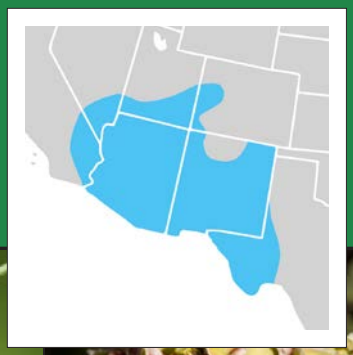
MONARCH NECTAR PLANTS

Southwest



Left to right: Lyreleaf greeneyes, monarch on blue mistflower, and spider milkweed.

The Southwest is a land of geological wonders and climatic extremes. Covering the bulk of Arizona and New Mexico, as well as sections of California, Nevada, Utah, Colorado, and Texas, the southwest region boasts surprisingly lush riparian zones, high deserts, extensive sand dunes, wild cactus gardens, and isolated mountain ranges. Precipitation is minimal except during the summer monsoon season, when violent rainstorms can strike the region. The incredible diversity of landscapes and plant communities has contributed to highly diverse pollinator assemblages, from the hummingbird-sized sphinx moth to the brightly colored milkweed butterflies—the monarchs, queens, and soldiers.

Each spring, monarchs leave hundreds of overwintering sites along the California coast and fan out across the western landscape to breed and lay eggs on milkweed, the monarch's host plant. Several generations are likely produced during this time. In the fall, adults from throughout the western U.S. migrate back to overwintering sites in California and central Mexico, where they generally remain in reproductive diapause until the spring, when the cycle begins again. However, not all monarchs leave the Southwest – some remain in sheltered riparian areas of Arizona to spend the winter.

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, including loss of milkweed from extensive herbicide use, habitat loss and degradation from other causes, natural disease and predation, climate change, and widespread insecticide use. 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 or nectar plant food sources at any point may impact the number of monarchs that successfully arrive at overwintering sites in the fall.

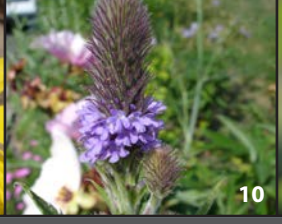
Providing milkweeds and other nectar-rich flowers that bloom where and when monarchs need them is the most significant action you can take to support monarch butterfly populations. This guide features native Southwest plants that have documented monarch visitation, bloom during the times of year when 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. 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 will be adaptable to growing conditions across most of the Southwest. Please consult regional floras (such as SEINet, http://swbiodiversity.org/seinet/) or the Biota of North America's North American Plant Atlas (http://bonap.net/napa) for details on species' distributions in your area.

MONARCH JOINT VENTURE

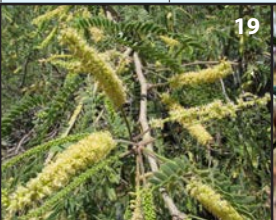
XERCES SOCIETY for Invertebrate Conservation

NATIONAL WILDLIFE FEDERATION GARDEN FOR WILDLIFE

Bloom		Common Name	Scientific Name	Flower Color	Max. Height
		Forbs			(Feet)
Spring to Summer	1	Desert globemallow	*Sphaeralcea ambigua*	Orange	3
	2	Southwestern mock vervain	*Glandularia gooddingii*	Pink/purple	1
	3	Spider milkweed	*Asclepias asperula*	White/green	2
Spring to Fall	4	Lyreleaf greeneyes	*Berlandiera lyrata*	Yellow	2
	5	Woods clover	*Trifolium pinetorum*	Pink/purple	1
Summer to Fall	6	Arizona thistle	*Cirsium arizonicum*	Red/pink/purple	4
	7	Blue mistflower	*Conoclinium coelestinum*	Blue/purple	3
	8	Common sunflower	*Helianthus annuus*	Yellow	8
	9	Golden crownbeard	*Verbesina encelioides*	Yellow	5
	10	MacDougal verbena	*Verbena macdougalii*	Purple	3
	11	Smooth beggartick	*Bidens laevis*	Yellow	3
Summer to Winter	12	Cusp blazing star	*Liatris punctata* var. *mucronata*	Pink/purple	3
Fall	13	Lateflowering thoroughwort	*Eupatorium serotinum*	White	6
	14	Toothleaf goldeneye	*Viguiera dentata*	Yellow	6
		Shrubs and Trees			
Spring	15	Sugar sumac	*Rhus ovata*	White/pink	6
	16	Threadleaf ragwort	*Senecio flaccidus* var. *flaccidus*	Yellow	4
Spring to Summer	17	Desert willow	*Chilopsis linearis*	White/pink/purple	30
	18	Sweetbush	*Bebbia juncea*	Orange/yellow	4
	19	Velvet mesquite	*Prosopis velutina*	White/yellow	30
Spring to Winter	20	Mule-fat	*Baccharis salicifolia*	White/pink	10
Summer to Fall	21	Common buttonbush	*Cephalanthus occidentalis*	White	12
	22	Rubber rabbitbrush	*Ericameria nauseosa*	Yellow	6
Fall to Winter	23	Desertbroom	*Baccharis sarothroides*	Yellow	12
Winter to Spring	24	Red barberry	*Mahonia haematocarpa*	Yellow	12



Water Needs	Notes
Low, Medium, or High	All species perennials, unless otherwise noted. Monarchs are present year-round in the Southwest.
L	Drought tolerant.
L	Not as drought tolerant as habitat suggests.
M	Monarch caterpillar host plant.
L	Annual plant. Blooms year-round in warm weather.
M	Annual plant. Prefers moist soils.
L	Biennial plant. Drought tolerant.
M	Can spread quickly.
M	Annual. A favorite of many bee species. Easy to establish and tolerant of clay soils.
L	Annual plant. Can be common on disturbed soils. Good late season nectar plant for butterflies.
M	Prefers moist soils. Attracts native bees.
H	Annual plant. Prefers wet areas and can be used in bioswales. Attracts beneficial insects and butterflies in the fall.
L	Fantastic butterfly plant.
M	Good wildlife plant. Attracts butterflies and other insects. Seeds eaten by birds.
M	Extremely drought tolerant.
L	Extremely drought tolerant.
L	Prefers disturbed soils. Good for soil stabilization.
L	Fragrant flowers that hummingbirds love.
L	Flowers are fragrant. Attracts butterflies and other insects.
L	Deep taproot reaches water table.
M	Tough and easy to grow but needs moisture. Great for butterfly gardens.
H	Fragrant, showy flowers that attract butterflies.
L	Can be invasive in disturbed soils.
L/M	Can be used for streambank stabilization.
L	Fragrant flowers in spring and large red fruits in fall. Drought tolerant.



Planting for Success

Monarch nectar and host 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 can be present year-round in the Southwest, although this can vary depending on your elevation.

Why Plant Native?

Although monarchs use a variety of nectar plant species, including exotic invasives such as butterfly bush, 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.

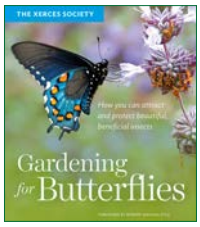
Tropical milkweed is a non-native plant that is widely available in nurseries. This milkweed can persist year-round in mild climates, allowing monarchs to breed throughout the winter rather than going into diapause. Tropical milkweed may foster higher loads of a monarch parasite called Oe (*Ophryocystis 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

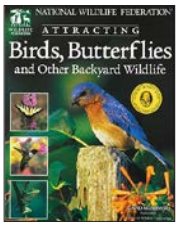
Both insecticides and herbicides can be harmful to monarchs. Herbicides can reduce floral resources and host plants. Although dependent on timing, rate, and method of application, most insecticides have the potential to poison or kill monarchs and other pollinators. Systemic insecticides, including neonicotinoids, 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

Gardening for Butterflies



Attracting Birds, Butterflies, and Other Backyard Wildlife



Available through www.xerces.org/books and http://bit.ly/1Xhxfgu.

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

Guide to Milkweeds and Monarchs in the Western U.S.
www.xerces.org/western-us-monarch-guide

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 Southwest

Southwest Monarch Study www.swmonarchs.org

Xerces Society & USFWS Milkweed and Monarch Survey
www.xerces.org/milkweedsurvey

Journey North
www.learner.org/jnorth/monarch

Monarch Larva Monitoring Project www.mlmp.org

Project Monarch Health www.monarchparasites.org

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