



BENEFITTING POLLINATORS THROUGH INVASIVE SPECIES MANAGEMENT

2014



PRESENTATION TOPICS



- I. The Plight of Pollinators
- II. Beneficial Pollinator Habitat
- III. Invasive Plant Species and Pollinators
- IV. Promoting Pollinator Habitat

MINNESOTA BOARD OF WATER AND SOIL RESOURCES MISSION



Improve and protect Minnesota's water and soil resources by working in partnership with local organizations and private landowners

Restored around 260,000 acres
over 26 years





I. THE PLIGHT OF POLLINATORS



Pollinators are an integral part of our environmental and agricultural systems, producing seeds and fruit (70-80% of plants) that sustain a wide range of wildlife.



A. HONEY BEES



- Average hive mortality of 30% each year in honey bees.
- Causes:
 - Pathogens
 - Parasites
 - Pesticides
 - Poor Nutrition



B. NATIVE BEES

- Once common bumblebees (effective agricultural pollinators) are now rare.
- Need to survey the 350-400 MN bee species
- Causes:
 - Disease
 - Pesticide use
 - Climate variation
 - Habitat loss/degradation



Bombus pensylvanicus
American bumble bee



Bombus affinis
rusty patched bumble bee



Bombus terricola
yellowbanded bumble bee



Bombus borealis
boreal bumble bee



Bombus sandersoni
Sanderson's bumble bee



Bombus perplexus
confusing bumble bee

RARE MN BUMBLE BEES

C. BUTTERFLIES & OTHER SPECIES



- Many butterfly species are at all-time lows.
- Causes:
 - Habitat loss/degradation
 - Loss of larval host plants (milkweed, lupine, etc.)
 - Pesticides



WHAT IS GOOD POLLINATOR HABITAT?



- Pollinators generally need food (pollen and nectar), clean water and nesting sites.



WHAT IS GOOD POLLINATOR HABITAT?



- Floral rich plantings and natural areas buffered from impacts



WHAT IS GOOD POLLINATOR HABITAT?



- Floral diversity through spring summer and fall



WHAT IS GOOD POLLINATOR HABITAT?



- Landscapes managed for diversity



INVASIVE PLANT SPECIES AND POLLINATORS

Pollinator species use many invasive plants...so is there a problem?

A mixed story.....



INVASIVE PLANT SPECIES AND POLLINATORS

1) Loss of biodiversity with establishment of monocultures

Significant problem with non-insect pollinated plants like reed canary grass, cheat grass, phragmites, and smooth brome grass



INVASIVE PLANT SPECIES AND POLLINATORS

2) Potential loss of season long floral resources



INVASIVE PLANT SPECIES AND POLLINATORS

3) Disrupting the structure and function of ecosystems

-Ground or stem nesting resources can be reduced



INVASIVE PLANT SPECIES AND POLLINATORS

3) Disrupting the structure and function of ecosystems

-Native pollinators have co-evolved with the plants they visit – could decrease pollinator diversity (particularly specialist insects) (Biesmeijer et al., 2006)

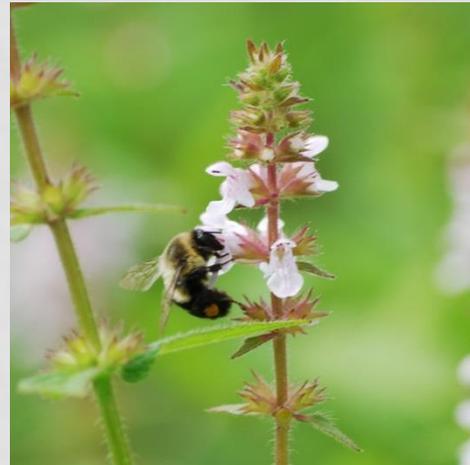
-larval host species may be lost



INVASIVE PLANT SPECIES AND POLLINATORS

3) Disrupting the structure and function of ecosystems

-Bees often carry a mixed load of native and non-native pollen that may affect the propagation of less abundant plant species (Larson 2008).



INVASIVE PLANT SPECIES AND POLLINATORS

4) Invasive animal species and pathogens are affecting native pollinators

-Parasites such as the Varroa and Tracheal mites, African Hive Beetles, and diseases such as Nosema



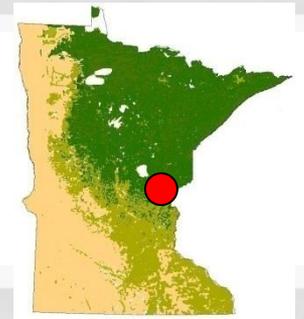
PROMOTING POLLINATOR HABITAT



- Cooperative Weed Management Areas
- Reinvest in Minnesota
- Wetland Mitigation/Banking



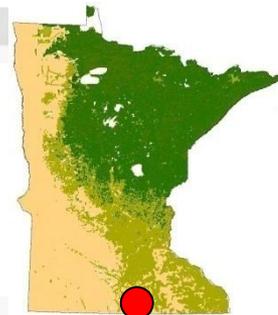
PROMOTING POLLINATOR HABITAT

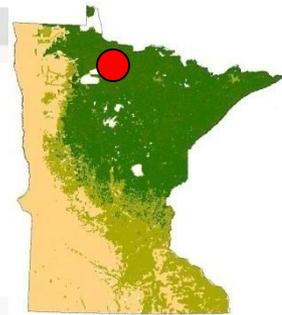


Wetland Mitigation Project



Cooperative Weed Management Area Project

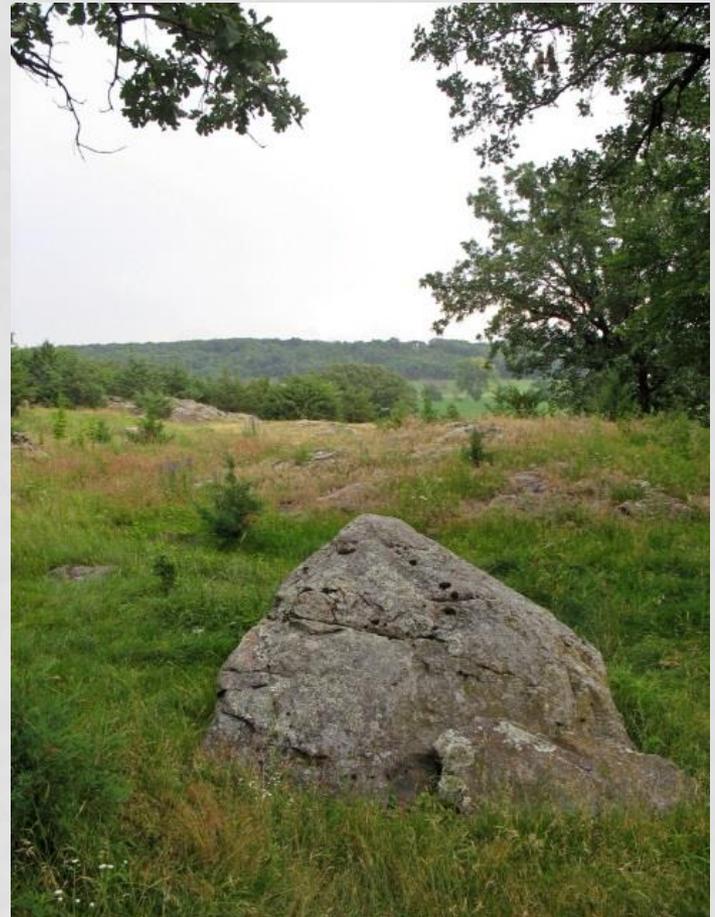
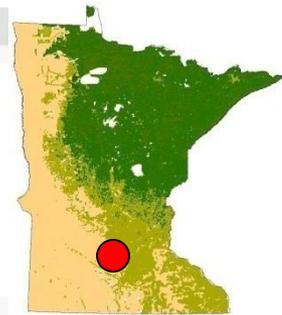




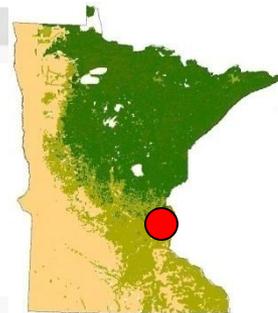
Wetland Mitigation Project



Conservation Easement Project (RIM)



Cost-share Project



BWSR'S POLLINATOR INITIATIVE



- BWSR has developing an initiative to:
 1. Increase awareness about pollinator declines.
 2. Incorporate pollinator habitat into all conservation BWSR programs.
 3. Provide focused technical assistance to partners and landowners.

<http://www.bwsr.state.mn.us/practices/pollinator/index.html>

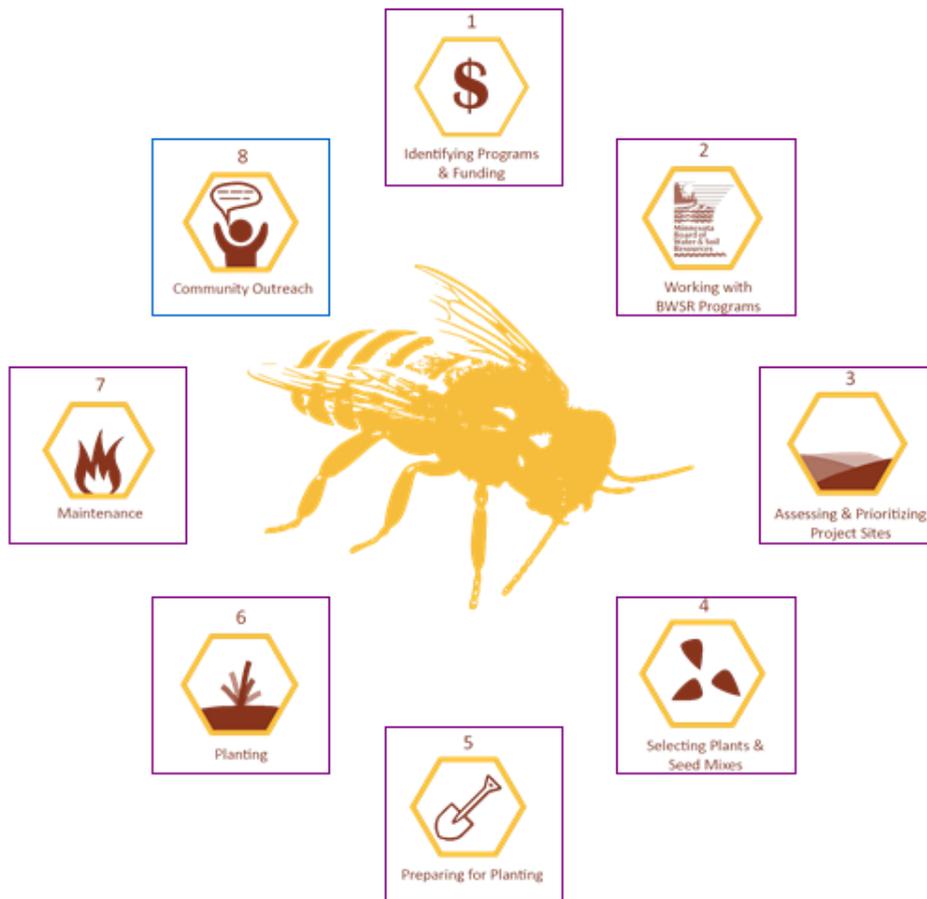




BWSR Pollinator Initiative

BWSR Pollinator Toolbox

Part of BWSR's Pollinator Initiative, this **toolbox** provides our partners with resources and guidance to support their pollinator habitat restoration efforts.



BWSR Pollinator Initiative

The BWSR Pollinator Initiative provides resource and guidance to our conservation partners for incorporating pollinator habitat into their programs.

- Initiative Summary [PDF - 443KB]
- FAQ's [PDF - 473KB]
- BWSR Pollinator Plan [PDF - 2.2MB]

Peer-to-Peer Resources

- Shared Pollinator Presentation from Scott SWCD [power point - 25.5MB]
 - Presentation/Workshop Details [PDF - 317KB]
- "Pollinator Proud" Projects (coming soon)
 - Reinvest in Minnesota
 - Clean Water Fund
 - Wetland Mitigation
- "Pollinator Proud" promotion sheet (coming soon)
- BWSR "What's Working" Information
- Featured Plants
- Community Outreach Resources(coming soon)

Other Resources

- Xerces Society for Invertebrate Conservation
- Minnesota Natural Resources Conservation Service
- Department of Natural Resources (coming soon)
- Minnesota Department of Agriculture
- USFWS
- Pollinator Partnership

PROMOTING POLLINATOR HABITAT



Focusing on all BWSR Programs



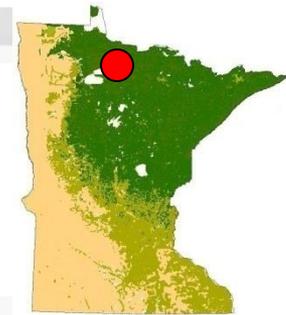
www.bwsr.state.mn.us/native_vegetation/

Thank You!



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BWSR



Resources

Biesmeijer J.C., Roberts S.P.M., Reemer M., Ohlemueller R., Edwards M., Peeters T., Schaffers A.P., Potts S.G., Kleukers R., Thomas C.D., Settele J., Kunin W.E. (2006) Parallel declines in pollinators and insect-pollinated plants in Britain and the Netherlands, *Science* 313, 351-354

Larson, D.L., 2008, Fall Endangered Species Bulletin, USGS Northern Prairie Wildlife Research Center, St. Paul, MN.

Stubbs, C.J.; Drummon, F.; Ginsberg, H., Federal Government Series: Technical Report – NPS/NER/NRTR – 2007/096