Pollinator Habitat

Iowa Job Sheet

Natural Resources Conservation Service (NRCS)
Des Moines, Iowa

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Iowa Pollinators

Iowa animal pollinators include bees, butterflies, moths, wasps, flies, beetles, ants, and hummingbirds. Pollinators are an integral part of our environment and agricultural systems with animal pollinators important in 35 percent of global crop production. More than ¼ of food and beverages we consume are the product of animal pollination. This job sheet provides guidance on establishing and maintaining habitat to the primary benefit of animal pollinators.

Purpose

To provide food, shelter, and nesting resources for pollinator species.

Conditions Where Practice Applies

- On lands to be converted from agricultural production to natural cover.
- Existing, low diversity stands to be reseeded or interseeded.
- Organic farms, farmscaping projects, field borders, filter and buffer strips.

General Specifications

Food Resources: The attractiveness of pollinator habitat is maximized on sites > ½ acre in size with a diversity of plants and > 45 percent forb cover. This method of habitat improvement should not be implemented within native, remnant habitats. A stand with a minimum of 11 species should be established, including at least three flowering species from each of the three bloom periods (spring, summer, and fall). This will provide nectar and pollen food resources for pollinators throughout the season. The stand should also include a minimum of one legume species and a minimum of one bunchgrass (big bluestem, little bluestem, etc.) or clump-forming sedge(tussock sedge, etc.).

The host plant(s) of a desired pollinator should also be included in the seeding. For example, if monarch butterflies are desired a seeding should include milkweed plants that the larvae feed on.

Pollinator habitat should be PLS seeded to a minimum of 40 seeds/ft^2, of which 20 seeds/ft^2 should be forbs. Refer to the 327 Conservation Cover Standard and Specification as well as the Native or Introduced Seeding Calculators to develop a mix of site appropriate species. The planting may be broadcast seeded, hydroseeded, no-till drilled, or hand seeded. Due to a high forb content, broadcast dormant or frost seeding is preferred. Fertilizer or other soil amendments are not recommended.

Nesting and egg laying habitat: Undisturbed soil, duff and woody debris are important pollinator habitat attributes. Stable areas in full sun with good air circulation are preferred nesting/egg laying sites. A diversity of nesting/egg laying habitat (exposed soil, woody debris, herbaceous clumps/tussocks, host food plants, bee blocks, twig bundles, etc.) should be represented as site conditions allow. Nesting and egg laying habitat

should be located in close proximity to food and water resources.

Operation and Maintenance

If annual plant species were seeded, conduct an annual evaluation of the stand to determine whether these species are successfully self-seeding or need to be reseeded. Pollinator habitat should receive little to no disturbance, including the turning of machinery or driving within pollinator habitat. Pesticide and herbicide use on or near a pollinator planting can have significant negative effects on pollinator populations. Locate pollinator habitat where chemical drift will not be an issue. Alternative means of addressing pest issues (mowing, haying, burning, etc.) should be used. If carefully planned, periodic prescribed fire, mowing or haying may be used to maintain diversity within pollinator habitat. It is important to note that some pollinators, their eggs or larvae may be killed during prescribed burns or other management actions. To avoid such negative impacts, no more than 1/3 - 1/2 of the stand could be mown, hayed, or burnt in a given year, with such management not occurring more frequently than every 3-6 years. Preference should be given to dormant season (November - March) management to promote forb diversity and to reduce risks to pollinators and their nests.

Table 1. Potential pollinator mix grasses, sedges & rushes. **Note – mixes are not restricted to these species.** Soil moisture regime: D=Dry, M=Mesic, W=Wet. Plant longevity and functional group: P=Perennial, A=Annual, WS=Warm Season, CS=Cool Season. Important larval food plants are marked with an asterisk.

Scientific Name	Common Name	Seeds/lb. (avg.)	Moisture Regime	Growth Form	Functional Group
*Andropogon gerardii**	Big Bluestem	160,000	D, W, M	Bunch	P-WS
*Bouteloua species**	Grama species	<1,200,000	D	Rhizomatous	P-WS
Calamagrostis canadensis	Bluejoint	4,880,000	W, M	Rhizomatous	P-CS
*Carex species**	True Sedges	<2,000,000	W, M, D	Bunch	P-CS
*Eleocharis species**	Spikerushes	1,000,000	W	Rhizomatous	P-CS
Elymus species	Wildryes	<121,600	W, M, D	Bunch	P-CS
Eragrostis spectabilis	Purple Lovegrass	4,480, 000	D	Rhizomatous	P-WS
Glyceria species	Mannagrasses	1,920,000	M, W	Rhizomatous	P-CS
Juncus species	True Rushes	<51,200,000	W, M	Rhizomatous	P-CS
Koeleria macrantha	Prairie Junegrass	3,200,000	M, D	Bunch	P-CS
Muhlenbergia species	Muhlys	2,640,000	W, M, D	Rhizomatous	P-WS
*Panicum virgatum**	Switchgrass	224,000	W, M, D	Rhizomatous	P-WS
Pascopyrum smithii	Western Wheatgrass	115,000	W, M, D	Rhizomatous	P-CS
Poa palustris	Fowl Bluegrass	2,080,000	W, M	Bunch	P-CS
*Schizachyrium scoparium**	Little Bluestem	240,000	M, D	Bunch	P-WS
*Sorghastrum nutans**	Indiangrass	192,000	W, M, D	Bunch	P-WS
Sporobolus species	Dropseeds	5,600,000	D	Bunch	P-WS

Table 2. Native Forbs. **Note– mixes are not restricted to these species.** Bloom period1: SP=Spring, SU=Summer, F=Fall will depend on species selected. Highly attractive plants are in bold and key larval food plants are marked with an asterisk.

Scientific Name	Common Name	Seeds/lb.	Moisture Regime	Flowering Period
Agastache species	**Hyssops**	**1,440,000**	**Dry**	**SU, F**
Allium species	Onions	<185,000	Mesic-Dry	SP, SU
Asclepias species*	**Milkweeds**	**70,000**	**Wet-Dry**	**SP, SU**
*Astragalus species**	Milkvetch	<272,000	Mesic, Dry	SP, SU
*Baptisia species**	Wild Indigos	25,000	Mesic-Dry	SP, SU
Cacalia species	Plantains	<224,000	Wet-Dry	SU, F
*Chamaecrista and Senna species**	Partridge Pea and Senna	<43,000	Mesic, Dry	SU, F
*Chelone glabra**	White Turtlehead	1,472,000	Wet, Mesic	SU, F
Dalea species*	**Prairie Clovers**	**300,000**	**Mesic, Dry**	**SU, F**
Echinacea pallida	**Pale Coneflower**	**83,000**	**Mesic, Dry**	**SU**
Eryngium yuccifolium	Rattlesnake Master	120,000	Wet-Mesic	SU, F
*Eupatorium species**	Thoroughworts	1,600,000	Dry	SU, F
*Gentiana species**	Gentians	3,300,000	Dry	SU, F
*Glycyrrhiza lepidota**	Wild licorice	62,000	Mesic, Dry	SU
Helenium autumnale*	**Sneezeweed**	**2,080,000**	**Wet, Mesic**	**SU, F**
Helianthus species*	**Sunflowers**	**170,000**	**Wet-Dry**	**SU, F**
Heuchera richardsonii	Alumroot	11,200,000	Dry	SP, SU
Iris versicolor	Blue Flag Iris	16,000	Wet	SP, SU
Liatris species*	**Blazing Stars**	**173,000**	**Dry**	**SU, F**
Lobelia species	**Lobelias**	**8,000,000**	**Wet, Mesic**	**SU, F**
Lycopus americanus	Water Horehound	2,080,000	Wet, Mesic	SU, F
Lythrum alatum	Winged Loosestrife	48,000,000	Wet, Mesic	SU, F
Mentha arvenis	**Wild Mint**	**4,800,000**	**Wet, Mesic**	**SU, F**
Monarda species*	**Wild Bergamot, Horsemint**	**1,440,000**	**Mesic, Dry**	**SU, F**
Oxalis violacea	Violet Wood Sorrel	800,000	Dry	SP, SU, F
*Pedicularis species**	Lousewort	528,000	Wet-Dry	SP, SU
Penstemon species*	**Beardtongue**	**<2,800,000**	**Mesic, Dry**	**SP, SU**
Phlox pilosa	Prairie Phlox	304,000	Mesic, Dry	SP, SU
Potentilla arguta	Prairie Cinquefoil	3,680, 000	Dry	SU, F
Pulsatilla patens	Pasque Flower	288,000	Dry	SP
Pycnanthemum virginianum	Common Mountain Mint	3,520,000	Mesic, Dry	SU, F
Ranunculus septentrionalis	Swamp Buttercup	160,000	Mesic	SP, SU
Ratibida species	Coneflowers	672,000	Mesic, Dry	SU, F
*Rudbeckia hirta**	Black-Eyed Susan	496,000	Mesic, Dry	SU, F
Silphium species	**Rosinweeds**	**<480,000**	**Wet-Dry**	**SU, F**
Sisyrinchium species	Blue-eyed grasses	720,000	Wet-Dry	SU, SU

Table 2. Forbs continued.

Scientific Name	Common Name	Seeds/lb.	Moisture Regime	Flowering Period
Solidago & Oligoneuron species	**Goldenrods**	**2,200,000**	**Wet-Dry**	**SU, F**
Symphyotrichum species*	**Asters**	**1,500,000**	**Wet-Dry**	**SU, F**
Tradescantia species	**Spiderworts**	**145,000**	**Wet-Dry**	**SP, SU**
Verbena species	Vervains	<1,500,000	Wet-Dry	SU, F
*Vernonia species**	Ironweeds	360,000	Wet-Dry	SU, F
Veronicastrum virginicum	**Culver's Root**	**12,800,000**	**Mesic**	**SU**
*Viola species**	Violets	<420,000	Mesic, Dry	SP, SU, F
Zizia species	Alexander's	185,000	Wet-Dry	SP, SU

Table 3. Potential shrubs and sub-shrubs for use in developing a pollinator planting. Note - planners are not restricted to these species (SP = Spring, SU = Summer, F = Fall). Important larval food plants are identified with an asterisk.

Scientific Name	Common Name	Seeds/lb.	Moisture Regime	Flowering Period
*Amelanchier species**	Serviceberry	8,000	Mesic, Dry	SP
*Amorpha species**	Leadplant	<260,000	Wet-Dry	SU
*Ceanothus species**	New Jersey Tea or Redroot	140,000	Dry	SU
Cephalanthus occidentalis	Buttonbush	96,000	Wet	SU
*Cornus species**	Dogwoods	<18,000	Wet-Dry	SP, SU, F
Rosa species	Wild roses	40,000	Wet-Dry	SU
*Salix species**	Willows	-	Wet-Dry	SP
*Viburnum species**	Viburnums	<18,000	Mesic, Dry	SP, SU

Table 4. Introduced grasses. **Note – mixes are not restricted to these species.** Soil moisture regime: D=Dry, M=Mesic, W=Wet. Plant longevity and functional group: P=Perennial, A=Annual, WS=Warm Season, CS=Cool Season. Important larval food plants are marked with an asterisk.

Common Name	Full Seeding Rate (lbs./acre)	Habitat
Kentucky bluegrass	5	Mesic-Dry
Orchardgrass	8	Mesic-Dry
Smooth Brome	10	Mesic-Dry
Timothy	4	Mesic
Redtop	3	Wet-Dry
Intermediate Wheatgrass	10	Wet-Dry

Table 5. Introduced Forbs. **Note– mixes are not restricted to these species.** Bloom period: SP=Spring, SU=Summer, F=Fall. Highly attractive plants are in bold and key larval food plants are marked with an asterisk.

Common Name	Full Seeding Rate (lbs./ac.)	Habitat	Bloom Period	Longevity
Alfalfa	10	Mesic-Dry	Spring-Summer	Annual or Perennial
Alsike Clover	4	Wet-Mesic	Spring-Summer	Perennial
White and Ladino Clover	10	Mesic	Spring-Summer	Perennial
Hairy Vetch	10	Wet-Mesic	Spring-Summer	Annual
Kura Clover	8	Mesic	Spring-Summer	Perennial
Red Clover	8	Mesic-Dry	Spring-Summer	Perennial