

MONARCH NECTAR PLANTS

Northern Plains



Left to right: Monarch on New England aster, white snakeroot, and hoary verbena.

The Northern Plains region—which includes North Dakota, South Dakota, Nebraska, eastern Montana, and parts of Wyoming, Minnesota, Iowa, and northeast Colorado—is dominated by vast grasslands interspersed with forested mountains and riparian woodlands. A range of climates, elevations, and soil types has led to incredibly diverse plant communities, which in turn support a wide array of wildlife, including hundreds of species of bees, flies, moths, and butterflies. Monarch butterflies depend on the floral resources in these prairies to breed and store energy for their annual fall migration.

Each spring, monarchs leave overwintering sites in coastal California and the mountains of central Mexico and fan out across North America to breed and lay eggs on milkweed, the monarch's host plant. Several generations are produced over the course of the spring and summer. In late summer and early fall, adults from the northern U.S. and southern Canada migrate back to the overwintering sites, where they generally remain in reproductive diapause until the spring, when the cycle begins again.

Monarchs at overwintering sites in Mexico and California have declined dramatically since monitoring began in the late 1990s. Across their range in North America, monarchs are threatened by a variety of factors. Loss of milkweed from extensive herbicide use has been a major contributing factor, and habitat loss and degradation from other causes, natural disease and predation, climate change, and widespread insecticide use are probably also contributing

to monarch declines. Because of the monarch's migratory life cycle, it is important to protect and restore habitat across their entire range. Adult monarchs depend on diverse nectar sources for food during all stages of the year, from spring and summer breeding to fall migration and overwintering. Inadequate milkweed and nectar plant food sources at any point may impact the number of monarchs that successfully arrive at overwintering sites in the fall.

Providing milkweeds and other nectar-rich flowers that bloom where and when monarchs need them is one of the most significant actions you can take to support monarch butterfly populations. This guide features Northern Plains native plants that have documented monarch visitation, bloom during the times of year when monarchs are present, are commercially available, and are known to be hardy. These species are well-suited for wildflower gardens, urban greenspaces, and farm field borders. Beyond supporting monarchs, many of these plants attract other nectar- and/or pollen-seeking butterflies, bees, moths, and hummingbirds, and some are host plants for other butterfly and moth caterpillars. For a list of native plants that host butterflies and moths specific to your zip code see www.nwf.org/nativeplantfinder.

The species in this guide are adaptable to growing conditions found across the state. Please consult regional floras, the Biota of North America's North American Plant Atlas (<http://bonap.net/napa>), or the USDA's PLANTS database (<http://plants.usda.gov>) for details on species' distributions in your area.



Bloom	Common Name	Scientific Name	Flower Color	Max. Height	Water Needs	Notes
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		Forbs		(Feet)	Low, Medium, or High	All species perennials, unless otherwise noted. Monarchs are present May through September in the Northern Plains.	
Spring to Fall	1	Hoary verbena	<i>Verbena stricta</i>	Purple	4	L/M	Important nectar source for butterflies. Host plant for common buckeye.
	2	Butterfly milkweed	<i>Asclepias tuberosa</i>	Orange/yellow	2	L	Monarch caterpillar host plant and nectar source for many bees.
	3	Common milkweed	<i>Asclepias syriaca</i>	White/purple	8	M	Monarch caterpillar host plant.
Summer	4	Smooth blue aster	<i>Symphyotrichum laeve</i> var. <i>laeve</i>	Blue/purple	4	M	Larval host of the pearl crescent butterfly.
	5	Swamp milkweed	<i>Asclepias incarnata</i>	Pink	4	M	Monarch caterpillar host plant.
	6	Wild bergamot	<i>Monarda fistulosa</i>	White/pink/purple	5	M	Aromatic foliage. Flowers attract butterflies, bees, and hummingbirds.
	7	Canada goldenrod	<i>Solidago altissima</i>	Yellow	4	M	Attracts many species of bees and butterflies.
	8	Common sunflower	<i>Helianthus annuus</i>	Yellow	8	M	Annual. A favorite of many bee species. Easy to establish and tolerant of clay soils.
	9	Dotted blazing star	<i>Liatris punctata</i>	Pink/purple	2	M	Drought tolerant once established.
Summer to Fall	10	Flat-top goldentop	<i>Euthamia graminifolia</i> var. <i>graminifolia</i>	Yellow	6	M/H	Attracts many species of bees, wasps, flies, butterflies, moths, and beetles.
	11	New England aster	<i>Symphyotrichum novae-angliae</i>	Pink/purple	6	M	One of the latest fall-blooming plants. Frequented by bees and pre-hibernation bumble bee queens.
	12	Prairie ironweed	<i>Vernonia fasciculata</i>	Purple	5	M/H	Can be aggressive in small areas.
	13	Smooth oxeye	<i>Heliopsis helianthoides</i>	Yellow	5	L/M	Tolerates clay and moist soils.
	14	Spotted joe pye weed	<i>Eutrochium maculatum</i>	Pink/purple	6	M/H	Prefers moist soils, including damp meadows. Attracts butterflies.
	15	Stiff goldenrod	<i>Oligoneuron rigidum</i>	Yellow	5	L/M	Excellent late season nectar source. Leaves turn red in the fall.
	16	Stiff sunflower	<i>Helianthus pauciflorus</i>	Yellow	6	L/M	Very showy plant. Can be aggressive in the garden if not controlled.
	17	Tall thistle	<i>Cirsium altissimum</i>	Pink	10	L	Biennial, drought tolerant plant. Monarch magnet.
	18	White heath aster	<i>Symphyotrichum ericoides</i>	White/pink/yellow	3	L	Great late summer to fall bloomer. Very easy to grow.
	19	White snakeroot	<i>Ageratina altissima</i>	White	3	L	Prefers moist soils but tolerates dry. Attracts butterflies.
	20	Wholeleaf rosinweed	<i>Silphium integrifolium</i>	Yellow	6	L	Very hardy and drought tolerant once established. Attracts bees and other pollinators.
Fall	21	Whorled milkweed	<i>Asclepias verticillata</i>	White	3	L	Monarch caterpillar host plant.
	22	Maximilian sunflower	<i>Helianthus maximiliani</i>	Yellow/brown	10	L	Very showy plant. Can be aggressive in the garden if not controlled.

		Shrubs					
Summer to Fall	23	White prairie clover	<i>Dalea candida</i>	White	2	M	Drought tolerant. Very attractive to bees.
	24	Leadplant	<i>Amorpha canescens</i>	Blue/purple	3	L	Generally tolerant of disturbed soils. Readily visited by bees and other beneficial insects.



Planting for Success

Monarch nectar plants often do best in open, sunny sites. You can attract more monarchs to your area by planting flowers in single species clumps and choosing a variety of plants that have overlapping and sequential bloom periods. Monarchs are present May through September in the Northern Plains. Providing nectar plants that bloom from spring through early fall will be important for breeding and migrating monarchs in the region.

Why Plant Native?

Although monarchs use a variety of nectar plant species, including exotic invasives such as dame's rocket and multiflora rose, we recommend planting native species. Native plants are often more beneficial to ecosystems, are adapted to local soils and climates, and help promote biological diversity. They can also be easier to maintain in the landscape, once established.

Tropical milkweed is a non-native plant that is widely available in nurseries. This milkweed can persist year-round in mild climates, allowing monarchs to breed throughout the winter rather than going into diapause. Tropical milkweed may foster higher loads of a monarch parasite called *Oe* (*Ophryocystis elektroscirrha*), which negatively impacts monarch health. Because of these implications, we recommend planting native species of milkweeds in areas where they historically occurred. You can read more about *Oe* in a fact sheet by the Monarch Joint Venture: http://monarchjointventure.org/images/uploads/documents/Oe_fact_sheet.pdf.

Protect Monarchs from Pesticides

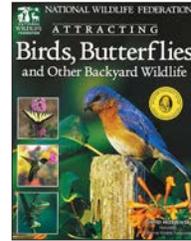
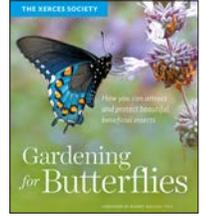
Both insecticides and herbicides can be harmful to monarchs. Herbicides can reduce floral resources and host plants. Although dependent on timing, rate, and method of application, most insecticides have the potential to poison or kill monarchs and other pollinators. Systemic insecticides, including neonicotinoids, have received significant attention for their potential role in pollinator declines (imidacloprid, dinotefuran, clothianidin, and thiamethoxam are examples of systemic insecticides now found in various farm and garden products). Because plants absorb systemic insecticides as they grow, the chemicals become distributed throughout all plant tissues, including the leaves and nectar. New research has demonstrated that some neonicotinoids are toxic to monarch caterpillars that are poisoned as they feed on leaf tissue of treated plants. You can help protect monarchs by avoiding the use of these and other insecticides. Before purchasing plants from nurseries and garden centers, be sure to ask whether they have been treated with systemic insecticides. To read more about threats to pollinators from pesticides, please visit: www.xerces.org/pesticides.

Additional Resources

Publications & Resources

Gardening for Butterflies

The Xerces Society's newest book introduces you to a variety of butterflies who need our help, and provides suggestions for native plants to attract them, habitat designs to help them thrive, and garden practices to accommodate all stages of their life. Available through www.xerces.org/books.



Attracting Birds, Butterflies, and Other Backyard Wildlife

This award-winning book by the National Wildlife Federation's naturalist David Mizejewski is full of information on gardening for birds, pollinators and other wildlife, including illustrated how-to projects, recommended plant lists, and gorgeous color photos. You'll learn everything you need to know to create a Certified Wildlife Habitat. Available through <http://bit.ly/1Xhxfgu>.

Conservation Status and Ecology of the Monarch Butterfly in the U.S. Report www.xerces.org/us-monarch-consv-report

Pollinator Plants of the central U.S.: Native Milkweeds <http://bit.ly/1z7CX4U>

Northern Great Plains Monarchs and Milkweeds <http://bit.ly/2bAachw>

Milkweed Seed Finder www.xerces.org/milkweed-seed-finder

Websites

The Xerces Society www.xerces.org/monarchs

Monarch Joint Venture www.monarchjointventure.org/resources

Natural Resources Conservation Service www.nrcs.usda.gov/monarchs

National Wildlife Federation www.nwf.org/butterflies

Citizen Science Efforts in the Northern Plains

Journey North www.learner.org/jnorth/monarch

Monarch Larva Monitoring Project www.mlmp.org

Project Monarch Health www.monarchparasites.org

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