



Conservation Cover Monarch Habitat

Illinois Job Sheet – 327 Monarch Habitat

May 2016



Photo by Ellen Starr, USDA, Natural Resources Conservation Service

Introduction:

The monarch butterfly (*Danaus plexippus*) has suffered from significant population declines over the past two decades. Many factors contribute to its decline with the largest being loss of habitat for breeding, migrating and over wintering. Also, pesticides used to control insect and plant pests may have harmful, unintended consequences for monarchs and other pollinators. Monarchs are considered incidental pollinators, they visit the forbs for their nectar, an energy source, and not the pollen. There are particular species of forbs they prefer for their food source over others, while milkweeds are the only food source for their larvae. See attached plant list for monarch preferred species.

Seeding mix and seeding rate:

In general all seeding mixtures for monarch habitat areas will have:

- Milkweed (*Asclepias* spp) comprise 3% of the entire mix including grasses. Plant two or more species of milkweed if available. For upland sites it is recommended Common milkweed (*Asclepias syriaca*) make up 2/3 of the milkweed species. For hydric soils, Swamp milkweed (*Asclepias incarnata*) will comprise 100% of the milkweed species.
- Sixty percent of the forbs selected will be the preferred monarch nectar forbs.

A diverse plant community will benefit a wide array of insect species and wildlife in general.

Refer to the attached specification sheet for the seed mix to be used for the monarch habitat area (developed from the 327-MH calculator).

Seedbed preparation and seeding:

Soil tests and fertilizer are not required for this seeding. Seeding will be performed within the seeding dates listed on the attached specification sheet.

Prepare fields for seeding by eradicating all existing vegetation which may compete with prairie species. Controlling weeds and competing introduced species before seeding will greatly improve establishment and reduce maintenance needs. For old fields and pastures several treatments for one or two growing seasons may be required, using a combination of herbicides, mowing, tillage and/or prescribed burning, to eradicate aggressive undesirable vegetation. A cover crop of oats (1 bu/acre) can be seeded on fields prone to erosion, to suppress weed competition or when delayed planting is necessary. Perform all seedbed preparation operations on the contour or across the general slope where possible.

Dormant seeding during late fall or early winter when soil and air temperatures will remain cold enough to prevent germination is the recommended establishment method. Seed may be broadcast onto a fine, firm, residue-free seedbed during the dormant seeding period, then roll or cultipack to enhance seed to soil contact. Many native forb seed species will benefit by cold wet stratification as it overwinters. Stratification is needed to soften the seed coat and/or break physiological dormancy for successful germination of many native forbs. Grain drills may be used for planting if proper depth control is exercised. Most forb species should be not be planted more than twice the seed diameter.

Spring seedings may be done by using conventional or no-till grain drills and cultipacker-type seeders if the seed delivery mechanism is designed to handle the type of seed being planted. Place seed at a depth not to exceed two times the seed diameter.

Management recommendations

Mowing for weed control is often necessary during the first growing season. Mow no lower than 8 inches. Disturbance activities shall occur before the arrival of most of the migrating monarchs or after most adults begin their fall

migration. Dates for no management in the northern half of Illinois May 1st – October 1st and April 1st – October 15th for the southern half of the state. Use Interstate 72 to divide the state in half.

After establishment, approximately three to five years, managing the entire patch at once can severely impact monarchs as this will remove all available habitat for a period of time. Therefore, where feasible, management activities should not occur on more than 1/3 of the monarch habitat each year over a three year period. Monarch habitat may be managed by one or a combination of the following methods: *Prescribed Fire*, *Mechanical Disturbance*, or *Spraying*

Prescribed Burning

After the planting becomes established, monarch habitat may be managed through periodic burning. Prescribed burns can allow germination of seed bearing annuals, increase plant species diversity, control unwanted woody vegetation, and open up the stand for native pollinator nest sites.

Recommended Timing:

Prescribed burning should be conducted every three to five years. For wildlife considerations, divide the area into smaller management units and burn no more than 1/3 of the monarch habitat each year over a three year period. Monarch habitat should be burned during the dormant season. The best time to perform a prescribed burn for forb conservation is when the native prairie species are dormant and all monarchs have migrated south (late October-December). Only burn with an approved burn plan using the Conservation Practice Prescribed Burning Job Sheet 338.

Mechanical Disturbance

Includes light disking or mowing.

Recommended Timing:

Mechanical disturbance (late October-November) is preferred after the fall migration when nectaring flowers have died back or are dormant. Disturbance at this time will also minimize disruption to nesting bumble bees and other beneficial insects.

Recommendations applicable to both methods:

- Reduce speed to 8 mph or less to allow wildlife time to escape.
- Use a flushing bar where possible to move wildlife out of the path of machinery.
- Avoid disturbance at night when wildlife are less likely to flush.

1. Light Disking

Light disking or harrowing (2-4" deep) of existing stands can increase the amount of open ground and encourage a diverse plant community of annuals and perennials including common milkweed. Disking chops up milkweed rhizomes to increase the number of plants. Observe the

guidelines contained in the Conservation Practice Early Successional Habitat Development Job Sheet 647A.

2. Mowing

Mowing is not effective as a stand-alone practice and should be done only in combination with another management practice such as burning, disking, or spraying and not as a stand-alone practice.

Use only rotary or flail mowers that evenly distribute grass clippings. Do not swath, as the windrows will smother the desirable plants. Clippings should be baled and removed to accommodate forb germination, if allowed by program rules. Mow no lower than 8 inches to minimize mortality and leave adequate residual cover. Avoid milkweeds when possible.

3. Spraying

Judiciously use approved herbicides as necessary to control noxious weeds and undesirable plants during the establishment period. A grass selective herbicide treatment may be needed to deter encroachment of non-native cool-season grasses. Avoid using broad spectrum herbicides. Only spray using the Conservation Practice Early Successional Habitat Development Job Sheet 647B.

Monitoring

Monitor your planting after establishment or management actions are completed to determine whether the stand is maximizing benefits for monarchs. The Monarch Butterfly Wildlife Habitat Evaluation Guide (WHEG), Biology Technical Note 24 can be used to assess established monarch habitat.

Native milkweed plants are an essential feature of monarch breeding habitat. Estimate the abundance and diversity of milkweeds on site. Five hundred or more milkweed plants per acre (in widely dispersed clumps) comprised of 3 or more species are considered good monarch habitat, however more plants support more monarchs. The planting should also continue to support a variety of nectar plants that bloom throughout the growing season.

Contact your local Natural Resources Conservation Service for recommendations on managing or upgrading existing cover.

For additional information go to:

<http://monarchwatch.org/>
<http://www.learner.org/jnorth/monarch/>
www.monarchjointventure.org .



Photo by Ellen Starr, USDA, Natural Resources Conservation Service

Monarch Host and Nectar Forbs for Illinois			Monarchs are present in Illinois May-October		
Species name	Common name	Habitat Type	Moisture Regime	Blooming Season	Notes
<i>Amorpha canescens</i>	Leadplant	Prairie	M, DM, D, HP	M	
<i>Asclepias incarnata</i>	Swamp milkweed	Prairie	W, WM, M	M-L	
<i>Asclepias purpurascens</i>	Purple milkweed	Savanna, Barrens	M, DM,	E-M	not readily available-2016
<i>Asclepias speciosa</i>	Showy milkweed	Prairie	M, DM, D	M-L	not readily available-2016
<i>Asclepias sullivantii</i>	Prairie milkweed	Prairie	WM, M	M-L	somewhat available, but expensive-2016
<i>Asclepias syriaca</i>	Common milkweed	Prairie, Savanna	WM, M, DM, D	M-L	
<i>Asclepias tuberosa</i>	Butterfly milkweed	Prairie, Savanna	M, DM, D	M-L	
<i>Asclepias verticillata</i>	Whorled milkweed	Prairie, Savanna	M, DM, D	M-L	
<i>Blephilia ciliata</i>	Ohio horse mint	Prairie	M, DM, D	E-M	
<i>Brickellia eupatorioides</i>	False boneset	Prairie, Savanna	DM, D, HP	M-L	
<i>Coreopsis palmata</i>	Prairie coreopsis	Prairie	M, DM, D	M	
<i>Coreopsis tripteris</i>	Tall tickseed	Prairie	WM, M, DM	M-L	
<i>Dalea candida</i>	White prairie clover	Prairie, Hill Prairie	M, DM, D	M	
<i>Doellingeria umbellata</i>	Flat-top aster	Prairie	WM	L	
<i>Echinacea pallida</i>	Pale purple coneflower	Prairie	M, DM, D	M	
<i>Echinacea purpurea</i>	Purple coneflower	Prairie, Savanna	WM, M, DM	M	
<i>Eryngium yuccifolium</i>	Rattlesnake master	Prairie	WM, M, DM	M-L	
<i>Eupatorium perfoliatum</i>	Common boneset	Prairie	W, WM,	L	
<i>Eutrochium maculatum</i>	Spotted joe pye weed	Prairie	W, WM	M-L	
<i>Eutrochium purpureum</i>	Sweet joe-pye weed	Savanna	WM, M (FAC)	M-L	
<i>Helianthus grosseserratus</i>	Sawtooth sunflower	Prairie	W, WM	L	
<i>Helianthus pauciflorus</i>	Showy sunflower	Prairie	W, WM, M	M	
<i>Helianthus strumosus</i>	Woodland sunflower	Savanna	M	M-L	
<i>Heliopsis helianthoides</i>	False sunflower	Prairie, Savanna, Glades	WM, M, DM	M	also known as Smooth oxeye or Early sunflower
<i>Liatris aspera</i>	Tall blazing star	Prairie, Savanna, Hill	M, DM, D	L	
<i>Liatris cylindracea</i>	Cylindrical blazing star	Prairie	DM, D	L	
<i>Liatris ligulistylis</i>	Meadow blazing star	Prairie	WM, M, DM	L	
<i>Liatris punctata</i>	Dotted blazing star	Prairie	DM, D	L	
<i>Liatris pycnostachya</i>	Prairie blazing star	Prairie	WM, M	M-L	
<i>Liatris scariosa</i>	Savanna Blazing star/Devil's bite	Prairie, Savanna	DM, D	L	
<i>Liatris spicata</i>	Dense blazing star	Prairie	WM, M	M-L	
<i>Lithospermum canescens</i>	Hoary puccoon	Prairie, Savanna	DM, D	E-M	seed hard to find
<i>Lobelia siphilitica</i>	Great blue lobelia	Prairie	W, WM	M	
<i>Monarda fistulosa</i>	Wild bergamot	Prairie, Savanna, Hill	M, DM, D	M	
<i>Monarda punctata</i>	Spotted beebalm	Prairie, Savanna, Hill	D	M-L	

Monarch Host and Nectar Forbs for Illinois					Monarchs are present in Illinois May-October
Species name	Common name	Habitat Type	Moisture Regime	Blooming Season	Notes
<i>Physostegia virginiana</i>	Obedient plant	Prairie	W, WM	M-L	
<i>Rudbeckia hirta</i>	Blackeyed Susan	Prairie	WM, M, DM, D	M	
<i>Silphium integrifolium</i>	Rosinweed	Prairie, Hill Prairie	M, DM	M-L	
<i>Silphium laciniatum</i>	Compassplant	Prairie	M, DM	M	
<i>Silphium perfoliatum</i>	Cup plant	Prairie, Savanna	W, WM, M	M	
<i>Solidago speciosa</i>	Snowy goldenrod	Prairie	M, DM, D	L	
<i>Solidago rigidum (Oligoneuron)</i>	Rigid or Stiff goldenrod	Prairie	M, DM, D	L	
<i>Symphoricarum laeve</i>	Smooth blue aster	Prairie	WM, M, DM	L	
<i>Symphoricarum novae-angliae</i>	New England aster	Prairie	W, WM, M	L	
<i>Symphoricarum oolentangense</i>	Skyblue aster	Prairie	M, DM, D	L	
<i>Symphoricarum pilosum</i>	Frost aster	Prairie, Savanna	M, DM, D	L	
<i>Verbena stricta</i>	Hoary vervain	Prairie, Hill Prairie	DM, D	M-L	
<i>Vernonia baldwinii</i>	Baldwin's ironweed	Hill Prairie	DM, D	M-L	
<i>Vernonia fasciculata</i>	Prairie ironweed	Prairie	W, WM, M	L	
<i>Veronicastrum virginicum</i>	Culver's root	Prairie, Savanna	W, WM, M	M	
<p>Milkweeds are listed in bold print and are the only host plant for the monarch larvae. All plants on this list are preferred nectar sources for the monarch butterfly.</p> <p>The 3 milkweeds highlighted in darker green are the most readily available species on the market in 2016 and are recommended for seed mixes with Common milkweed as the primary species for uplands</p>					
<p>List edited by E. Starr for Illinois 2016</p>					
<p>Citation: USDA, NRCS. 2015. The PLANTS Database (http://plants.usda.gov. 7 May 2015). National Plant Data Team, Greensboro, NC 27401-4901 USA.</p>					