

Bee Lawns & Lawn Alternatives





Presented by: James Wolfin, Conservation Specialist, Twin City Seed

Angie Hong, East Metro Water Education Program



James Wolfin is an entomologist and conservation specialist with Twin City Seed where he aims to bring more visibility to bee lawns and other eco-friendly options for the lawn and garden to residents and land managers.

In his free time, he enjoys sports, the outdoors, and sampling breweries across the Twin Cities.

jwolfin@twincityseed.com

952-944-7105

@twincityseed - Facebook, Instagram, Twitter



Angie Hong is the coordinator for Minnesota's East Metro Water Resource Education Program (EMWREP), a local government partnership with 30 members in Ramsey, Washington, Chisago and Isanti Counties.

In her free time, she enjoys singing, gardening, and exploring the prairies, woods and waters of the St. Croix Valley.

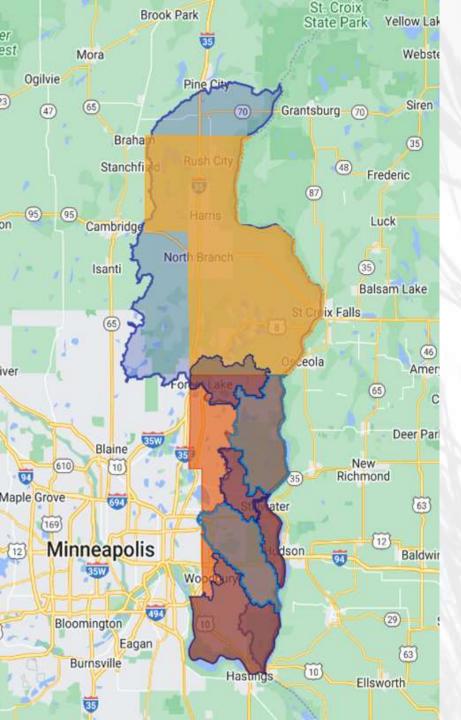
angie.hong@mnwcd.org 651-796-2210





@mnnature_awesomeness

Read the weekly blog articles! eastmetrowater.org



East Metro Water Education Program www.mnwcd.org/emwrep

Lower St. Croix Watershed Partnership www.lsc1w1p.org

Support for locally-led conservation:

Free Site Visits for landowners

Cost-share grants to help offset costs of conservation projects

Education: Workshops, volunteer events, project tours, and community programs throughout the year

Topics of expertise: Lake, stream, river and wetland health, habitat restoration, invasive species management, conservation farming, sustainable yards and gardens

AGENDA:

- 1) Why act now?
- 2) Turf alternatives
 - Low maintenance turf
 - Sedges and native grasses
 - Bee lawn
- 3) Installing a bee lawn or native planting
- 4) Other ways to support pollinators
- 5) Seasonal maintenance
- 6) Resources to get started



500+ species of bees live in Minnesota





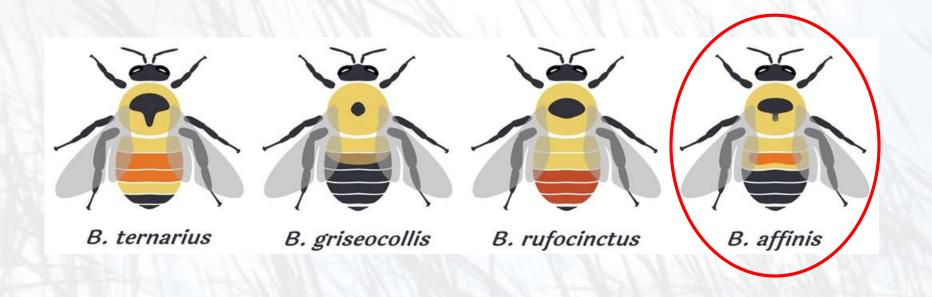
157 species of butterflies live in Minnesota



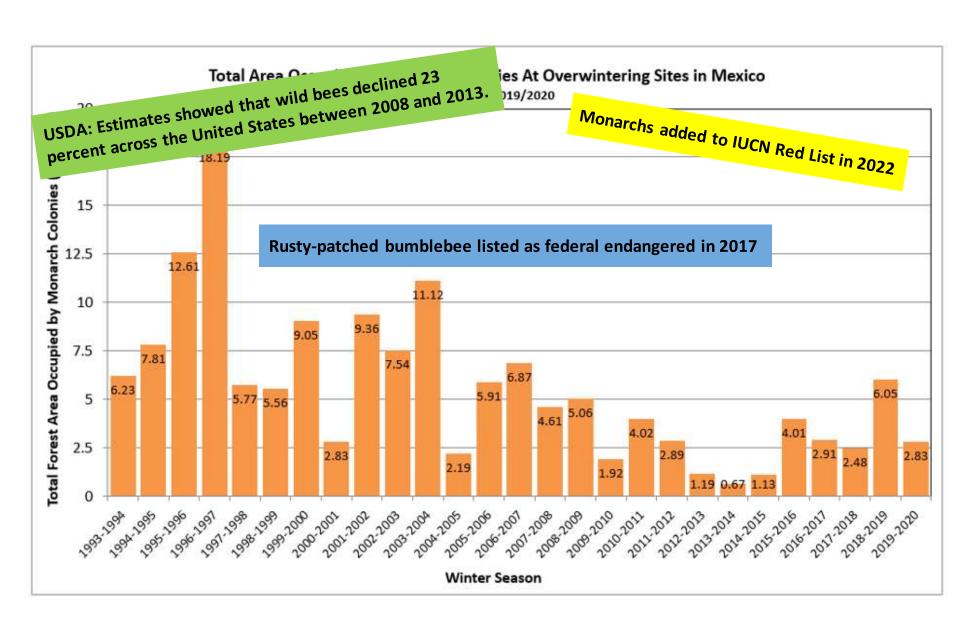
Our New State Bee



Rusty Patched Bumble Bee Bombus affinis



Eastern Monarch Population Numbers Decrease 53% from 2019



75% of land in Minnesota is privately owned

You play a
CRITICAL role in
helping to rebuild
habitat corridors
for wildlife and
clean water!



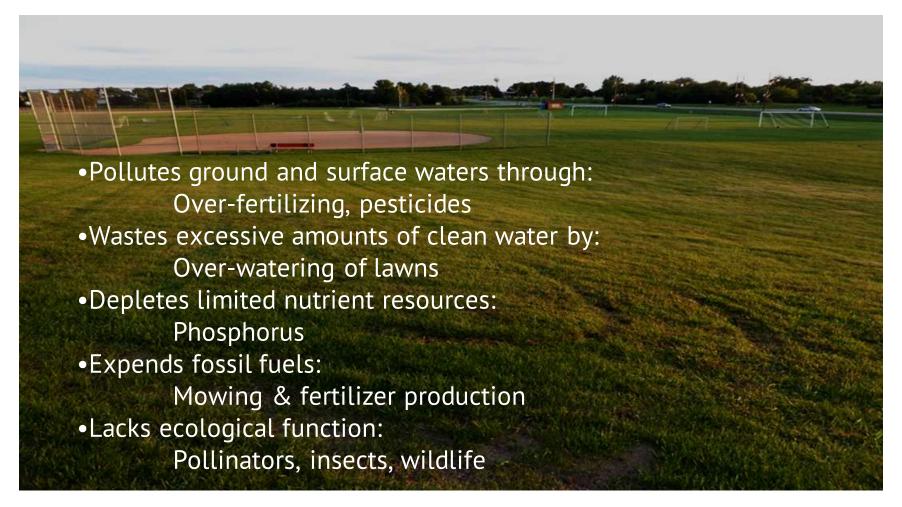
Turf alternatives

- 1. Low maintenance turf
- 2. Sedges and native grasses
- 3. Bee lawn

Function of the turfgrass lawn

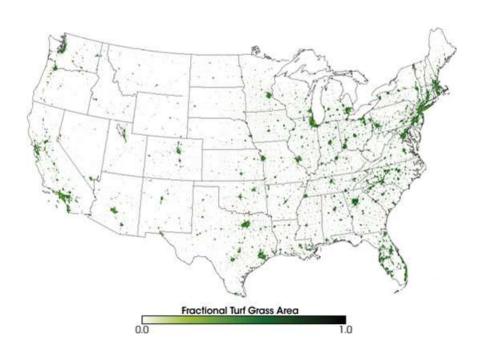


Why Find Alternatives to Turf?





Turfgrass by the Numbers



~50,000 square miles

3 times more acres of lawn in U.S. than irrigated corn.

NASA Earth Observatory

Low Maintenance Turf

(Option 1)

Want the typical lawn appearance? Use your lawn but no heavy traffic?



Low-Maintenance Characteristics

- Drought tolerance
- Slow vertical growth rate
- Low fertility needs





Environmental Benefits Of Low Maintenance

- Prevents soil erosion and stabilizes dust
- Filter contaminants from ground and surface water
- Releases oxygen to the atmosphere
- Sequesters carbon
- Moderates the air temperature
- Reduces noise



Higher quality ratings
 than Kentucky bluegrass





- Higher quality ratings
 than Kentucky bluegrass
- The most drought tolerant turfgrass for cool-season climates





- Higher quality ratings
 than Kentucky bluegrass
- The most drought tolerant turfgrass for cool-season climates
- Fantastic wear tolerance





- Higher quality ratings
 than Kentucky bluegrass
- The most drought tolerant turfgrass for cool-season climates
- Fantastic wear tolerance
- Sun and shade tolerant





Fine Fescues (Festuca sp.)

- Uses: home lawns, parks, golf course fairways
- Positives
 - Low fertility needs
 - Slow-growing
 - Shade or sun
 - Drought tolerance
 - Winter hardy
 - Quick germination
 - Allelopathy
- Negatives
 - Low traffic tolerance
 - Snow mold





No Mow Mixtures

- Mix of fine fescues
- Reasonable to only mow 1-2x per year
- No ryegrass





No Mow Mixtures









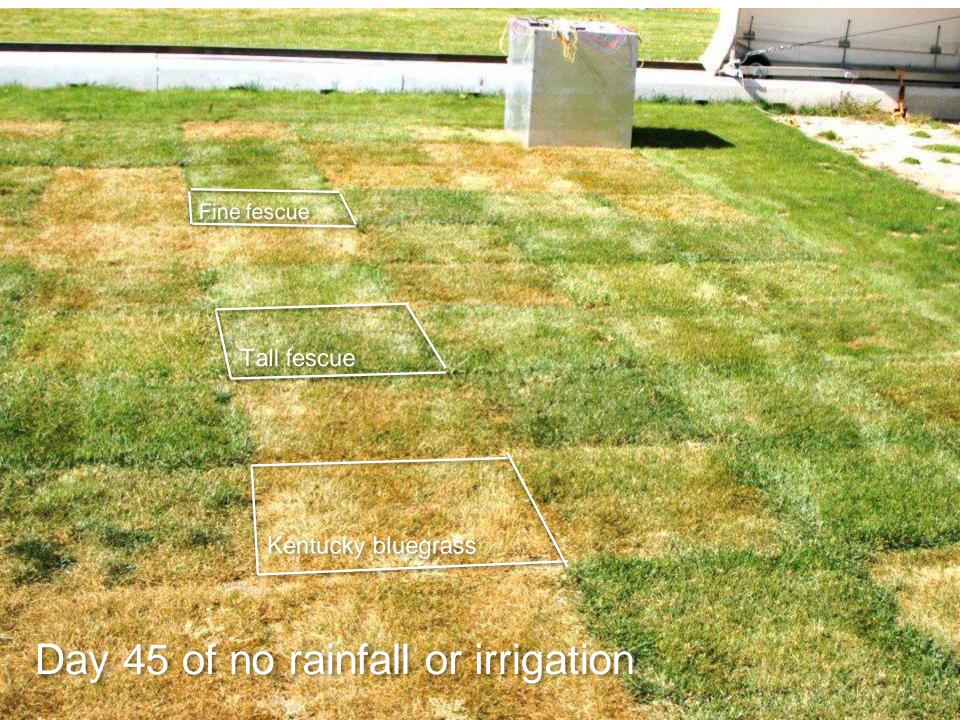


Table 8 Estimated carbon emissions due to home lawn turfgrass maintenance practices for the US

Maintenance practice	HCC of maintenance emissions (Gg Ce year ⁻¹)	
	Low management	High management
N fertilizer	626.7	3,760.2
P fertilizer	0.0	0.0
K fertilizer	9.1	54.6
Total fertilizer	635.8	3,814.8
Mowing fuel combustion	1,868.3	3,736.6
Mean	2,504.1	7,551.4

Day 45 of no rainfall or irrigation

Fescues are most "grass-like", but there are more options...(option 2)

- Sedges
- Native Grasses



Sedge Species

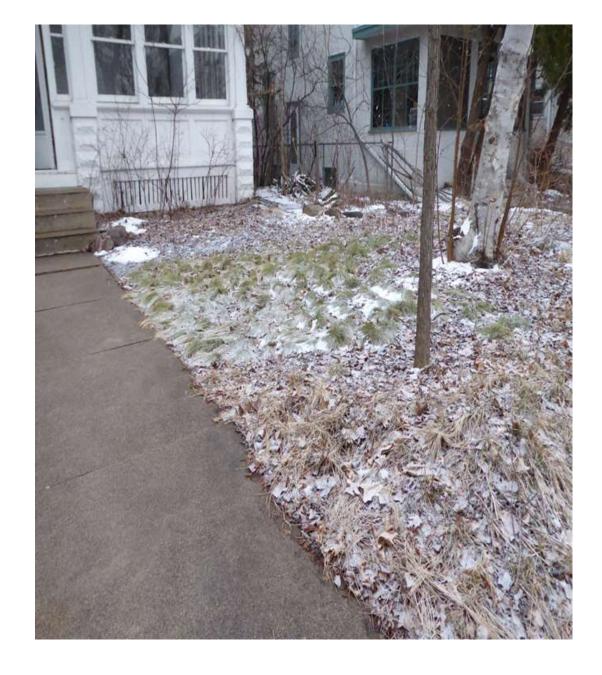
Pennsylvania Sedge Carex pennsylvanica

Fox Sedge Carex vulpinoidea

Ivory sedge

Carex eburnea

Plains Oval sedge Carex brevior















Prairie Junegrass Koeleria macrantha

- North American prairie
- Very good low-input potential
- Positives
 - Heat stress tolerance
 - Reduced water needs
 - Reduced fertility
 - Slow vertical growth rate
- Negatives
 - Establishment
 - Seed availability and cost
 - Leaf spot susceptibility





Other Possible Grass Species (Native)

- Buffalograss
 Bouteloua dactyloides
- Tufted hairgrass
 Deschampsia cespitosa
- Blue grama
 Bouteloua gracilis
- Western wheatgrass
 Pascopyrum smithii
- Side oats gramma
 Bouteloua curtipendula



- Can be costly, lower density, low public acceptance as "lawn"
- Warm season grasses slow to green up in spring
- Potential options for ultra-low maintenance sites

Bee Lawns (Option 3)



Our Solution

Transform the Urban Lawn

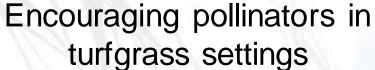
Traditional turf





Bee friendly forage







"Flowering Lawn"

Goals of a Bee Lawn

- Low maintenance
 - Minimize lawn management (mowing, watering, weeding, fertilizing)
- Protect our pollinators
 - Incorporate flowers that provide high quality forage for our pollinators
- Improve water quality
 - Fine fescue + wildflowers capture more water than a conventional turf lawn



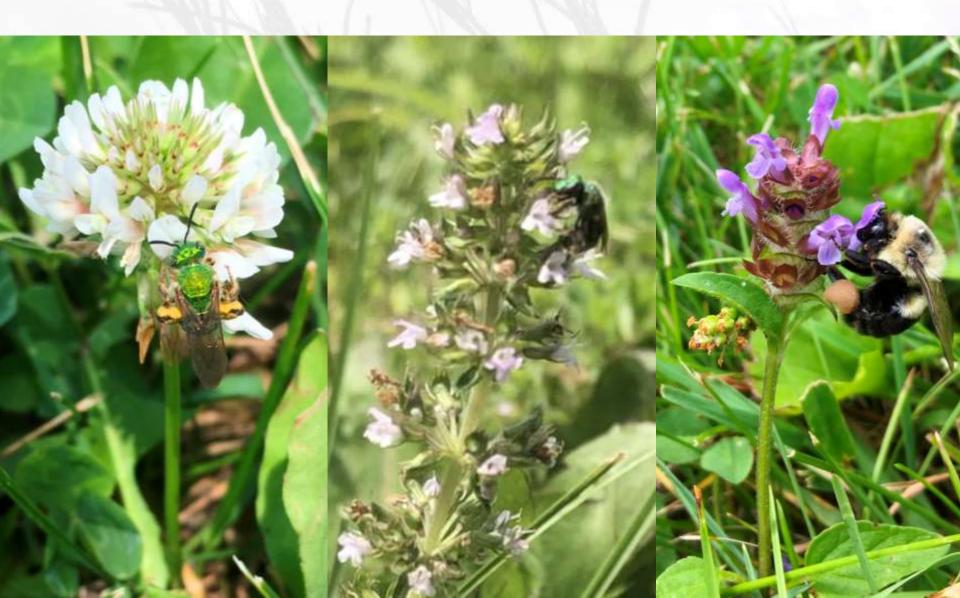
Low-Maintenance Characteristics

- Drought tolerance
- Slow vertical growth rate
- Low fertility needs

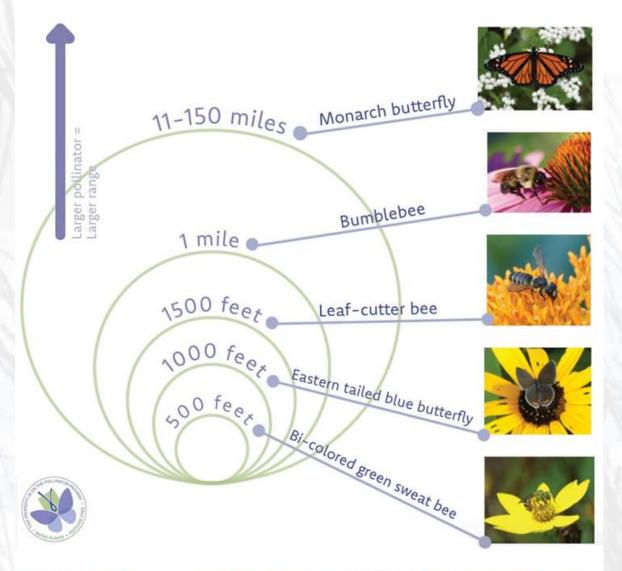




Pollinator protection



How far can a pollinator fly to find food?



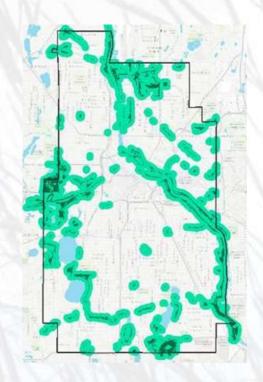
Connecting our pollinator gardens along a pathway helps bees and butterflies thrive.

Re-building Pollinator Connections

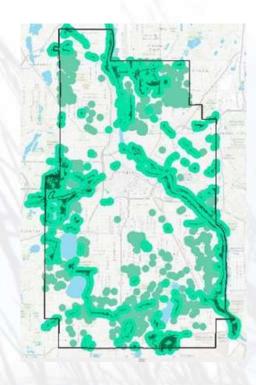
Pollinator Patches and Corridors in Minneapolis



Existing Known High Quality Habitat



+ 200 Meter Buffer (the distance small pollinators can fly)

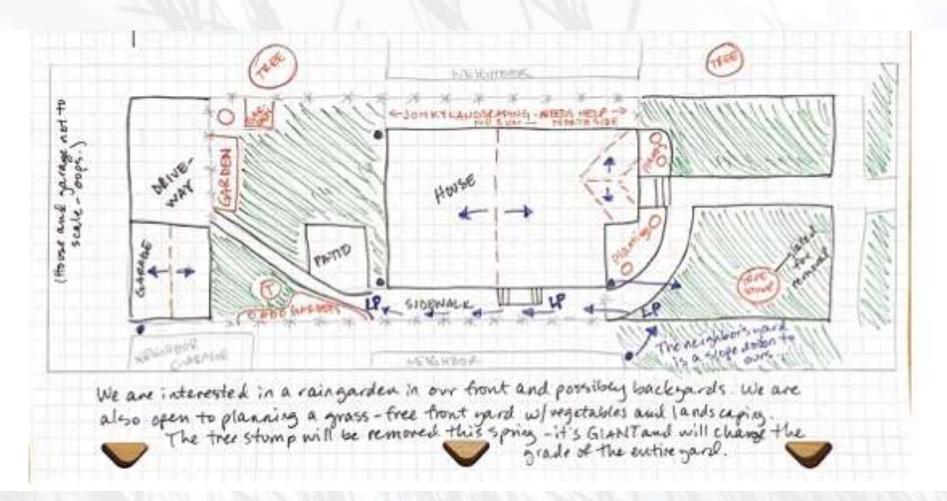


+ Metro Blooms and workshop raingardens with Buffers

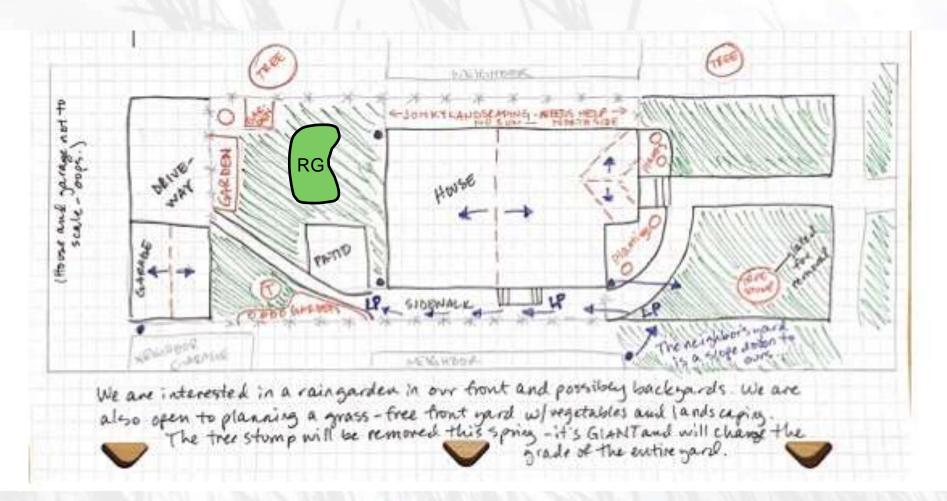




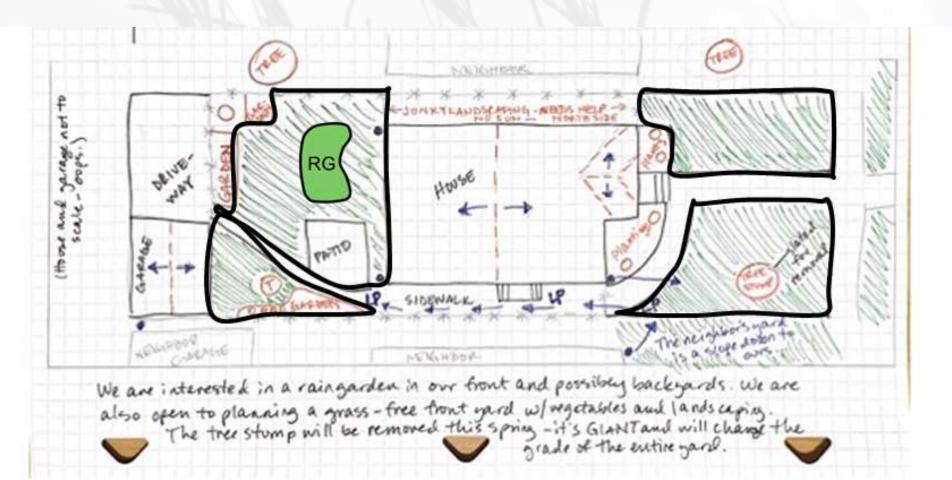
















Elements of a bee lawn

- Build from the bottom up
 - Selecting a turf species
 - Selecting floral species
 - Who visits a bee lawn?







Fine Fescues (Festuca sp.)

- Uses: home lawns, parks, golf course fairways
- Positives
 - Low fertility needs
 - Slow-growing
 - Shade or sun
 - Drought tolerance
 - Winter hardy
 - Quick germination
 - Allelopathy
- Negatives
 - Low traffic tolerance
 - Snow mold





Preferred Floral Species

- Find floral species that will:
 - Establish in Minnesota soils
 - Serve as high quality forage for wild bees
 - Try to incorporate native flowers



Self Heal (Prunella vulgaris ssp. Lanceolata)



Ground Plum (Astragalus crassicarpus)



Self Heal (*Prunella vulgaris ssp. Lanceolata*)

- Medium-large, whorled blooms
 - Larger bees(Bombus/Apis)
 - Smaller bees (Lasioglossum)
- Nectar and Pollen Source
- Full-part sun, moist soils









bluethumb.org

Self Heal (*Prunella vulgaris ssp. Lanceolata*)

More than 95% of visitors observed on self-heal were native species





Creeping thyme (Thymus serpyllum)

- Small, open blooms
 - Smaller bees(Andrena/Lasioglossum)
- Drought tolerance and winter hardiness
- Deer deterrent





Creeping thyme (Thymus serpyllum)

- Small, open blooms
 - Smaller bees (Augochlorella/Lasioglossum)
 - Late blooming source of forage (Aug - Sept)
- Drought tolerance and winter hardiness
- Deer deterrent





Creeping thyme (Thymus serpyllum)

Creeping thyme is the latest to bloom of all bee lawn flowers!





Dutch White Clover (Trifolium repens)

- Open, medium sized blooms
 - Small-large sized visitors
- Great source of pollen and nectar
- Nitrogen fixer

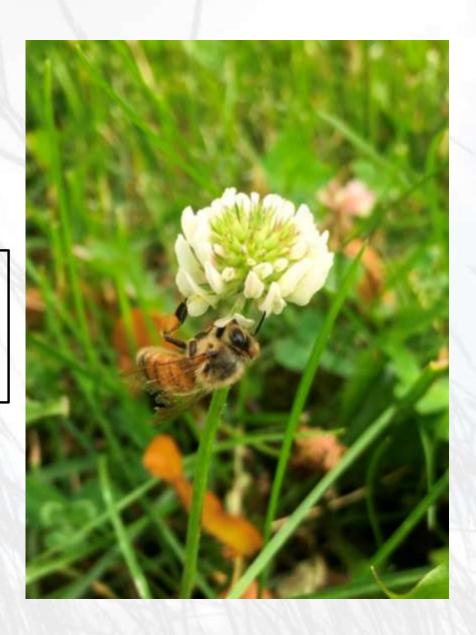




Dutch White Clover (*Trifolium repens*)

Clover is a critical source of forage for honey bees and native bees









Common Violet (Viola sororia)

Variable species that may have white or white and blue petals.

Blooms April – June

Sun or shade

Spreads through rhizomes

Mowable and walkable





Common Violet (naturalized in a lawn)





New ALL NATIVE Bee Lawn Mix

Self-heal (Prunella vulgaris)

PLANTING FOR CLEAN WATER®

- Yaak yarrow (Achillea millefolium var occidentalis)
- Blue-eyed grass (Sisyrinchium angustifolium)

Native plants support native pollinators!



Protects our at-risk pollinators



Environmentally friendly

Low

Strong shade tolerance











The Twin City Seed Native Bee Lawn Mix is designed to create a lawn full of native flowers providing high-quality food for our at-risk pollinators while maintaining the typical recreation associated with the turfgrass lawn. The native bee lawn mix is low-input, meaning that it is environmentally-friendly requiring fewer inputs of water, mowing, and fertilizer as compared to a traditional lawn.

Suggested maintenance: Bee lawns are low maintenance ofter they are established. Be sure to implement a light and frequent watering program after seeding. Once mature, we recommend maintaining bee lawns at a taller height than what is typical of a traditional lawn. Letting a bee lawn grow out to at least 6" will ensure that all flowers within the native bee lawn mix are able to bloom.

NATIVE BEE LAWN SEED MIX

- 23.25% Boreal Creeping Red Fescue
- 23.25% Intrigue Chewings Fescue
- 23.25% Gladiator Hard Fescue
- 23.25% Blue Mesa Sheep Fescue
- 3% Blue eyed grass
- 1% Yaak yarrow
- 3% Self-Heal

SEEDING RATES

New turf

Overseeding

5 lbs/1000 sqft

5 lbs/1000 sqft

ESTABLISHMENT

Germination in 7-15 days under ideal conditions



7265 Washington ave. S. Edina, MN 55439 Phone: 952-944-7105 Fax: 952-944-7239



Scan to visit our website!

Slow Mow Summer What about No Mow May?





Installing a bee lawn or native planting

Installing a bee lawn

Timing is key!

- Spring (Apr 15 Jun 1)
- Late Summer (Aug 15 Sept 15)
- Dormant Seeding (Nov 1 Nov 30)





Installing a bee lawn

Timing is key!

- Spring (Apr 15 Jun 1)
- Late Summer (Aug 15 Sept 15)
- Dormant Seeding (Nov 1 Nov 30)

AVOID THE SUMMER!





Installing a bee lawn Overseeding VS new lawn renovation

Overseeding

New lawn renovation





Installing a bee lawn Overseeding VS new lawn renovation

Overseeding

KYBG or fine fescue Low weed presence



New lawn renovation

Tall fescue, ryegrass, other High weed presence



Pollinator Lawn - Overseeding

When to overseed

- Fine Fescue/Kentucky Bluegrass Lawn
- Limited weed infestation
- 1. Mow lawn as short as possible.
- 2. Rake clippings to expose as much soil as possible.

Pollinator Lawn - Overseeding

- 3. Spread seed. Compost or sand make good bulking agents.
- Keep moist until sprouting, and then cut back on watering and stop fertilizing.
- 5. Maintenance: **Never again mow below 3 inches**. Trim in the fall. Herbicides will kill your flowers, so hand weed.



Pollinator Lawn - New Lawn Renovation

Basic Example and Instructions

*If the lawn doesn't have a bunch of creeping charlie or other aggressive invasives that will spread, this method may be right for you:

- 1. Remove turf by hand, machine or cultural method.
- 2. Add compost or soil amendments as needed.

Pollinator Lawn - New Lawn Renovation

- 3. Spread seed. Lightly rake soil to help seeds settle (don't submerge!).
- 4. Cover with germination blanket.
- 5. Keep moist until sprouting, and then cut back on watering and stop fertilizing.
- 6. Maintenance: **Never again mow below 3 inches**. Trim in the fall. Herbicides will kill your flowers, so hand weed.





Installing a native planting: Site Preparation

From conventional to cutting edge



Sod Removal: machine

Sod cutter



Excavator "Dingo"







The Xerces Society for Invertebrate Conservation



Cultural methods: Sheet Mulching



The Xerces Society for Invertebrate Conservation



Installing a native planting: Site Preparation



- Turn soil
- Add compost
- Mulch planted area

Other ways to support pollinators

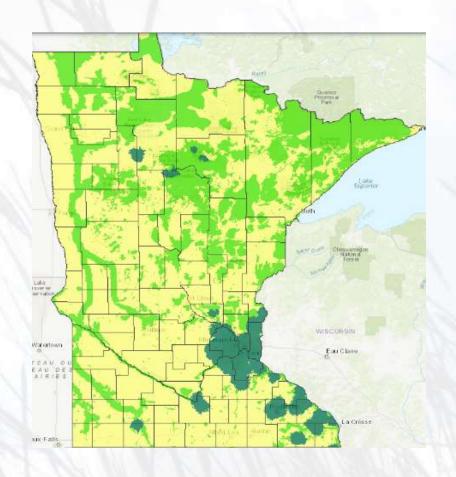
What is your vision for your yard?



Lawns to Legumes

- Up to \$350 for installing pollinator habitat
 - Dark green areas are highest priority
- Currently accepting applications for fall grants.
- Minnesota Legislature is considering making this a permanent program.

bluethumb.org/lawns-to-legumes





Types of Pollinator Planting Projects:

- 1. ✓ Bee-friendly lawns
- 2. Flowering trees and shrubs
- 3. Pocket plantings
- 4. Prairies and meadows



2) Flowering Trees and Shrubs

Trees:

American Basswood

Serviceberry-Edible

Pagoda Dogwood

Plum

Cherry

Hawthorn

Apple

Shrubs:

Blueberry Buttonbush

Raspberry

Cranberry

Dwarf Bush Honeysuckle

Spirea /

Black Chokeberry Meadowsweet

Elderberry Wild Currants

Red Twig Dogwood Willow

Ninebark



SWCD Tree Sales!





3) Native Pocket Plantings

There's room in almost every yard for a small native plant garden

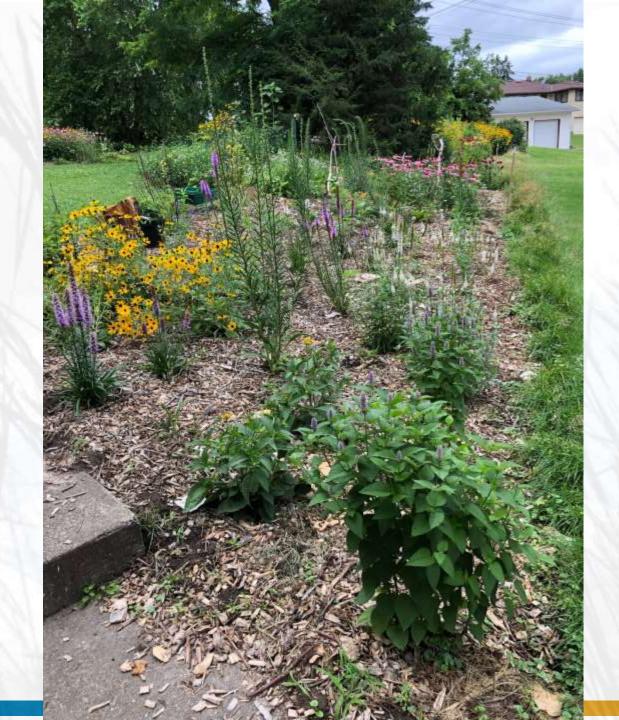
A 10x10 garden can be enough to offer pollinator habitat

Installation:
Sheet mulch over most
turf or plants
(Dig out invasive weeds
like quackgrass, creeping
bellflower, and tree
seedlings)

Or remove turf like you would for a raingarden, and mulch and plant!





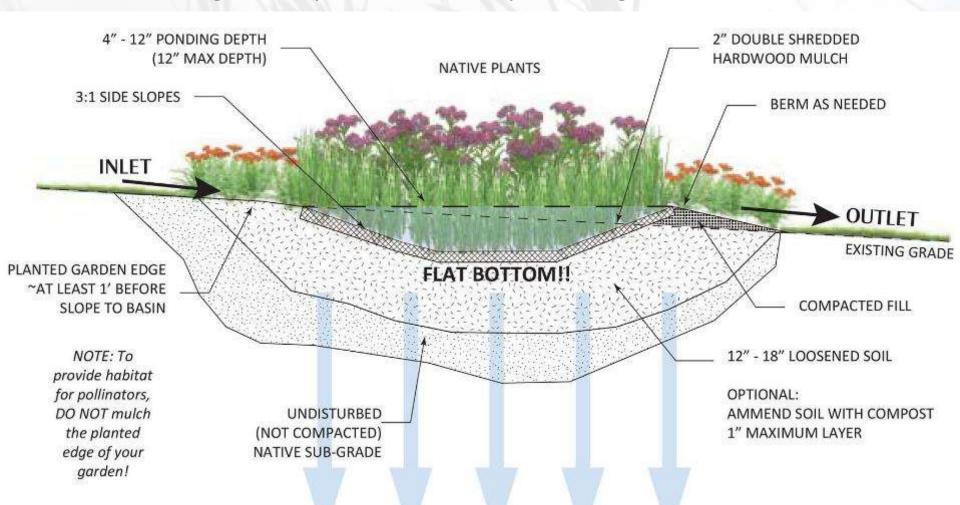




bluethumb.org

Pocket Planting Variation: Raingardens

Lowered perennial plantings built to capture and infiltrate rainwater while breaking down pollutants and providing habitat



4) Pollinator Meadow | Project Example



Project Location: Stillwater

Project Size: 1 acre

Design considerations:

- Reduce regular mowing
- Steep slopes
- Transitions from dry to wet
- Create habitat and LOTS of color

Pollinator Meadow

Installation

- Bite-by-bite:
 - Multiple pocket plantings side by side
- Or all at once:
 - Sheet mulch or
 - Solarization, then
 - A mix of seeding, plugs, and larger plants.



Maintenance



"Leaf" some for the bees please

Wait until the daytime temps are consistently above 50°F to cut down stems and rake leaves out of garden beds.

Bumble Bee Conservation



Landcare for Perennial Ground Cover

- Memorial Day
- July 4th
- Labor Day

Main Points

- Pull weeds
- Divide, transplant or add new plants
- Mulch as needed
- Inspect for erosion/trouble spots
- Spring: cut back plants to 18-inchs height after avg. temp is 50° F,

(when dandelions start to bloom)

Fall: leave some hollow/pithy stems for pollinators to nest in.





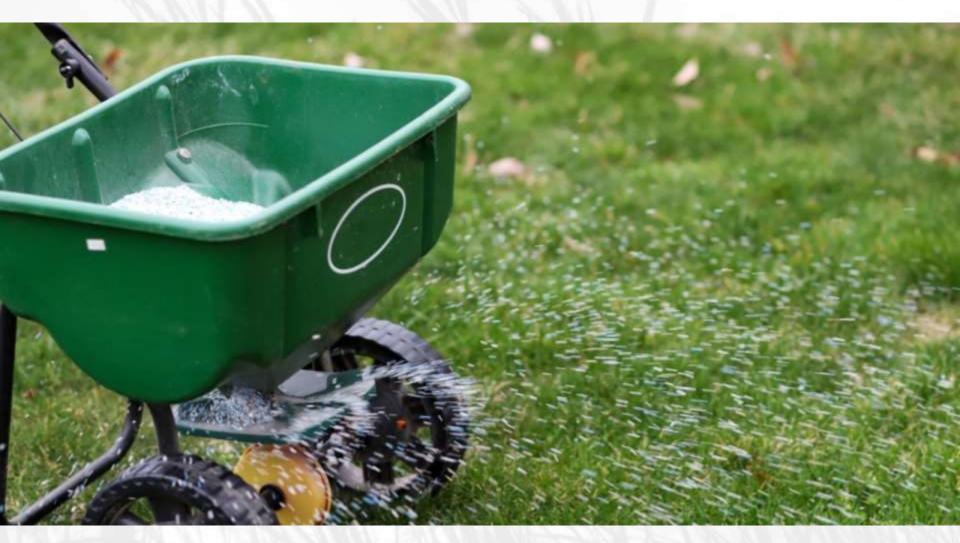


Lawn maintenance: Mowing





Lawn maintenance Fertilizer





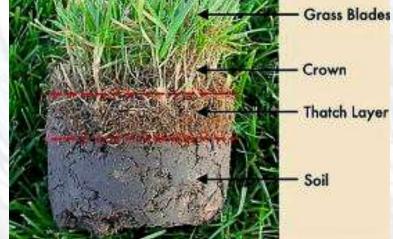
Lawn maintenance: Irrigation





Lawn maintenance: Thatch removal

- Heavy thatch resulting in brown patches in No Mow could be a result of too much Nitrogen
- AFTER foliage greens up in spring: Clean up with dethatching machine that pulls out dead leaves without disturbing soil
- Sow more No-Mow into gaps





Resources to get started

Resources to help you get started



- Blue Thumb Planting for Clean Water www.bluethumb.org
 - Plant selector tool; native plant suppliers and contractors; workshops and events; info on pollinator gardens, raingardens, shoreline plantings and turf alternatives
- Washington Conservation District (Washington County, MN)
 - Free site visits <u>www.mnwcd.org</u>
 - Planting for Clean Water <u>www.mnwcd.org/planting-for-clean-water</u>
 - Slides and recordings from previous workshops; Print resources; Local project examples; Garden with native plants video series
 - Blue Thumb Guide to Year Round Yard Care (booklet)

Resources to help you get started



- Anoka SWCD
 www.anokaswcd.org
- Dakota SWCD
 https://dakotaswcd.org
- Chisago SWCD
 https://chisagoswcd.org
- Isanti SWCD
 https://www.isantiswcd.org
- Ramsey Conservation District <u>www.ramseycounty.us/residents/environment/soil-water-conservation</u>

MINNESOTA & WESTERN WISCONSIN NATIVE PLANT NURSERIES



1 Blazing Star Gardens

d, I, m Phone: 507-402-8337 Email: blazingstargardens@gmail.com Web: www.blazingstargardens.com

2 Boreal Natives

3943 Munger Shaw Road, Cloquet, MN 55720 Phone: 218-729-7001

d, l, m

d.l.m

Email: borealnatives@prairieresto.com Web: prairieresto.com/boreal_natives.shtml

3 Soan Valleu Farm

Phone: 763-614-8853

Email: dana@sognvalleyfarm.com Web: www.sognvalleyfarm.com

Purchase at events & St. Paul Farmers' Market

4 Ecoscapes Sustainable Landscaping

Phone: 612-965-0848 Email: info@ecoscapes1.com Web: www.ecoscapes1.com

5 Glacial Ridge Growers

Phone: 320-634-0136 Email: glacridgegrowers@aol.com Web: www.glacialridgegrowers.com St. Paul Farmers' Market on Saturdays

6 Shoreview Natives

1185 Shoreview Rd, Two Harbors, MN 55616

Phone: 218-341-5286

Email: shoreviewnatives@gmail.com Web: www.shoreviewnatives.com

7 Landscape Alternatives

25316 St. Croix Trail, Shafer, MN 55074

Phone: 651-257-4460

Email: landscapealt@frontiernet.net Web: www.landscapealternatives.com

8 MN Native Landscapes

8740 77th St NE, Otsego, MN 55362

Phone: 763-295-0010

Email: bre@mnlcorp.com

Web: www.mnnativelandscapes.com

9 Morning Sku Greeneru

44804 East Highway 28, Morris, MN 56267

Phone: 320-795-6234

Email: info@morningskygreenery.com Web: www.morningskygreenery.com

10 Natural Shore Technologies

1480 Cty Rd 90, Maple Plain, MN (new location)

Phone: 612-703-7581

Email: Rob.l@naturalshore.com

Web: www.naturalshore.com

d, l, m

d.l.m

11 Naturally Wild

Phone: 612-922-9279

Email: info@naturallywildflowers.com Web: www.naturallywildflowers.com Purchase at website-listed events.

12 Out Back Nurseru

15280 110th St S, Hastings, MN 55033

Phone: 651-438-2771

Email: sales@outbacknursery.com Web: www.outbacknursery.com

13 BluPrairie Native Plant Nursery

d, i, m

12975 32nd St, Watertown, MN 55388

Phone: 612-720-7941 Email: jdanie@bluprairie.com Web: www.bluprairie.com

14 Prairie Moon Nurseru

32115 Prairie Lane, Winona, MN 55987

Phone: 866-417-8156

Email: info@prairiemoon.com

Purchase online Web: www.prairiemoon.com

15 Prairie Restorations Inc.

31646 128th St NW, Princeton, MN 55371 21120 Ozark Court North, Scandia, MN 55012

Phone: 800-837-5986

Email: info@prairieresto.com Web: www.prairieresto.com

16 Native Sun Seeds and Plants

St. Croix Valley, MN Phone: 651-318-8667

Purchase online or at website-listed events.

d, l, m

Email: nativesunseedsandplants@gmail.com Web: www.nativesunseedsandplants.com

17 Shooting Star Native Seeds

20740 Cty Rd 33, Spring Grove, MN 55974

Phone: 888-983-3670 Email: info@ssns.co

SYMBOLS d: Design Services l: Installation Services m: Maintenance Services

Web: www.shootingstarnativeseed.com

18 Sunshine Gardens Nurseru and Landscaping

1286 Shadywood Shores Dr NW Pine River, MN 56474

Phone: 218-947-3154

Email: sgardens@uslink.net

Web: www.sunshinegardens.tripod.com

19 Dragonflu Gardens

491 State Highway 46 Amery, WI

Phone: 715 268-7660

Email: info@dragonflygardens.net Web: www.dragonflygardens.net

20 Lupine Gardens

880 155th St, Amery, WI 54001

Phone: 715-222-6669

Email: lupinegardens@yahoo.com Web: www.lupinegardens.com

21 Kinnickinnic Natives

235 State Road 65, River Falls, WI 54022 Phone: 715 425 7605 or 715 222 6910

Email: whuhnke@dishup.us Web: www.kinninatives.com

22 Leaning Pine Natives

3130 S Camp Amnicon Rd, South Range, WI Phone: 715-398-5453

Email: phlina@gmail.com

Call for appointment.

d, I, m

d, I



POLLINATORS OF NATIVE PLANTS

Attract, Observe and Identify Pollinators and Beneficial Insects with Native Plants



Heather Holm

