racemosa)*	Jacob's ladder *(Polemonium reptans)*
Wild geranium *(Geranium maculatum)*	Woodland strawberry *(Fragaria vesca)*	Dwarf bush honeysuckle *(Diervilla lonicera)*
 Chokecherry *(Prunus virginiana)*	Red-berried elder *(Sambucus pubens)*	Service/Juneberry *(Amelanchier laevis)*

Photo Source: "Wisconsin Botanical Information System" UW Madison Wisconsin State Herbarium

Pine or Oak Forest

Dry, acid, sandy soils **Less than 4 hours sun**

Common Name	Scientific Name	Height	Flower Color	Bloom Time	Butterflies	Hummingbirds	Songbirds	Waterfowl	Game Birds	Reptiles/Amphibians	Small Mammals	Deer
Groundcovers												
Bracken fern	*Pteridium aquilinum*	2-3'	NA	NA			●		●		●	●
Bunchberry	*Cornus canadensis*	6-8"	White	May -June			●		●			
False solomon's seal	*Smilacina racemosa*	18-24"	White	May -June			●		●		●	●
Pennsylvania sedge	*Carex pensylvanica*	6-18"	NA	NA	●		●		●		●	
Solomon's seal	*Polygonatum biflorum*	1-4'	Green	May -June		●			●			●
Woodland strawberry	*Fragaria vesca*	4-6"	White	May-June			●		●		●	●
Wintergreen	*Gaultheria procumbens*	3-6"	White	May -June					●		●	●
Flowers												
Bellwort	*Uvularia grandiflora*	1'	Yellow	May -June								●
Big-leaf aster°	*Aster macrophyllus*	6-12"	Lavender	Aug-Oct			●		●		●	●
Columbine°	*Aquilegia canadensis*	8-24"	Pink	May-June	●	●	●					
False lily of the valley	*Maianthemum canadense*	3-6"	White	May-June			●		●		●	
Harebell°	*Campanula rotundifolia*	4-20"	Blue	June-Sept		●						
Wild geranium°	*Geranium maculatum*	1-2'	Lavender	May-June					●		●	●
Shrubs												
Bush honeysuckle°	*Diervilla lonicera*	2-3'	Yellow	June -Sept	●	●			●			●
Chokecherry	*Prunus virginiana*	to 20'	White	May -June	●	●	●		●		●	●
Gray dogwood°	*Cornus racemosa*	to 8'	White	May -July			●	●	●		●	●
Hazelnut	*Corylus americana*	to 8'	NA	NA	●		●		●		●	●
Pin cherry	*Prunus pensylvanica*	to 25'	White	May -June			●		●		●	●
Serviceberry/Juneberry	*Amelanchier laevis*	15-25'	White	April-May			●		●		●	●
Snowberry	*Symphoricarpos albus*	2-4'	White	June		●			●		●	●
Trees												
Bur oak°	*Quercus macrocarpa*	to 80'	NA	NA	●		●	●	●		●	●
White pine	*Pinus strobus*	100+'	NA	NA			●		●		●	●

NA = Not Applicable, no flowers or inconspicuous flowers

° = Clay-tolerant plant

Selected Species

Pine or Oak Forest

Dry, acid, sandy soils **Less than 4 hours sun**

Bracken fern *(Pteridium aquilinum)*

False Solomon's seal *(Smilacina racemosa)*

Pennsylvania sedge *(Carex pensylvanica)*

Woodland Strawberry *(Fragaria vesca)*

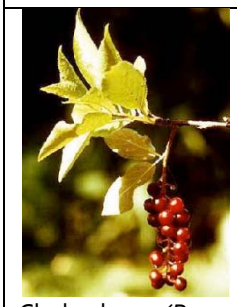
Big-leaf aster *(Aster macrophyllus)*

Columbine *(Aguilegia canadensis)*

Harebell *(Campanula rotundifolia)*

Wild geranium *(Geranium maculatum)*

Dwarf bush honeysuckle *(Diervilla lonicera)*


Chokecherry *(Prunus virginiana)*

Gray dogwood *(Cornus racemosa)*

Service/Juneberry *(Amelanchier laevis)*

Photo Source: "Wisconsin Botanical Information System" by the UW Madison Wisconsin State Herbarium

Woodland Edge – Oak/Pine Barrens

Sandy to medium soils **Partial shade 4-8 hours**

Common Name	Scientific Name	Height	Flower Color	Bloom Time	Butterflies	Hummingbirds	Songbirds	Waterfowl	Game Birds	Reptiles/Amphibians	Small Mammals	Deer
Groundcovers												
Big bluestem°	*Andropogon gerardii*	3-8'	NA	NA			●		●	●	●	●
Bottlebrush grass	*Elymus hystrix*	3'	NA	NA	●							
Bracken fern	*Pteridium aquilinum*	2-3'	NA	NA			●		●		●	●
Bunchberry	*Cornus canadensis*	6-8"	NA	NA			●		●			
Canada wild rye	*Elymus canadensis*	3-6'	NA	NA							●	●
Indian grass°	*Sorghastrum nutans*	3-6'	NA	NA	●		●		●		●	●
Little bluestem	*Schizachyrium scorparium*	2-3'	NA	NA	●		●					●
Partridgeberry	*Mitchella repens*	2"	NA	NA							●	
Pennsylvania sedge	*Carex pensylvanica*	6-18"	NA	NA	●		●		●		●	
Sideoats grama	*Bouteloua curtipendula*	2-3'	NA	NA			●		●			●
Wintergreen	*Gaultheria procumbens*	3-6"	NA	NA					●		●	●
Wildflowers												
Big-leaf aster°	*Aster macrophyllus*	6-12"	Lavender	Aug - Oct			●		●		●	●
Bird's foot violet	*Viola pedata*	6-12"	Blue	April– Sept	●		●		●		●	
Columbine°	*Aquilegia canadensis*	8-24"	Pink	May -June	●	●	●					
Harebell°	*Campanula rotundifolia*	4-20"	Blue	June -Sept		●						
Pearly everlasting	*Anaphalis margaritacea*	1-2'	White	June- Aug								
Slender beard tongue	*Penstemon gracilis*	1-2'	Lilac	May-Sept								
Woodland strawberry	*Fragaria vesca*	4-6"	White	May-June			●		●		●	●
Shrubs												
Bearberry	*Arctostaphylos uva-ursi*	2-6"	Pink	May -June					●		●	●
Blueberry	*Vaccinium angustifolium*	2-3'	Pink	May-June			●		●		●	●
Bush honeysuckle°	*Diervilla lonicera*	2-3'	Yellow	June-Sept	●	●			●			●
Chokecherry	*Prunus virginiana*	to 20'	White	May-June	●		●		●		●	●

°= Clay tolerant plant
NA=Not Applicable – no flowers or inconspicuous flowers

Common Name	Scientific Name	Height	Flower Color	Bloom Time	Butterflies	Hummingbirds	Songbirds	Waterfowl	Game Birds	Reptiles/Amphibians	Small Mammals	Deer
Shrubs, cont.												
Gray dogwood°	*Cornus racemosa*	to 8'	White	May-July			●	●	●		●	●
Hazelnut	*Corylus americana*	to 8'	NA	NA	●		●		●		●	●
New Jersey tea	*Ceanothus americanus*	1-3'	White	June-Aug							●	●
Pagoda dogwood	*Cornus alternifolia*	to 16'	White	May -June	●		●	●	●		●	●
Pin cherry	*Prunus pensylvanica*	to 25'	White	May -June			●		●		●	●
Red root	*Ceanothus ovatus*	1-3'	White	June							●	●
Serviceberry/ Juneberry	*Amelanchier laevis*	15-25'	White	April-May			●		●		●	●
Silver buffaloberry	*Shepherdia canadensis*	6-8'	White	May-June			●				●	
Snowberry	*Symphoricarpus albus*	2-4'	White	June			●		●		●	●
Sweet fern	*Comptonia peregrina*	1-3'	NA	NA					●		●	●
Trees												
Big-tooth aspen	*Populus grandidentata*	to 60'	NA	NA					●		●	●
Bur oak°	*Quercus macrocarpa*	to 80'	NA	NA	●		●	●	●		●	●
Jack pine	*Pinus banksiana*	to 70'	NA	NA	●		●		●		●	●
Northern pin oak	*Quercus ellipsoidalis*	to 70'	NA	NA			●		●		●	●
Northern red oak	*Quercus borealis*	to 70'	NA	NA			●	●	●		●	●
Quaking aspen°	*Populus tremuloides*	to 70'	NA	NA			●	●	●		●	●
Red pine	*Pinus resinosa*	to 80'	NA	NA	●		●		●		●	●
White pine	*Pinus strobus*	100+'	NA	NA	●		●		●		●	●

°= Clay tolerant plant
NA=Not Applicable – no flowers or inconspicuous flowers

Wildlife information sources:

Craven, Scott R. and Edward R. Hasselkus. *Landscape Plants that Attract Birds*. University of Wisconsin Extension.

Martin, Alexander C. et.al., *American Wildlife and Plants, a Guide to Wildlife Food Habits; the Use of Trees, Shrubs, Weeds, and Herbs by Birds and Mammals in the United States.* 1951.

Shaw, Daniel and Rusty Schmidt. *Plant Species Selection for the Upper Midwest.* Minnesota Pollution Control Agency. 2003.

Connecticut Botanical Society web site: www.ct-botanicalsociety.org

Illinois Wildflowers web site: www.illinoiswildflowers.info

NPIN: Native Plant Database: www.wildflower.org

For a pdf copy of this handout, go to Burnettcounty.com/shoreline

Selected Species

Woodland Edge – Oak/Pine Barrens

Sandy to medium soils **Partial shade 4-8 hours**

Bottlebrush grass *(Elymus hystrix)*	Little bluestem *(Schizachyrium scorparium)*	Pennsylvania Sedge *(Carex pensylvanica)*
Side oats grama *(Bouteloua curtipendula)*	Big leaf aster *(Aster macrophyllus)*	Columbine *(Aquilegia canadense)*
Harebell *(Campanula rotundifolia)*	Pearly everlasting *(Anaphalis margaritacea)*	Slender beard tongue *(Penstemon gracilis)*
Dwarf bush honeysuckle *(Diervilla lonicera)*	Gray dogwood *(Cornus racemosa)*	Pagoda dogwood *(Cornus alternifolia)*

Photo Source: "Wisconsin Botanical Information System" UW Madison Wisconsin State Herbarium