

# Habitat Development for Pollinators & Butterflies

Wisconsin Job Sheet 327



## Definition

Restoring and conserving native plant communities to benefit pollinators, honey bees and associated wildlife species.

## Where Used

On landscapes which once supported the habitat to be restored and managed, including land retired from agricultural production.

## Specifications

To attract pollinators, an area must have adequate sources of food, shelter and nesting sites. A variety of wildflowers and grasses will provide pollinators with food (nectar, pollen, and /or larval host plants). Blooming shrubs are an especially important source of pollen and nectar for pollinators, usually blooming well in advance of many forb species.

Establish and manage sites > 1/2 acre in size that contain a diversity of native grasses, wildflowers, and 1-2 rows of shrubs (optional).

Native plantings shall contain:

- A minimum of nine species of pollinator friendly native forbs – additional forbs are encouraged.
- At least three species shall be from each bloom period – early, mid and late flowering season so that pollinators have continuous food sources.
- At least one and a maximum of two native bunch grasses to provide nest sites.
- A minimum of 80% of the grass component (seeds/ft<sup>2</sup>) shall be species other than Canada wildrye, Virginia wildrye or Sideoats Grama.
- No individual forb shall comprise more than 20% of the forb mixture based on seeds/ft<sup>2</sup>.
- At least one forb shall be a legume.
- Consider designing the mixture to benefit both pollinators and Monarch butterflies by adding nectar and larval plants beneficial to the Monarch butterfly.
- When planning for Monarch butterfly habitat, milkweeds shall comprise at least 3% of the total mixture based on seeds/ft. and a minimum of 60% of the forbs must be Monarch friendly forbs. See Table 1 and 2 for recommended species and composition for native plantings and Table 3 for Introduced Species for Establishment of Honeybee Forage.

Plants must remain undisturbed, and be available throughout the growing season.



## Grass/Forb Establishment

**Site Preparation.** Site preparation, which includes perennial weed abatement and seedbed creation, is crucial for successful native plantings. The key points are to remove all perennial weeds through herbicide use, smothering or another weed abatement method, and to prepare a firm seedbed that will ensure good seed-to-soil contact. A firm seedbed leaves no more than 1/4 inch when walked across.

Land that has been in grass for many years usually has a thick residue layer on the soil surface. To allow for the best planting success, as much of this residue as possible must be removed. Three options are (1) grazing; (2) mowing with residue removed, and (3) prescribed burn.

After most of the residue is removed, use of a broad-spectrum herbicide is usually essential in order to kill remaining vegetation (especially all aggressive perennial weeds such as smooth brome and Canada thistle).



For organic farms, the use of smother crops or solarization with plastic may provide acceptable site preparation results.

Cultivation of the planting area is likely to raise dormant weed seed from deeper in the soil profile, causing it to germinate. Therefore cultivation should be avoided as a site preparation method. The prepared seedbed should be relatively smooth, with some visible bare ground to ensure good seed-soil contact.

Two planting methods are described below. Dormant season seeding (fall or frost seeding) is recommended.

**No-Till Planting.** If possible, use specialized no-till native grass drills for seeding pollinator habitat. Such drills have depth bands designed to handle a wide variety of seed (fluffy, smooth, large, and small) and low seeding rates. Since no-till drilling can plant directly into a light stubble layer, this method reduces erosion on the newly seeded site. Conventional grain drills are not capable of handling diverse seed sizes and are unlikely to provide satisfactory results.

While these no-till native seed drills can plant through light stubble, success is still likely to be greatest when most excess residue (heavy thatch) is removed. Similarly, cultipacking the ground prior to planting will help smooth the seedbed and may improve germination. Do not harrow or till the soil prior to planting, as heavy drills tend to sink in loose soil and depth control is difficult.

Plant seed around one-quarter inch deep. Some seed may be seen on the surface of the ground after seeding. Cultipack the planting area again after seeding if possible.

**Broadcast Planting.** Prepare a fine firm seedbed to a depth of 3 inches. Use a roller or cultipacker prior to seeding. The seedbed should contain enough fine soil particles for uniform shallow coverage of the seed as well as creating direct contact with moisture and nutrients. Broadcast seed at a rate of 1.5 times the normal drill seeding rate.

It is recommended to harrow lightly with a chain link fence (not a heavy spike tooth harrow) to smooth the ground and cover the seed. Roll or cultipack the area afterwards to pack the seed in place.

**Post Planting.** During the establishment year, mow annual weeds after they have reached 12" in height. Mow 2 to 3 times, generally on 30 day intervals from the date of seeding, or as often as needed to prevent weeds from flowering. Mow to a 6-8 inch height. Use a rotary mower or remove the clippings so as not to smother the seedlings. This will slow the weeds but won't harm the prairie plants.



The second year, evaluate the stand to determine if weed control is necessary. If it is, spot mow weeds at a height of six inches. If there is enough material for a prescribed burn, this may be an effective method of control.

**Use of Pesticides.** Consider prior crop history. Sites with historic intensive row cropping utilizing insecticide treated seed may benefit from a year of temporary cover to minimize negative impacts from insecticide carryover.

Only those pesticides which are labeled for the specific use will be used. University and Extension publications and specific label instructions will be used for guidance on herbicide selection and use.

## Operation and Maintenance

1. Prevent unmanaged vegetative disturbance.
2. After the seeding is established control all noxious weeds as identified by state and local laws, by: (a) spot treating with chemicals per label directions, or (b) spot mow before seed heads form.
3. Manage grasses and forbs periodically to rejuvenate grass quality and vigor. Management should occur within 3-5 years of adequate vegetative establishment. Mechanical management activities should take place prior to May 15 or after October 1 to protect late flowering plants. No more than 1/3 of the field should be manipulated in a given year.
4. Prescribed fire is the recommended management technique. Fall (October - Early November) burns tend to favor wildflowers.



**TABLE 1: RECOMMENDED FORB & LEGUME SPECIES FOR NATIVE POLLINATORS, HONEY BEE & MONARCH BUTTERFLY**

		Bloom Color	Native Pollinator Value	Honey Bee	Monarch	Flowering Season
<b>DRY to MESIC</b>						
	<b>Scientific Name</b>					
Butterfly Weed	Asclepias tuberosa	Orange	VH	x	LH	Mid
Canada Milkvetch	Astragalus canadensis	Cream	M-L	x		Mid
Culvers Root	Veronicastrum virginicum	White	H	x	H	Mid
Hoary Vervain	Verbena stricta	Purple	M	x	H	Mid-Late
Lance-leaved Coreopsis	Coreopsis lanceolata	Yellow	M	x	H	Early
Large-Bear Tongue	Penstemon grandiflorus	Lavender	M-L	x		Early
Rough Blazingstar	Liatris aspera	Magenta	H	x	VH	Mid
N. Plains/Meadow Blazingstar	Liatris ligulistylis	Purple	H		VH	Late
Partridge Pea	Chamaecrista fasciculata	Yellow	H	x		Mid
Prairie Tickseed	Coreopsis palmata	Yellow	M	x	H	Mid
Purple Prairie Clover	Dalea purpurea	Purple	H	xx		Mid
Showy Goldenrod	Solidago speciosa	Yellow	H	x	VH	Late
Silky Aster	Symphyotrichum sericeum	Purple	H	x		Late
Sky-Blue Aster	Symphyotrichum oolentangiense	Blue	H	x	H	Late
Smooth Aster	Symphyotrichum laeva	Blue	H	x	H	Late
Spotted Mint	Monarda punctata	Lavender	H	x	H	Mid-Late
Stiff Goldenrod	Oligoneuron rigidum	Yellow	H	x	VH	Late
White Prairie Clover	Dalea candida	White	H	xx	H	Mid
Wild Lupine	Lupinus perennis	Lavender	M			Early
White Wild Indigo	Baptista alba	White	M	x		Early
Whorled Milkweed	Asclepias verticillata	White	M		LH	Mid - Late
<b>MESIC to WET MESIC</b>						
Bottle Gentian	Gentiana andrewsii	Blue	L			Mid-Late
Showy Tick Trefoil	Desmodium canadense	Purple	M			Mid
Foxglove beardtongue	Penstemon digitalis	White	VH	x		Early
Giant Sunflower	Helianthus giganteus	Yellow	M		H	Late
Golden Alexanders	Zizia aurea	Yellow	M			Early
Great Blue Lobelia	Lobelia siphilitica	Blue	H		H	Late
Common Ironweed	Veronia fasciculata	Purple	M			Mid
Mountain Mint	Pycnanthemum virginianum	White	VH	xx		Mid
Prairie Blazingstar	Liatris pycnostachya	Purple	H	x	H	Mid
Sawtooth Sunflower	Helianthus grosseserratus	Yellow	H	x	VH	Late
Cup Plant	Silphium perfoliatum	Yellow	M		H	Mid
Bergamot	Monarda fistulosa	Lavender	VH	x	VH	Mid
<b>WET</b>						
Boneset	Eupatorium perfoliatum	White	H		H	Late
Joe-pye Weed	Eupatorium maculatum	Rose	H	x	VH	Mid
New England Aster	Symphyotrichum novae-angliae	Purple	H	x	VH	Late
Sneezeweed	Helenium autumnale	Yellow	H	xx		Late
Panicled Aster	Symphyotrichum lanceolatum	White	VH	x		Late
Marsh Milkweed	Asclepias incarnata	Red	VH	x	LH	Mid
<b>DRY to WET MESIC</b>						
Black-eyed Susan	Rudbeckia hirta	Yellow	M-L		H	Mid
Common Milkweed	Asclepias syriaca	Purple	VH	x	LH	Mid
Compass Plant	Silphium perfoliatum	Yellow	M		H	Middle-Late
Rattlesnake Master	Eryngium yuccifolium	White	H		H	Middle-Late
Rosinweed	Silphium integrifolium	Yellow	M	x	H	Middle-Late
Stiff Goldenrod	Solidago rigida	Yellow	H	x	VH	Late
Spiderwort	Tradescantia Ohiensis	Blue	H			Early
Yellow Coneflower	Ratibida pinnata	Yellow	M			Middle-Late

XX = Highest value honey bees Native Pollinator Value=Low, Medium, High  
 Monarch nectar value = Very High, High Monarch larval host = LH



<b>Table 2: RECOMMENDED WOODY SPECIES FOR POLLINATOR PLANTINGS</b>		<b>Value to Pollinators <sup>1/</sup></b>	<b>Flowering Season</b>
Willow, Pussy or Black	Salix spp.	G	Very Early
American Plum	Prunus americana	G	Early
Buffaloberry	Shepherdia argentea	G	Early
Chokecherry	Prunus virginiana	EX	Early
Downy Serviceberry/Juneberry)	Amelanchier arborea	EX	Early
Golden or Black Currant	Ribes aureum, Ribes nigrum	EX	Early
Black Chokeberry	Aronia melanocarpa	EX	Mid
Button Bush	Cephalanthus occidentalis	EX	Mid
Native Rose Species	Rosa spp.	EX	Mid
Nannyberry	Viburnum lentago	EX	Mid
New Jersey Tea*	Ceanothus americanus	EX	Mid
Ninebark	Physcarpus opulifolius	G	Mid
Leadplant*	Amorpha canescens	G	Mid
Common Elderberry	Sambucus canadensis	G	Mid-Late
Red Osier Dogwood	Cornus stolonifera	G	Mid-Late
Silky Dogwood	Cornus amomum	G	Mid-Late
Native Roses+	Rosa sp.	G	Late

*Listed species are adapted to all WI plant hardiness zones and soil moisture regimes with exception of wet and wet mesic soils where woody species are not recommended for pollinator plantings.*

<sup>1/</sup> G = Good      EX = Excellent

\*usually available only as a plug, not often available as bare root dormant stock

+choose native species adapted to site

### RECOMMENDED NATIVE GRASSES

Little Bluestem

Big Bluestem (max .25 lbs/ac)

Indian grass (max .25 lbs/ac)

Switchgrass (max .25 lbs/ac)

Prairie Dropseed

Sideoats Grama

Wildrye (Canada or Virginia)



# Native Habitat Development for Pollinators - Native Grass and Forb Planting Specifications Sheet

\*The WI NRCS Seeding Calculator may be used in lieu of this Specification Sheet

Landowner \_\_\_\_\_ Tract Number(s) \_\_\_\_\_ Field Number(s) \_\_\_\_\_

## Pure Live Seed Needs

(1) Species	(2) Strain or Variety	(3) PLS lbs/ac * Seeding Rate	(4) Acres to be seeded	(5) Total PLS lbs needed (3)x(4)

Total Acres to be Seeded \_\_\_\_\_ Prepared By \_\_\_\_\_

Planned Application Date \_\_\_\_\_ Seeding Dates: Thaw to: 7/15 (North), 6/30 (Central), 6/30 (South) Dormant Seeding: 10/8 (North), 10/15 (Central), 10/20 (South) to Freeze Up

Companion Crop \_\_\_\_\_

Seedbed Preparation Method \_\_\_\_\_

\*Utilize Job Sheet 612 for native shrub plantings



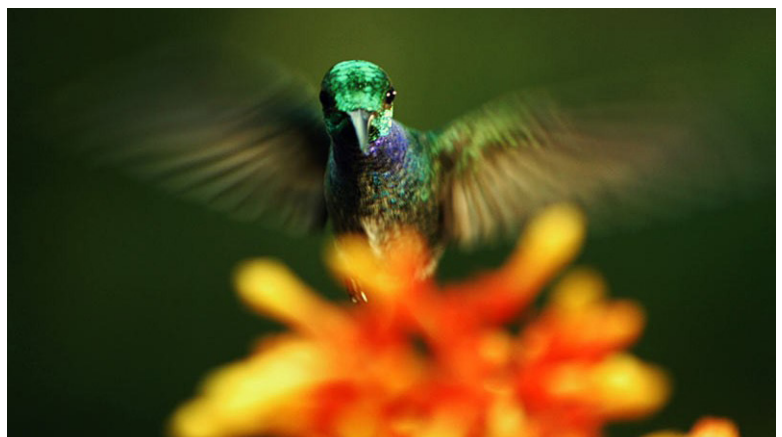
## Introduced Honeybee Forage Plantings (CPS 645)

- Shall contain a minimum of 5 species listed in Table 3
- Shall contain white and alsike clover
- May contain up to three block plantings per acre
- May contain buckwheat and sunflower when planted together as a single block or as a single species in separate blocks

**Table 3: Introduced Species for Establishment of Seasonal Honeybee Forage (CPS 645)**

Species	Moisture Regime	PLS Seeding Rate (lbs./acre)	Seedings/ft.2/ lb/acre	Bloom Period
Alfalfa	DM-WM	4 (max rate)	28	E-L
White Clover	D-M	4 (min rate)	5	E-M
Alsike Clover	DM-WM	2 (min rate)	20	E-M
Red Clover	DM-WM	1 (max rate)	6	E-M
Buckwheat	DM-M	33 (min rate)		E-M
Sunflower	DM-M	8 (min rate)		M-L
Timothy	DM-WM	1 (max rate)	14	

For introduced pollinator/honeybee herbaceous plantings established under the Conservation Cover Standard (327), buckwheat and sunflower shall not be included in the seed mix. The 327 CPS requires at least 1 and a maximum of 2 bunch grasses seeded at a maximum total rate of 30 seeds per square foot, and a minimum of 2 legumes seeded at a minimum total rate of 40 seeds per square foot.



# Habitat Development for Pollinators Cost Share Documentation and Verification for Case File

Practice amount applied is field verified by: \_\_\_\_\_ on: \_\_\_\_\_

Before payment is made, the following information is required to be in the case file:

Photographs of established practice that must include:

- Statement "Photo was taken in the field by (enter name)"
- Date photo was taken in the field
- Statement of what the photo represents if it needs clarification

Field verification documented and a certified planner verified "as installed" this practice meets WI NRCS standards and specifications.

## Practice Certification (NRCS USE ONLY)

I certify that the practice as installed is complete and meets the applicable Wisconsin NRCS Conservation Practice Standard and all applicable practice specifications. Any changes to the original practice design have been approved and are documented on the original practice design "as installed."

\_\_\_\_\_  
Certified Planner (print)

\_\_\_\_\_  
(sign)

\_\_\_\_\_  
Date

