BWSR POLLINATOR TOOLBOX

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BWSR POLLINATOR TOOLBOX

AN INTRODUCTION

The BWSR Pollinator Toolbox has been developed as part of the BWSR Pollinator Initiative with the goal of supporting declining pollinator (native bees, honey bees, butterflies, beetles, etc.) populations. It provides step by step guidance for BWSR partners to effectively work with landowners and help them with pollinator projects. The eight parts of the toolbox are designed to work together to help identify funding sources and projects, select species, plan planting and maintenance strategies, and promote pollinator efforts. Links to other key resources are also provided in the toolbox.

IDENTIFYING PROGRAMS & FUNDING FOR MINNESOTA POLLINATOR HABITAT

This table is designed to aid the selection of conservation programs that can be used to restore pollinator habitat. The table summarizes state and federal programs, and sources of additional match. Links in blue provide funding for projects on agricultural land while those in brown are for urban or agricultural land. Landowners should work with local NRCS, SWCD or DNR staff as needed for additional guidance.

Program Categories	Program	Program Goals	How to Incorporate Pollinator Habitat
State Programs	*Clean Water Fund (BWSR)*	To protect, enhance, and restore lakes, rivers, streams, and groundwater.	These competitive grants focus on water quality issues. However, plantings done as part of projects such as rain gardens or stormwater basins encourage secondary benefits such as pollinator habitat. Plans for restoring pollinator habitat should be included in the competitive grant application. There is no minimum acreage size for projects.
	State Cost-Share (BWSR)	To provide grants for installing conservation practices that protect and improve water quality by controlling soil erosion and reducing sedimentation.	This program is focused on soil stabilization and water quality but diverse plantings are encouraged and should be included in project plans when applicable for the project type to provide pollinator habitat. There is no minimum acreage size for projects.
	*Reinvest in Minnesota **RIM** (BWSR)*	To restore marginal and environmentally sensitive agricultural land, protect soil and water quality, and restore fish and wildlife habitat.	A competitive process is used to select lands for the establishment of permanent conservation easements. The land remains in private ownership and the landowner retains responsibility for maintenance. Diverse mixes are promoted for plantings, and separate floral rich pollinator plantings of a few acres in size can be included. Funding may also be available to enhance diversity in existing plantings. There is a three acre minimum size for projects.
	Roadsides for Wildlife (MDNR)	To reduce disturbance of roadside cover until after August 1st; Include native prairie species in roadside plantings; Explain the benefits of a diverse and undisturbed roadside environment.	Currently funding is not available for this program. The following things can be done to promote roadside habitat for pollinators: Improve the management of your adjacent roadsides for wildlife. Encourage other landowners and local road authorities to reduce mowing and haying during the nesting season. Promote pollinator cost-share assistance for new or re-vegetated roadside projects. Discuss opportunities to partner on roadside projects with local road authorities.
	*Conservation Partners Legacy Grant Program **CPL** (MDNR)*	To enhance, restore, or protect the forests, wetlands, prairies, and habitat for fish, game, or wildlife in Minnesota.	These Competitive grants are provided to local, regional, state, and national nonprofit organizations, including government entities. Diverse plantings are promoted for projects and detailed information about plans for restoring pollinator habitat should be included in grant applications. There is no minimum acreage size for projects.
	Living Snow Fences (MN DOT)	To protect roadways and provide multiple environmental and agricultural benefits.	Funding is available to install living snow fences and guidance is provided about how to best benefit pollinators with the plantings.
Federal Programs	*Conservation Reserve Program **CRP** and Conservation Reserve Enhancement Program **CREP** (NRCS)*	To retire and convert highly erodible cropland and other environmentally sensitive acreage to vegetative cover.	Funding is available to provide 50% cost-share for pollinator plantings using practice standard CP42 that require 3 species from each bloom period (9 minimum) and a minimum 75% forbs in plantings. 10-15 year contracts are used for CRP. There is no minimum acreage size for projects.

	Conservation Stewardship Program ***CSP*** *(NRCS)*	To encourage producers to address resource concerns in a comprehensive manner.	Pollinator plantings are eligible through this program. The plantings require a minimum of 15 species and a minimum of 50% forbs, as well as species selected from each flowering group of spring, summer and fall are required. There is no minimum acreage size for projects.
	Agricultural Conservation Easement Program ***ACEP*** *(NRCS)*	To provide support for grazing operations, enhancement of plant and animal biodiversity, and restoration and protection of grasslands under threat of conversion to other uses.	**Agricultural Lands Easements (ALE)** - Participants may conduct prescribed burning, and construct fences to improve diversity and grassland quality. Enrollment options include 30 year or permanent easements. A grazing management plan is required for participants that can address management for pollinator species. There is no minimum acreage size for projects.
			Wetland Reserve Easements (WRE) - Provides assistance to restore, protect, and enhance wetlands and adjacent uplands through wetland reserve easements and plans. Enrollment options include 30 year or permanent easements. A restoration plan is required for participants that can provide specific guidance on seed mixes and management to benefit pollinator species. There is no minimum size for projects.
	Environmental Quality Incentives Program ***EQIP*** *(NRCS)*	To promote compatibility between agricultural production and environmental quality through technical and financial assistance.	Funding is available for pollinator habitat with a focus on supporting honey bees. Through an agreement landowners agree to maintain the practice (1-10 years). A minimum of 15 species and a minimum of 50% forbs, as well as species selected from each flowering group for spring, summer and fall are required for pollinator plantings. There is no minimum acreage size for projects.
Match Sources for Programs	Landowner Match Local Foundations Garden Clubs Soil & Water Conservation Districts Counties Private Companies		Local Sportsmen's Clubs Environmental Non-profits Watershed Districts Cities Lake Associations Neighborhood Associations Master Gardeners Schools School Clubs

WORKING WITH BWSR PROGRAMS

The information below summarizes key steps for incorporating pollinator habitat into BWSR Programs.

CLEAN WATER FUND

1. Assess project type, goals, plans, and landowner objectives to determine if pollinator habitat is a practical addition to the project.
2. Assess site for protection from potential impacts (pesticides, contamination, etc).
3. If the site is suitable for pollinators, discuss the pollinator component of the project in the grant application and, for funded projects, provide detail in the work plan, and planting plan.
4. Incorporate plant species that will provide pollinator floral resources through spring, summer, and fall.
5. Plan for appropriate maintenance to sustain diversity.

REINVEST IN MINNESOTA (RIM)

Existing RIM Projects

1. Check availability of RIM Enhancement Funding with local SWCD staff.
2. If the plan includes interseeding, or a new seeding is planned, ensure that sufficient site preparation is done to allow for seedling germination.
3. Following inter-seeding, conduct mowing to aid seedling growth.

New RIM Projects

1. Follow BWSR Diversity Guidelines for projects.
2. Discuss availability of funding to restore pollinator "Zones" (areas of higher diversity protected from pesticides) with SWCD and BWSR staff.
3. Assess site for protection (e.g. buffer) from pesticides.
4. When restoring pollinator habitat, incorporate plant species that will provide pollinator habitat through the seasons.
5. Plan for appropriate maintenance to sustain diversity.

STATE COST-SHARE

1. Assess project type, goals, plans, and landowner objectives to determine if pollinator habitat is a practical addition to the project.
2. Assess site for protection from potential impacts (pesticides, contamination, etc).
3. If the site is suitable for pollinators, discuss the pollinator component of the project in the grant application, work plan, and cost-share agreement as appropriate. Provide detail in the planting plan.
4. Incorporate plant species that will provide pollinator habitat through spring, summer, and fall.
5. Plan for appropriate maintenance to sustain diversity.

WETLAND MITIGATION

1. Determine what plant communities that benefit pollinators will be restored. Determine if specific seed mixes can be used that are beneficial to pollinators or if species can be added that will provide pollinator benefits.
2. Assess site for protection from potential impacts (pesticides, contamination, etc). Assess whether there are portions of the project that are more protected and would provide opportunities for adding more diversity (pollinator zones).
3. Incorporate plant species that will provide pollinator habitat through Spring, Summer, and Fall.
4. Plan for appropriate maintenance to sustain diversity.

Resources are available to promote pollinator projects on the BWSR Pollinator Webpage. Refer to BWSR's Native Vegetation Establishment and Enhancement Guide for plant diversity recommendations for projects.

ASSESSING & PRIORITIZING PROJECT SITES

The selection of appropriate locations for pollinator habitat is important to protect pollinators from inputs such as pesticides and to maximize habitat benefits. Pollinators need food (pollen & nectar), nesting and clean water sources, so these are important components for site selection. As a general rule, the habitats most beneficial to local pollinators will be those that historically existed in that general area. This may mean treeless prairie habitat in some areas and tree and shrub planting in others. Below are some considerations for site selection, followed by habitat assessment calculators for rural and urban landscapes that can be used to further guide decision-making about pollinator habitat locations or to assess the quality of pollinator habitat before and after projects are completed. The following are key considerations for selecting pollinator habitat projects:

1) Look for areas away from pesticide and fungicide use, as well as areas that lack widespread disturbances that may impact pollinators (at least 200 feet).

2) Habitat complexes and corridors provide “safe zones” and natural passageways for pollinators, as well as nesting and forage sites, and sources of water.

3) Some bees have a relatively small flight distance and benefit from having water and food sources within 200 feet of nesting sites.

4) Ground nesting bees benefit from open soil and planting clump-forming native grasses. Cavity nesting bees benefit from hedgerows, windbreaks and treelines, as well as man-made nest structures.

ASSESSING & PRIORITIZING PROJECT SITES

RURAL LANDSCAPES

This calculator is intented to provide a rough estimation of habitat value.

1. SIZE OF PROJECT PROVIDING POLLINATOR HABITAT

☐ 1-10 acres	5 points
☐ 11-40 acres	10 points
☐ 41-79 acres	15 points
☐ > 80 acres	20 points
Total points	☐

2. HABITAT TYPE (check all that apply)

☐ Prairie/Grassland	3 points
☐ Wetland	3 points
☐ Lake/River	3 points
☐ Savanna/Woodland	3 points
☐ Deciduous/Coniferous	3 points
Total points	☐

3. COVER DIVERSITY (# of plant species)

☐ 1-10 species	1 points
☐ 11-19 species	3 points
☐ 20-39 species	7 points
☐ > 40 species	10 points
Total points	☐

Exclude invasives from species totals.

4. SEASONS WITH 3 BLOOMING SPECIES PRESENT

☐ 1 season	3 points
☐ 2 seasons	7 points
☐ 3 seasons	10 points
Total points	☐

5. HABITAT CONNECTIONS

☐ Isolated project	5 points
☐ Connected to other habitat	15 points
☐ Part of complex/corridor	20 points
Total points	☐

6. AVAILABLE HABITAT COMPONENTS (check all that apply)

☐ Exposed soil for nesting	5 points
☐ Trees and shrubs for nesting	5 points
☐ Clean water sources	5 points
Total points	☐

7. PESTICIDE RISK (% of project perimeter adjacent to pesticide use)

☐ 1-25%	-4 points
☐ 26-50%	-8 points
☐ 51-75%	-12 points
☐ 76-100%	-16 points
Total points	☐

8. LIKELIHOOD OF MEETING POLLINATOR SPECIES GOALS (professional judgement)

☐ Low	3 points
☐ Medium	6 points
☐ High	9 points
Total points	☐

9. EXPECTED PROJECT LIFESPAN

☐ 1-5 years	1 point
☐ 6-10 years	3 points
☐ 11-20 years	5 points
☐ Permanent	10 points
Total points	☐

Grand Total ☐

Exceptional Quality Habitat	**100-86**
High Quality Habitat	**85-71**
Medium Quality Habitat	**70-50**
Low Quality Habitat	**49-0**

ASSESSING & PRIORITIZING PROJECT SITES

URBAN LANDSCAPES

This calculator is intented to provide a rough estimation of habitat value.

1. SIZE OF PROJECT PROVIDING POLLINATOR HABITAT

☐ <.1 acres	5 points
☐ 0.11 - 0.29 acres	10 points
☐ 0.3 - 0.5 acres	15 points
☐ > 0.5 acres	20 points
Total points	☐

2. HABITAT TYPE (check all that apply)

☐ Prairie/Grassland	3 points
☐ Wetland	3 points
☐ Lake/River	3 points
☐ Savanna/Woodland	3 points
☐ Deciduous/Coniferous	3 points
Total points	☐

3. COVER DIVERSITY (# of plant species)

☐ 1-10 species	2 points
☐ 11-19 species	5 points
☐ 20-39 species	10 points
☐ > 40 species	15 points
Total points	☐

Exclude invasives from species totals.

4. SEASONS WITH 3 BLOOMING SPECIES PRESENT

☐ 1 season	4 points
☐ 2 seasons	8 points
☐ 3 seasons	12 points
Total points	☐

5. HABITAT CONNECTIONS

☐ Isolated project	5 points
☐ Connected to other habitat	15 points
☐ Part of complex/corridor	20 points
Total points	☐

6. AVAILABLE HABITAT COMPONENTS (check all that apply)

☐ Exposed soil for nesting	5 points
☐ Trees and shrubs for nesting	5 points
☐ Clean water sources	5 points
Total points	☐

7. PESTICIDE RISK (% of project perimeter adjacent to pesticide use)

☐ 1-25%	-4 points
☐ 26-50%	-8 points
☐ 51-75%	-12 points
☐ 76-100%	-16 points
Total points	☐

8. LIKELIHOOD OF MEETING POLLINATOR SPECIES GOALS (professional judgement)

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9. EXPECTED PROJECT LIFESPAN

☐ 1-5 years	1 point
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Total points	☐

Grand Total ☐

Exceptional Quality Habitat	**100-86**
High Quality Habitat	**85-71**
Medium Quality Habitat	**70-50**
Low Quality Habitat	**49-0**

SELECTING PLANTS AND SEED MIXES

Diversity

- It is recommended to include at least 3 flowering species in each bloom period (spring, summer, fall) so there is a continuous food source throughout the seasons.
- For large areas, separate pollinator plots/zones may be planted as high diversity areas. These plots/zones should include at least 15 species and have a high % of forbs (greater than 50% by seed count).
- Clump-forming grasses are important for community structure, nesting sites and to provide fuel for prescribed burning but are generally kept between 3 and 5 pounds per acre in pollinator mixes.
- Shorter grasses such as little bluestem, side oats grama, and prairie dropseed can benefit forb growth and pollinator use, but species should be selected that can persist in the soil and hydrology conditions of the site.

Layout

- It is helpful to plant forbs in masses to make them easier for pollinators to find and to increase foraging efficiency.
- Including a wide range of flower colors and shape will benefit a variety of pollinator species.
- Flowering trees and shrubs can also be important sources of pollen and nectar for pollinators, particularly early in the spring.

Insects

- When possible, plant species that can support specific insects. (i.e. lupine for Karner blue butterfies, milkweed for monarchs).
- Plants and plant communities native to a specific area will provide the most benefit to local pollinators.

Seed Mixes/Plants

- The NRCS 643 Practice Standard is used to provide specifications for most BWSR restoration projects in combination with the BWSR's Native Vegetation Establishment and Enhancement Guidelines that provide guidance about diversity and seed/plant sources for projects.
- Private seed vendors often have pollinator mixes that can be used for projects. (Seed & Plant sources)
- State seed mixes can also be used for pollinator habitat and will be going through additional revision to maximize benefits over time.

Wild Iris

Marsh Aster

Black-eyed Susan

See BWSR Native Vegetation Establishment and Enhancement Guidelines for additional information about seeding plants and seed mixes. BWSR's Native Vegetation webpage features plants beneficial to pollinators.

SELECTING PLANTS AND SEED MIXES

SPRING	Alumroot	Cherries*	Large Flowered Bellwort^	Rue Anemone*
	Basswood*	Columbine^	Long-headed Thimbleweed	Solomon's Seal
	Black Chokeberry	Common Strawberry	Wild Lupine*	Spiderwort
	Broad-leaf Arrowhead	Dogwoods	Maples^ (*Acer sp.*)	Viburnums
	Blanketflower	Dutchman's Breeches*^	Pasque-flower	Violets^
	Bloodroot^	Elderberry	Penstemons*	Virginia bluebells^
	Blueberries	Golden Alexanders*	Prairie Plum*	Virginia Waterleaf*^
	Buttercups	Hoary Puccoon	Prairie Milk Vetch	White Baneberry^
	Canada Anemone	Juneberries*	Prairie Phlox	Willows (*Salix sp.*)
SUMMER	Angelica	Dogbane*	Leadplant	Raspberries/Blackberries*
	Bedstaws (*Galium sp.*)	Dogwoods	Lobelias (*Lobelia sp.*)	Smooth Sumac
	Blazing Stars* (*Liatris sp.*)	Evening Primrose	Meadowsweet	Spotted Bee Balm
	Blue Vervain	False Indigo	Milkweeds*(*Asclepias sp.*)	Snowberry/Wolfberry
	Bottle Gentian	False Sunflower*	Mountain Mint*	Turtlehead
	Bush Clovers	Field Blue-eyed Grass	Native Loosestrifes	Waterlilies
	Buttonbush	Giant Hyssop*	New Jersey Tea	Wild Bergamot*
	Canada Anemone	Harebell*	Ninebark*	Wild Indigo
	Canada Milkvetch	Hedge Nettle	Obedient Plant*	Wild Iris
	Canada Tick Trefoil	Hoary Vervain*	Partridge Pea	Wild Quinine*
	Coneflowers*	Ironweed	Prairie Cinquefoil	Wild Mint
	Coreopsis*	Jewelweed	Prairie Clovers*(*Dalea sp.*)	Wild Roses*(*Rosa sp.*)
	Culver's Root*	Joe-Pye Weed*	Prairie Turnip	Yarrow
	Cup Plant*	Large-leaved Aster^	Prairie Wild Onion	
FALL	American Vetch	Chickweeds	Grass-leaved Goldenrod*	Virginia Mountain Mint*
	Begger's ticks (*Biden sp.*)*	Gentians*	Maximilian's Sunflower*	Whie Snakeroot^
	Boneset*	Prairie Asters*	Sneezeweed*	Zig Zag Goldenrod*^
	Bugleweeds (*Lycopus sp.*)	Prairie Goldenrods*	Sunflowers*	

**High Value for Pollinator Species*
^Shade Tolerant Species

Wild Bergamot

Flat-topped Aster

Stiff Goldenrod

Prairie Blazing Star

PREPARING FOR PLANTING

Thorough site preparation is an essential step in the restoration of pollinator habitat. The main reason that projects fail is due to insufficient control of problem weeds prior to seeding. In some cases, a year or longer may be needed to ensure that aggressive weeds are sufficiently controlled.

AGRICULTURAL AREAS

Previous Land Use

In many cases, projects occur in fields that were previously in soybeans or corn, and agricultural production can help ensure that weeds are controlled prior to planting. However, it is important that pesticides (such as neonicotinoids) that persist in the soil were not used prior to planting. These can be taken up into plant tissues and can consequently affect pollinators. Prior pesticide use should be investigated to determine their presence in the soil. Additional control of canada thistle and other persistent weeds may be needed in fields before seeding. Sites that are in perennial vegetation, such as smooth brome grass, goldenrod, etc., will require intensive management prior to planting. This may include a combination of mowing, herbicide application and repeated tilling to prepare for seeding. Fields that have been plowed or disked should be cultipacked or rolled prior to seeding. A firm but not compacted seedbed is required particularly if a native seed drill will be used for seeding.

Cover Crops

Cover crops such as oats or winter wheat can be used to stabilize soils and to provide additional time for pesticides to break down in the soil, or to stabilize soils prior to the planned seeding date. Cover crops can also provide additional time for weed control. They can be harvested or chopped prior to seeding and may need treatment with glyphosate in some cases to prevent competition with seedlings. Newspaper and several inches of wood mulch can

URBAN AREAS

Sod Removal

In residential yards or parks it is recommended to cut away the sod prior to planting to effectively remove weed roots and seeds. This can be accomplished with sodcutters, sod kickers or shovels for smaller areas. Herbicide application followed by tilling can also be used for preparing areas of sod but several rounds of herbicide and tilling may be needed for sufficient control.

Soil Stabilization

Similar to agricultural fields, cover crops can be used to stabilize planting areas and provide weed competition to prepare sites for fall planting. In some cases, straw mulch or erosion fabric may be needed to stabilize steep slopes. Containerized plants can be installed directly into erosion fabric by cutting holes for planting.

Shoreline project stabilized with straw mulch and erosion fabric.

See BWSR Native Vegetation Establishment and Enhancement Guidelines and BWSR's What's Working webpage for additional information.

PLANTING

Timing

Drill or broadcast seeding of pollinator mixes is often conducted in the fall to allow forb seeds to naturally break dormancy over winter and compete with grasses in the spring. Some forbs that are important for pollinators do not require pre-stratification (Sneezeweed, Dutchman's Breeches, Bugleweed, Wild Bergamot, Evening Primrose, Smooth Blue Aster, Mountain Mint, and Asters) so these species can be successfully seeded in the spring or fall. Spring or late fall is reccomended for planting containerized plants to benefit from high soil moisture.

Methods

Broadcast seeding is most often conducted for diverse mixes as many flowers have small seeds that need to be near the surface. Grasses benefit from being planted deeper but their seeds can often be drill seeded, harrowed, or raked into the soil first, followed by broadcasting the flower seeds. No-till native drills can be calibrated to accomodate different sizes and types of seed and ensure they are planted at the correct depth. Containerized plants are often used for species that do not establish well from seed or grow slowly such as gentian, liatris, butterfly milkweed, turk's cap lily and many woodland flowers. Inter-seeding is sometimes conducted to add diversity to existing native plantings. Burning, tilling, or other types of site preparation are often necessary before interseeding to decrease competition with forb seedlings, and mowing afterward aids seeding establishment.

Seed to Soil Contact

After the flowers are seeded, the site can be lightly raked, or rolled to ensure good seed to soil contact and to prevent the loss of seed from wind, birds, and rodents.

See BWSR Native Vegetation Establishment and Enhancement Guidelines and BWSR's What's Working webpage for additional information on planting methods.

MAINTENANCE

The maintenance of pollinator plantings can be challenging due to the high forb diversity and difficulty of removing weeds without harming native plants or pollinators. It is also important to leave areas un-mowed or burned in the fall to provide winter nesting habitat. Maintenance methods should be selected that will be the most efficient and cost-effective for the project. These methods should be included in an operation and maintenance plan for the project. Maintenance activities are often combined, such as mowing or burning followed by hand pulling or spot herbicide application.

- **MOWING** — Mowing annual and biennial weeds to 5-8 inches with a Flail-type mower as needed during the first 1-2 years of establishment is important to provide sunlight and decreases competition for seedlings. Spot mowing of weeds may be needed after establishment to prevent weed seed pproduction, though it is important to leave plant stems for polllinator nesting, and seedheads for plant propagation.
- **HAND WEEDING** — This is often most effective after rainfall when weeds are easier to pull, and there is less soil disturbance. Digging can also be used to remove clumps of invasive grasses.
- **PRESCRIBED BURNING** — This will maintain diversity and control woody species after establishment. Burning should only be conducted on 1/4 to 1/2 of large sites each year to minimize impact on insects. Patchy burns are ideal to provide areas of refuge for wildlife. Burns are often done in the fall or early spring before plants emerge (every 3-5 years) to promote floral diversity and minimize impacts on pollinators.
- **CONSERVATION GRAZING** — Conservation grazing following grazing plans can be used to reduce the percent of cool-season grasses in conservation plantings, and promote floral diversity.
- **SPOT HERBICIDE APPLICATION** — Some perennial weeds (Canada thistle, Reed canary grass) are most effectively removed through spot herbicide treatment, but should only be sprayed when target species are not in bloom. Many species can be spot mowed early in the season to prevent seeding and treated in mid to late fall.
- **BIOCONTROL** — This is a long-term maintenance strategy to minimize herbicides and control weeds and invasives. Biocontrols are available for: Leafy spurge, Spotted knapweed, Purple loosestrife, and Canada thistle.

See BWSR Native Vegetation Establishment and Enhancement Guidelines and BWSR's What's Working webpage for additional information about project maintenance.

COMMUNITY OUTREACH

As projects are completed, it is important to publicize them to help increase awareness about the impact of pollinator habitat and restoration efforts, and build more momentum for the topic. There are a variety of ways that projects can be publicized including: project tours, press releases, featured projects on websites, and newsletter articles.

The BWSR Pollinator Webpage has a link containing a sample press release and pollinator photos that can be used to feature your successful pollinator restoration effort.

BWSR POLLINATOR INITIATIVE SUMMARY

WHY

The decline of pollinator populations (honey bees, native bees, butterflies, etc.) and other beneficial insects from a variety of factors including habitat loss, pesticides, and parasites has led to significant concern by bee keepers, conservation professionals, legislators, and the public. These species provide a foundation for food production, food webs and native plant populations. The BWSR Pollinator Initiative will provide leadership on the issue to more effectively support pollinator populations. The initiative will also help meet legislative requirements to provide pollinator habitat throughout the growing seasons for all prairie restorations on state land or funded with state dollars (Minn. Stat., Chap. 84.973).

GOALS

- Increase awareness about declining pollinator populations.
- Support Local Government Unit partners in enhancing pollinator habitat.
- Focus outreach on how to incorporate pollinator habitat into all BWSR programs.
- Provide a 'pollinator toolbox' and 'featured projects' to guide pollinator projects.

SCOPE & APPROACH

This is is a 2 year initiative that will build on the BWSR Pollinator Plan and other resources to integrate pollinator habitat across BWSR programs. The initiative is designed to support efforts by BWSR partners, though some technical resources will also be beneficial to the general public. For more information contact: Dan Shaw at Dan.Shaw@state.mn.us.

PARTNERS

A wide range of partners are involved in this effort, including: Minnesota Association of Soil & Water Conservation Districts, Minnesota Association of Watershed Districts, Minnesota DNR, Minnesota DOT, NRCS, Minnesota Department of Agriculture, University of Minnesota, cities, counties, and many other conservation partners.

POLLINATOR FAQs

1

1) What is the purpose of the BWSR Pollinator Initiative?

BWSR's Pollinator Initiative is focused on supporting pollinator populations by providing clear guidance about how to incorporate pollinator habitat into all BWSR programs, and how to restore high quality habitat.

2) What pollinators are most at risk?

There is concern that nearly all pollinator populations are in decline due to a variety of factors including habitat loss, pesticides, and parasites but we lack information for most of Minnesota's 350-400 native bee species. Honey bee losses have been well documented, as well as some bumblebee populations; along with many butterfly species such as monarchs, karner blue butterflies and powershiek skipperlings.

3) What are the top three things that can benefit pollinators?

1) Decreasing pesticide use and using integrated pest management is considered an important step in protecting pollinators.
2) Establishing designated "pollinator zones" in rural and urban landscapes across Minnesota that have species that bloom throughout spring, summer, and fall.
3) Protecting and restoring natural areas, hedgerows, treelines, buffers and other natural features that provide important habitat.

4) What funding sources are available for pollinator habitat?

A variety of conservation programs can provide funding for pollinator plantings. Part 1 of the BWSR "pollinator toolbox" summarizes conservation programs as well as potential match sources to help cover additional costs.

5) How can BWSR programs be used to support pollinators?

BWSR is working to incorporate pollinator habitat into all programs. Part 2 of the "pollinator toolbox" summarizes how pollinator habitat can be incorporated into different types of projects.

6) Are there priority areas in Minnesota for restoring pollinator habitat?

Pollinator habitat is needed across our landscapes to maintain functioning ecosystems. In many cases, restoration efforts are focused as part of habitat corridors and complexes to help protect pollinators from pesticides and other impacts. Additional planning will occur in the coming years to better help identify "priority" areas for pollinators.

POLLINATOR FAQs

2

7) Where can pollinator habitat be incorporated on farms?

It is helpful to identify "pollinator zones" on farms where habitat can be protected from disturbance. These zones can include a combination of diverse conservation plantings, tree lines, hedge rows, and orchards. It is important that these areas are protected from pesticide use to the extent possible. Minnesota Department of Agriculture worked with partners to develop a pollinator BMP brochure for agricultural areas.

8) Are certain plants better than others for pollinators?

We have a wide diversity of pollinators with needs for different flower types in the landscape; as a result, high diversity plantings with species native to local areas and providing flowers throughout the growing season will provide the greatest benefit to pollinators. There are certain plant species that tend to provide habitat rich pollen and nectar sources for a wide range of pollinators including Marsh milkweed, Common milkweed, Butterfly milkweed, Meadow blazing star, Rough blazing star, Purple prairie clover, Prairie plum, Basswood, Golden alexanders, Wild bergamot, Mountain mint, Maximillian sunflower, Sneezeweed, Common goldenrod, and asters.

9) What time of year should diverse seed mixes be planted?

It is most common to plant diverse seed mixes in the fall to allow flower seeds to break dormancy over winter, but high diversity can also result from planting in mid to late spring.

10) When should containerized plants be used?

Containerized plants should be used for species that do not establish well, or quickly from seed including liatris, turk's-cap lily, gentian lily, butterfly milkweed, and many woodland flowers. Containerized plants are also used for areas that need to establish quickly or need a more formal design layout such as rain gardens and urban lakeshore plantings. It is common to plant containerized plants in late May or June. In some cases they are planted in October or early November but need to be watered-in to promote their survival over winter.

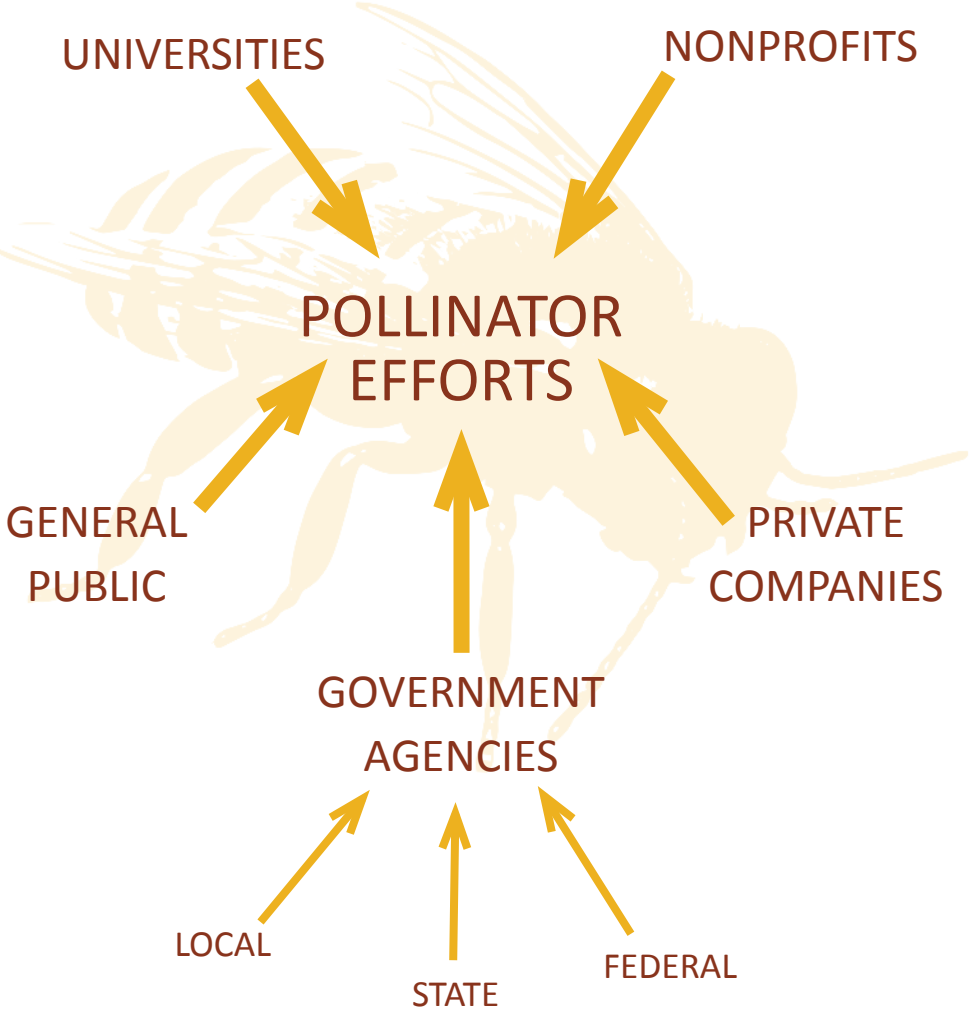
11) What can be done to support honey bees?

Honey bees need protection from pesticides and require plants that provide high pollen and nectar sources including basswood, clovers, cherries, plums, bergamot, sunflowers, goldenrods and asters. In some cases, plots of non-native clovers such as white, red and alsike clover are planted to support honey bees. Sweet clover is not recommended as it is non-native, and because it can significantly increase maintenance needs in conservation plantings.

12) How can diversity be maintained in plantings over time?

Methods to maintain diversity should be considered based on individual site conditions and the plant community being restored. These methods should be included in an operation and maintenance plan for the project. Prescribed burning can be an effective way to maintain floral diversity in plantings and control woody plants in prairies. It is important to spot spray, mow, or pull weeds before they become more widespread in plantings. In larger sites, conservation grazing or haying can be conducted strategically to set-back non-native cool-season grasses and promote flowers. It is common to combine maintenance methods to maintain diversity.

THE **BIG** PICTURE



NOTES ABOUT THE PRESENTATION AND WORKSHOPS

Alyssa Alness from the Scott Soil and Water Conservation District developed the original presentation and they generously agreed to allow other partners to use/adapt the presentation for their use.

Scott SWCD advertised through newspapers, flyers posted at city halls, grocery stores, other public places, and on the web. The majority of the people who attended were interested in converting their lawn to native flowers and grasses. Some are converting crop land to native vegetation, and a few are converting old pasture if it's not too dominated by reed canary grass. Alyssa noted that the landowners were excited about planting native plants and they are very aware of our pollinator issues. They just don't know how to begin and need help.

Alyssa included everything that was covered in the workshop in the "notes" section below the slide. A beekeeper also presented for about ten minutes on bees. A root display supplied by Blue Thumb was used to show the different lengths of roots; two volunteers come up and compare the 3 inch long turf grass root to the 15 ft. long lead plant root. A landowner also presented on why where, how etc. they planted prairie - the audience really enjoyed that part of the workshop. Sponsors from local seed suppliers and consultants, a bee farm, some townships and other organizations also participated and helped cover costs. The sponsors also donated door prizes (honey, plant ID books, etc.) and names were drawn at the end for the prizes. All in all, the workshop took about 1hr 15min. It was a huge success; the majority of the participants wanted to go ahead with projects.