



United States Department of Agriculture



# Important Plants of the Monarch Butterfly

## Northern Great Plains Staff Guide



Natural  
Resources  
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## Preface

The *Monarch Butterfly Wildlife Habitat Evaluation Guide (WHEG) and Decision Support Tool: Northern Great Plains Edition* is used by NRCS staffs as a planning tool to evaluate current habitat conditions at the assessment area scale, not at the farm or ranch scale. Following the assessment, a rating (poor, medium, good or excellent) is assigned to each assessment area within the farm or ranch.

These ratings (*benchmark monarch habitat conditions rating*) are used to recommend monarch habitat improvement alternatives for each assessment area, and to predict improvement of habitat following implementation of alternatives (*planned monarch habitat conditions rating*). The WHEG can also be applied to areas after conservation practice installation to determine improvement in habitat condition (*applied monarch habitat condition rating*).

An essential function of the Monarch WHEG is inventorying the current plant community. The proper identification of key monarch plant species is required when inventorying vegetation within the assessment area (belt transect). Another use of the WHEG transect protocol could be to determine planting success. To support the WHEG and assist in the development of planning, NRCS has developed this appendix to the WHEG. This appendix contains three different technical support documents to assist staff in Montana, Nebraska, North Dakota and South Dakota in making informed decisions. These documents are:

- **Monarch Planting List**: Provides key plant species for establishing a quality monarch habitat planting mix.
- **Monarch WHEG Inventory List**: Provides the plant species that will be identified and measured (percent cover) during the habitat evaluation (vegetative sampling effort within the belt transect).
- **Plant Identification Guide**: Provides a plant identification sheet for each species from the planting and WHEG lists.



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## Introduction

A proper understanding of the breeding and feeding behaviors of larval and adult monarch butterflies (*Danaus plexippus*) is essential to conducting an evaluation of the quality of monarch butterfly habitat. The data obtained from the application of the assessment portion (WHEG) of the *Monarch Butterfly Wildlife Habitat Evaluation Guide and Decision Support Tool: Northern Great Plains Region* (Fig. 1) is used to identify habitat deficiencies. Those identified habitat deficiencies provide targets for habitat improvements (Fig. 2). The information offered in this appendix to the monarch WHEG will assist the conservation planner in plant identification and the selection of species to consider in a monarch butterfly habitat planting mix. This information is critical to implementation of steps 3-6 of the NRCS Conservation Planning process (USDA, NRCS 2014).

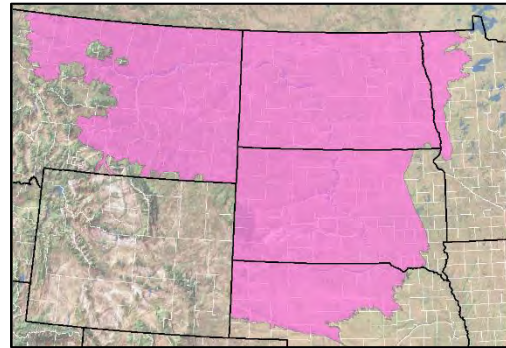


Fig. 1. Northern Great Plains Monarch Region.

- Step 3: Inventory Resources
- Step 4: Analyze Resource Data
- Step 5: Formulate Alternatives
- Step 6: Evaluate Alternatives

### Host Plant Selection and Monarch Survival:

Gravid monarch females are selective, preferring younger and more nutrient rich plants to lay their 300 - 400+ eggs over a 2-5 week period (Fischer et al. 2015). Seldom does a single female lay more than 1-2 eggs on a single plant.

Additionally, gravid females appear to prefer plants without existing eggs or larva, and plants with few aphids (Agrawal 2017 and Borkin 1982). There appears to be preferences towards some species over others. For example, gravid females do not utilize butterfly milkweed (*Asclepias tuberosa*) as often as common milkweed (*Asclepias syriaca*). Conversely, the non-native species, tropical milkweed (*Asclepias curassavica*) is highly preferred by gravid females for egg laying<sup>1</sup>. Most monarch butterfly scientists and monarch conservation groups have raised disease concerns associated with tropical milkweed. These concerns primarily target lands adjacent to the Gulf of Mexico where tropical milkweed does not dieback in the winter. Regardless, NRCS does not support the use of non-native milkweeds for monarch habitat plantings.

Gravid female behavior of selecting plants without other monarch eggs or larva and limiting oviposition (egg laying) to 1-2 eggs per plant, assures enough plant biomass for each

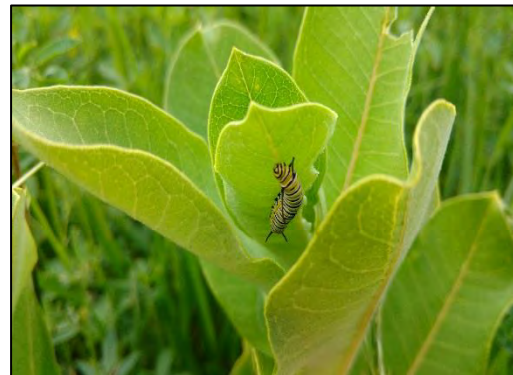


Fig. 2. Monarch larva feeding on common milkweed (*Asclepias syriaca*) in Stutsman County, ND.

<sup>1</sup> Some suggest that this preference is related to the high levels of cardenolides (toxins) found in tropical milkweed.

offspring to complete the larval stage<sup>2</sup>. Some suggest that observation of multiple eggs and larva on a single plant is an ecological indicator that the site (and adjacent habitats) is deficient in adequate milkweeds<sup>3</sup>. Predation of eggs and larva, primarily by predatory insects, is significant. Survival rate to the 5<sup>th</sup> instar has been documented to be as high as 10% (Borkin 1982; Prysby and Oberhauser 2004), but is more commonly less than 5%. Survival is also compromised by parasites, and tachinid flies (*Lespesia archippivora*) in particular (Mueller and Baum 2014; Oberhauser et al. 2006). Although widely variable, percent of milkweed plants utilized by gravid females in monarch habitat is typically from 5–25% of available plants (Kasten et al. 2016). It is estimated that approximately 30 milkweed plants are needed to produce an adult participating in the fall migration to Mexico (Nail et al. 2015).

Most studies agree that the loss of breeding habitat (milkweed) in the corn-belt region of the U.S. has affected the eastern monarch population (Pleasants and Oberhauser 2013).

Questions remain regarding the significance of other population stressors. There is growing evidence suggesting that in addition to loss of breeding habitat in the Midwest, losses of nectaring habitat throughout the eastern U.S. needed to support the fall migration, and the loss of wintering habitat in Mexico may be significant limiting factors (Agrawal 2017; Inamine et al. 2016).

**Monarch Larval Feeding Behavior:** Immature, free-living instars (larvae or caterpillars) of the monarch butterfly are obligate specialists on the leaves of milkweeds, primarily within the genus *Asclepias*, but also on milkweed vines in the genera of *Cynanchum*, *Funastrum*, and *Matelea*. The larval stage includes 5 instars (molts) and requires from 8–15 days to complete. It is through the consumption of milkweed foliage as larvae that monarch butterflies gain the toxic cardenolides, which deter predation (Roeske et al. 1976) by birds and mammals<sup>4</sup>. However, too much cardenolide consumption affects growth and survival of larvae. For this reason, gravid females tend to select individual plants with a moderate level of cardenolides (Zalucki et al. 1990)<sup>5</sup>. First instars consume their egg casing, then begin to feed on the surface of the leaf or flower. This feeding activity by the 1<sup>st</sup> instars is evidenced by shallow feeding grooves, often in small ½circular patterns. As the larva grows (facilitated by molting) the grooves become deeper, until the larva creates a hole in the leaf that is often arc-shaped but may be circular or oval. Older larvae (3<sup>rd</sup>- 5<sup>th</sup> instars) feed by consuming the entire leaf, often the newer (upper most) leaves, presumed of higher forage quality. Additionally, floral parts are commonly consumed. The latex (white sap) in the milkweed plants can be deadly to monarch larvae. Larvae often sever leaf veins, slowing or inhibiting the supply of latex. It is proposed that this feeding behavior reduces the supply of latex to the leaf; thereby improving foraging efficiencies and increasing survival (Zalucki et al. 2001). In addition to leaf damage, the accumulation of frass (excrement) on lower leaves and the ground provides evidence of a feeding monarch larva.

**Adult Monarch Feeding Behavior:** Adult monarchs rely on high-quality floral nectar to meet their energy requirements. Monarchs feed by rolling out their proboscis (long flexible straw)

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<sup>2</sup> The behavior of typically limiting egg laying to 1-2 eggs per plant may also serve to minimize predation, disease, and inadvertent cannibalism (monarch larva will consume their eggshell and other eggs if nearby).

<sup>3</sup> On occasion, “egg dumping” from females under extreme stress does occur, resulting in plants/leaves with several (10+) eggs. Thus, egg dumping is not always an indication of inadequate milkweed availability.

<sup>4</sup> These cardenolides do not affect most predatory invertebrates. Monarch larvae experience very large losses to predation from other arthropods (e.g. insects, spiders, centipedes).

<sup>5</sup> Cardenolide levels can vary significantly, among individual plants within the same species.

to extract nectar from the flower (Krenn 2010)<sup>6</sup>. Thus, a feeding monarch perches on a flower and then moves their proboscis around, finding nectar from different locations. For this reason, monarchs prefer sturdy plants that have relatively flat surfaces (sunflowers, asters) or long multi-flowering inflorescences (gayfeather), where the nectar is easily accessed. In reviewing the two plant lists provided in this document, the user will find many species in the Asteraceae family (sunflower family). Common characteristics of this family include clusters of flowers with shallow, easily accessed nectar. Milkweeds, which also have easily accessed nectar, are excellent nectar sources. Despite their somewhat long proboscises, monarchs rarely visit deep tubular flowers such as honeysuckles (*Lonicera* spp.).

**Migration:** Tagging data and observations documented in Journey North provide information about fall migration, but little about spring and summer movements. Isotope technology provides additional understanding of monarch natal origins and migration patterns. Stable isotopes in the bodies of adults identify (predict) the milkweed species (and even local ecotypes) that an adult monarch fed upon as a larva. As new isotopes data is collected, monarch scientists are gaining an improved understanding of movement patterns in North America. It was once suspected most all monarch adults in the northeastern U.S. moved along the Gulf, then northward to Maine. Recent isotope data suggests that most of the 2<sup>nd</sup> generation adults in the Northeast came from the Midwest by crossing the Appalachian Mountains (Miller et al. 2017). Using isotope and tagging data, Flockhart et al. (2013) suggested most of the 2<sup>nd</sup> generation adults that originated from the Midwest moved horizontally to populate the northern and eastern regions of the eastern U.S. This isotope work, coupled with other data (Miller et al. 2012), suggests a two-generational distribution pattern for the northern migration, rather than multi-generational (where each successive generation moves further north). The 1<sup>st</sup> generation adults migrate from the southern U.S. primarily, but far from exclusively, to the Midwest and Great Lakes region. The 2<sup>nd</sup> generation then spreads out across the U.S. and southern Canada, with many of the 3<sup>rd</sup> and 4<sup>th</sup> generation adults remaining in proximity to their natal origin. This approach results in rapid access to the cooler summer milkweed regions of the U.S., then provides for 2 generations to increase the overall population (migration is a very high mortality event), maximizing numbers in preparation for the long and often fatal migration to the wintering grounds (Agrawal 2017).

Regardless of the northern migration patterns, monarchs emerging as adults in late summer migrate south to Mexico to repeat the cycle. Non-migrating adults live from 2-5 weeks, whereas migrating adults live through the fall and winter for 6-9 months. Most theorize they accomplish long distance travel by catching air currents and riding thermals using the soaring/gliding approach common to many other long distance migrants (Gibo and Pallet 1979). Brower et al. (2006) suggest that monarchs do not prepare for this long migration by storing energy (lipids) immediately, as these lipids would increase body mass and reduce flight efficiency. Rather, they consume nectar periodically during migration. As they near the overwintering locations in Mexico, they increase lipid consumption to build the energy reserves essential for the winter dormant period (November-March)<sup>7</sup>. Agrawal (2017) and Inamine et al. (2016) suggest that the availability of fall nectar resources, particularly in Texas and northern Mexico, may be an important variable in the success of the monarch wintering population in Mexico.

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<sup>6</sup> Monarch butterflies are ineffective pollinators of milkweed (Agrawal 2017), and only incidental pollinators of other species.

<sup>7</sup> Monarchs do not feed at the wintering grounds, but do move to access water during warmer days. Thus, the stored lipids are critical to winter survival.



The fall migration patterns, documented by Journey North, and tagging data (Monarch Watch) demonstrate many of the monarchs raised in the Midwest migrate in a southwesterly direction. Tagging data finds movement of some individuals in a primarily westerly direction from the upper Midwest to Northern Great Plains when low-pressure systems are centered in the Midwest. When this occurs, large numbers of fall migrants can occur in south eastern North Dakota, eastern South Dakota and east-central Nebraska. In some years (2015), strong easterly winds move fall migrants even further west (Fig. 3). During such years, the northern Great Plains plays a critical role in providing fall nectaring resources for migrating monarchs. In response to elevated grain prices, recent land use conversion from grasslands to cropland (Wright and Wimberly 2013), may rival losses of “in-field” milkweed from glyphosate resistant seed technology. Losses of nectar plants, in addition to milkweed due to land use changes in central portions of the northern Great Plains remain a concern for monarch butterfly conservation.

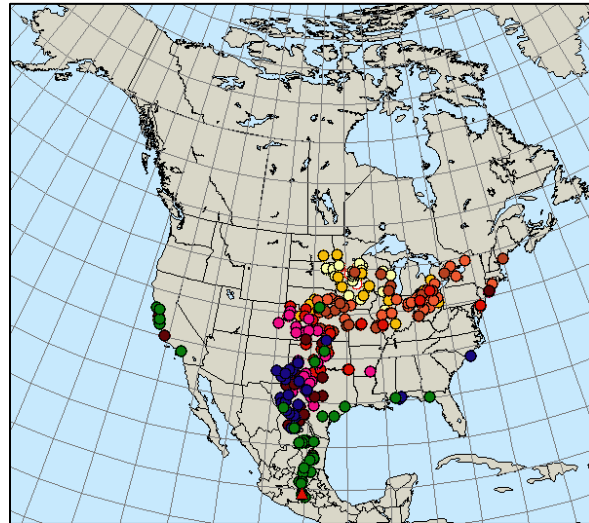


Fig. 3. Fall Monarch Butterfly “Roost Sightings” map for 2015 (Journey North). The strong easterly and southeasterly winds pushed the migration well west of the normal patterns. Fall nectaring habitats, particularly in central NE and western KS are critical to the health of migrating monarchs during such years.

**Milkweeds of the Northern Great Plains Region:** There are many milkweed species native to this region of the U.S. The most common species in the eastern portions of ND, SD and NE is common milkweed (*A. syriaca*). The most common species in the Central and Western portions of those states is showy milkweed (*A. speciosa*). Both are rhizomatous, with clumped distribution patterns. Less common but locally important is the very highly preferred swamp milkweed (*A. incarnata*), butterfly milkweed (*A. tuberosa*), green comet milkweed (*A. viridiflora*), and whorled milkweed (*A. verticillata*). Seeds for many of these species are commercially available. Finding local ecotypes may be more difficult. Some species of milkweed are rhizomatous (e.g. *A. syriaca*, *A. speciosa*, and *A. verticillata*), while others are tap-rooted (e.g. *A. tuberosa* and *A. viridiflora*). There are obvious advantages to the establishment of rhizomatous species in conservation plantings, and for those reasons, these species should be considered in monarch butterfly planting mixes.

**Trees and Shrubs:** Narrow bands of woody vegetation and edges of forested areas can provided important fall resting sites (micro-climates) for migrating monarchs. However, the planting list provided in this document is limited to herbaceous species.

### **Plant Lists and Plant Identification Guide**

To assist with the application of the NRCS *Monarch Butterfly WHEG Wildlife Habitat Evaluation Guide and Planning Tool*: Northern Great Plains Region, this document provides two plant species lists, and a plant identification guide for use by conservation planners.

**Monarch Planting List:** The *Monarch Planting List* provides planting recommendations for improvement of monarch habitat with the use of an array of national conservation practices

(e.g. Conservation Cover (327) and Field Borders (386)). Lists of larval host plants and nectar plants suitable for monarch butterfly habitat plantings are provided in the NRCS Field Office Technical Guide (FOTG). The following national minimum planting criteria shall be followed for all monarch butterfly habitat plantings. Nationally approved variances to these requirements may be provided by the FOTG.

- To provide food for monarch butterfly larvae, plantings shall include at least one species of milkweed (*Asclepias* spp.) from the FOTG monarch butterfly planting list. All milkweed species used in the mix must be from this list and shall represent at least 1.5% of the total seeds in the mix. The total seeds include pure live seed from both grass and forbs.
- A grass component in a monarch habitat planting is commonly needed for ecological stability, weed control, and fuel for prescribed burning. The FOTG provides information on the grass/forb ratio for monarch habitat plantings.
- To provide food for adults, at least 60% of the forb seeds (pure live seed) in the mix shall be from the monarch butterfly planting list (FOTG). Milkweed seeds are included in meeting the 60% minimum because milkweeds are excellent nectar plants. The FOTG provides information on the required number of forb species per bloom period (early, mid, or late season) for monarch habitat plantings. Bloom period consideration shall coincide with monarch presence in the area.

**Monarch WHEG Habitat Inventory List:** The *Monarch WHEG Habitat Inventory List* is for use by conservation planners in the application of the herbaceous vegetation sampling portion of the *Monarch Butterfly Wildlife Habitat Evaluation Guide: Northern Great Plains Edition*. This process requires identifying and inventorying vegetation in assessment areas that support an herbaceous plant community with a forb component. Some species on this list are grouped to facilitate a more rapid assessment. For example, there are many species of blazing star, also commonly referred to as gayfeather. These are all in the genus *Liatris*. Identification of *Liatris* to species adds little value to the habitat assessment process. As such, they are combined into the *Liatris* spp. group.

**Plant Identification Guide:** The *Monarch Habitat Plant Identification Guide* contains plant identification sheets of species provided in the WHEG and planting lists for the Northern Great Plains Region. The guides are organized alphabetically by common name used by the USDA-NRCS PLANTS Database (USDA, NRCS 2007). Plant species which were reported to be of superlative use to the monarch were rated as “Very High” value, as were plants mentioned in multiple sources as providing nectar to monarchs. Other plant species, which were also cited as attractive to monarchs, but with less frequency, were given the rating of “High” value.

## **Acknowledgements**

The species in these plant lists were developed from a review of the literature, in combination with monarch adult nectaring observations data compiled by the Xerces Society for Invertebrate Conservation (Xerces). Biologists from Xerces, USDA-NRCS, U.S. Fish and Wildlife Service, state resource management agencies, universities and conservations organizations contributed their observations.

# Monarch Planting List

Species name	Plant symbol	Common name	Growth habit	Monarch Value	Bloom Period			States			
					Early	Mid	Late	MT	ND	NE	SD
<i>Amorpha canescens</i>	AMCA6	leadplant	forb/herb	High		x					
<i>Asclepias incarnata</i>	ASIN	swamp milkweed	shrub, subshrub	Very High		x	x				
<i>Asclepias speciosa</i>	ASSP	showy milkweed	forb/ herb	High	x	x					
<i>Asclepias stenophylla</i>	ASST	slimleaf milkweed	forb/herb	Very High	x	x					
<i>Asclepias syriaca</i>	ASSY	common milkweed	forb/herb	Very High		x					
<i>Asclepias tuberosa</i>	ASTU	butterfly weed	forb/herb	Very High	x	x	x				
<i>Asclepias verticillata</i>	ASVE	whorled milkweed	forb/herb	Very High	x	x	x				
<i>Brickellia eupatorioides</i>	BREU	false boneset	forb/herb, subshrub	High		x	x				
<i>Cirsium altissimum</i>	CIAL2	tall thistle	forb/herb	High		x	x				
<i>Dalea candida</i>	DACA7	white prairie clover	forb/herb, subshrub	High	x	x					
<i>Euthamia graminifolia</i>	EUGR5	grass-leaved goldentop	forb/herb	Very High	x	x	x				
<i>Eutrochium maculatum</i>	EUMA9	spotted joe pye weed	forb/herb	Very High		x	x				
<i>Helianthus annuus</i>	HEAN3	common sunflower	forb/herb	Very High		x	x				
<i>Helianthus grosseserratus</i>	HEGR4	sawtooth sunflower	forb/herb	High		x	x				
<i>Helianthus maximiliani</i>	HEMA2	Maximilian sunflower	forb/herb	High		x	x				
<i>Helianthus pauciflorus</i>	HEPA19	stiff sunflower	forb/herb	High		x	x				
<i>Heliopsis helianthoides</i>	HEHE5	smooth oxeye	forb/herb	Very High		x	x				
<i>Liatis aspera</i>	LIAS	rough blazing star	forb/herb	Very High		x	x				
<i>Liatis ligulistylis</i>	LILI	Rocky Mountain blazing star	forb/herb	High		x	x				
<i>Liatis punctata</i>	LIPU	dotted gayfeather	forb/herb	High		x	x				
<i>Monarda fistulosa</i>	MOFI	wild bergamot	forb/herb, subshrub	High		x	x				
<i>Oligoneuron rigidum</i>	OLRI	stiff goldenrod	forb/herb	High	x	x	x				
<i>Silphium integrifolium</i>	SIIN2	wholeleaf rosinweed	forb/herb	High		x	x				
<i>Solidago altissima</i>	SOAL6	Canada goldenrod	forb/herb	high		x	x				
<i>Solidago missouriensis</i>	SOMI2	Missouri goldenrod	forb/herb	High		x	x				
<i>Solidago nemoralis</i>	SONE	gray goldenrod	forb/herb	Very High		x	x				
<i>Solidago speciosa</i>	SOSP2	showy goldenrod	forb/herb	High		x	x				
<i>Symphyotrichum ericoides</i>	SYER	white health aster	forb/herb	Very High		x	x				
<i>Symphyotrichum laeve</i>	SYLA3	smooth aster	forb/herb	High		x	x				

Species name	Plant symbol	Common name	Growth habit	Monarch Value	Bloom Period			States			
					Early	Mid	Late	MT	ND	NE	SD
<i>Symphotrichum novae-angliae</i>	SYNO2	New England aster	forb/herb	High		x	x				
<i>Verbena stricta</i>	VEST	hoary verbena	forb/herb	High		x	x				
<i>Vernonia baldwinii</i>	VEBA	Baldwin's or Western ironweed	forb/herb	High		x	x				
<i>Vernonia fasciculata</i>	VEFA2	prairie ironweed	forb/herb	High							

USDA, NRCS. 2017. PLANTS Database (<http://plants.usda.gov>). National Plant Data Team, Greensboro, NC 27401-4901 USA.



































































## Monarch WHEG Habitat Inventory List

					Bloom Period		
Species name	Plant symbol	Common name	Growth habit	Monarch Value	Early	Mid	Late
<i>Amorpha canescens</i>	AMCA6	leadplant	shrub, subshrub	High		x	
<i>Asclepias</i> spp.	ASCLE	milkweed	forb/herb	Very High		x	x
<i>Brickellia eupatorioides</i>	BREU	false boneset	forb/herb, subshrub	High		x	x
<i>Cirsium altissimum</i>	CIAL2	tall thistle	forb/herb	high		x	
<i>Dalea candida</i>	DACA7	white prairie clover	forb/herb, subshrub	High	x	x	
<i>Euthamia graminifolia</i>	EUGR5	grass-leaved goldentop	forb/herb	Very High		x	x
<i>Eutrochium maculatum</i>	EUMA9	spotted joe pye weed	forb/herb	Very High		x	x
<i>Helianthus</i> spp.	HELIA	sunflower	forb/herb	Very High		x	x
<i>Heliopsis helianthoides</i>	HEHE5	smooth oxeye	forb/herb	High		x	
<i>Liatis</i> spp.	LIATR	blazing star	forb/herb	Very High		x	
<i>Monarda fistulosa</i>	MOFI	wild bergamot	forb/herb, subshrub	High		x	x
<i>Oligoneuron rigidum</i>	OLRI	stiff goldenrod	forb/herb	High		x	x
<i>Silphium integrifolium</i>	SIIN2	wholeleaf rosinweed	forb/herb	High		x	
<i>Solidago</i> spp.	SOLID	goldenrod	forb/herb	high		x	x
<i>Symphotrichum</i> spp.	SYMPH4	aster	forb/herb	High		x	x
<i>Verbena stricta</i>	VEST	hoary verbena	forb/herb	High		x	
<i>Vernonia</i> spp.	VERNO	ironweed	forb/herb	High		x	x

USDA, NRCS. 2017. PLANTS Database (<http://plants.usda.gov>). National Plant Data Team, Greensboro, NC 27401-4901 USA.



# Flower Color Chart

Common Name	Flower Color	Scientific Name	Flower Color
Baldwin's ironweed		<i>Amorpha canescens</i>	
butterfly weed		<i>Asclepias incarnata</i>	
Canada goldenrod		<i>Asclepias speciosa</i>	
common milkweed		<i>Asclepias stenophylla</i>	
common sunflower		<i>Asclepias syriaca</i>	
dotted gayfeather		<i>Asclepias tuberosa</i>	
false boneset		<i>Asclepias verticillata</i>	
grass-leaved goldentop		<i>Brickellia eupatorioides</i>	
gray goldenrod		<i>Cirsium altissimum</i>	
hoary verbena		<i>Dalea candida</i>	
leadplant		<i>Euthamia graminifolia</i>	
Maximilian sunflower		<i>Eutrochium maculatum</i>	
Missouri goldenrod		<i>Helianthus annuus</i>	
New England aster		<i>Helianthus grosseserratus</i>	
prairie ironweed		<i>Helianthus maximiliani</i>	
Rocky Mountain blazing star		<i>Helianthus pauciflorus</i>	
rough blazing star		<i>Heliopsis helianthoides</i>	
sawtooth sunflower		<i>Liatris aspera</i>	
showy goldenrod		<i>Liatris ligulistylis</i>	
showy milkweed		<i>Liatris punctata</i>	
slimleaf milkweed		<i>Monarda fistulosa</i>	
smooth aster		<i>Oligoneuron rigidum</i>	
smooth oxeye		<i>Silphium integrifolium</i>	
spotted joe pye weed		<i>Solidago altissima</i>	
stiff goldenrod		<i>Solidago missouriensis</i>	
stiff sunflower		<i>Solidago nemoralis</i>	
swamp milkweed		<i>Solidago speciosa</i>	
tall thistle		<i>Symphotrichum ericoides</i>	
white health aster		<i>Symphotrichum laeve</i>	
white prairie clover		<i>Symphotrichum novae-angliae</i>	
wholeleaf rosinweed		<i>Verbena stricta</i>	
whorled milkweed		<i>Vernonia baldwinii</i>	
wild bergamot		<i>Vernonia fasciculata</i>	

# Baldwin's Ironweed (*Vernonia baldwinii*)

Aster Family

Other Common Names: ironweed, western ironweed

Scientific Name: *Vernonia baldwinii* Torr. Plant Symbol: VEBA

Distinguishing characteristics: Dark purple flower heads with dark green foliage; leaves narrowly lance shaped, uniformly hairy on the lower surfaces, upper surfaces with very fine hairs; tapering to both the tip and base of the leaf.

Plant Height: 3-5 ft. Blooms/Fruits: July-November

Duration: Perennial, herbaceous

Pollinator Value: The plant is known to attract bees and butterflies.

Habitat: Open pastures & woodlands, savannahs, fencerows, and overgrazed pastures.

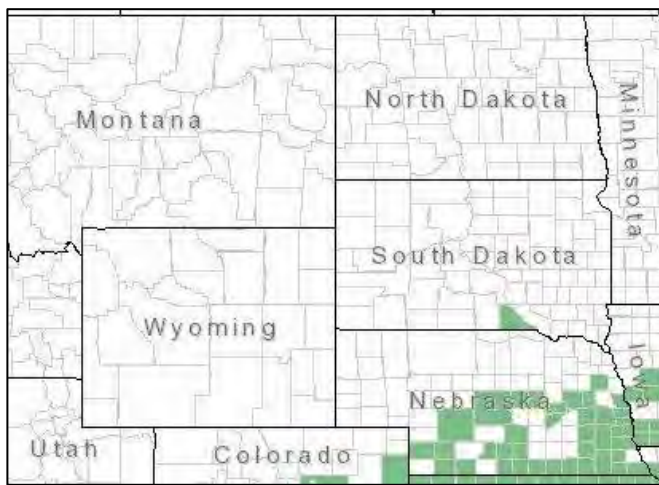


Photo: W.D. and Dolphia Bransford, Lady Bird Johnson Wildflower Center



Photo: Sandy Smith, Lady Bird Johnson Wildflower Center



Photo: Joseph Marcus, Lady Bird Johnson Wildflower Center



Photo: Sandy Smith, Lady Bird Johnson Wildflower Center

Close-up of flower/flowering

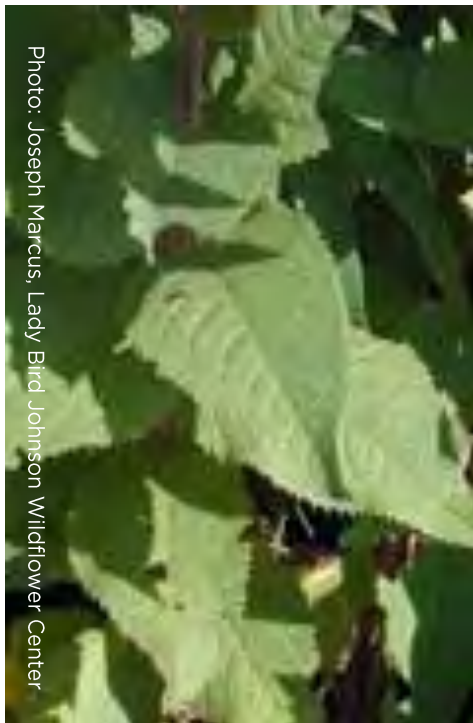


Photo: Joseph Marcus, Lady Bird Johnson Wildflower Center

Leaves



Photo: Sandy Smith, Lady Bird Johnson Wildflower Center

Close-up of flower buds



Photo: John Hilty, Illinois Wildflowers

Senescence



# Butterfly Milkweed (*Asclepias tuberosa*)

## Milkweed Family

**Other Common Names:** orange milkweed, butterfly weed

**Scientific Name:** *Asclepias tuberosa* L.

**Plant Symbol:** ASTU

**Distinguishing characteristics:** brick red or orange flowers; hairy stem; long and narrow leaves with smooth leaf margins; sap not milky like other milkweed species.

**Plant Height:** up to 2.5 ft.

**Blooms/Fruits:** May–October

**Duration:** Perennial, herbaceous (from rootstock tuberous)

**Pollinator Value:** Larval host plant for monarch butterfly. The plant is very attractive to butterflies because it is a high quality nectar source.

**Habitat:** Upland; sandy, loamy, or rocky limestone soils

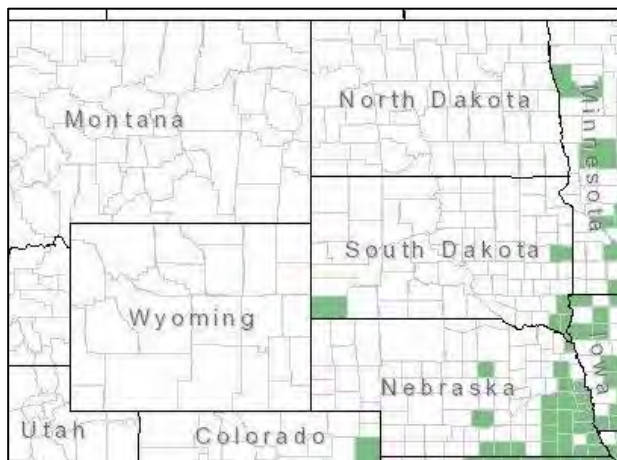


Photo: Edith Bettinger, Lady Bird Johnson Wildflower



Photo: Lady Bird Wildflower Center Staff

Seedling



Photo: Bruce Leander, Lady Bird Johnson Wildflower Center



Photo: Lillian G. Flaigg, Lady Bird Johnson Wildflower Center

Early flowering/close-up view of



Photo: Edith Bettinger, Lady Bird Johnson Wildflower Center

Full flowering

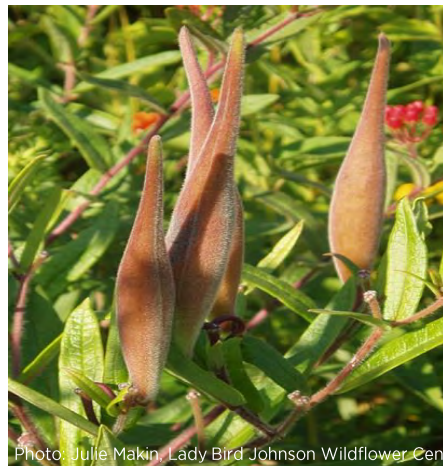


Photo: Julie Makin, Lady Bird Johnson Wildflower Center

Fruit



Photo: Barbara Nuffer, Lady Bird Johnson Wildflower Center

Mature fruit with seed



# Canada Goldenrod (*Solidago canadensis*)

## Aster Family

**Other Common Names:** tall goldenrod, late goldenrod

**Scientific Name:** *Asclepias speciosa*

**Plant Symbol:** SOAL6

**Distinguishing characteristics:** Stems 1-several from rhizomes, leafy throughout, and with several fine, longitudinal lines or grooves along the stem; leaves narrow, widest near the top or middle (4-5 inches long by 1 inch wide), and with 3 prominent veins; inflorescence terminal and generally overall pyramid shaped; individual flowering heads all upright on the recurving flowering branches, small, with 10-16 yellow rays and 3-7 yellow disc flowers in the centers.

**Plant Height:** 3-6 feet.

**Blooms/Fruits:** August-November

**Duration:** Perennial, herbaceous

**Pollinator Value:** Goldenrods are very attractive to pollinators and other beneficial insects. They host a number of oligolege bees.

**Habitat:** Upland prairies, old fields, pastures, roadsides, and disturbed areas. Fairly common throughout its range.

**Note:** A similar species (*Solidago canadensis*) also goes by the common name Canada goldenrod. That species has smaller individual flower heads, and fewer ray (6-12) and disc (2-5) flowers.

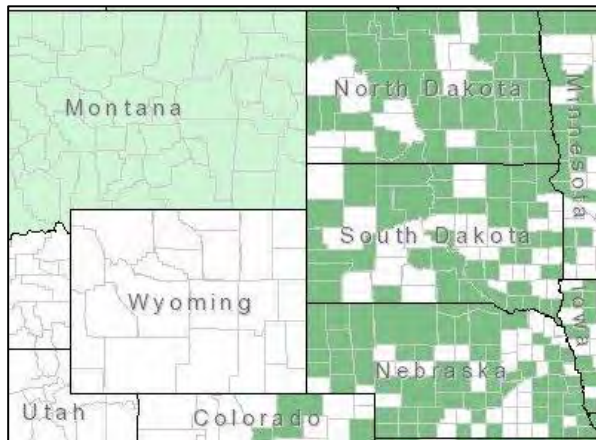


Photo: Norman Flaigg, Lady Bird Johnson Wildflower





Full flowering/close-up of blooms



Mature plant

Leaf arrangement



# Common Milkweed (*Asclepias syriaca*)

## Milkweed Family

Other Common Names: none

Scientific Name: *Asclepias syriaca* L.

Plant Symbol: ASSY

**Distinguishing characteristics:** Flowers in circular clusters from the leaf axils on the upper portion of the plant, each flower on a long stalk; petals reflexed, lavender or pink but may be greenish or white with pink highlights; leaves are in pairs (opposite) along the stem, lance-shaped to elliptical.

**Plant Height:** 2-5 ft., usually unbranched

**Blooms/Fruits:** May- August

**Duration:** Perennial, herbaceous and colonial (from deep-set rhizomes)

**Pollinator Value:** Sunflowers are workhorse plants, supporting bees, butterflies, and other beneficial insects. Many species of native bee are oligoleges on its pollen. Checkerspot butterflies feed on its leaves as caterpillars.

**Habitat:** Roadsides, disturbed areas, field borders, bottomland & upland prairies, pastures, and old fields.

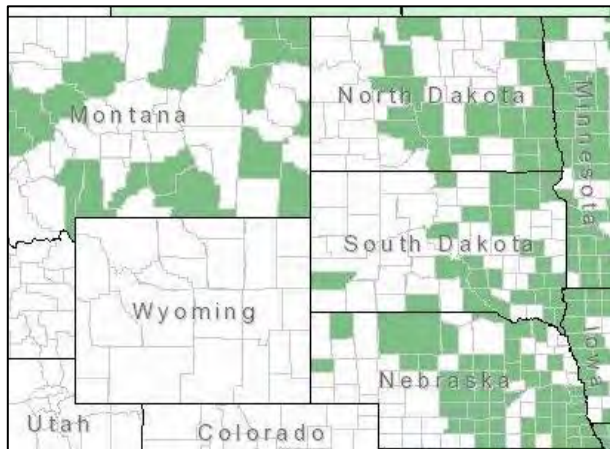


Photo: Kelly Gill, Xerces Society



Photo: Kelly Gill, Xerces Society

Flowering/close-up of flowers



Photo: Kelly Gill, Xerces Society



Photo: Mike Haddock, Kansas



Photo: Kelly Gill, Xerces Society

Stem and leaf arrangement



# Common Sunflower (*Helianthus annuus*)

Aster Family

**Other Common Names:** sunflower, Kansas sunflower, mirasol

**Scientific Name:** *Helianthus annuus* L.

**Plant Symbol:** HEAN3

**Distinguishing characteristics:** Flowering heads large with yellow rays and a dark central center disk; leaves alternate but some basal leaves may be opposite, triangular to egg-shaped and very rough or raspy surface; stems solitary with 1-many flowering heads.

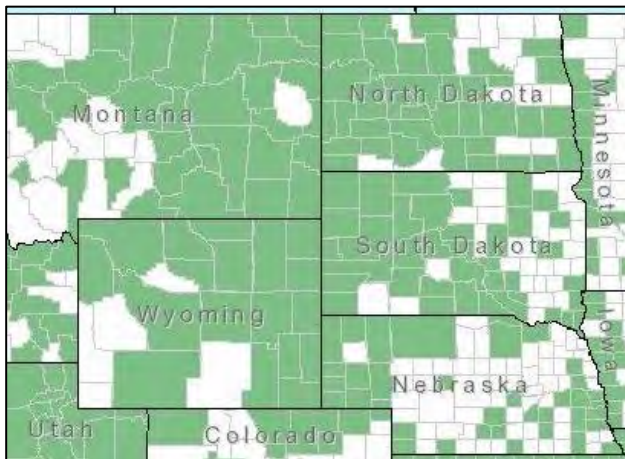
**Plant Height:** 1-10 ft., variable

**Blooms/Fruits:** July–October

**Duration:** Annual, herbaceous (with large taproot)

**Pollinator Value:** Many species of native bee are sunflower specialists and they frequently nectar and collect pollen from these flowers. Butterflies also nectar on sunflowers.

**Habitat:** Widespread roadside weed, old fields, ditch banks, upland pastures, field borders, escape from cultivation



David Northington, Lady Bird Johnson Wildflower





Photo: Center Staff, Lady Bird Johnson



Photo: Center Staff, Lady Bird Johnson Wildflower Center

Seedling



Photo: R.W. Smith, Lady Bird Johnson Wildflower Center



Photo: David Northington, Lady Bird Johnson Wildflower Center

Full flowering



Photo: Joseph Marcus Lady Bird Johnson Wildflower Center

Close-up of stem



Photo: Steven Schwartzman, Lady Bird Johnson Wildflower Center

Mature plant



Photo: Kim Yarbrough, Lady Bird Johnson Wildflower Center

Developing flower bud

# Dotted Blazing Star (*Liatris punctata*)

## Aster Family

**Other Common Names:** liatris, narrow-leafed gayfeather, Nebraska blazing star, blazing star, button snakeroot, prairie snakeroot, starwort.

**Scientific Name:** *Liatris punctata* Hook.

**Plant Symbol:** LIPU

**Distinguishing characteristics:** Clusters of puffy blue flowers loosely spaced along a spike-like inflorescence, inflorescence axis easily visible between the flower clusters; leaves narrow and crowded, slightly up-curved, with dotted glands on the surface.

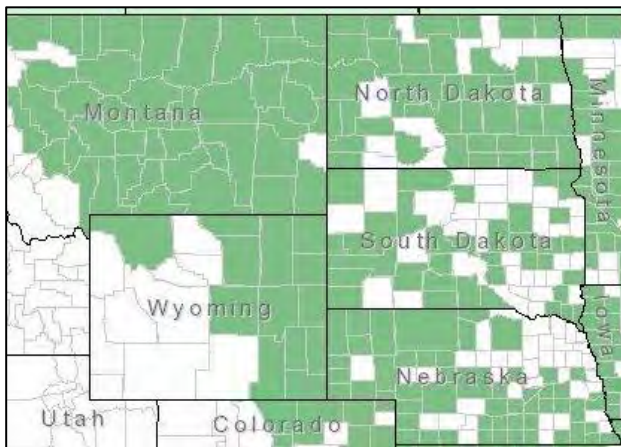
**Plant Height:** 1-3 ft. flowering stems

**Blooms/Fruits:** August–October

**Duration:** Perennial, herbaceous

**Pollinator Value:** *Liatris* spp. are very attractive to monarchs and other butterflies. While Rocky Mountain blazing star (*Liatris ligulistylis*) is by far the most attractive species for the monarch butterfly, all *Liatris* can serve as a nectar source. *Liatris* flowers are also favored by bumble bees and others.

**Habitat:** Common on upland, rocky ridges, grassy and sagebrush prairies, roadsides, in sandy or clayey



Photos: Sally and Andy Wasowski, Lady Bird Johnson Wildflower Center





Photo: Steven Schwartzman, Lady Bird Johnson Wildflower Center

Flower buds



Photos: Sally and Andy Wasowski, Lady Bird Johnson Wildflower Center

Sally and Andy Wasowski, Lady Bird Johnson Wildflower Center

Plants flowering/close view of flowers



Photo: Steven Schwartzman, Lady Bird Johnson Wildflower Center

Seed maturation



Photo: Bruce Leander, Lady Bird Johnson Wildflower Center

Seed

# False Boneset (*Brickellia eupatorioides*)

Aster Family

Other Common Names: none

Scientific Name: *Brickellia eupatorioides* (L.) Shiners

Plant Symbol: BREU

**Distinguishing characteristics:** Flower heads in small clusters of few flowered, flat-topped inflorescences; individual flower heads appearing elongate and without rays, flowers in the disc are pale yellow, yellowish green, to pinkish lavender; leaves are alternately arranged on the stem but are closely crowded together and may appear opposite or whorled, their shape ranges from linear to broadly lance shaped, and with glandular hairs underneath.

**Plant Height:** 1-3 ft., erect to ascending

**Blooms/Fruits:** July–October

**Duration:** Perennial, herbaceous or with a woody persistent base

**Pollinator Value:** This flower provides nectar from summer through fall for monarchs and other invertebrates.

**Habitat:** Open prairies and plains, dry open forests, pastures, old fields, and roadsides.

**Note:** Six varieties of false boneset occur in the US, three of which are native to the Midwest: varieties *corymbulosa*, *eupatorioides*, and *texana*.

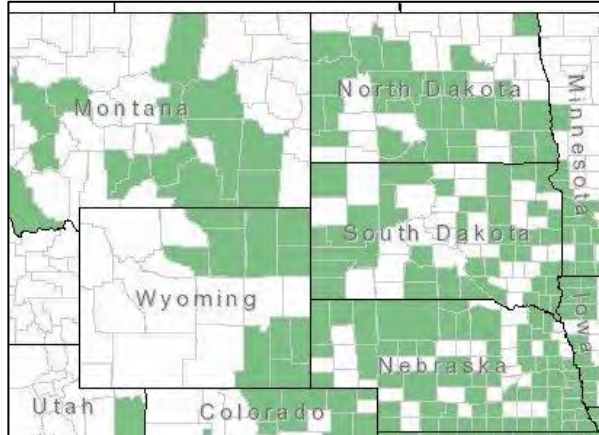


Photo: Mike Haddock





Photo: Mike Haddock

Photo: Mike Haddock

Full flowering/close-up of



Photo: Mike Haddock



Photo: Mike Haddock

Early flowering

# Flat-top Goldentop (*Euthamia graminifolia*)

Aster Family

**Other Common Names:** flat-topped goldenrod, grass-leaved goldentop/goldenrod

**Scientific Name:** *Euthamia graminifolia* (L.) Nutt.  
EUGR5

**Plant Symbol:**

**Distinguishing characteristics:** Stems leafy and heavily branched in the upper half, with small spreading hairs; leaves grass like, sessile on the stem and linear, 4-5 in. long by ¼ in. wide, and with leaf margins showing stiff ascending hairs; inflorescences flat-topped in appearance and borne on the ends of branches; individual flower heads, numerous heads at the end of branches with approximately 15-25 yellow rays and a yellow center.

**Plant Height:** 3-5 ft.

**Blooms/Fruits:** July-September

**Duration:** Perennial, herbaceous

**Pollinator Value:** Provides nectar and/or pollen to a wide variety of insect taxa including butterflies and moths, beetles, true bugs, wasps, honey bees, bumble bees and other native bee species.

**Habitat:** Fields, pastures, thickets, prairie, and roadsides.

**Note:** Older botanical keys and references refer to this species as *Solidago graminifolia*.

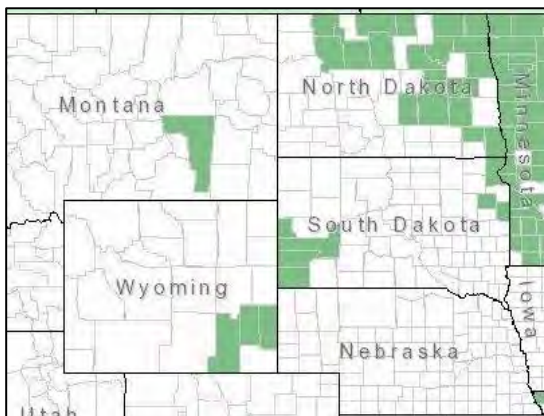


Photo: W.D. and Dolphia Bransford Lady Bird Johnson Wildflower





Photo: John Hilty, Illinois wildflowers



© 2008 k. chayka

Photo: John Hilty, Illinois wildflowers

Flowering/close-up view of flower



2003 © Peter M. Dziuk



© 2008 k. chayka

Leaf shape and arrangement

# Gray Goldenrod (*Solidago nemoralis*)

## Aster Family

**Other Common Names:** grayleaf goldenrod, dwarf goldenrod, old field goldenrod, prairie goldenrod

**Scientific Name:** *Solidago nemoralis* Aiton

**Plant Symbol:** SONE

**Distinguishing characteristics:** Small yellow flower clusters on recurved terminal branches; stems densely hairy with extremely short, curved hairs; leaves forming a basal rosette and are gradually reduced in size up the stem; leaves oblong, widest towards the top end, with only 1 prominent vein.

**Plant Height:** 0.5 - 2.5 ft. tall

**Blooms/Fruits:** July - November

**Duration:** Perennial, herbaceous

**Pollinator Value:** This flower is very popular with bees, wasps, and butterflies of many types. It is known to attract butterflies.

**Habitat:** Dry upland prairie, ledges and tops of bluffs, openings in dry woods, old fields and pastures

**Note:** There are many plants commonly called goldenrods that belong to different plant genera, *Solidago*, *Euthamia*, and *Oligoneuron* and are all fairly similar. They generally have yellow, clustered flowers, but some species are white. The flowering stems can be elongate and recurved or flat-topped.

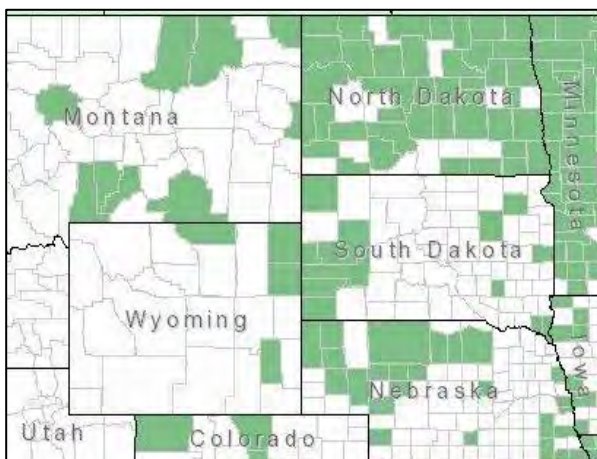


Photo: R.W. Smith, Lady Bird Johnson Wildflower Center





Unopened flowers



Close-up of Flowers



Full bloom



Mature plant



Seed

# Hoary Verbena (*Verbena stricta*)

## Verbena Family

**Other Common Names:** hoary vervain, tall vervain, woolly verbena, wooly verbena

**Scientific Name:** *Verbena stricta* Vent.

**Plant Symbol:** VEST

**Distinguishing characteristics:** Flowers blue to purple on long (up to 1 ft.) terminal spikes, flowering occurs at the bottom of the spike first and progressively flowers upward; leaves are opposite each other on the stem, attached directly to the stem without a leaf stalk, or with a short leaf stalk <1/4 in. long, shape is widely lance-shaped to almost circular; stems and leaves densely covered with short hairs giving the plant an overall “grayish” appearance.

**Plant Height:** 1-4 ft., erect to ascending

**Blooms/Fruits:** June-September

**Duration:** Perennial, herbaceous

**Pollinator Value:** This flower is known to attract butterflies. It is also a larval food source for the common buckeye.

**Habitat:** Upland prairies, loess and sand prairies, open upland forests, overgrazed pastures, old fields, and disturbed areas.

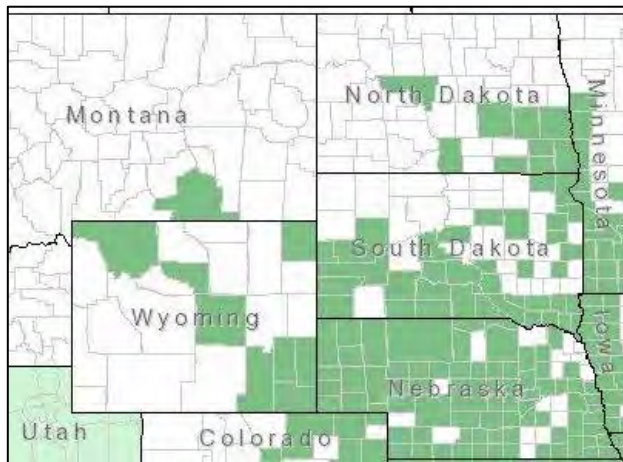






Photo: R.W. Smith, Lady Bird Johnson Wildflower Center

2004 © Peter M. Dziuk

Full flowering/close-up of blooms

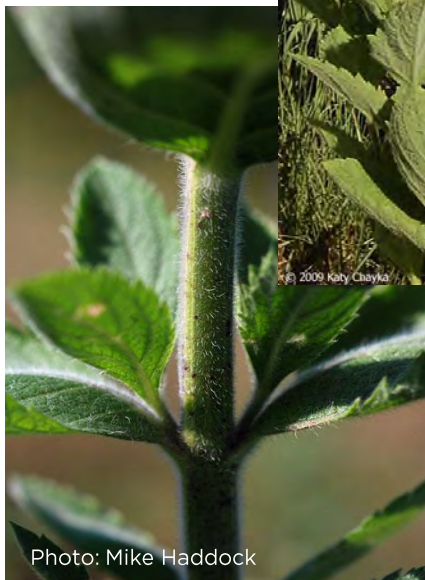


Photo: Mike Haddock

Close-up of stem and leaf



© 2009 Katy Chayka



© 2013 Katy Chayka

Mature plant



# Leadplant (*Amorpha canescens*)

Pea Family

**Other Common Names:** leadplant amorpha, prairie shoestring

**Scientific Name:** *Amorpha canescens* Pursh

**Plant Symbol:** AMCA6

**Distinguishing characteristics:** Flowers small and purple in narrow, elongate terminal spike-like inflorescences, and unlike most pea flowers leadplant has only a banner petal; leaves are covered with short dense hairs giving the plant its distinctive grayish appearance (lead color), leaves are compound with 15–20 pairs of leaflets and a single terminal leaflet; taproots very deep, extending to 4 ft.

**Plant Height:** 1–3 ft., ascending

**Blooms/Fruits:** May–August

**Duration:** Perennial, woody short shrub/subshrub

**Pollinator Value:** Highly attractive to native bees. Provides nectar and pollen in the summer.

**Habitat:** Upland prairies, loess hill prairies, openings in dry upland forests, pastures, and roadsides.

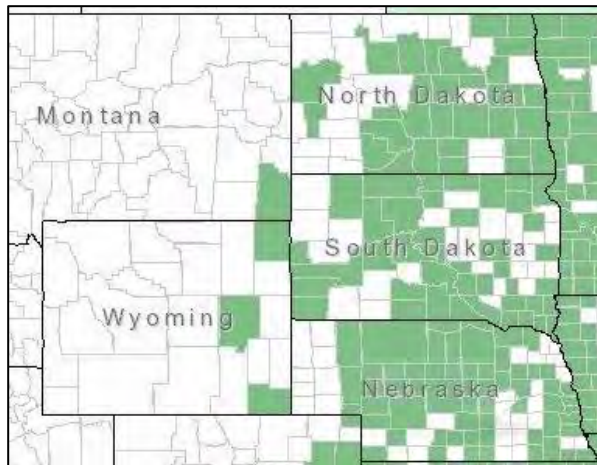


Photo: Sally and Andy Wasowski, Lady Bird Johnson Wildflower Center



Photo: Sally and Andy Wasowski, Lady Bird Johnson Wildflower Center

Full flowering/close-up of blooms



Photo: R.W. Smith, Lady Bird Johnson Wildflower Center



Photo: Julie Makin, Lady Bird Johnson Wildflower Center

Mature flower head



Photo: Julie Makin, Lady Bird Johnson Wildflower Center



Photo: Norman Flaigg, Lady Bird Johnson Wildflower Center

Close-up of leaflets and vegetative growth



# Maximillian Sunflower (*Helianthus maximiliani*)

## Aster Family

Other Common Names: Max sunflower

Scientific Name: *Helianthus maximiliani* Schrad.

Plant Symbol: HEMA2

Distinguishing characteristics: flower head similar to common sunflower; tall, leafy unbranched stems; long, narrow leaves up to 10 inches, coarse and hairy, and slightly toothed and pointed.

Plant Height: 3-10 ft., erect

Blooms/Fruits: August-November

Duration: Perennial, herbaceous

Pollinator Value: Many species of native bee are sunflower specialists and they frequently nectar and collect pollen from these flowers. Butterflies also nectar on sunflowers.

Habitat: Adapted too many soil types, from sands to clays; favors good internal drainage and sunny locations.

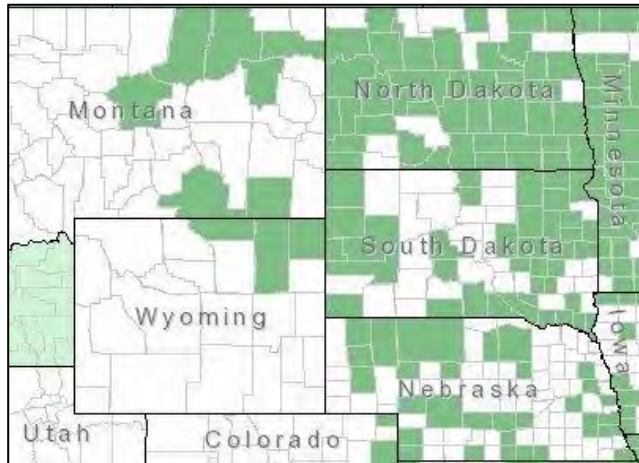






Photo: Lady Bird Johnson Wildflower Center Staff

Seedling



Photo: USDA-

Photo: USDA-NRCS

Mature plant



Photo: USDA-

Photo: USDA-

Full flowering



Photo: USDA-NRCS

Late vegetative



# Missouri Goldenrod (*Solidago missouriensis*)

## Aster Family

**Other Common Names:** prairie goldenrod, Missouri basin goldenrod

**Scientific Name:** *Solidago missouriensis* Nutt.

**Plant Symbol:** SOMI2

**Distinguishing characteristics:** Stems one or more arising from a branched rhizome, erect, with small longitudinal lines running down the stem; leaves with a basal rosette and alternately arranged up the stem, narrow 7-10x longer than wide, tip pointed, margins serrated, and 3 main veins are visible from the lower surface; inflorescence terminal, branched, and resembling a pyramid; individual flower heads pointing upward on reflexed branches, rays yellow, disk yellow.

**Plant Height:** 2-3 ft.

**Blooms/Fruits:** July–October

**Duration:** Perennial, herbaceous

**Pollinator Value:** Visited by honey bees, various native bees, wasps, beetles, flies, bugs, moths and butterflies.

**Habitat:** Upland prairies, pastures, loess hill prairies, forest openings, and roadsides.

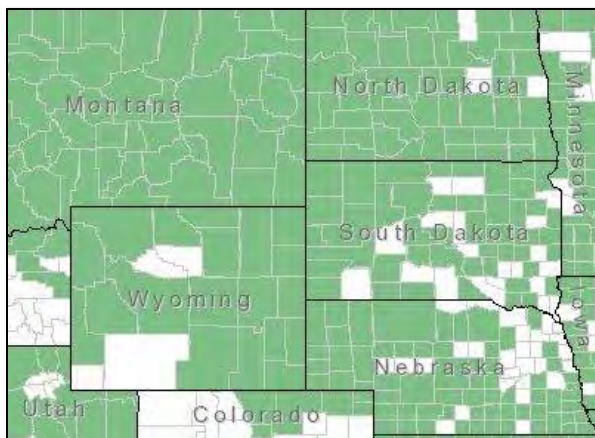


Photo: Mike Haddock





Photo: John Hilty, Illinois wildflower



Photo: Mike Haddock



Photo: John Hilty, Illinois wildflower

Flowering/close-up view of flower



Photo: John Hilty, Illinois wildflower



Photo: John Hilty, Illinois wildflower

Leaf shape and arrangement



# New England Aster (*Symphotrichum novae-angliae*)

Aster Family

Other Common Names: none

Scientific Name: *Symphotrichum novae-angliae* (L.) G.L. Nesom      Plant Symbol:  
 SYNO2

**Distinguishing characteristics:** Flower heads in many branched inflorescences; rays numerous (40–100) in each flower head, reddish-purple to purple and the disc reddish-purple; the leaves are widest at the ends, with a blunt tip and tapering base that clasps the stem, with 3-main veins per leaf, the middle and lower leaves absent at flowering; stems are hairy with interspersed gland-tipped hairs, 1 to several from the base and branched towards the top.

Plant Height: 2–5 ft., erect

Blooms/Fruits: July–October

Duration: Perennial, herbaceous (with woody rootstock and rhizomes)

**Pollinator Value:** These flowers provide abundant nectar and pollen in the fall. They attract butterflies. There are a number of aster-oligolege bees that feed on pollen.

**Habitat:** Bottomland prairies, moist depressions, fens, stream banks, pastures, fencerows, and roadsides.

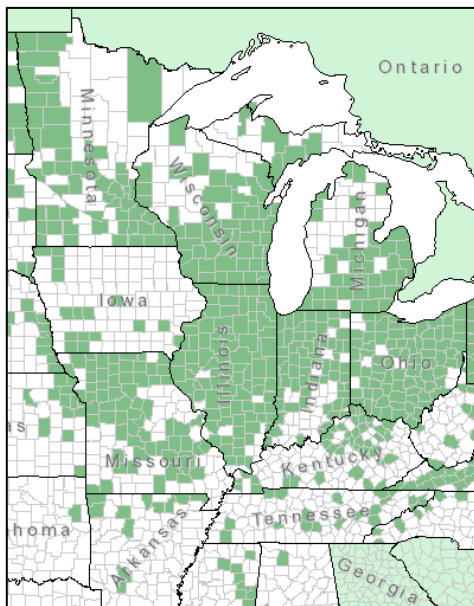


Photo: Steve Eggers ©



Photo: Steve Eggers ©

Full flowering/close-up of blooms



Photo: R.W. Smith, Lady Bird Johnson Wildflower



Photo: USDA-NRCS



Photo: USDA-NRCS

Stem and leaf arrangement



Photo: USDA-NRCS

Seedlings



# Prairie Blazing Star (*Liatris pycnostachya*)

## Aster Family

**Other Common Names:** prairie gayfeather, prairie liatris, Kansas blazing star, Kansas gayfeather, Kansas liatris, cat-tail blazing star, cat-tail gayfeather, cat-tail liatris, hairy button-snakeroot

**Scientific Name:** *Liatris pycnostachya* Michx.

**Plant Symbol:** LIPY

**Distinguishing characteristics:** Flowering heads purplish-blue to lavender powder-puffs and tightly clustered on an elongate inflorescence (spike) that may be half the length of the entire plant; flowering occurs from the top of the inflorescence first and then downward as the season progresses; leaves crowded on the stem and linear up to 6 in. long towards the base, but shorter upward.

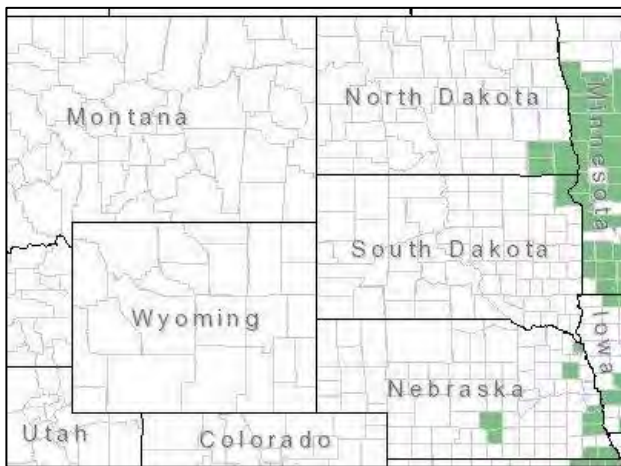
**Plant Height:** 2-5 ft., erect

**Blooms/Fruits:** July–October

**Duration:** Perennial, herbaceous (from a rounded corm)

**Pollinator Value:** Bees and butterflies are attracted to the flowers of this late summer through fall nectar source.

**Habitat:** Upland prairies, openings in mesic to upland forests, stream and ditch banks, fencerows, and pastures.



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Full flowering/close-up of flowers



Mature plant



Stem and leaf



# Prairie Ironweed (*Vernonia fasciculata*)

Aster Family

Other Common Names:

Scientific Name: *Vernonia fasciculata* Michx.

Plant Symbol: VEFA2

**Distinguishing characteristics:** Flower heads reddish-purple to purple in a much branched inflorescence; leaves are alternate on the stem and mostly attached directly without a leaf stem, shape is widely lance-shaped and tapering at both ends, the undersurface has small, indented glands; the dark green leaves with the vivid purple flowers makes it easy to identify.

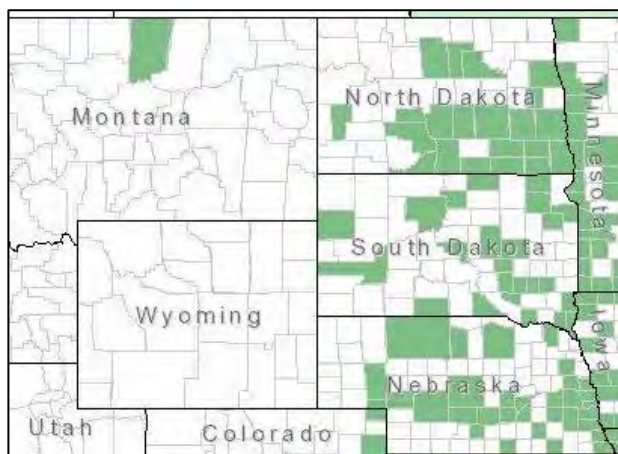
**Plant Height:** 2-4 ft., erect

**Blooms/Fruits:** July–September

**Duration:** Perennial, herbaceous (from rhizomes)

**Pollinator Value:** This flower attracts bees and butterflies. It supports an oligolege bee with its pollen.

**Habitat:** Bottomlands, ditches, low prairies, marshes, fens, and low fields.



2009 © Peter M. Dziuk



2009 © Peter M. Dziuk

Full flowering/close-up of flowers and mature



2013 © Peter M. Dziuk



© 2007 k. chayka



Photo: John Hilty, Illinois

Close-up of leaf/stem and leaf



© 2007 Katy Chayka



# Rocky Mountain Blazing Star (*Liatris ligulistylis*)

## Aster Family

**Other Common Names:** Rocky Mountain gayfeather, Rocky Mountain liatris, meadow blazing star, meadow gayfeather, meadow liatris

**Scientific Name:** *Liatris ligulistylis* (A. Nels) K. Schum      **Plant Symbol:** LILI

**Distinguishing characteristics:** Flower heads blue and appearing as small powder-puffs along a spike-like inflorescence, the terminal flower head will usually flower first and is clearly larger than those below it; leaves are numerous along the stem, narrow and widest towards the top and tapering towards the stem.

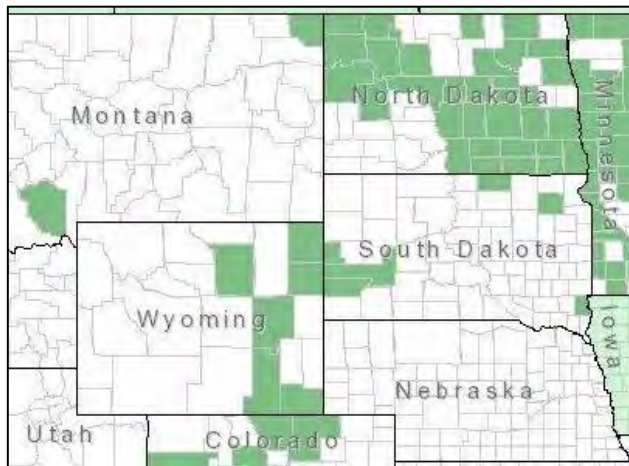
**Plant Height:** 1-3 ft., erect      **Blooms/Fruits:** July–October

**Duration:** Perennial, herbaceous (with a rounded corm)

**Pollinator Value:** Arguably, the most highly preferred monarch nectar plant. Bees and butterflies are also attracted to the flowers.

**Habitat:** Open moist sites, pine barrens, roadsides, ditches, and along railroads.

**Note:** There are several *Liatris* species that are similar in appearance to Rocky Mountain blazing star. This species can be distinguished from others by having the terminal flower head on the inflorescence larger than the lower ones when it is in flower and the inside of the floral tube is not hairy.







Full flowering

© 2011 k. chayka



Stem and leaf arrangement

2011 © Peter M. Dziuk



Close-up of flowers

2009 © Peter M. Dziuk



Mature flowers

2010 © Peter M. Dziuk



# Sawtooth Sunflower (*Helianthus grosseserratus*)

Aster Family

**Other Common Names:** hélianthe à grosses dents

**Scientific Name:** *Helianthus grosseserratus* M. Marten

**Plant Symbol:** HEGR4

**Distinguishing characteristics:** Flower heads with yellow rays and center; leaves are obviously sawtoothed on the margins, broadly lance shaped, and with 3 in. long leaf bases, upper leaf surface rough/raspy; stems arise from stout rhizomes and are hairless, but with a white waxy coating on the lower half of the stem.

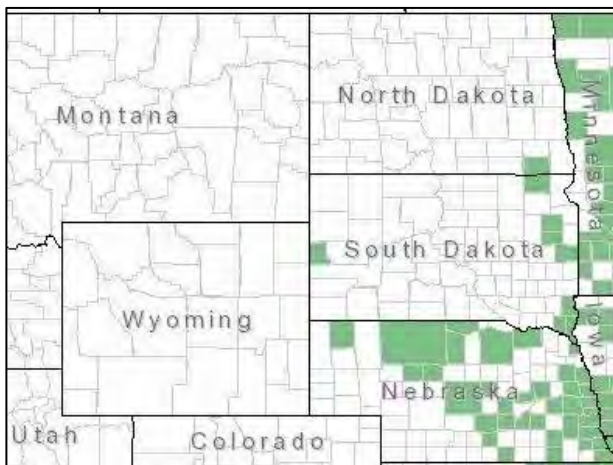
**Plant Height:** 3-12 ft., erect

**Blooms/Fruits:** August–November

**Duration:** Perennial, herbaceous

**Pollinator Value:** These flowers are known to attract butterflies and other pollinators. They provide both pollen and nectar to foraging bees.

**Habitat:** Dry to wet prairies, open sites, wooded stream bottoms



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Full flowering and close-up of flowers



Stem and close-up of leaf



Leaf arrangement



# Showy Goldenrod (*Solidago speciosa*)

## Aster Family

Other Common Names: prairie goldenrod, showy-wand goldenrod

Scientific Name: *Solidago speciosa* Nutt.

Plant Symbol: SOSP2

**Distinguishing characteristics:** Flower heads yellow in branched inflorescences arising both terminal and from the axils of the upper leaves, ascending to spreading; leaves are variable – those on the lower portions of the plant widest in the middle or the end of the leaf, and leaves above the middle of the plant are widest towards the base of the leaf, all leaves have 1 main vein, stems with longitudinal ridges or grooves.

**Plant Height:** 2-5 ft., erect

**Blooms/Fruits:** August–November

**Duration:** Perennial, herbaceous

**Pollinator Value:** This flower is very attractive to bumble bees and butterflies. Goldenrods are quality nectar and pollen sources for pollinators and other beneficial insects. It hosts a number of oligolege bees.

**Habitat:** Upland prairies, dry to mesic upland forests, dry open site, and roadsides.

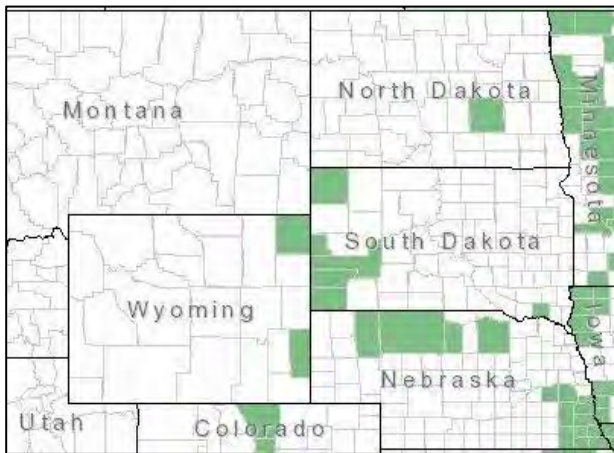


Photo: Sally and Andy Wasowski, Lady Bird Johnson Wildflower



Photo: R.W. Smit, Lady Bird Johnson Wildflower Center

Close-up of Flowers



Photo: R.W. Smit, Lady Bird Johnson Wildflower Center



© K. R. Robertson, Illinois Natural History Survey

Mature plant



Photo: John Hilty, Illinois Wildflowers

Leaf



# Showy Milkweed (*Asclepias speciosa*)

## Milkweed Family

Other Common Names: None

Scientific Name: *Asclepias speciosa* Torr.

Plant Symbol: ASSP

**Distinguishing characteristics:** Flowers in umbrella-shaped clusters borne on hairy flower stalks; petals reflexed with upturned tips, greenish-purple to pink with an overall hour-glass shape; leaves are opposite on the stem, pointed at the tip, rounded at the base, and hairy on the under surface; stems are hairy and may be branched.

**Plant Height:** 1.5–3 ft., but may reach 6 ft., erect **Blooms/Fruits:** May–September

**Duration:** Perennial, herbaceous (from deep-set rhizomes)

**Pollinator Value:** Larval host for the monarch butterfly. Flowers attract butterflies. High value summer nectar source.

**Habitat:** Wet prairies, savannahs, and roadside ditches.

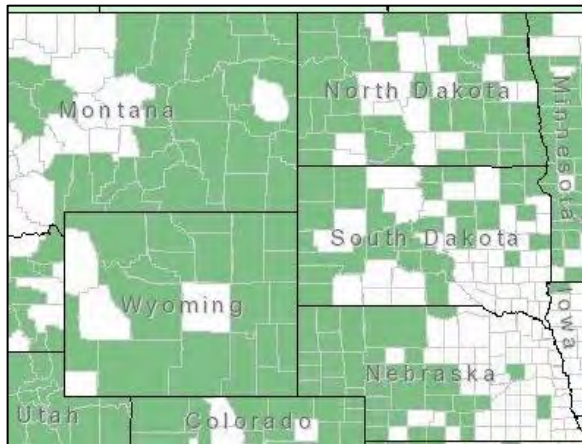


Photo: John Hix, Lady Bird Johnson Wildflower Center



Photo: John Hix, Lady Bird Johnson Wildflower Center

Full flowering/close-up of blooms



Photo: John Hix, Lady Bird Johnson Wildflower Center



Photo: Bennie Bengston, Lady Bird Johnson Wildflower

Fruit



Photo: Brooke Byerley Lady Bird Johnson Wildflower Center by M. B. By

Stem and Leaf arrangement



Photo: Fran Cox, Lady Bird Johnson Wildflower Center

Mature fruit with seed



# Slimleaf Milkweed (*Asclepias stenophylla*)

## Milkweed Family

**Other Common Names:** narrowleaf milkweed, narrowleaf green milkweed

**Scientific Name:** *Asclepias stenophylla* A. Gray

**Plant Symbol:** ASST

**Distinguishing characteristics:** Stems erect, usually solitary from a corm-like rootstock; leaves alternately arranged on the stem, sessile or with very short leaf stalks, linear in shape, 4-7 in. long by <1/4 in. wide; inflorescences several from the upper leaf axils, globular in shape with numerous flowers in each; flowers with reflexed petals, mostly green, pale-green, to light-yellow; crown light-green to white with the corona hoods appearing 3-lobed.

**Plant Height:** 1-3 ft.

**Blooms/Fruits:** May-August

**Duration:** Perennial, herbaceous (from thick, tuberous rootstock)

**Pollinator Value:** Larval host for the monarch butterfly. Visited by bumble bees, other native bees, honey bees, and a variety of butterflies.

**Habitat:** Upland prairies, open ground, exposed ledges, bluffs, calcareous ground, roadsides, and pastures.

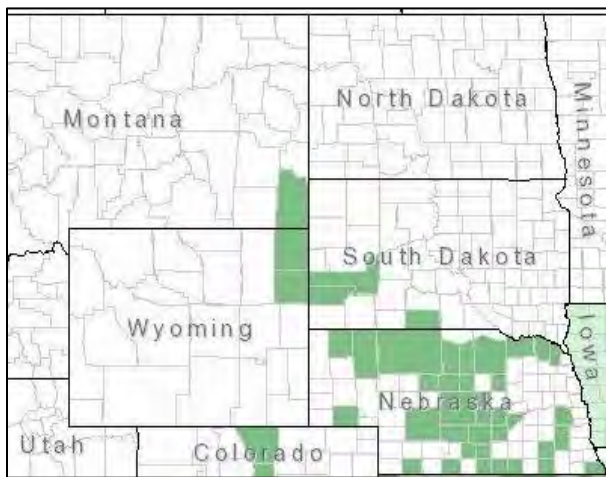






Photo: Mike Haddock



Photo: Mike Haddock



Photo: Janice Lynn, Lady Bird Johnson Wildflower Center

Flowering/close-up view of flower



Photo: Janice Lynn, Lady Bird Johnson Wildflower Center



2010 © Peter M. Dziuk

Leaf shape and arrangement



# Smooth Blue Aster (*Symphyotrichum laeve*)

## Aster Family

**Other Common Names:** smooth aster

**Scientific Name:** *Symphyotrichum laeve* (L.) Á. Löve & D. Löve  
SYLA3

**Plant Symbol:**

**Distinguishing characteristics:** Flowering heads few to many on the ends of ascending branches, rays are blue to lavender and the center is yellow; leaves are widest near the middle and sometimes heart-shaped, generally without hairs; leaf stems absent or very short; basal leaves and those on the lower half of the stem generally absent/withered at flowering.

**Plant Height:** 2-4 ft., erect, branched above the stem's midpoint  
August-October

**Blooms/Fruits:**

**Duration:** Perennial, herbaceous (from creeping, woody rhizomes)

**Pollinator Value:** Flowers provide abundant nectar and pollen in the fall. They attract butterflies. There are a number of aster-oligolege bees that feed on the pollen.

**Habitat:** Open or drying sites, upland prairies, open forests, and roadsides.

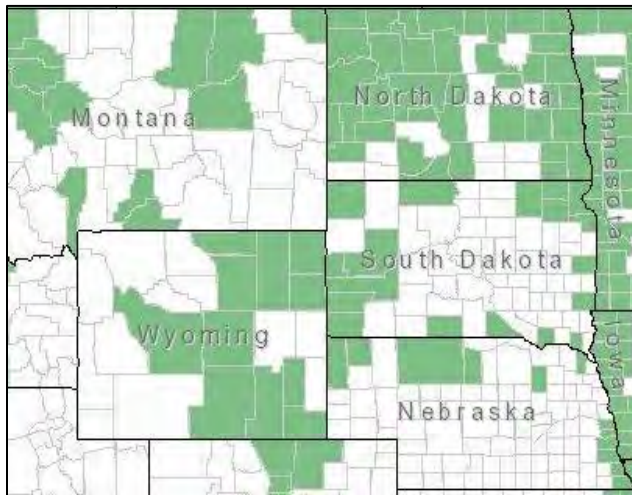






Photo: R.W. Smith, Lady Bird Johnson Wildflower Center © 2009 k. chayka

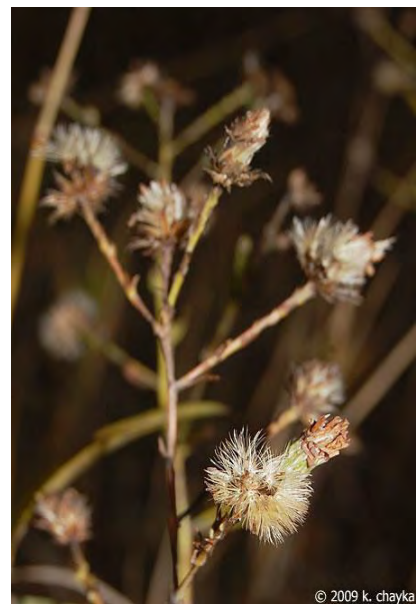
Full flowering/close-up of flowers



Photo: John Hilty, Illinois

Photo: © 2007 K. Chayka

Stem and leaf arrangement



© 2009 k. chayka

Mature plant



# Smooth Oxeye (*Heliopsis helianthoides*)

Aster Family

**Other Common Names:** oxeye sunflower, false sunflower

**Scientific Name:** *Heliopsis helianthoides* (L.) Sweet

**Plant Symbol:** HEHE5

**Distinguishing characteristics:** Flower heads with persistent yellow rays and a cone-shaped yellow-orange center and superficially appearing like a small version of common sunflower; leaves are opposite on the stem, have a rough texture to the touch, with coarsely saw-toothed margins, 3 main veins, and a pointed tip.

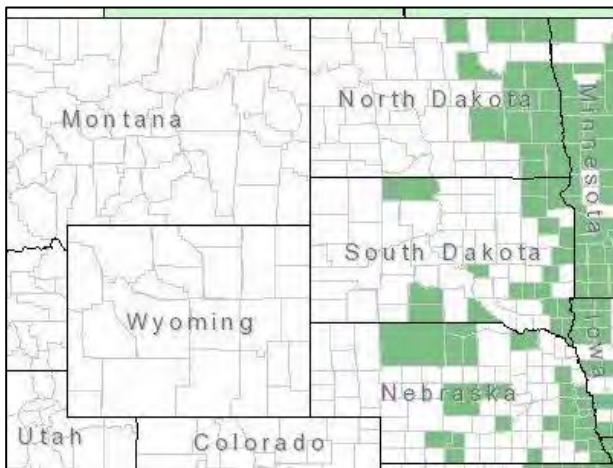
**Plant Height:** 3-5 ft., erect

**Blooms/Fruits:** June-September

**Duration:** Perennial, herbaceous (from creeping rhizomes)

**Pollinator Value:** This summer blooming flower is of high value to many pollinators and beneficial insects. It has its own oligolege bee, and it attracts butterflies.

**Habitat:** Dry areas, prairies, edges of woods, roadsides, open woods, edges of fields and thickets.



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Full flowering/close-up of blooms



Photo: R.W. Smith, Lady Bird Johnson Wildflower Center



Julie Makin, Lady Bird Johnson Wildflower Center



Photo: Robert Stone, Lady Bird Johnson Wildflower Center



Photo: Robert Stone, Lady Bird Johnson Wildflower Center

Mature plant



Photo: John Hilty, Illinois Wildflowers

Stem arrangement



Photo: John Hilty, Illinois Wildflowers

Leaf



# Spotted Joe Pye Weed (*Eutrochium maculatum*)

## Aster Family

**Other Common Names:** spotted trumpetweed, eupatoire maculée

**Scientific Name:** *Eutrochium* (= *Eupatorium*) *maculatum* (L.) E.E. Lamont **Plant Symbol:** EUMA9

**Distinguishing characteristics:** Flower heads are terminal in large, purple, dome-shaped inflorescences; leaves are in whorls of 4 to 5 (except towards the top where they can be alternate), tapering to a point at the tip, have margins sharply toothed, undersurfaces with both short hairs and glandular hairs, and only 1 main vein per leaf; the stems are solid (except at the very base) and are colored with dark purple mottling or uniformly dark purple tinged.

**Plant Height:** 3-6 ft., erect

**Blooms/Fruits:** August-September

**Duration:** Perennial, herbaceous

**Pollinator Value:** This late summer flower provides nectar for long-tongued bees and butterflies.

**Habitat:** Pastures & disturbed sites, moist areas, and open sun or partial shade.

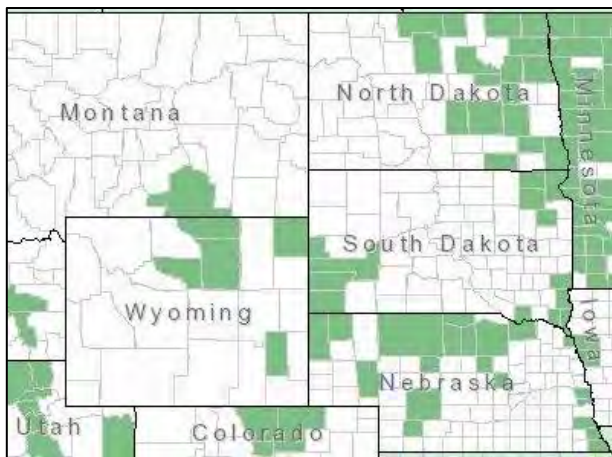


Photo: Steve Eggers ©



Full flowering



Stem and leaf arrangement



# Stiff Goldenrod (*Oligoneuron rigidum*)

Aster Family

Other Common Names: ridged goldenrod

Scientific Name: *Oligoneuron rigidum* (L.) Small

Plant Symbol: OLR1

**Distinguishing characteristics:** Flower heads in branched, flat-topped to mildly rounded inflorescences, individual flower heads small with yellow rays and yellow centers; leaves with basal rosettes that are persistent at flowering as well as smaller stem leaves; leaf surfaces with short, usually dense, curved hairs making the surface feel rough; stems with several fine grooves/ridges and with pubescence of curved hairs.

**Plant Height:** 2-4 ft., erect

**Blooms/Fruits:** July–November

**Duration:** Perennial, herbaceous (with short, creeping rhizomes)

**Pollinator Value:** This flower supports pollinators and beneficial insects. It attracts butterflies, including the monarch.

**Habitat:** Bottomland and upland prairies, dry upland forests, old fields, and pastures.

**Note:** There are many plants commonly called goldenrods that belong to different plant genera, *Solidago*, *Euthamia*, and *Oligoneuron*, and they are all fairly similar. They generally have yellow, clustered flowers, but some species are white. The flowering stems can be elongate and recurved or flat-topped.

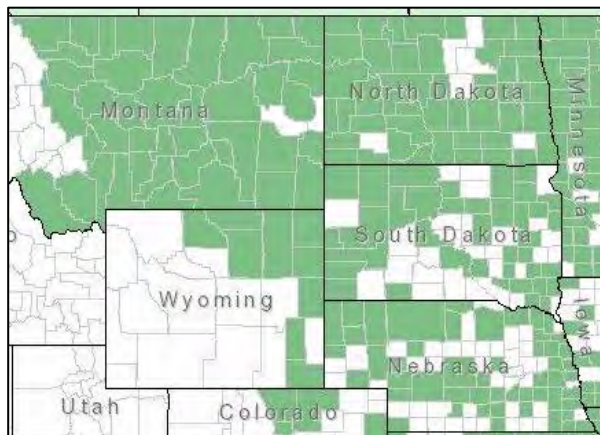


Photo: W.D. and Dolphia Bransford, Lady Bird Johnson Wildflower Center



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Illinois Natural  
History Survey

Full flowering/close-up of blooms



© K. R. Robertson  
Illinois Natural History Survey



Photo: Janice Lynn, Lady Bird Johnson Wildflower Center

Stem and leaf arrangement



Photo: Julie Makin, Lady Bird Johnson Wildflower Center



# Stiff Sunflower (*Helianthus pauciflorus*)

Aster Family

**Other Common Names:** prairie sunflower, few-leaved sunflower

**Scientific Name:** *Helianthus pauciflorus* Nutt.

**Plant Symbol:** HEPA19

**Distinguishing characteristics:** Flower heads single or a few and terminal, rays yellow and the central disc reddish-brown to dark purple; leaves few and are mostly towards the base of the plant, thick-textured and somewhat leathery, covered with short stiff hairs making the surfaces feel rough/raspy, and with 3- main veins.

**Plant Height:** 4-6 ft., erect

**Blooms/Fruits:** August-October

**Duration:** Perennial, herbaceous (forms dense colonies from rhizomes)

**Pollinator Value:** This plant is a great summer nectar source. Sunflowers are workhorse plants, supporting bees, butterflies, and other beneficial insects. Many species of native bee are oligoleges on its pollen. Checkerspot butterflies feed on its leaves as caterpillars.

**Habitat:** Upland prairies, loess hill prairies, openings in dry upland forests, pastures, and roadsides.

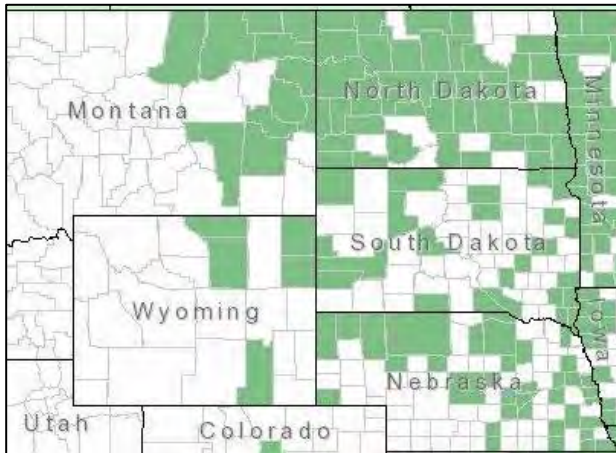


Photo: Mike Haddock



Photo: R.W. Smith, Lady Bird Johnson Wildflower Center  
Full flowering/close-up of blooms



Photo: R.W. Smith, Lady Bird Johnson Wildflower Center



Photo: R.W. Smith, Lady Bird Johnson Wildflower Center



Photo: Mike Haddock



Photo: Mike Haddock

Photo: Mike Haddock

Stem and leaf arrangement/close-up of leaf



# Swamp Milkweed (*Asclepias incarnata*)

## Milkweed Family

**Other Common Names:** rose milkweed, pleurisy root, white Indian hemp

**Scientific Name:** *Asclepias incarnata* L.    **Plant Symbol:** ASIN

**Distinguishing characteristics:** Inflorescences long stalked and with 2-12 per plant, both terminal and in the leaf axis toward the upper end of the stem; flowers pink to pinkish-white; petals reflexed; leaves opposite on the stem, lance-shaped, and with an abrupt or rounded base; leaf stalk short.

**Plant Height:** 2-6 ft., erect                      **Blooms/Fruits:** June-October

**Duration:** Perennial, herbaceous (from a fibrous rootstock)

**Pollinator Value:** Larval host plant for the monarch butterfly. Flowers attract butterflies.

**Habitat:** Wetland habitats: swamps, sloughs, marshes, and edges of ponds.

**Note:** Swamp milkweed is poisonous if consumed in larger quantities by people and livestock. Sheep are especially susceptible.

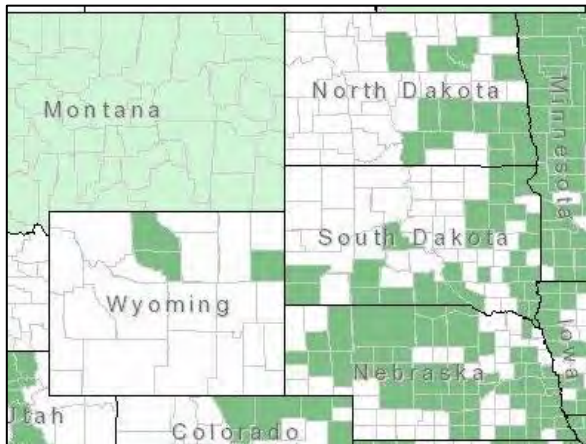


Photo: Jennifer Anderson ©

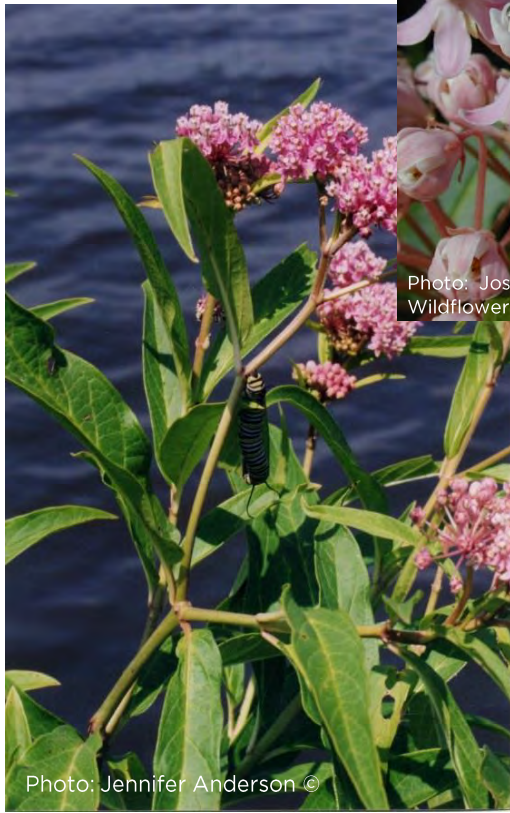


Photo: Jennifer Anderson ©

Full flowering/close-up of blooms



Photo: Joseph Marcus, Lady Bird Johnson Wildflower Center



Photo: Sally and Andy Wasowski, Lady Bird Johnson Wildflower Center

Leaf arrangement



Photo: Steve Eggers, USACE

Fruit

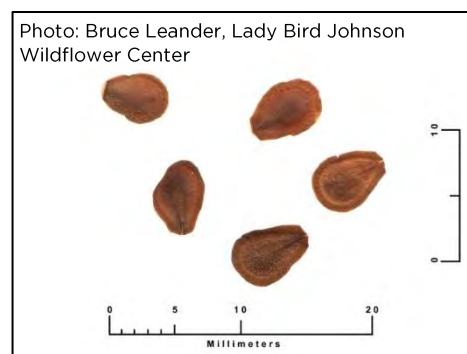


Photo: Bruce Leander, Lady Bird Johnson Wildflower Center

Seed



# Tall Blazing Star (*Liatris aspera*)

Aster Family

**Other Common Names:** rough gayfeather

**Scientific Name:** *Liatris aspera* Michx.

**Plant Symbol:** LIAS

**Distinguishing characteristics:** Flower heads are in small powder-puffs interspersed along an elongate spike-like inflorescence; the leaves are widest towards the middle or tip of the leaves, but they are always very narrow, appearing linear.

**Plant Height:** 2-4 ft., erect

**Blooms/Fruits:** August–November

**Duration:** Perennial, herbaceous (with a round corm)

**Pollinator Value:** Monarchs are known to visit this plant. Bees and butterflies are attracted to the flowers of this late summer/fall nectar source.

**Habitat:** Upland prairies, glades, openings of mesic to dry upland forests, pastures, and roadsides.

**Note:** There are several *Liatris* species that are similar in appearance to Tall Blazing Star. This species can be distinguished from others by having the bracts under the flower heads with thin, transparent margins which are purplish-tinged and appearing torn. The individual flowers are hairy within the floral tube, and the terminal head is NOT larger than the rest of the heads.

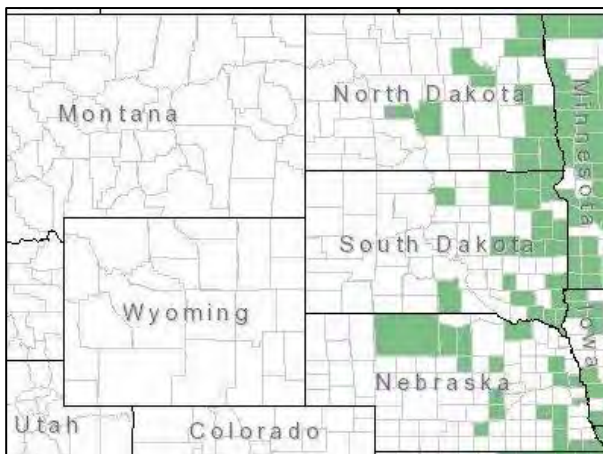


Photo: Sally and Andy Wasowski, Lady Bird Johnson Wildflower Center



Full flowering/close-up of blooms



Mature plant



Seedlings



# Tall Thistle (*Cirsium altissimum*)

Aster Family

Other Common Names: Iowa thistle, roadside thistle

Scientific Name: *Cirsium altissimum* (L.) Hill

Plant Symbol: CIAL2

**Distinguishing characteristics:** Stems solitary with heavy branching in the upper portions of the stem; Leaves with a basal rosette of 1<sup>st</sup> year leaves and stems leafy with the 2<sup>nd</sup> year growth; basal & stem leaves large, up to 10 in. long and 5 in. wide, generally not lobed or with shallow lobes; leaf margins wavy and spine tipped; flowering heads numerous and solitary at the ends of the branch tips, pinkish-purple to reddish-purple in color.

**Plant Height:** (variable) 3–10 ft.

**Blooms/Fruits:** July–September

**Duration:** Biennial, herbaceous

**Pollinator Value:** Visited for nectar and/or pollen by very diverse insect community, including bumble bees, other native bees, honey bees, flies, beetles, moths and butterflies.

**Habitat:** Bottomland forests, open stream bottom thickets, pastures, savannahs, old fields, and roadsides.

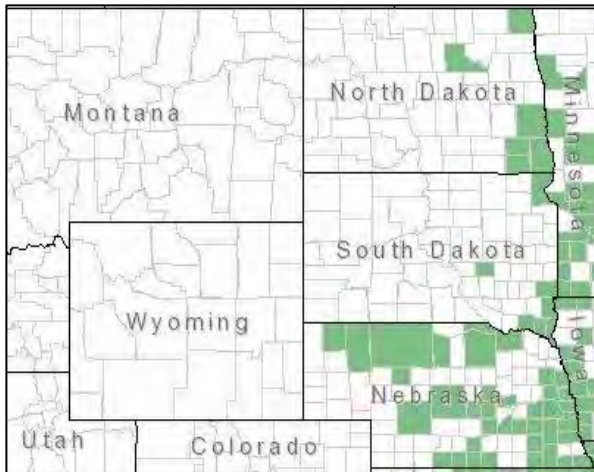


Photo: Mike





2012 © Peter M. Dziuk



Photo: Mike Haddock



Photo: Mike Haddock

Flowering/close-up view of flowers/mature flowers



2012 © Peter M. Dziuk

Seedling



Photo: Mike Haddock

Leaf shape and arrangement



# White Prairie Clover (*Dalea candida*)

Pea Family

Other Common Names:

Scientific Name: *Dalea candida* Michx. ex Willd.

Plant Symbol: DACA7

**Distinguishing characteristics:** Flowers small, two-lipped, white, and in cylindrical or thimble-shaped clusters at the top of the stem; flowering in a ring at the base of the cylindrical inflorescence first and the ring moves up the inflorescence; leaves compound with 3-5 pairs of leaves with one on the top; stems 1 to several from a thick taproot.

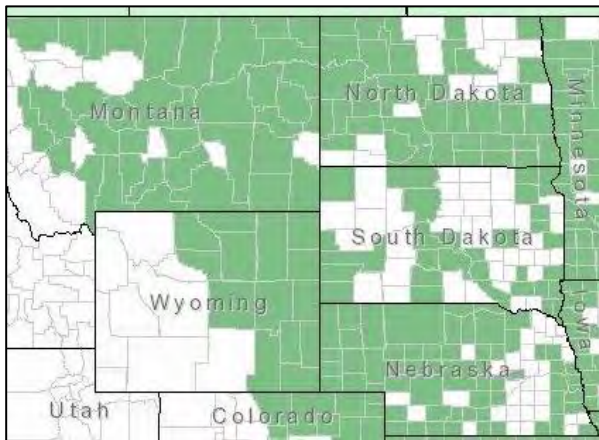
**Plant Height:** 1-2 ft., erect

**Blooms/Fruits:** May-August

**Duration:** Perennial, herbaceous to shrubby bases

**Pollinator Value:** This flower provides nectar and pollen to bees and butterflies. It is also a larval host plant for the Dogface butterfly.

**Habitat:** Prairies, open woodland, stream valleys, and roadsides.







Full flowering/close-up of flowers



Stem and leaf arrangement



# Wholeleaf Rosinweed (*Silphium integrifolium*)

Aster Family

Other Common Names: entire-leaf rosinweed, rosinweed

Scientific Name: *Silphium integrifolium* Michx.

Plant Symbol: SIIN2

**Distinguishing characteristics:** Flowering heads in open loose inflorescences, rays yellow and the central disc yellow; leaves occur somewhat uniformly along the stem, are opposite each other on the stem, are widely lance-shaped to heart shaped, except for some basal leaves they are attached directly to the stem and without a leaf stalk; the leaf bases are heart shaped and clasping the stem or taper down the stem but do not fuse together with the leaf on the opposite side of the stem.

Plant Height: 2 – 6 ft., erect

Blooms/Fruits: July - September

Duration: Perennial, herbaceous (from short, stout rhizomes)

Pollinator Value: This flower provides nectar and pollen to bees and other beneficial insects.

Habitat: Upland prairies open upland forests, banks of streams and rivers, edges of crop fields, and roadsides.

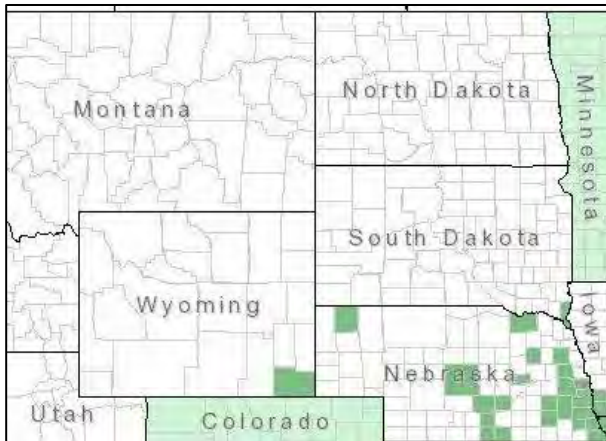




Photo: 2001 © Peter Dziuk

Full flowering/close-up of flowers and base



Photo: John Hiltv, Illinois



© 2009 Katy Chayka



Vegetative growth and close-up of stem and leaf



stem



# Whorled Milkweed (*Asclepias verticillata*)

## Milkweed Family

**Other Common Names:** horsetail milkweed

**Scientific Name:** *Asclepias verticillata* L. **Plant Symbol:** ASVE

**Distinguishing characteristics:** Leaves very linear/narrow and whorled along the stem. Flower clusters in loose roundish clusters, white to greenish-white sometimes with a purple tinge; petals reflexed but with upturned tips; stems solitary or few from the root mass.

**Plant Height:** 1-3 ft., erect

**Blooms/Fruits:** May-September

**Duration:** Perennial, herbaceous (from rhizomes)

**Pollinator Value:** Larval host plant for the monarch butterfly. Provides nectar in the summer and early fall. Flowers attract butterflies.

**Habitat:** Upland prairies, savannahs, pastures, roadsides, and open upland forests.

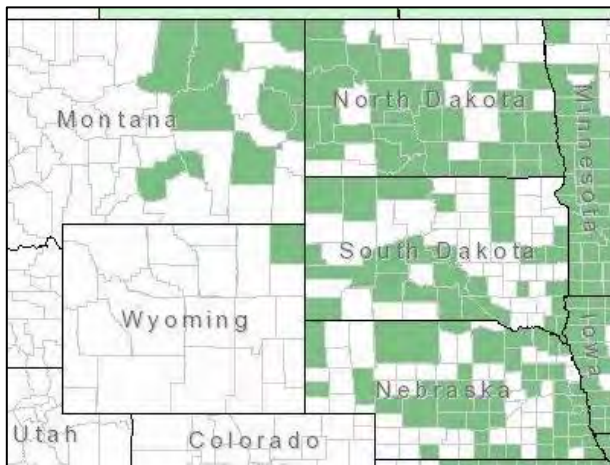


Photo: Beth Anderson, Lady Bird Johnson



Photo: Beth Anderson, Lady Bird Johnson Wildflower Center

Full flowering/close-up of blooms



Photo: Janice Lynn, Lady Bird Johnson Wildflower Center



Photo: Edith Bettinger, Lady Bird Johnson Wildflower Center

Stem and leaf arrangement



Photo: Carolyn Fannon, Lady Bird Johnson Wildflower Center

Multiple inflorescences



Photo: Carolyn Fannon, Lady Bird Johnson Wildflower Center

Fruit (left) and mature fruit with seed (right)



Photo: Janice Lynn, Lady Bird Johnson Wildflower Center



# Wild Bergamot (*Monarda fistulosa*)

Mint Family

Other Common Names: beebalm

Scientific Name: *Monarda fistulosa* L.

Plant Symbol: MOFI

**Distinguishing characteristics:** Flowers in tight ball-like clusters terminating the branches, strongly 2-lipped with the upper lip erect and the lower lip downturned, pale to dark lavender, but rarely white; leaves opposite, variable from lance-shaped to widely lance-shaped, the undersurface has small, clear spots (punctae) that are visible when holding the leaf up to the light; stems are square and with backwards-pointed hairs on the upper half of the stem.

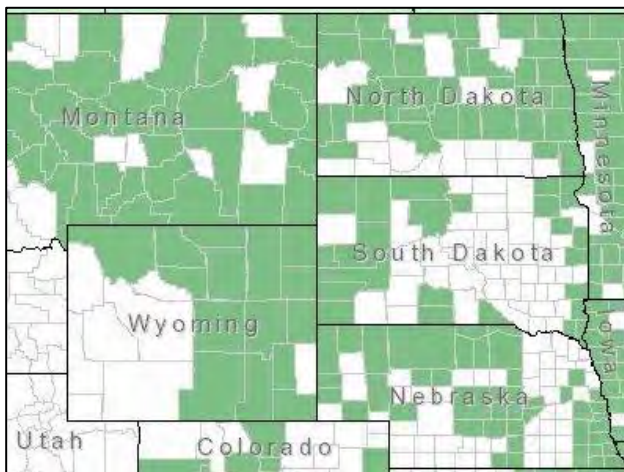
**Plant Height:** 1.5 – 4 ft., erect

**Blooms/Fruits:** May - September

**Duration:** Perennial, herbaceous (with slender, creeping rhizomes)

**Pollinator Value:** This flower is highly attractive to long - tongued bees and butterflies.

**Habitat:** Dry open woods, fields, wet meadows and ditches, and at the edges of woods and marshes; calcareous or acidic soils.



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Flower bud

Full flowering/close-up of blooms



Foliage/leaf arrangement



## Literature Cited

- Agrawal, A. 2017. *Monarchs and Milkweed: A Migrating Butterfly, a Poisonous Plant, and Their Remarkable Story of Coevolution*. Princeton University Press. 283 p.
- Borkin, S. S. 1982. Notes on shifting distribution patterns and survival of immature *Danaus plexippus* (Lepidoptera: Danaidae) on the food plant *Asclepias syriaca*. *Great Lakes Entomologist* (15) 199-206.
- Brower, L. P. 1995. Understanding and misunderstanding the migration of the monarch butterfly (Nymphalidae) in North America: 1857-1995. *J. Lepidopterists Soc.* 49:304-385.
- Brower, L. P., L. S. Fink and P. Walford. 2006. Fueling the fall migration of the monarch butterfly. *Integrative and Comparative Biology*. 46(6):1123-1142.
- Fischer, S. J., E. H. Williams, L. P. Brower and P. A. Palmiotto. 2015. Enhancing monarch butterfly reproduction by mowing fields of common milkweed. *The American Midland Naturalist*, 173(2): 229-240.
- Gibo D. L. and M. J. Pallet. 1979. Soaring flight of monarch butterflies overwintering in California and Mexico. *J. Lepidopterists Soc.* 43:50-58.
- Inamine, H., S.P. Ellner, J.P. Springer, and A.A. Agrawal. 2016. Linking the continental migratory cycle of the monarch butterfly to understand its population decline. *Oikos*: 125(8). 1081-1091.
- Kasten K., C. Stenoien, W. Caldwell, and K. S. Oberhauser. 2016. Can roadside habitat lead monarchs on a route to recovery? *Journal of Insect Conservation*. DOI 10.1007/s10841-016-9938-y.
- Krenn, H. W. 2010. Feeding mechanisms of adult Lepidoptera: structure, function, and evolution of the mouthparts. *Annual Review of Entomology* 55: 307.
- Miller N.G., L.I. Wassenaar, K.A. Hobson and D. R. Norris. 2012. Migratory connectivity of the monarch butterfly (*Danaus plexippus*): Patterns of spring re-colonization in eastern North America. *Zeil J. ed. PLoS ONE* 7(3) e31891.
- Miller, N.G., L.I. Wassenaar, K.A. Hobson, and D. R. Norris. 2017. Monarch butterflies cross the Appalachians from the west to recolonize the east coast of North America. *Biological Letters*. Royal Society Publishing Org. doi:10.1098/rsbl.2010.0525
- Mueller, E. K, and K. A. Baum. 2014. Monarch-parasite interactions in managed and roadside prairies. *Journal of Insect Conservation*. 18: 847. DOI: 10 1007/s10841-014-9691-z.
- Nail, K. R. Stenoien, C., and K. S. Oberhauser. 2015. Immature monarch survival: effects of site characteristics, density, and time. *Annual Entomology Soc. Am.* 108 (5): 680-690.
- Oberhauser, K., I. Gebhard, C. Cameron and S. Oberhauser. 2007. Parasitism of monarch butterflies (*Danaus plexippus*) by *Lespesia archippivora* (Diptera: Tachinidae). *American Midland Naturalist* 157(2): 312-328.
- Pleasants J.M., and K.S. Oberhauser. 2013. Milkweed loss in agricultural fields because of herbicide use: effect on the monarch butterfly population. *Insect Conservation and Diversity*. 6 (2) pp. 135-144.
- Prysky, M. and K. Oberhauser. 2004. Temporal and geographical variations in monarch densities: citizen scientists document monarch population patterns. Pages 9-20 in K. S. Oberhauser and J. J. Solensky, editors. *The Monarch Butterfly: Biology and Conservation*. Cornell University Press, Ithaca, NY. USA.

- Roeske, C. N., J. N. Seiger, L. P. Brower, and C. M. Moffit. 197. Milkweed cardenolides and their comparative processing by monarch butterflies (*Danaus plexippus* L.) Rec. Adv. Phytochem. 10:93-167.
- USDA, NRCS. 2017. USDA Natural Resources Conservation Service Monarch Butterfly Wildlife Habitat Evaluation Guide, and Decision Support Tool: *Western Coastal Plain Edition*.  
<https://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/plantsanimals/pollinate/?cid=nrcseprd402207>.
- USDA, NRCS. 2014. USDA Natural Resources Conservation Service (NRCS) National Planning Procedures Handbook (PPPH). Part 600.  
<https://directives.sc.egov.usda.gov/viewerFS.aspx?hid=33232>
- Weig, P.D. and T.W. Knowles. 2014. Temperate mountain grasslands” a climate-herbivore hypothesis for origins and persistence. Biol. Rev. Camb. Philos. Soc. 89(2): 466-476.
- Wright, C. K. and M. C. Wimberly. 2013. Recent land use changes in the Western Corn Belt threatens grassland and wetlands. Proceedings National Academy of Sciences of the United States. 110 (10): 4134-4139.
- Zalucki, M. P., L. P. Brower, and S. B. Malcolm. 1990. Oviposition by *Danaus plexippus* in relation to cardenolide content of three *Asclepias* species in the southeastern USA. Ecological Entomol. 15:231-240.
- Zalucki, M. P., L. P. Brower and A. Alonso-M. 2001. Detrimental effects of latex and cardiac glycosides on survival and growth of first-instar monarch butterfly larvae *Danaus plexippus* feeding on the sandhill milkweed *Asclepias humistrata*. Ecological Entomol. 26:212-224.

#### **References used to construct the Monarch WHEG and Planting List:**

- Adamson, N., C. Fallon, M. Vaughan, S. Jepsen. 2017. Draft Monarch Butterfly Regional Nectar Plant Lists. Xerces Society, Portland, Oregon.
- Fallon, C. and S. Jepsen. 2017. Xerces Society Monarch Nectar Source Database. Xerces Society, Portland, Oregon.
- USDA NRCS. 2016. Important Plants of the Monarch Butterfly: An Appendix to the USDA-Natural Resources Conservation Service Monarch Butterfly Wildlife Habitat Evaluation Guide and Planning Tool-Midwest Edition. USDA NRCS, Fort Worth, Texas.
- USDA NRCS. 2017. The PLANTS Database (<http://plants.usda.gov>, 19 July 2017). National Plant data Team, Greensboro, North Carolina 27401-4901 USA.

#### **Distribution Maps:**

USDA NRCS – National PLANTS Database: <http://plants.usda.gov>

#### **Plant Descriptions:**

- Flora North America Project, Online Flora <http://floranorthamerica.org>
- Gleason, H.A., and A. Cronquist, 1991. *Manual of Vascular Plants of the Northeastern United States and Adjacent Canada*, New York Botanical Garden, NY. Second Edition. 910 pp.



Great Plains Flora Association, 1986. *Flora of the Great Plains*, University Press of Kansas, Lawrence, KS. 1402 pp.

Lady Bird Johnson Wildflower Center, Online resources <http://www.wildflower.org/>

Magee, D.W. and H.E. Ahles, 1999. *Flora of the Northeast: a manual of the vascular flora of New England and adjacent New York*. University of Massachusetts Press, Amherst, MA. 1213 pp.

NRCS - Plant Guides & Plant Facts Sheets <http://plants.usda.gov>

NRCS, 1989. *Midwestern Wetland Flora: Field Office Guide to Plant Species*, internal publication. 600 pp.

Radford, A., et. al., 1964. *Manual of the Vascular Flora of the Carolinas*, University of North Carolina Press, Chapel Hill, NC. 1183 pp.

Voss, Edward G., 1996. *Michigan Flora*. University of Michigan, Ann Arbor, MI, vol. III, 622 pp.

Yatskievych, G., 2006. *Steyermark's Flora of Missouri*, Missouri Botanical Garden Press, St. Louis, MO. Vol 2, 1181 pp.

Yatskievych, G., 2013. *Steyermark's Flora of Missouri*, Missouri Botanical Garden Press, St. Louis, MO. Vol 3, 1382 pp.

#### **Pollinator Values:**

Hilty, John. 2017. Illinois wildflowers.  
[http://www.illinoiswildflowers.info/flower\\_insects/plants/](http://www.illinoiswildflowers.info/flower_insects/plants/)

Lady Bird Johnson Wildflower Center. 2017. <http://www.wildflower.org/plants/>

Lee-Mader, Eric, Jarrod Fowler, Jillian Vento and Jennifer Hopwood. 2016. *100 Plants to Feed the Bees: Provide a Healthy Habitat to Help Pollinators Thrive*. The Xerces Society, Portland, OR. 240 pp.

Xerces Society. 2017. Monarch Nectar Plant Database (accessed 2017-01-20).







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