

NNative PPlanting for PPollinators

Jen Ehlert, PLA
Metro Blooms Design+Build



Adam Heikkila



Metro Blooms is a 501(c)(3) nonprofit organization that partners with communities to create resilient landscapes and foster clean watersheds, embracing the values of equity and inclusion to solve environmental challenges.



Blue Thumb connects Minnesotans to resources that help them plant native gardens, rain gardens, and stabilize shorelines with native plants to protect pollinators and improve water quality.



Our technical expertise resides in Metro Blooms Design+Build, a for-profit entity owned by and wholly supporting the mission of Metro Blooms. Design+Build provides design, install and maintenance services for Metro Blooms programs, projects and other clients.

Steps for a Pollinator Planting

1.

**Assessing your
site**

2.

**Making a Plan
and Design**

3.

Installation

4.

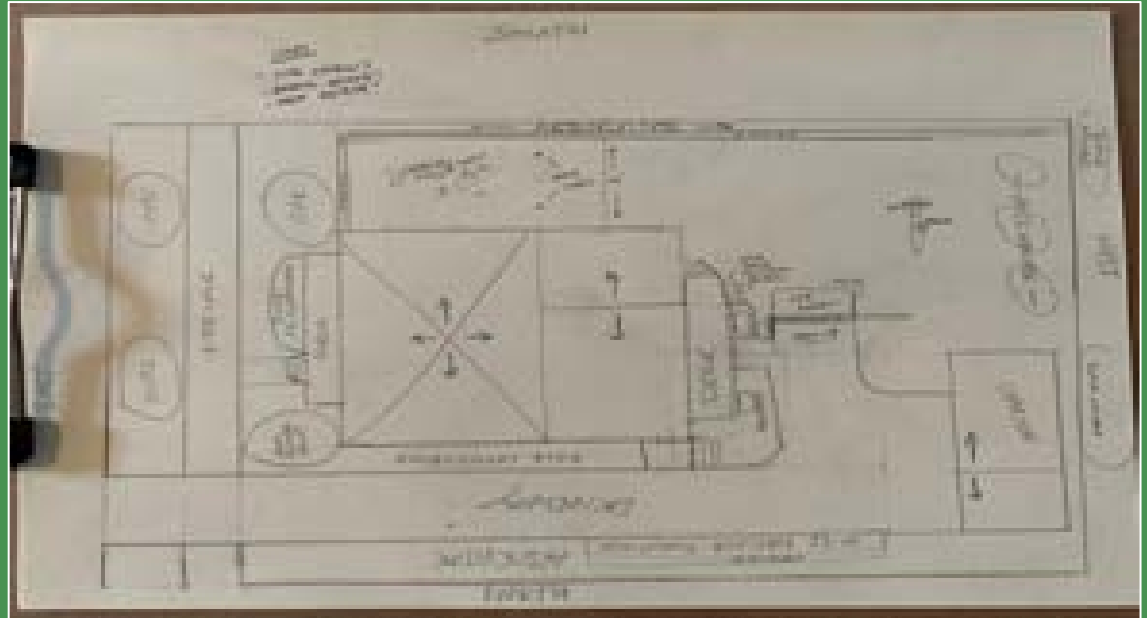
Maintenance



Site Assessment

Things to consider when assessing a site:

- Sunlight: full sun, part sun/part shade, full shade
- Soil: soil type, moisture, and soil health measures
- Existing structures, hardscapes, vegetation
- Stormwater runoff: flow, standing water
- Usage needs: access, recreation, visibility



Designing a Pollinator Planting

Considerations for a pollinator planting:

- Diversity of blooming plants across the seasons
- Host plants for larva
- Access to nesting sites
- Low chemical input



Designing with native plants

- Native plants are resilient!
- Choose the right plant, for the right place:
 - Sun/shade
 - Soil moisture
 - Plant height



Designing with Trees and Shrubs

- Trees can provide: structure, layers, early blooms, shade, wind screen
- Trees and shrubs are important host sites for many lepidoptera, and provide early forage for pollinators in spring
- Lower maintenance pollinator-friendly planting



Mall Apartments

Design Styles

Plant Massing: Sunny Sites

Species planted in groups for visual impact

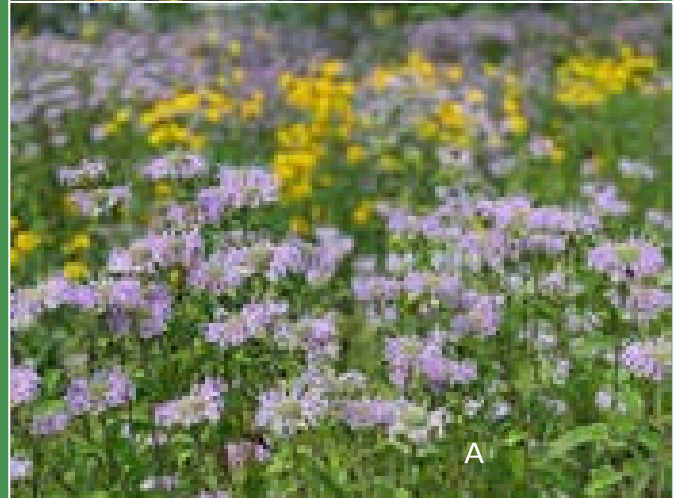
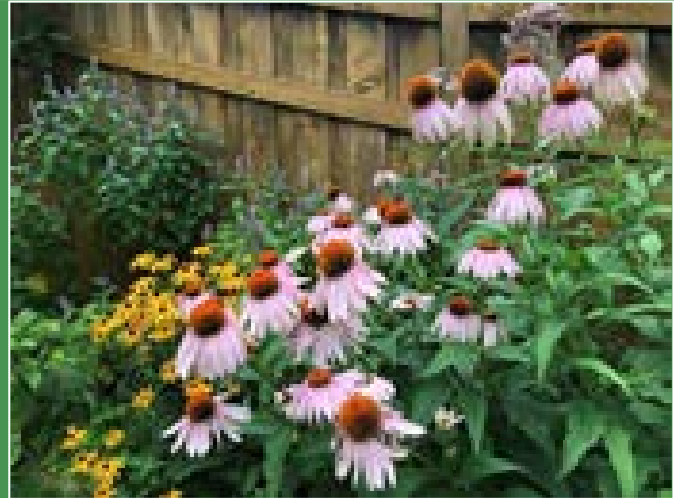
Clumps of 3, 5 or 7 plants

Also helps identify plants during garden maintenance

Benefits pollinators

Large groupings of blooms provide forage throughout the season

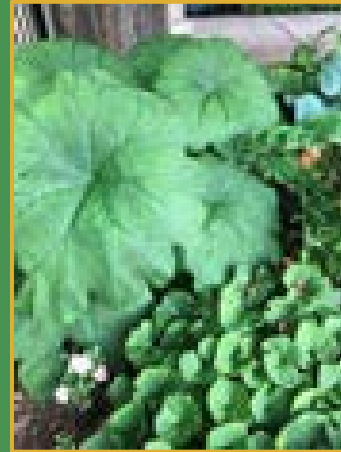
But don't forget to plant diverse species!



A

Plant Massing: Shady Sites

- Texture helps add definition while plants are not blooming
 - Texture can be created with leaf shape and color variation
- Spring blooms great early-season interest!



Design Styles

Matrix Plantings

- Useful in large planted areas
- “Matrix” of primary plant-
 - Sedges for wetter areas
 - Grasses for drier areas

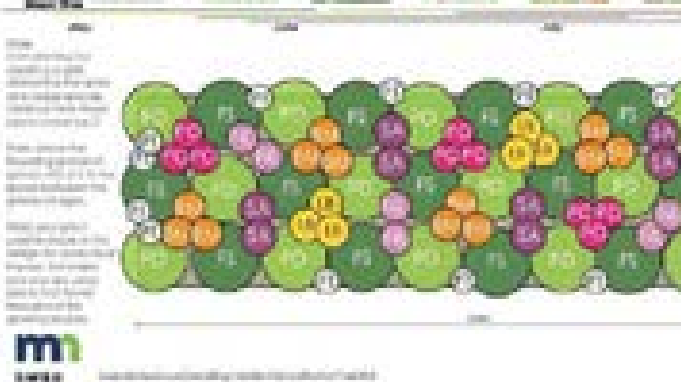
... interspersed with scattered
flowering native plants



Metro Blooms Design+Build

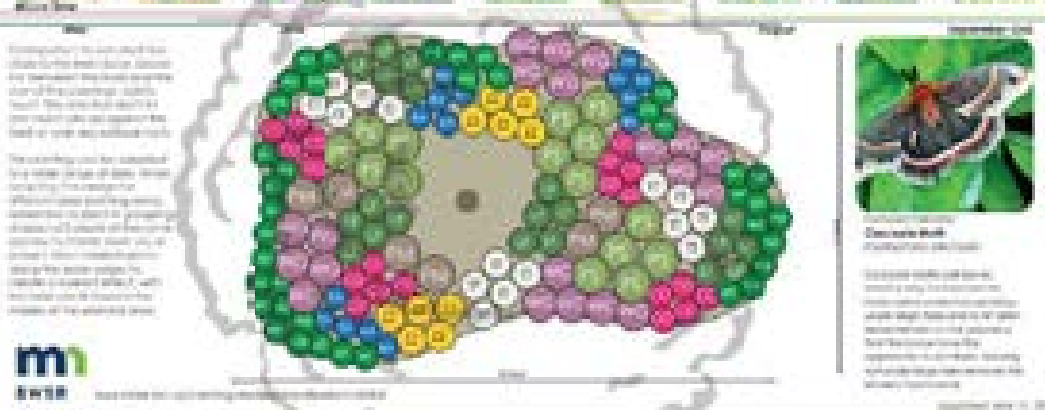
Modern Grid Planting for Pollinators

Modern grid planting provides a more flexible and adaptable design template for pollinator gardens. The idea of a planting matrix with diverse biodiversity in a larger planting area.



Dry Understory for Pollinators

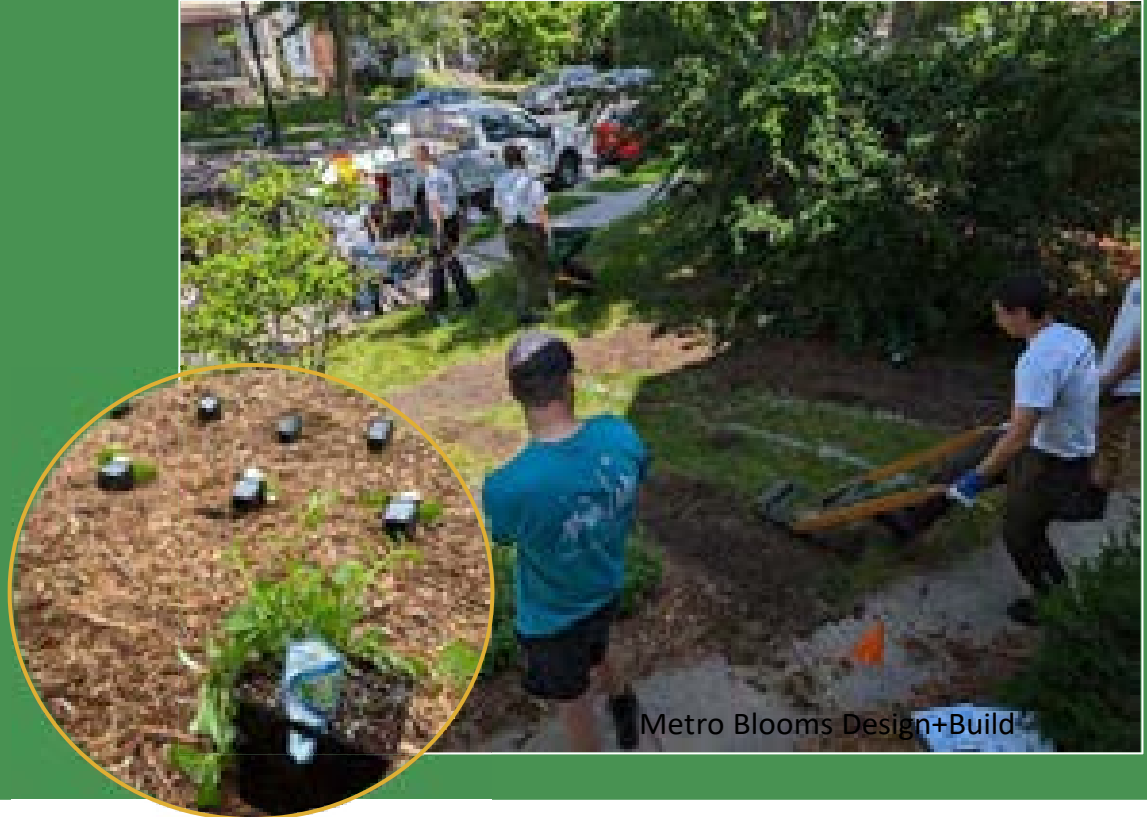
Planting under mature trees can be challenging, but it's a great way to create a habitat for pollinators. This design template for a dry understory planting area is a great way to create a habitat for pollinators.



Find more design templates
on the Blue Thumb website!

Installation

- Remove any existing turf, weeds, or invasive plants. Common methods include **hand digging**, **sheet mulching**, and **solarization**.
- Protect bare soil by mulching with **double-shredded hardwood mulch**.
- Lay out your plants before putting them in the ground so that you are happy with their spacing.



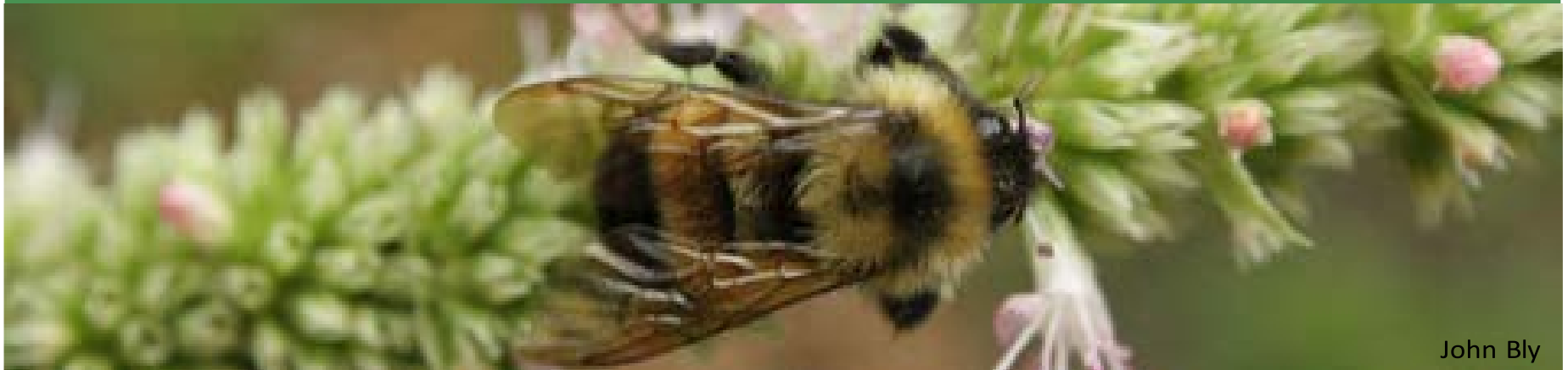
Landcare for Native Plantings

- Water at least 1" every week for the first 2 growing seasons
 - It is better to water longer, less often to encourage long roots
- Weeds are easiest to manage when they are small
- Edit your garden
 - Replace plants and mulch as needed
 - Divide, transplant, thin



Landcare for Pollinators

- Create overwintering areas by waiting to clean up until spring.
 - Wait until average temperature is 50 degrees, or when dandelions begin to bloom
- Avoid using fertilizers, herbicides, and pesticides
- Create a small, shallow water source



Landcare for Pollinators

- Leave plants standing in the fall
 - Hollow/pithy stems provide nesting sites for stem-nesting bees
 - When you cut plants back, leave 18" remaining
- Leave the leaves! Many of MN pollinators overwinter in the leaf litter

Credit: Leslie Nelson Inman, Facebook-Pollinator Friendly Yards



Support communities planting for pollinators!

- Lawns to Legumes Grant Program - anyone living in MN can apply!
- Grant programs require use of native plants
- Work with local governments to support native plantings in ordinances
- Share resources for the DIY gardener - [Bluethumb.org](https://www.bluethumb.org)

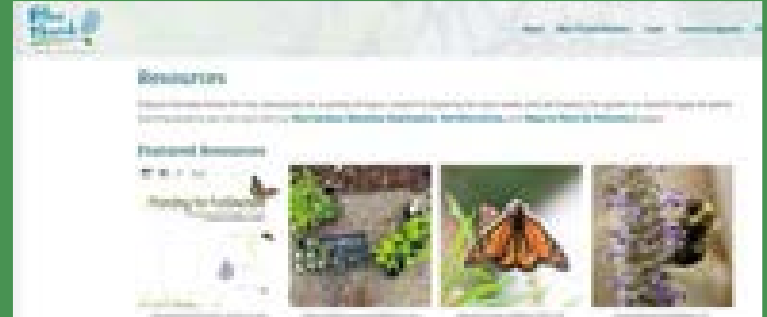




Resources

Resources available on the Blue Thumb Website:

- Native plant nursery list
- Design templates
- Plant lists
- Plant Finder
- Step-by-step project guides
- Blue Thumb Partner Finder



Minnesota Native Plant Nurseries and Retailers



Minnesota has
great native plant
retailers, nurseries,
and garden centers
across the state.
Click on the map
to find a location
near you.

If you're interested
in finding a nursery
and garden center
near you, click on
the map to find a
location near you.

Find a local nursery
or garden center
near you. Click on
the map to find a
location near you.

Whether you're
interested in finding
a nursery or garden
center near you, click
on the map to find a
location near you.





Thank you!

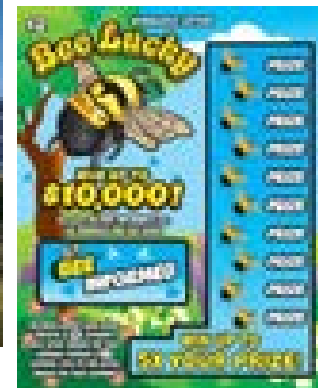




Pollinator Conservation in Minnesota

Christina Locke | Pollinator Conservation Coordinator, DNR

So many groups working on pollinator projects



Pollinator conservation coordination at the DNR

Cross-agency collaboration

Internal DNR policies

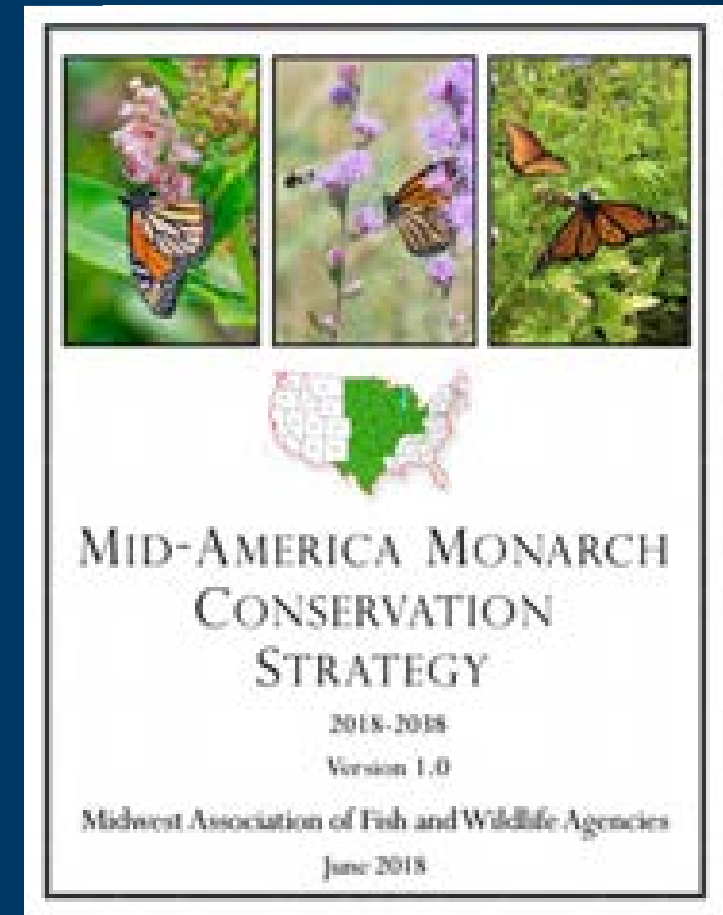
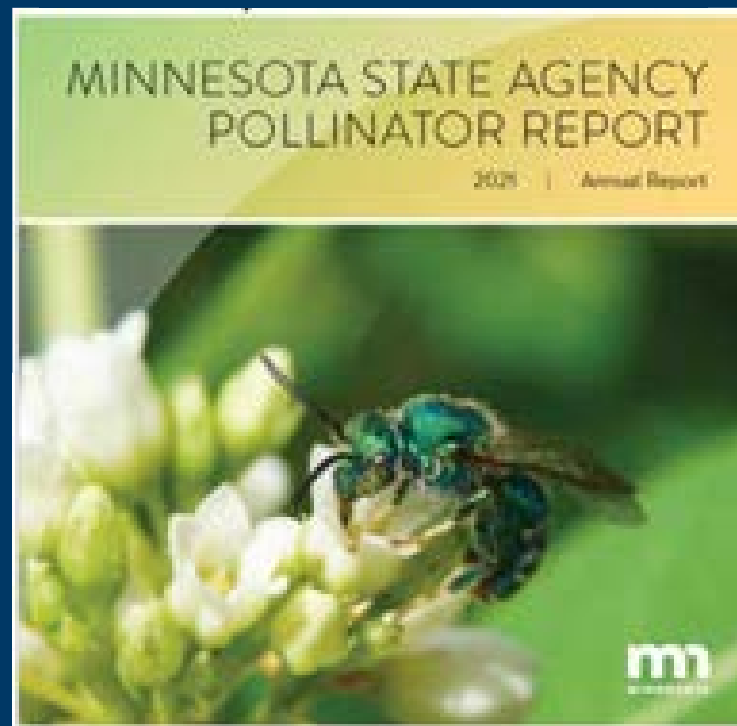
Habitat projects

Research

Pollinator conser

tion at the DNR

Cross-agency cc



Pollinator conservation coordination at the DNR

Cross-agency collaboration

Internal DNR policies

2024 Minnesota Statutes

Authenticate PDF

84.973 POLLINATOR HABITAT PROGRAM

(a) The commissioner shall develop best management practices and habitat restoration guidelines for pollinator habitat enhancement. Best management practices and guidelines developed under this section must be used for all habitat enhancement or restoration of lands under the commissioner's control.

(b) Prairie restorations conducted on state lands or with state funds must include an appropriate diversity of native species selected to provide habitat for pollinators throughout the growing season.

History: [2013 c 114 art 4 s 12](#)

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NATURAL RESOURCES

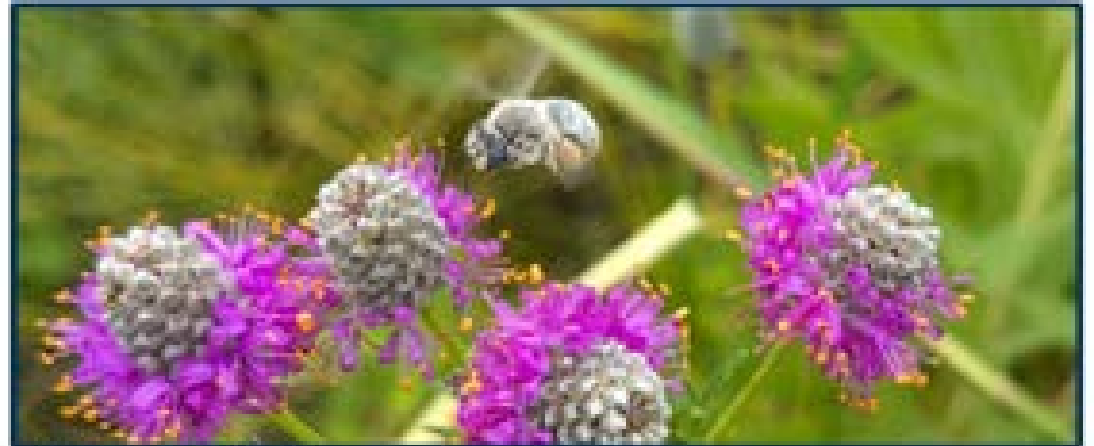


Photo credit: Jessica Petersen

Pollinator Best Management Practices and Habitat Restoration Guidelines

SHORT TITLE: POLLINATOR BMPs

Overview

Insect pollinators native to Minnesota include hundreds of species of bees, butterflies, moths, flies, and beetles. By moving pollen from flower to flower, pollinators aid plant reproduction and help maintain

Pollinator conservation coordination at the DNR

Cross-agency collaboration

Internal DNR policies

Habitat projects



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Pollinator and Biodiversity Toolbox



The information below is intended to guide pollinator habitat projects through planning, installation and management. There is a focus on key steps for increasing pollinator habitat and biodiversity on DNR lands and programs that can include efforts on conservation lands, natural areas and urban landscapes.



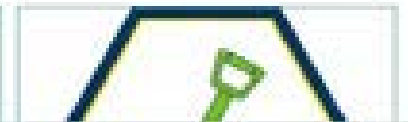
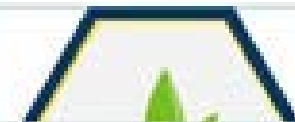
Identifying Programs and Funding



Creating Habitat in Conservation Lands and Natural Areas



Creating Residential Pollinator Habitat



Pollinator conservation coordination at the DNR

Cross-agency collaboration

Internal DNR policies

Habitat projects

Research

Minnesota
Biological
Survey



Pollinator conservation coordination at the DNR

Cross-agency collaboration

Internal DNR policies

Habitat projects

Research

Outreach



What is a “pollinator?”

Pollinators aid plant reproduction by moving pollen from flower to flower.

Many flowering plants need help from animal pollinators to set seed or produce fruit, while others rely on wind, water, or gravity.



[This Photo](#) is licensed under [CC BY-SA](#)

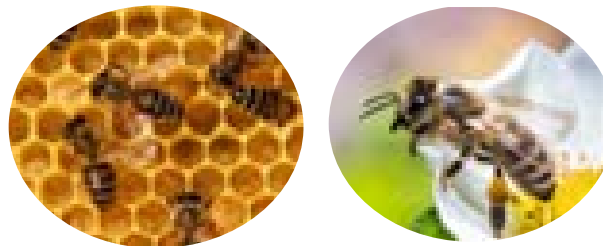
What is a “pollinator?”

5% of flowering plants are dependent on animal pollination
Most animal pollinators are insects, particularly **bees**
We know very little about most insect groups

Hummingbirds and many types of insects eat nectar or pollen, and may transfer pollen among flowers as they forage.



Honey bees live in colonies that can be moved to farm fields and used for crop pollination. Managed honey bees are considered non-native livestock in the U.S.



Bees are perfectly designed to collect pollen for their young. Minnesota is home to over 500 bee species.



What is “pollinator habitat ”

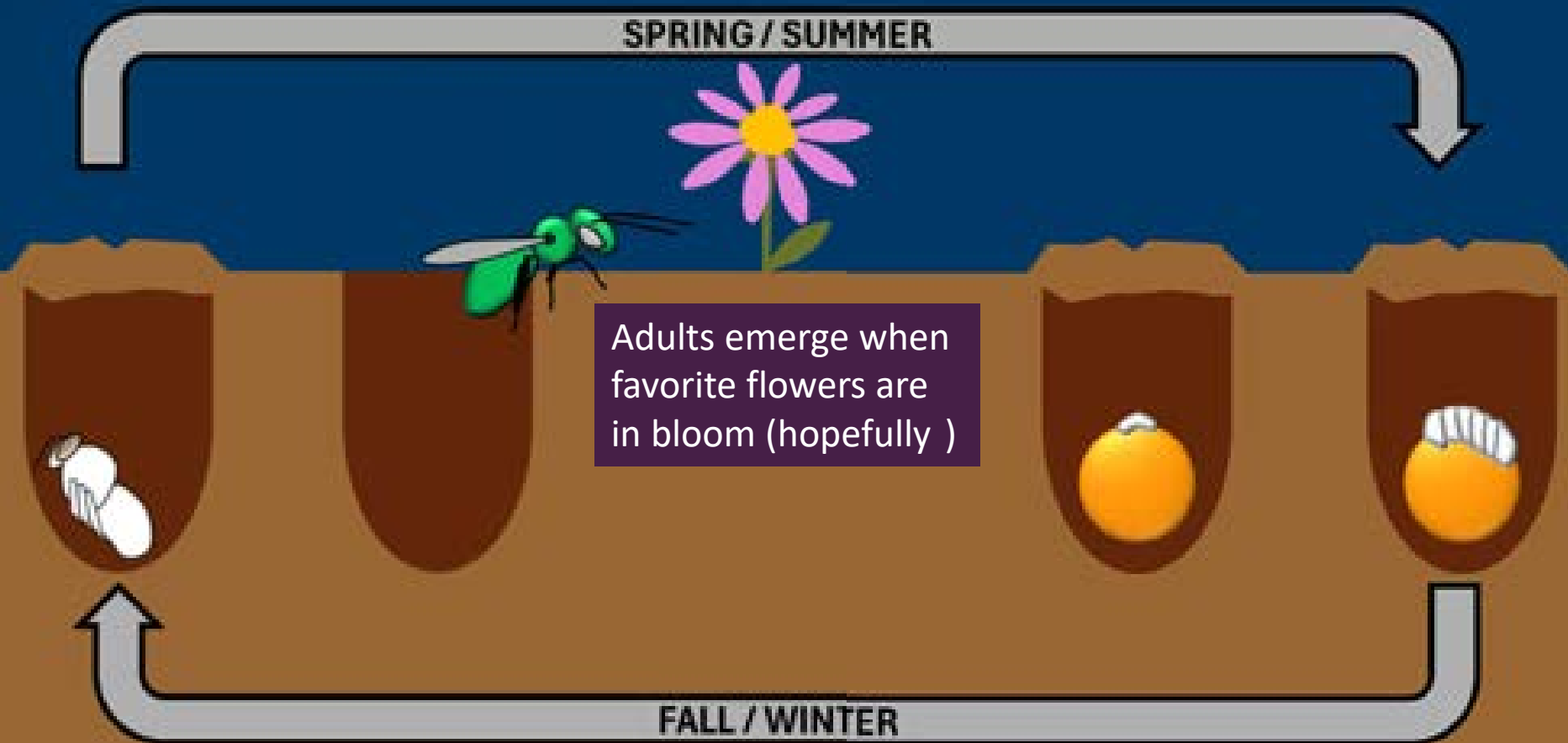
Non-compacted soil
Dead wood
Leaf litter
Pithy/hollow stems
Native grasses

Leaves
Slopes
Vacated birds' nests
Vacated rodent
burrows



Timing matters

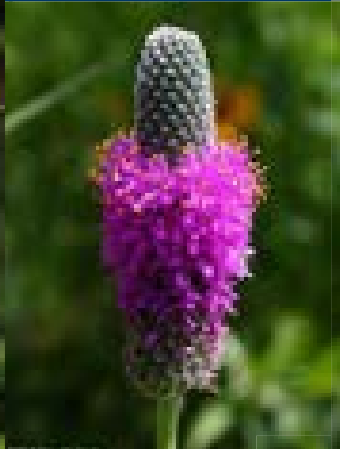
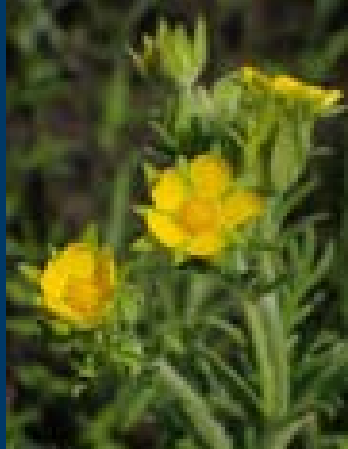
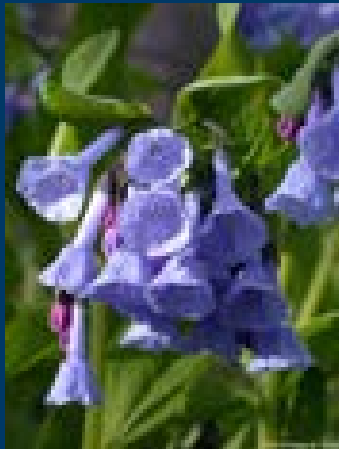
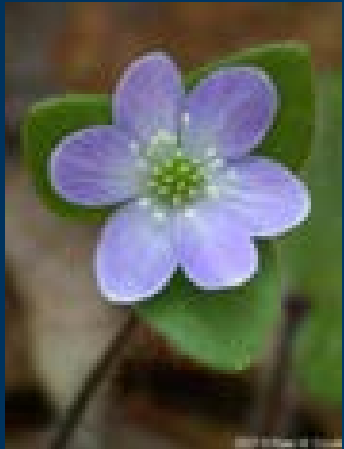
Minnesota is home to over 500 bee species.
Most are solitary nesters.



What is “pollinator habitat ”

Blooming plants from spring to fall

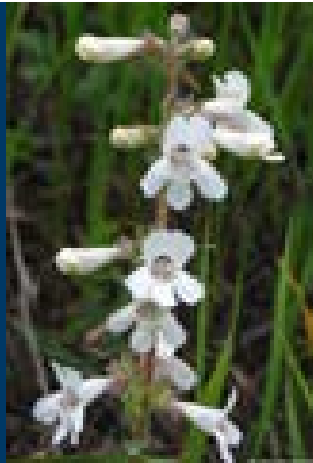
Native perennial plants including specialist host plants



October



April



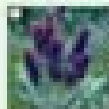
Specialist Bees in Minnesota



There are over 20,000 bee species worldwide and 4,000 are native to the United States. **Minnesota is home to about 500 diverse species of native bees!** They range in size, shape and color and perform a variety of important functions in our ecosystems. In Minnesota, our bees support native plant communities, pollinate food crops such as apples, blueberries, and cranberries, and pollinate flowers in your garden.

Anthidium ardens on *Helianthus scaberrimus*

About 30% (147 species) of Minnesota bees are **oligolectic** (oh-LEE-goh-LECT-ic), or commonly referred to as specialists. Females specialize in collecting pollen for their offspring from a single plant genus or species (or from only a few genera or species). This means that they are physiologically, temporally, and/or environmentally constrained to a narrow resource. Microscopic bees are unique in that they collect floral oil from their host plants in the native *Leucanthemum* genus (*Lysimachia*).



Some of Minnesota's flowering plants that are used by oligolectic bees include:

- ❑ Ladyplant (*Artemisia*)
- ❑ Butterflies (*Compositae*)
- ❑ Spring Beauty (*Claytonia*)
- ❑ Dogwoods (*Cornus*)
- ❑ Prairie Queen (*Delos*)
- ❑ Sunflowers (*Helianthus*)
- ❑ Prairie Mumwort (*Hieracium*)
- ❑ Spontaneous (*Lysimachia*)
- ❑ Bee Palm (*Minuartia*)
- ❑ Beards Tongue (*Penstemon*)
- ❑ Jacob's Ladder (*Polemonium*)
- ❑ Pinksweat (*Penstemon*)
- ❑ Willows (*Salix*)
- ❑ Goldenrods (*Solidago*)
- ❑ Bellworts (*Utricularia*)
- ❑ Blueberry and cranberry (*Vaccinium*)
- ❑ Alexanders (*Zizia*)

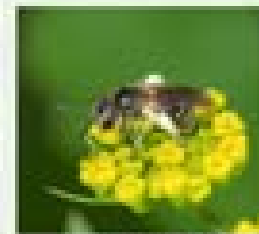


Anthidium ardens

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Anthidium ardens on *Coronilla maritima*



Anthidium ardens on *Salix*



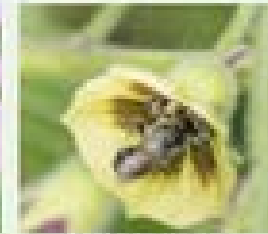
Anthidium ardens on *Cornus*



Anthidium ardens on *Helianthus*



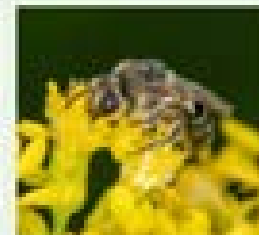
Anthidium ardens on *Helianthus*



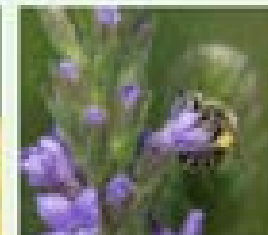
Anthidium ardens on *Helianthus*



Anthidium ardens on *Salix*



Anthidium ardens on *Salix*



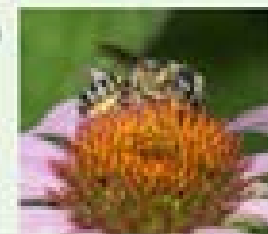
Anthidium ardens on *Salix*



Anthidium ardens on *Salix*



Anthidium ardens on *Salix*

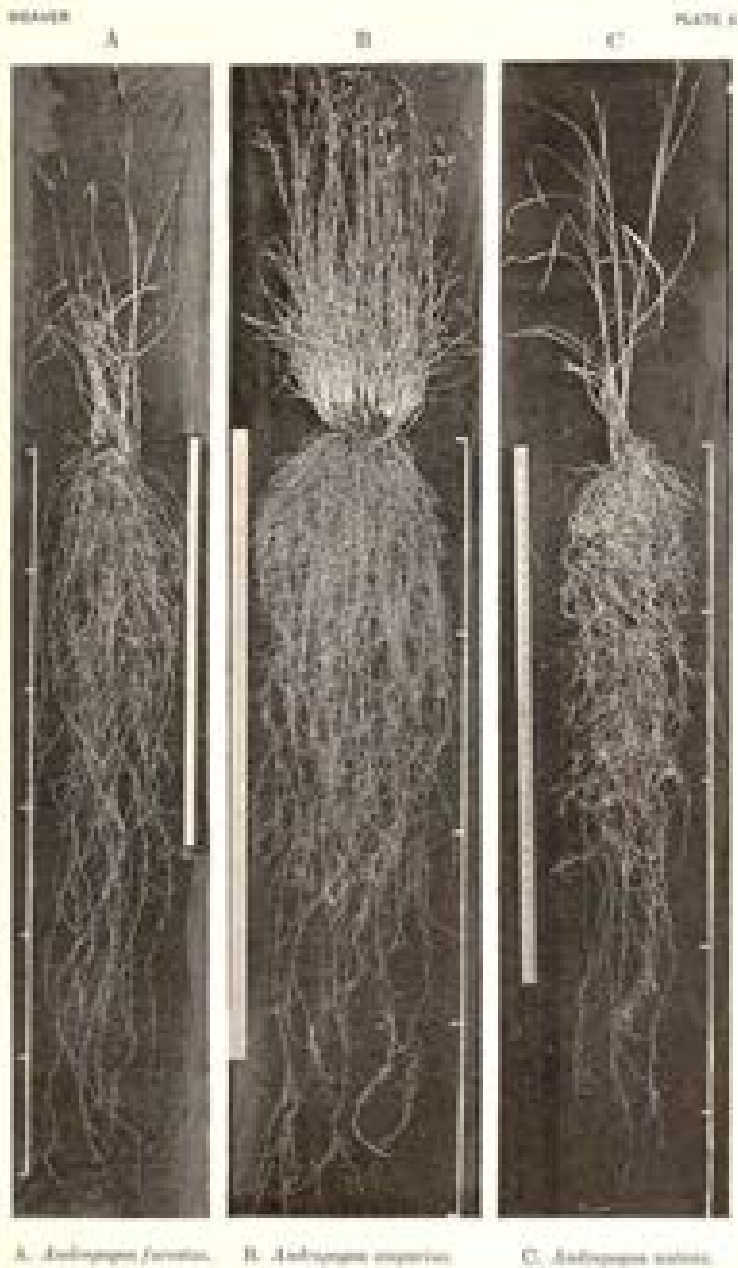


Anthidium ardens on *Salix*

For more information, contact:
Nancy Gergen, Bee Survey Specialist
Minnesota Biological Survey
nancy.gergen@dnr.state.mn.us
612-297-5409



It's all about the future.
and the present.



A. *Andropogon furcata*

B. *Andropogon scoparius*

C. *Andropogon scoparius*

Why native perennials

Water storage

Carbon storage

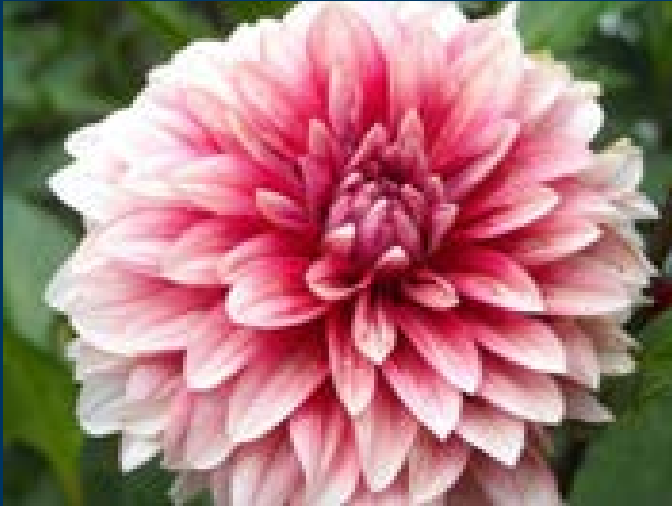
Soil health

Bank stabilization

Erosion control

Water quality

Why not ornamentals cultivars



Inaccessible



Novel color



Invasive



Pollen quantity quality? Nectar availability?

Native plants: where to start

Planting Perennials on Your Shoreline

Deciduous vegetation provides critical habitat for some of Minnesota's most important plants and animals. It shades the water, buffers decomposition, filters runoff, stabilizes eroding shores, and preserves the scenic character of our waters.

It's fun playing with lavender, sweet, shrubby, and small containerized herbaceous plants such as those listed here as an excellent way to refresh your planting and encourage good establishment. For plants based on their site preferences in a full-sun/semi-shade/semi-shade/shade, and plant them there to maximize success.

- There are only native plants that are established on your shoreline. Plan your design around them.
- Keep dead and fallen trees to provide habitat for fish, crabs, birds, and turtles.
- When planting immediately adjacent to shore, filling is not recommended as a site preparation method because it can cause erosion and runoff into the water.
- Supplement your planting with trees and shrubs because they have stronger roots. Recommended species can be found in the companion *Tree Planting Plan* and *Shrubs on Your Shoreline* (<http://www.dnr.state.nj.us/water/management/ashrubs/shrubs.html>).
- View additional species and read more online at www.state.nj.us/ashrubs.

Figure 1

The species listed here prefer moist to medium-wet soil conditions but are adaptable to a wide range of soil types, regions, and locations.

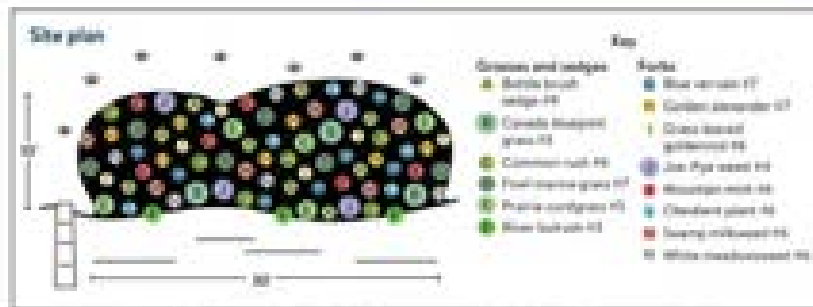
Crosses and Lodges

- Bottle brush cedar
- Canada balsam grass (B)
- Common rush (Hoff)
- Fine leaved grass
- Fine sedge
- Pharus cordgrass
- Wheat basked (B)
- Sedgegrass (Hoff)
- Winged white root (L)

100

Asian honey
Black-eyed vireo
Blue flag iris (FI)
Blue vireo
Canada warbler (SI)
Common loon
Gopher shrew (SI)
Green heron/gallinule
Great blue heron (FI)
Great fr. (heron) warb.

Turnstone (3d)
 Joe Pye weed
 Mountain blower star (2d)
 Morning glory
 Mountain rose
 New England aster (3d)
 Obedient plant
 Ox-eye daisy
 Queen's gambeson (3d)
 Turnstone
 Tawny thrush (2)
 Red campion (2)
 Rock-rose
 White campion



Rejuvenation should be repeated 1.5–2 years. A good use of plants containing flavonoids of native grasses and sedges.

Planting Trees and Shrubs on Your Shoreline

Wastewater degradation provides critical feedback for some of our most important plants and animals. It shades the water, buffers acid rain, filters, traps, stabilizes eroding shores and preserves the scenic character of our waters.

It's easy planting with bare-root trees, shrubs, and small containerized herbaceous plants. It is another way to restore your shoreline and encourage quick establishment. Pick plants based on their site preferences (e.g., sun/light/ moisture), and plant them thick to minimize erosion.

- Present in any native plants that are established in your shoreline and plan your design around them.
- Keep steel and timber trees to provide habitat for fish, ducks, loons, and turtles.
- In addition to trees and shrubs, add a groundcover of native forbs, grasses, and sedges. Noninvasive species can be found in the companion four-flower Perennials on our Shoreline (Edges of Wet and Shale wet and upland waterways), native Groundcover Shoreline (Native wetland plants) or online at www.shoreline.org.



Trans and atypical HLA

The tree and shrub species listed here prefer moist to medium soil and conditions but should be adaptive to a wide range of soil types, regions, and locations.

Keywords: child sexual abuse; disclosure; self-blame

- Water index (W)
- Leaf area index (LAI)
- Soil water index
- Temperature (T)
- Soil depth (SD)

000000-000000

American elderberry (E)
 Blackthorn (N60)
 Elderberry (N60) (E)
 Elderberry (N60) (F)
 Elderberry (E)
 Elderberry
 Elderberry (F)
 Elderberry (N60)
 Elderberry (N60)

Abstract

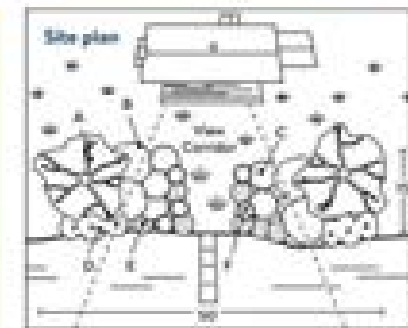
Blueberry (Saskatoon)
Chokeberry
Northern white cedar
Oak

Summary

Maximum (kg)
 Body weight (kg)
 Relative weight (g)

Copyright © 2006 John Wiley & Sons, Ltd.

- **Factor:** Significant 80% early
- **AD:** Pseudotumor (increased)
- **CD:** Thrombocytopenia
- **WHO:** Stage II, moderate



Key

A. American basswood	D. Purple willow
B. Chokeberry	E. Red rose dogwood
C. Spinyberry	F. Northern-belt hawthorn

Make a list of the scientific names

Minnesota Wildflowers
a field guide to the flora of Minnesota

or try: [advanced plant search](#) [Donate](#)

Share: [f](#) [t](#) [e](#)

***Spiraea alba* (White Meadowsweet)**

Pick an image for a larger view. See the [glossary](#) for icon descriptions.

Detailed Information

Flower: ★ ☆ 🌳



Flowers are in densely packed branching clusters to 6 inches long at the top of the plant, blooming from the top down. Individual flowers are about 1/4 inch across with 5 white petals and numerous long stamens surrounding a center ring that is pink, yellow or orange. The long stamens give it a somewhat fuzzy look.

Plant Info

Also known as:	
Genus:	Spiraea
Family:	Rosaceae (Rose)
Life cycle:	perennial woody
Origin:	native
Habitat:	sun, wet meadows, bogs, along shores
Bloom season:	June - September



www.minnesotawildflowers.info

Where to buy

Native plant suppliers, landscapers, and restoration consultants for Minnesota

Recommend a business by emailing:

NativePlantSuppliers.dnr@dstate.mn.us

Please include the business name, URL, and contact person's name and phone number in your message.

Native plant suppliers and landscapers lists

The DNR maintains a list of native plant suppliers and consultants for Minnesota. Companies must certify that they sell Minnesota native plants sourced from the state, do not sell invasive or noxious plants, and/or have experience as a native plant consultant or habitat restoration specialist. Consultants who do not meet this criteria are excluded from the DNR's list.

Some nurseries on these lists sell a mix of Minnesota native, non-native, or horticultural varieties of plants. Minnesota wildlife –including pollinator species– benefit most from Minnesota native plants because they developed together. To find out what is native to your area, visit the DNR's [MN Taxa Plant lists](#) or the [MN Wildflowers website](#).

Lists of native plant nurseries and native vegetation consultants are organized by regions of the state. Last updated March 2024.

- [Northwestern Minnesota \(PDF\)](#)
- [Northeastern Minnesota \(PDF\)](#)
- [Central Minnesota \(PDF\)](#)
- [Southern Minnesota \(PDF\)](#)
- [Interactive map of midwest native plant and seed sellers](#)

Native plant supplier regions



Click to enlarge map.

Make a list of scientific names

Find vendors that use full scientific names that match your list (e.g., *iraea alba*)

Be skeptical of substitutions

Avoid any with cutesy or trademarked nicknames, or signs of hybridization (“x”, “variety”, “hybrid”, etc.)

- ⊗ Echinacea Sombrero Salsa Red
- ⊗ Monarda 'Sugar Buzz' Bubblegum'
- ⊗ Heuchera x 'Forever Red'
- ⊗ Lonicera x brownii

[Native plant suppliers, landscapers, and restoration consultants for Minnesota](#) [Minnesota DNR](#)

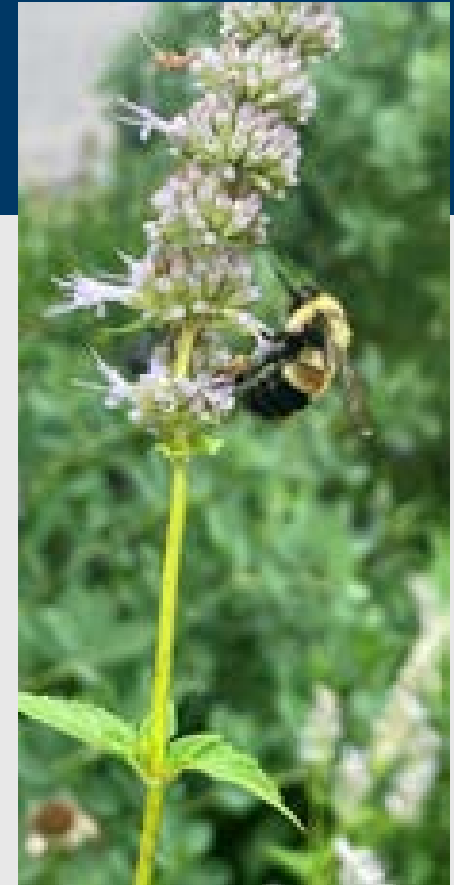
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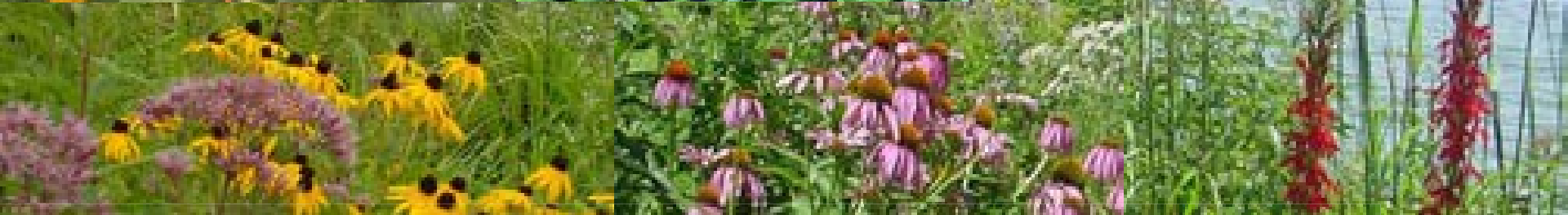


Christina Locke

christina.locke@state.mn.us

mndnr.gov/pollinators





Carlton Soil and Water Conservation District A Pollinator Powerhouse!

Alyssa Bloss
District Manager
Carlton Soil & Water Conservation District





What is a SWCD?



Local Government Unit- Governed by local leaders!

- Minnesotans count on SWCD technical assistance with conservation practices to protect our state's great natural resource treasures!
- Manage and direct natural resource programs and practices at a local level
- Boots on the ground conservation with private landowners, public land partners, schools, churches, cities, and other great partners!
- Receive funds from many sources
 - State dollars passed through the Board of Water and Soil Resources
 - County
 - One Watershed, One Plan (1W1P) – Nemadji, Kettle River, St. Louis
 - Federal grants
 - Clean Water Funds
 - Other grants





What is a SWCD?



A Pollinator Powerhouse:

Carlton SWCD Native Plant and Pollinator Program



The Carlton Soil and Water Conservation District (SWCD) is partnering with landowners, cities, schools, the community and other organizations to increase diverse food sources, habitat, and corridors for the endangered Rusty Spotted Woodpecker, Monarch Butterflies, and other beneficial insects.

What does this program do?

- Provides up to 100% funding assistance to integrate pollinator projects into the landscape.
- Residential, school, city and community spaces qualify.
- No minimum size.
- Projects can be rain gardens, pollinator gardens, pollinator meadows, bee lawns, and pollinator shrubland buffers.

How the SWCD can help

- Free site visit - SWCD will provide assistance throughout the project.
- Designs provided with native plants based on project goals with flowering plants spring through fall that benefit pollinators.
- Pay up to 100% of costs for plantings.
- Maintenance and advice on what to expect in the future will also be provided.

Why does this matter?

It used to protect the rusty spotted woodpecker (Minnesota's state bird) and other at-risk pollinators and beneficial insects. Minnesota is home to more than 450 native bee species.



Pollinators also include:

Butterflies
Honeybees
Bumblebees
Native Flies
Bees
Sawflies



Populations have significantly declined worldwide in recent years due to: habitat loss, lack of related nutrition, pesticide use and pathogens.

Do Your Part!



Before

Rain gardens are native plantings that are designed to catch stormwater runoff from your roof, yard, sidewalk, or other impervious surface before it reaches the storm, drain, stream, or lake.



After Rain Garden

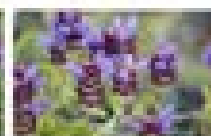
Bee Lawns are made of a mix of grasses and low-growing perennials that can be used much like a regular lawn, but also offer high-quality nutrients to pollinators.



White Clover



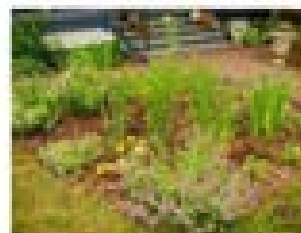
Salvia



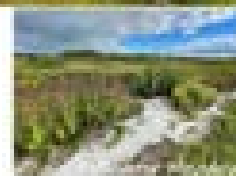
Salvia



Blackberry



Pollinator Toddlers are easy to incorporate into your existing yard or garden! Diverse plantings of native plants will provide food, nesting and resting for pollinators and other beneficial insects.

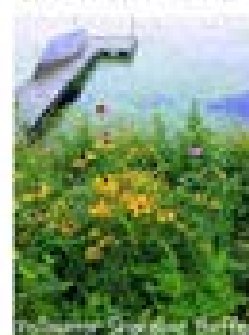


Contact Information

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Pollinator Shrubland Buffer

Blackberry

Blackberry

Top 10 native plants for Northeastern Minnesota

Golden Alexander (Echinacea)
Blackberry (Rubus)
Joe Pye Weed (Euthyia)
Wildrose (Rosa)
Goldenrod (Solidago)
Redtop (Rudbeckia)
Blackberry (Rubus)
Blackberry (Rubus)
Red-top (Solidago)
Blackberry (Rubus)

Blackberry (Rubus)

Native plants for projects!

Native Plantings	Non-Native Plantings
Adapted to local conditions Low Maintenance	Not from NA Fertilizer/Mowing/Watering High maintenance
Resistant to disease/pests	Insecticides
Shelter and Food (all seasons) (co-evolved flora & fauna)	Shelter and Food (hosts many non-native species)
Do well in all soils	Do well in disturbed soils
Blooms all seasons	One color/Short-lived
Deep Root Systems	Shallow Root Systems

Purple Prairie Clover



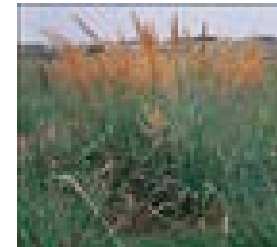
Little Bluestem



Purple Coneflower



Indian Grass



Smooth Blue Aster



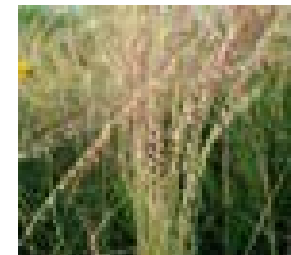
Butterfly Milkweed



Black Eyed Susan



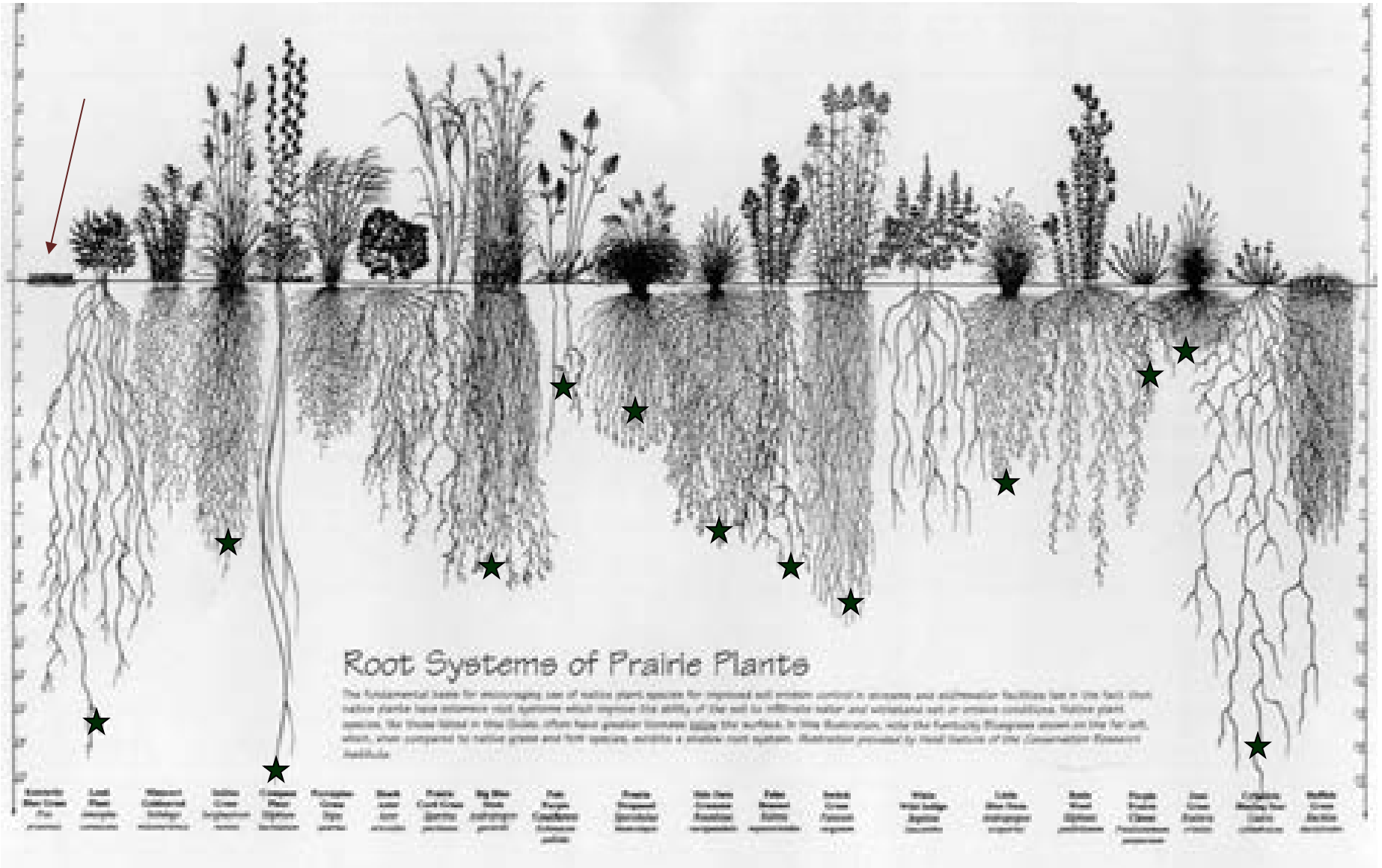
Side Oats Gramma



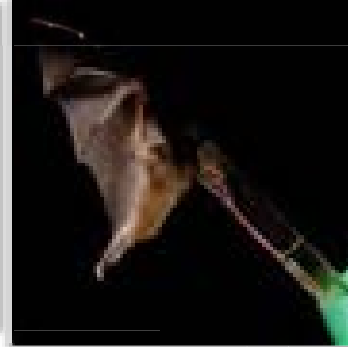
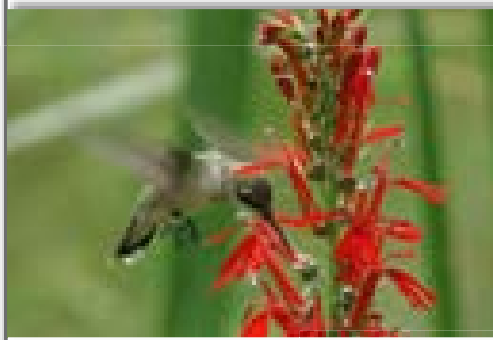
Wild Bergamot



Benefits of Native Plants

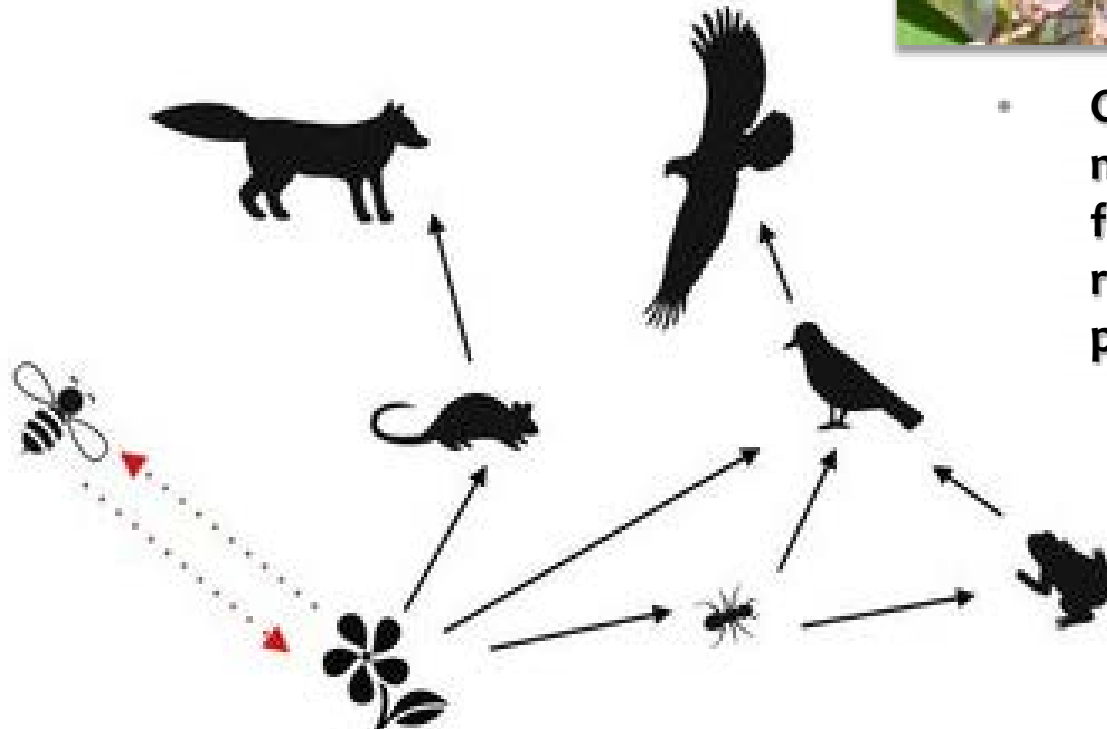


Benefits of Native Plants



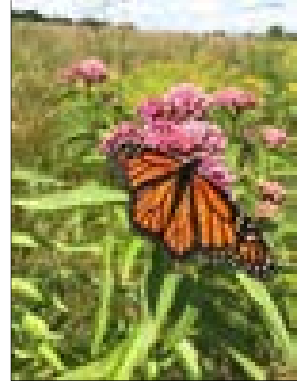
**Pollinators are
Keystone Species**

- **>85% of world's
352,000 plants
depend on
insects for
pollination**

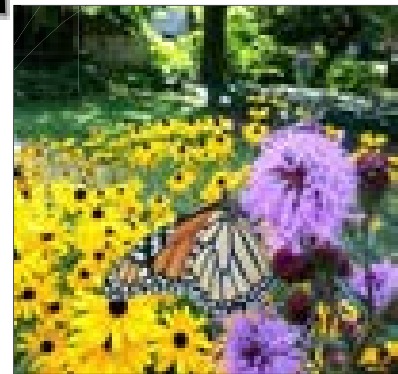


- **One in three
mouthfuls of
food & drink
require a
pollinator!**

5 Steps to Help Pollinators



1. Plant **NATIVE** pollinator **PLANTINGS**
2. Create **DIVERSTY** of **BLOOMS** Spring-Fall
3. **PROTECT** Nests and Egg-Laying **SITES**
4. **LEAVE** overwintering **HABITAT**
5. **DON'T** Use Pesticides

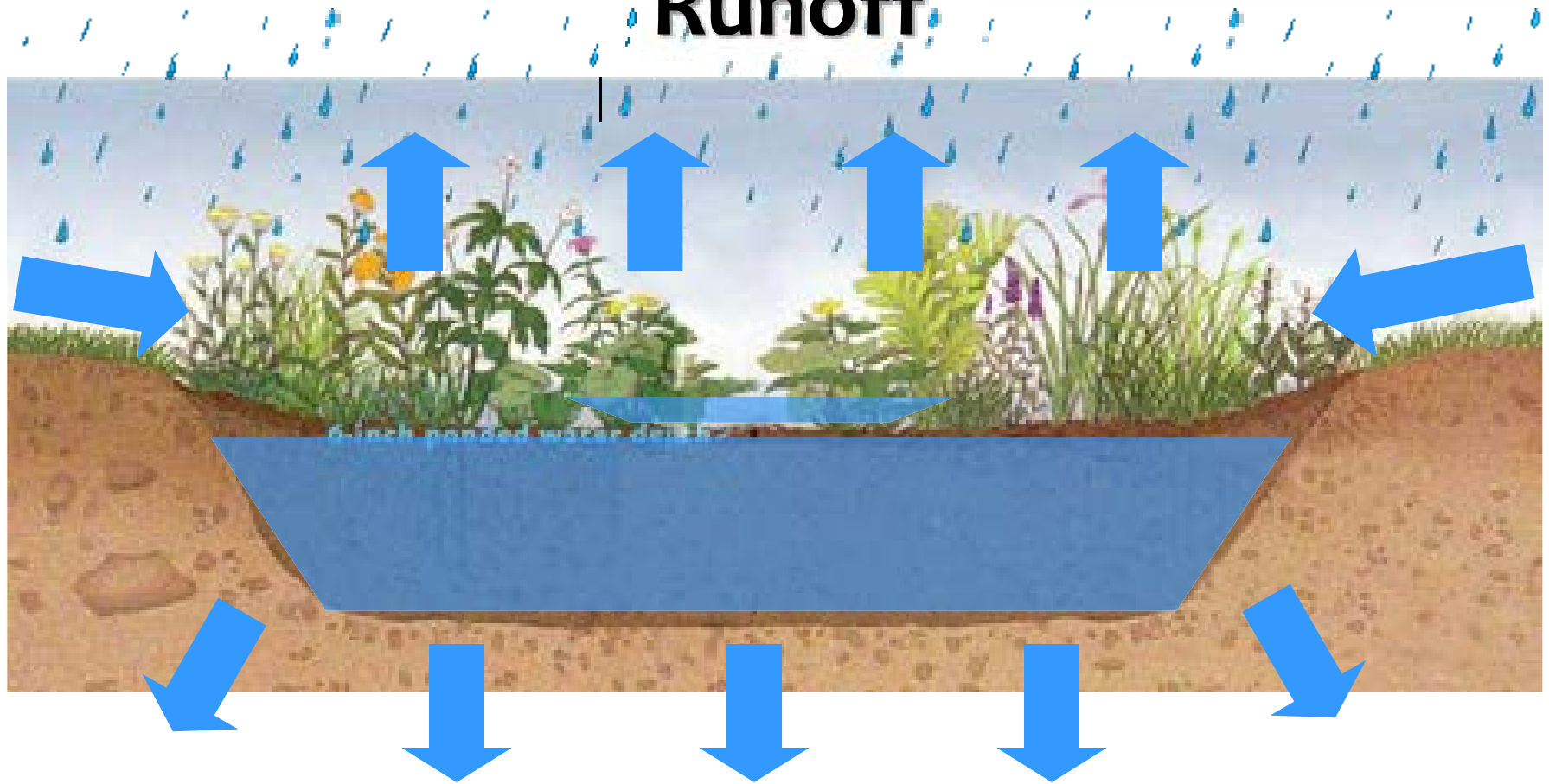


Pollinator Raingardens

- **Shallow** (9" to 12" deep) **depressions**
- **Surface** should be dry in 48 hours (or less)
- **Soil amendments** sometimes needed (compost and/or sand)
- **3" Double Shredded Hardwood Mulch**
- **Planted with deep-rooted plants** (natives work best)
- **Design as a landscape feature** ("natural", formal, or in-between)
- **Design to integrate into existing landscaping**
- **Select plants to attract wildlife**



Capture Rainwater and Stormwater Runoff

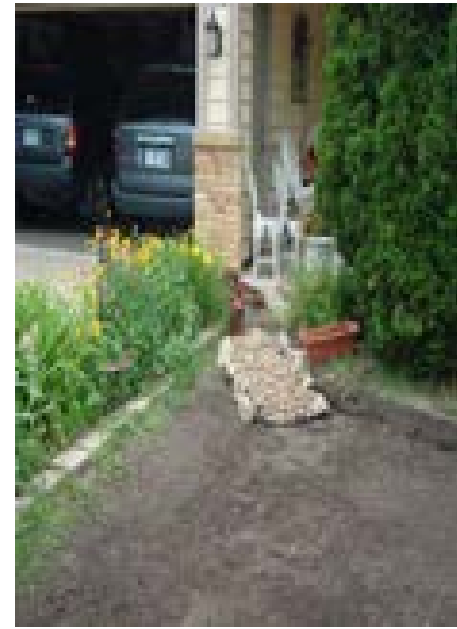
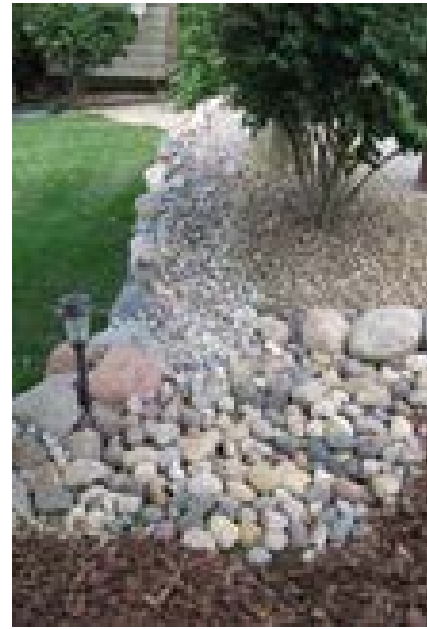
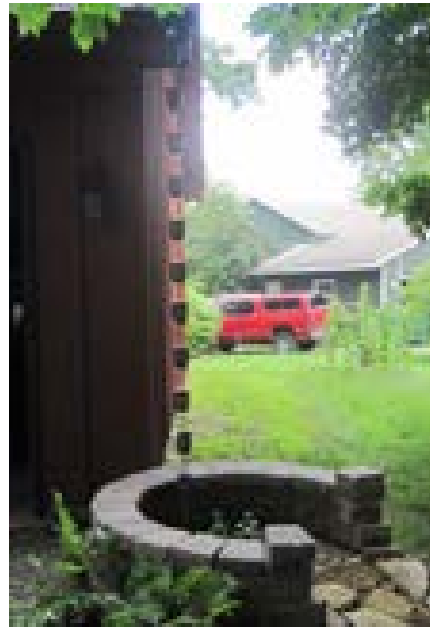
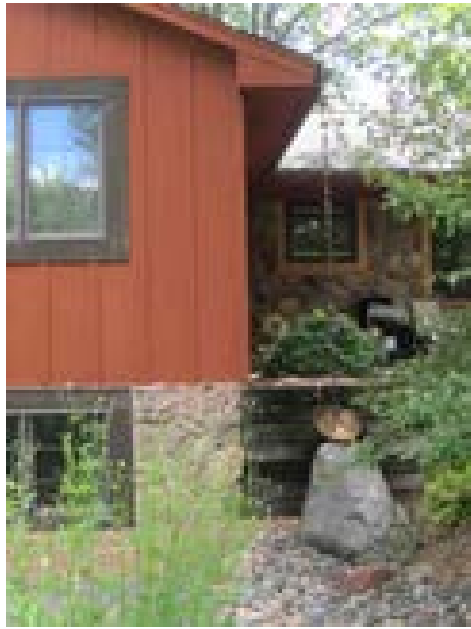


Just like a traditional flower garden, but able to absorb runoff and break down pollutants + **POLLINATOR HABITAT!**



Where would you put a raingarden?

Be Creative!



Pollinator Raingardens



www.bluethumb.org

Pollinator Raingardens

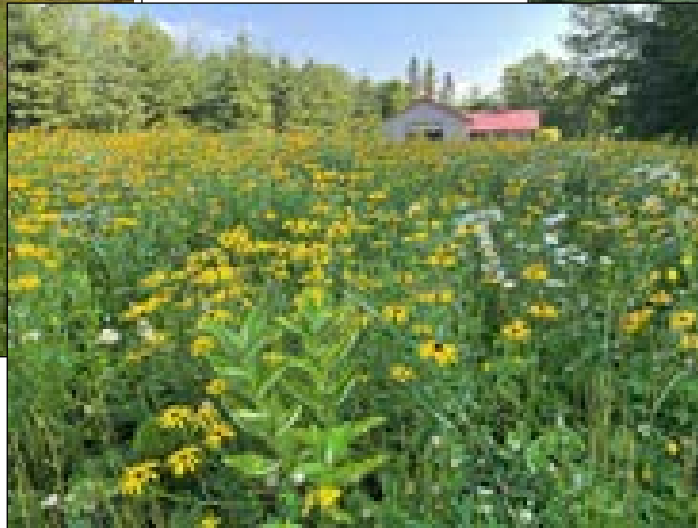


Before



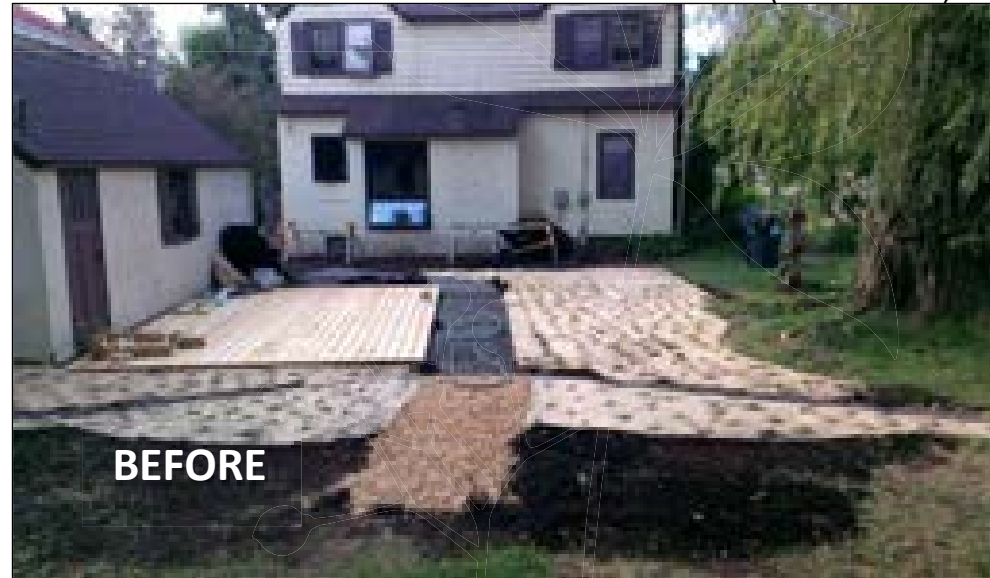
After

Pollinator Meadows

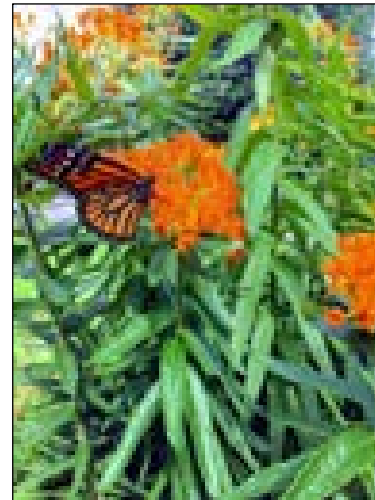
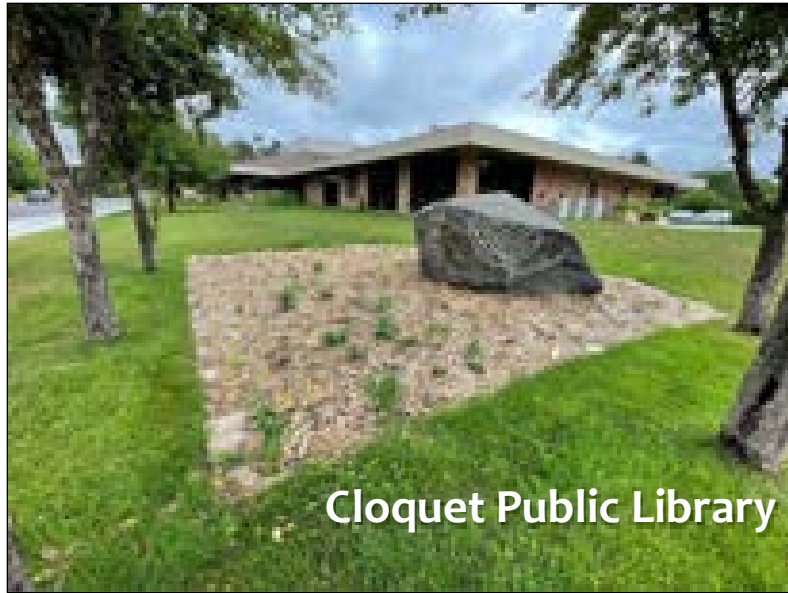


Pollinator Pockets

Photo: Projects completed by
Shoreview Natives (Two Harbors, MN)



Pollinator Pockets



BEE LAWN

**Integrate into existing lawn
OR
start fresh!**



Native Shoreline Buffers





Erosion?



Habitat Improvement?



Water Quality?



←→
Shoreline loss over 5 years!



A “Natural” Shoreline

Shoreland Vegetation

(erosion-control, water quality, **cools water-especially for trout**, wildlife habitat, high plant diversity = high wildlife diversity)

Drifted-in Logs & Snags

(wildlife habitat, erosion control & water quality)

Emergent Vegetation

(water quality, erosion-control & wildlife habitat)



Why a Vegetated Shoreline!

Relatively inexpensive

Plants filter out pollution before it reaches the water

Attracts pollinators

Flowers add color, natural beauty

Adds privacy

Plants take up excess nutrients reducing algal blooms

Long rooted plants help decrease erosion and flooding

Vegetation discourages geese from congregating

Plants provide oxygen for fish

Aquatic vegetation slow down incoming waves

NATURAL SHORELINE IMPROVES OVER TIME

MORE PERMANENT FIX



But....

PATIENCE!

Seeding: 2-3 Years to Establish

Live Plants: Instant color, but not as diverse

Stabilizing the Slope

Rock Rip Rap

More \$\$\$

Doesn't filter pollutants

Creates “unnatural” shoreline

Requires maintenance not a permanent fix

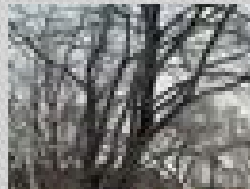
Sometimes rock is needed to combat:

- Wave action

- Ice heaves

- Steep slopes

- Fluctuating water levels



Stabilizing the Slope

Coir Logs

Stabilizes slope and prevents wave action until vegetation is established

Coconut and jute fiber

100% bio-degradable

2-5 year lifespan

Able to plant vegetation directly into log for extra stabilization

Encourage sedimentation and re-vegetation



Project Area Concept: East of dock

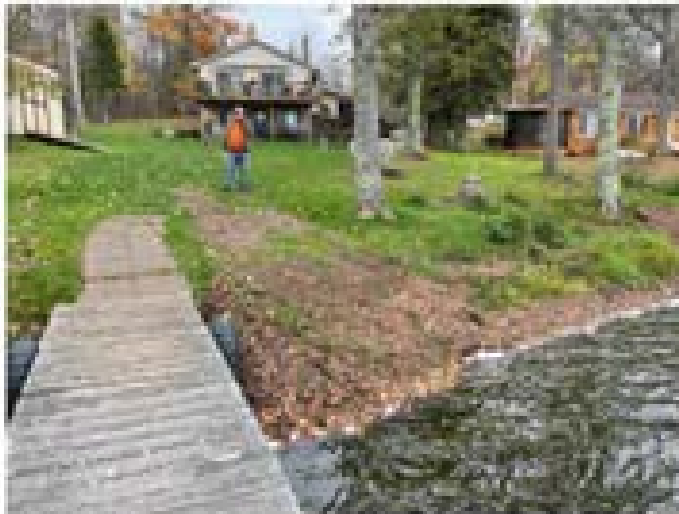


Current Condition

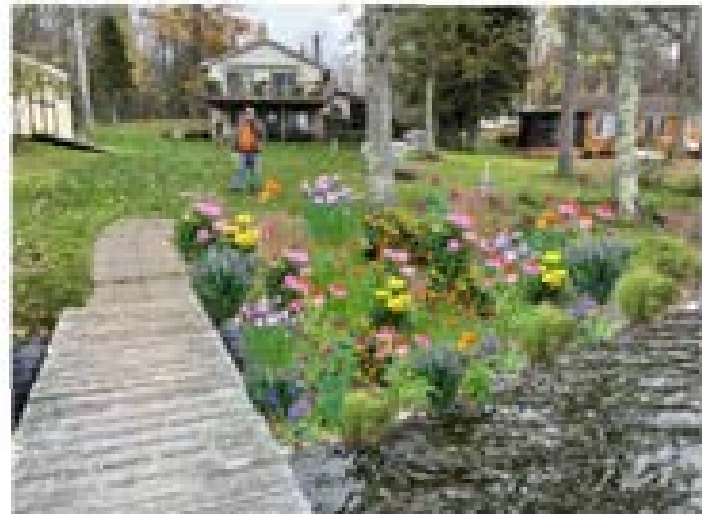


Native Shoreline Planting with flowers, grasses, and sedges

Project Area Concept: West of dock



Current Condition



Native Shoreline Planting with flowers, grasses, and sedges

Realtime Landscaping Architect

Native Seed Mix



MNL Lakeshore Mix

0161 275 Seed Mix (Chicago, MN 110)

Shades presented in this mix highlight a diverse set of wildflowers for shoreline areas. Green/Sage-Yellow 2:1 with later blooming herbs

	Scientific Name	Common Name	% of Mix	Seeds/kg (lb)	PLB (lb)	Shade Season
Grasses:	Andropogon scoparius	Blue Joint Grass	1.00	7.20	0.07	
	Poa pratensis	Field Bluegrass	4.00	10.00	0.04	
Sedges/Rushes:	Carex corniculata	Butcherbush Sedge	14.00	11.18	1.02	
	Carex lasiocarpa	Lake Sedge	2.00	0.71	0.18	
	Carex normalis	Greater Shore Sedge	0.00	0.21	0.00	
	Carex polifolia	Smooth-Leaved Woody Sedge	0.00	1.02	0.18	
	Carex rostrata	Butcherbush Sedge	0.00	1.41	0.00	
	Carex lasiocarpa	Shore Sedge	0.00	11.08	0.00	
	Carex lasiocarpa	Common Fox Sedge	0.00	4.00	0.00	
	Rhynchospora heterostachya	Softstem Bulrush	4.00	0.18	0.00	
	Scirpus americanus	Green Bulrush	0.00	0.00	0.00	
	Scirpus riparius	Widgeon	0.00	11.08	0.04	
	Scirpus setaceus	Shore Bulrush	0.00	1.11	0.00	
Forbs:	Arnica montana	Sweet Flag	0.00	0.00	0.00	Summer
	Arnica montana	American Water Thyme	0.00	4.00	0.07	Summer
	Asclepias tuberosa	Flame Lilies	1.00	0.18	0.11	Summer
	Asclepias tuberosa	Canada Milkweed	1.00	0.21	0.07	Spring
	Asclepias tuberosa	Black Milkweed	0.00	0.00	0.00	Summer
	Chamaenerion angustifolium	Fireweed	0.00	0.00	0.00	Summer
	Echinacea purpurea	Joe-Pye Weed	1.00	0.00	0.11	Summer
	Eupatorium perfoliatum	Common	0.00	0.00	0.04	Fall
	Eupatorium perfoliatum	Blackswallow	0.00	0.00	0.04	Fall
	Erigeron annuus	Northern Blue-Flower	0.00	0.10	0.07	Spring
	Erigeron annuus	Flame Weeds	0.00	0.00	0.14	Summer
	Erigeron annuus	Cardinal Flower	0.00	0.00	0.00	Summer
	Erigeron annuus	Great Blue Lobelia	0.00	0.00	0.00	Summer
	Erigeron annuus	Money Flower	0.00	0.00	0.00	Summer
	Erigeron annuus	Chickadee Plant	0.00	0.00	0.00	Summer
	Erigeron annuus	Mountain Mint	0.00	0.00	0.00	Summer
	Erigeron annuus	Smooth Rose	0.00	0.00	0.14	Summer
	Erigeron annuus	Robust's Geranium	0.00	0.00	0.00	Fall
	Erigeron annuus	Gold Burned	0.00	0.00	0.00	Summer
	Erigeron annuus	New England Aster	0.00	0.00	0.14	Fall
	Erigeron annuus	Blue Veronica	0.00	0.00	0.14	Summer
	Erigeron annuus	Forward	0.00	0.00	0.14	Summer
	Erigeron annuus	Cotton's Seed	0.00	0.00	0.00	Summer
Seedling #			141 000			
Grass Species			2			
Sedges/Rushes			11			
Forb Species			20			

LIVE PLANTS

- Community Habitat Program in partnership with MNL
- Largest sale in MN since 2020
- Restored over 300 acres!






NATIVE PLANT KIT & SEED MIX SALE

ONLINE STORE OPENS FEBRUARY 28, 2025
THE LAST DAY TO PLACE ORDERS IS JUNE 13, 2025

Native plant kits

Plants arrive from the greenhouse in 4-inch plastic plug flats of 36 plants in six species. Plant for monarchs, songbirds, pollinators, steady cover, prairie-smooth gardens, deer resistance, backhoes replacement, rain gardens and shoreline restoration.





Native seed mixes

Seed mixes are available for pollinators, songbirds, monarchs, backhoes replacement or a bio-friendly lawn!

PLANT PICKUP:
 June 17th, 2025
 at the
 Carlton County Transportation Building
 (1030 Co Rd 61, Carlton, MN)

ORDER ONLINE AT CARLTONSWCD.ORG/STORE
OR CALL 218-284-3891



100% NATIVE PLANT KIT Shoreline Stabilization Kit

Hold the lake and/or edge! Native Plants in this kit are deep rooted, wet soil species to help prevent erosion along large bodies of water. Blooms during all seasons offer food source for pollinators, as well! Plants will reach 1-2' tall.

Species: These 36 plant plugs include 9 species of native flowers and 1 sedge (swamp Milkweed, Blue Flag Iris, Flat Topped Aster, Common Reeds, New England Aster, Great Blue Lobelia, Blackberry, *(Alternatives: species may be subject to substitution depending on availability.)*

Quantity: Covers 1/4 acre (approx. 100' x 100' with 12-18 inch spacing).



Swamp Milkweed
Asclepias incarnata



Blue Flag Iris
Iris versicolor



Flat Topped Aster
Aster multiflorus



Common Reeds
Juncus effusus



New England Aster
Aster novae-angliae



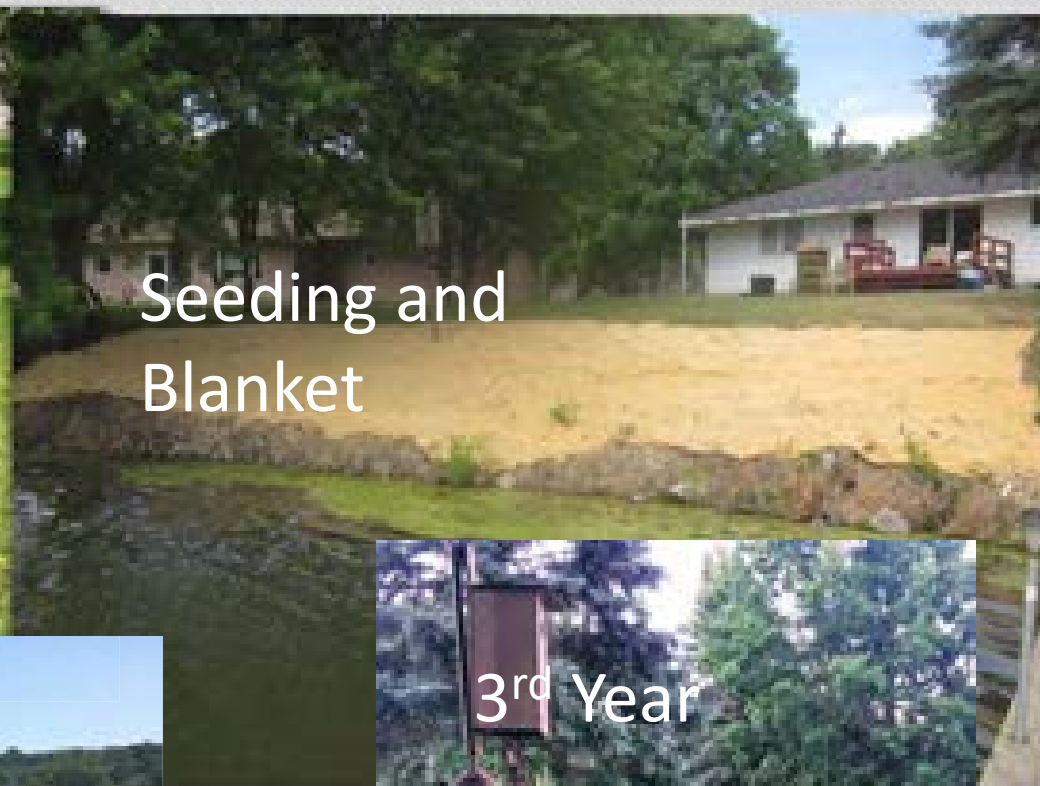
Great Blue Lobelia
Lobelia siphilitica

CARLTON SWCD & MNL CONSERVATION DISTRICT

1030 Co Road 61, Carlton, MN 55714 • 218-284-3891 • www.carltonswcd.org



Site Planning
and Prep



Seeding and
Blanket



1ST Year



3rd Year





1ST Year

This photograph shows a steep, eroded bank in the first year of a restoration project. The soil is dark brown and exposed. Sparse green vegetation, including some tall grasses and small shrubs, is beginning to grow on the slope. In the background, a white house with a gabled roof and a wooden deck is visible, partially obscured by trees.



2nd Year

This photograph shows the same area in the second year of the restoration project. The vegetation has grown significantly denser and more varied. There are many green plants, some with small yellow flowers, covering the slope. The background shows a line of trees and a body of water with a dock and boats.



Stabilizing the Slope- Coir Logs

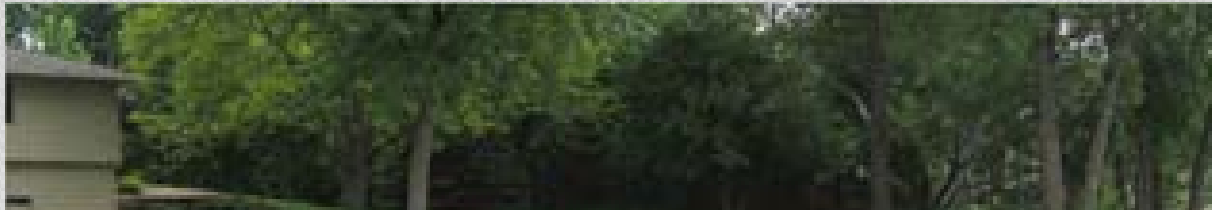
Before



After









10 years after coir logs installed!



Maintenance

Seed- PATIENCE!

1st year....They sleep
2nd year....They creep
3rd year.....They LEAP!!

Live Plants

Watering

Young, establishing plants need 1 inch of water/week

Water around the base of the plants using a hose

Supplemental water may be needed during dry periods

Weeding

Mark each plant with popsicle stick etc. for easy ID

Check garden monthly for weeds

The native plants will eventually become established and take over habitat

Operation and Maintenance Plan Natural Shoreline Restoration

Location: _____
Project: _____

All projects require some maintenance after implementation. Because every project is unique, you may consider slightly different maintenance needs than what are listed here. This Operation and Maintenance Plan helps you understand some of the common maintenance activities that may be needed on your project. Project success is often in significant measure by ongoing maintenance activities.

Watering

- **Watering:** New plantings require one inch of water per week. If there is little rain, watering your project will be needed.
- **Shading/Weed Shading:** For sites where shading will be primary planting method, this site will need shading or weed shading to control weeds and allow sunlight to reach the soil and germinate the native seeds. Use when weed growth reaches 10-15 inches and native weeds begin to set seed (this is very dependent). Cutting height should be set at 15 inches. Repeat in back of second edge where between first and dependent at least two times.
- **Shading:** If you are using fabric cover and two plugs were used, check for weeds at least once during last week. Pull or quit from weeds with herbicide as necessary. Pay extra attention for weeds growth near project edges and paths.
- **Shade Cloth/Weed Shading:** Repeat shading control method and ensure that it is secured and there is no slumping or erosion occurring. Monitor shade cloth for growing weeds.
- **Plant Identification:** Mark two plugs with color coded popstick sticks or some other type of marking device. Be sure familiar with the native plants on your project. Also become familiar with the weeds. Ask your technical representative about good identification device to help you.
- **Weed Control:** If your project includes aquatic, make sure you maintain the water levels and remove that being our problem at plants located onshore.
- **Shading/Weed Shading:** Encourage grass that shading off the young plant areas. Use 10-15 inch high or higher to help the young plant. Remove large weeds from collection material (10-15 inch high) can be hung regularly around along a fence.

Save the stems!

High value pollinator plants

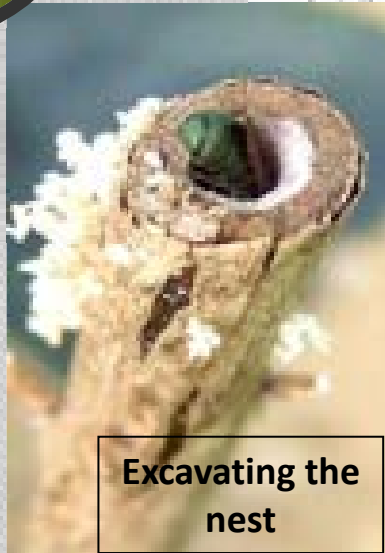
Provide food for one or more specialists – over 90% plant feeding insects are specialists!

Provide nesting resources

Stems, leaf tissue, etc.



Ceratina
(small carpenter
bees)

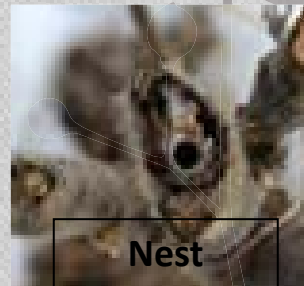


**Excavating the
nest**



**Inside the stem:
larva & pollen**

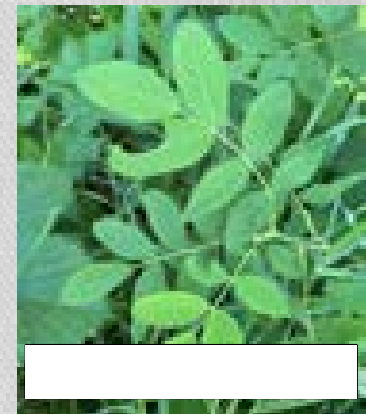
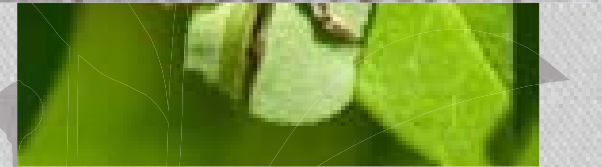
**Inside the
stem:
adults in
spring**



**Nest
entrance**



Bee nests leaves and Petals!



Photos: Sarah Foltz Jordan, Xerces Society

Creating Nesting Habitat

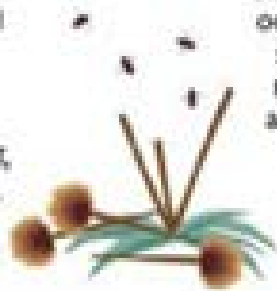


WINTER

Leave dead flower stalks intact over the winter

SPRING

Cut back dead flower stalks leaving stem stubble of varying height, 8 to 24 inches, to provide nest cavities.



Female bees find cut or naturally occurring open stems, start a nest, then lay an egg on the pollen balls. Larvae eat the pollen.



SUMMER

New growth of the perennial hides the stem stubble.



Bee larvae develop in cut dead stems during the growing season.



FALL



WINTER



Bees hibernate in stems during the winter

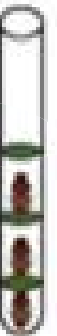


SPRING

Cut back dead flower stalks. Old stem stubble will naturally decompose.



Adult bees emerge and start nests in newly cut dead stems or in naturally occurring open stems.



Funding & Cost-share Assistance

Cost-share assistance dependent on

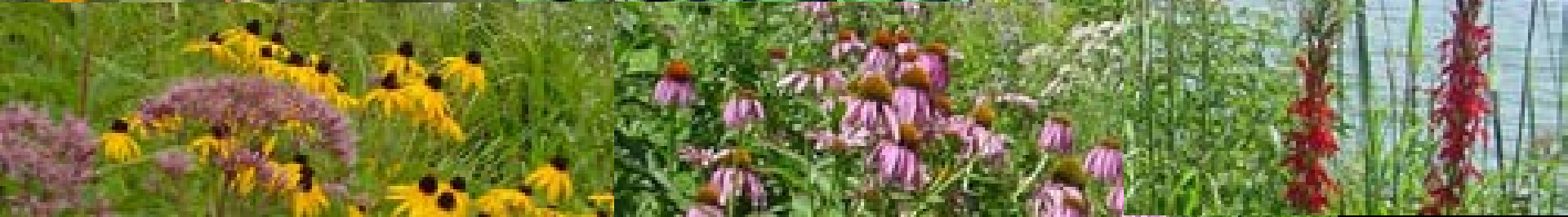
Natural resource or conservation concern

Cost : Benefit

Feasibility

Available Funding

Approval



Thank You!

Alyssa Bloss- Carlton SWCD
District Manager
(218) 384-3891

alyssa.bloss@carltonswcd.org

Questions?