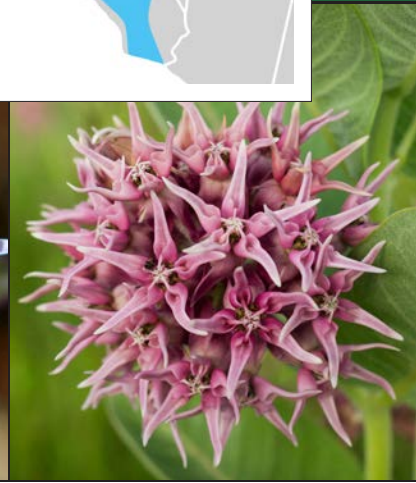
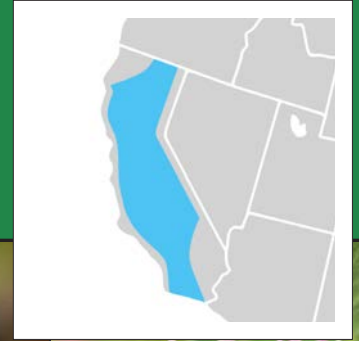


MONARCH NECTAR PLANTS

Inland California



Left to right: Monarch on common buttonbush, mountain monardella, and showy milkweed.

California is one of the most floristically biodiverse regions in the world, supporting unique plant communities such as prairie grasslands, chaparral, giant sequoia groves, and Joshua tree woodlands. The native plants that make up these communities in turn support an incredible array of insects and other animals, including the monarch butterfly. During spring and summer, 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.

Monarchs at overwintering sites in California and Mexico have declined dramatically since monitoring began in the late 1990s. The Xerces Society's Western Monarch Thanksgiving Count, a volunteer driven effort, has documented a 74% decline in monarchs that overwinter in California since 1997. 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. Caterpillars, on the other hand, are completely dependent on their milkweed host plants. 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.

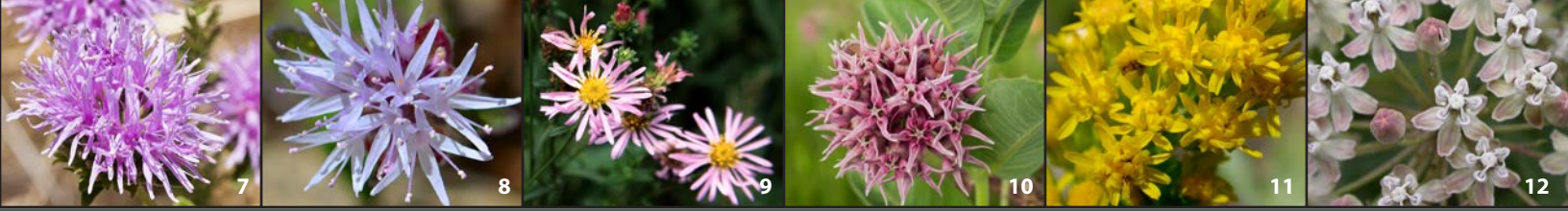
Providing milkweeds and other nectar-rich flowers that bloom where and when monarchs need them is one of the most significant actions you can take to support monarch butterfly populations. This guide features native inland California plants that have documented monarch visitation, bloom during the times of year when monarchs are present, are commercially available, and are known to be hardy. The list also includes moisture requirements, so that you can choose plants to create a drought-tolerant monarch garden, if needed. 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 state, but may be less suitable for planting in the High Sierras, Modoc Plateau, and Eastern Interior Desert regions. Please consult Calflora (www.calflora.org) for details on species' distributions in your specific area.



| Bloom | Common Name | Scientific Name | Flower Color | Max. Height |
|-------|-------------|-----------------|--------------|-------------|
|-------|-------------|-----------------|--------------|-------------|

| | | Forbs | | (Feet) | |
|-------------------------|----|--------------------------|---|-------------------|----|
| Spring to Summer | 1 | Cobwebby thistle | <i>Cirsium occidentale</i> | Pink/white/purple | 4 |
| | 2 | Heartleaf milkweed | <i>Asclepias cordifolia</i> | Pink/purple | 3 |
| | 3 | Nettleleaf giant hyssop | <i>Agastache urticifolia</i> | Purple/red | 2 |
| Spring to Fall | 4 | Slender sunflower | <i>Helianthus gracilentus</i> | Yellow | 1 |
| | 5 | Western vervain | <i>Verbena lasiostachys</i> | Purple | 3 |
| Summer | 6 | Common sunflower | <i>Helianthus annuus</i> | Yellow | 5 |
| | 7 | Coyote mint | <i>Monardella villosa</i> | Pink/purple | 2 |
| | 8 | Mountain monardella | <i>Monardella odoratissima</i> | White/purple | 1 |
| | 9 | Pacific aster | <i>Symphyotrichum chilense</i> | Yellow/violet | 4 |
| Summer to Fall | 10 | Showy milkweed | <i>Asclepias speciosa</i> | Pink/green/purple | 3 |
| | 11 | California goldenrod | <i>Solidago velutina ssp. californica</i> | Yellow | 3 |
| | 12 | Narrow-leaved milkweed | <i>Asclepias fascicularis</i> | Pink/white | 3 |
| | 13 | Smooth beggartick | <i>Bidens laevis</i> | Yellow | 3 |
| | 14 | Sulphur-flower buckwheat | <i>Eriogonum umbellatum</i> | Yellow | 2 |
| Winter to Spring | 15 | Bluedicks | <i>Dichelostemma capitatum</i> | Purple | 3 |
| Shrubs and Trees | | | | | |
| Spring | 16 | Golden currant | <i>Ribes aureum</i> | Yellow | 6 |
| Spring to Summer | 17 | Beloperone | <i>Justicia californica</i> | Red/yellow/orange | 6 |
| | 18 | California buckeye | <i>Aesculus californica</i> | Pink/white | 36 |
| | 19 | Desert willow | <i>Chilopsis linearis</i> | Pink/white | 25 |
| | 20 | Woolly yerba santa | <i>Eriodictyon tomentosum</i> | White | 2 |
| Summer to Fall | 21 | Common buttonbush | <i>Cephalanthus occidentalis</i> | White | 6 |
| | 22 | Rubber rabbitbrush | <i>Ericameria nauseosa</i> | Yellow | 8 |
| Fall to Winter | 23 | Coyotebrush | <i>Baccharis pilularis</i> | White/yellow | 6 |
| Winter | 24 | Desertbroom | <i>Baccharis sarothroides</i> | Pink/white | 10 |





Water Needs **Notes**

| | |
|----------------------|--|
| Low, Medium, or High | All species perennials, unless otherwise noted. Monarchs can be found year-round in California. |
| L | Biennial plant. |
| L | Monarch caterpillar host plant. |
| L | Establishes better from transplant than seed. Tolerates clay soil and wet conditions. |
| L | Excellent butterfly nectar plant. |
| L | Good butterfly plant. Tolerates seasonal flooding, sand and clay. Can be used for erosion control. |
| M | Annual plant. |
| L | Requires good drainage. |
| L | Does best at mid to high elevations. Attracts many species of butterflies. |
| L | Tolerates clay soils and wet or dry conditions. |
| M | Monarch caterpillar host plant. |
| L | Important late-season forage for bees, butterflies, wasps, beetles, and more. |
| M | Monarch caterpillar host plant. Tolerates clay soils and wet or dry conditions. |
| H | Prefers wet areas and can be used in bioswales. Attracts beneficial insects and butterflies in the fall. |
| L | Attracts many species of bees and butterflies. |
| L | Attracts other bees, butterflies, and hummingbirds. An early spring bloomer. |

| | |
|---|--|
| L | Popular with hummingbirds. Tends to prefer moist areas. |
| L | Good butterfly and bird plant. |
| M | Nectar source for many native butterflies. |
| L | Fragrant flowers that hummingbirds love. |
| L | Attracts a wide variety of insects, including butterflies. |
| H | Fragrant, showy flowers that attract butterflies. |
| L | Very drought tolerant. |
| L | Extremely drought-tolerant. |
| L | Can be used for streambank stabilization. |



Planting for Success

Monarch nectar and host plants often do best in open, sunny sites. You can attract more monarchs 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 California, so you may want to provide nectar plants for migrating and breeding monarchs from spring through fall, as well as milkweeds in the spring and summer.

Why Plant Native?

Although monarchs use a variety of nectar plant species, including exotic invasives such as ice plant and cape ivy, 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 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 Insecticides

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 shown 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.

Acknowledgements

Nectaring data and observations, background information, and other contributions to this publication were taken from the published literature and generously provided by multiple researchers, gardeners, partners, and biologists. For the full list of data sources, please visit our website: www.xerces.org/monarch-nectar-plants. Funding provided by the Monarch Joint Venture and USDA Natural Resources Conservation Service. Additional support comes from Cascadian Farm, Ceres Trust, Cheerios, CS Fund, Disney Conservation Fund, The Dudley Foundation, The Edward Gorey Charitable Trust, Gaia Fund, General Mills, Hind Foundation, National Co-op Grocers, Nature Valley, Turner Foundation, Inc., Whole Foods Market and its vendors, and Xerces Society Members.

Written by Candace Fallon, Nancy Lee Adamson, Sarina Jepsen, Hillary Sardinas, Anne Stine, and Mace Vaughan. Designed by Kaitlyn Rich. Formatted by Michele Blackburn. PHOTO CREDITS: Ken Slade*: left cover. Ken-ichi Ueda*: 1, 7. David A. Hoffman*: 2. Thayne Tuason*: 3. Joe Decruyenaere*: 4, 5. Alejandro Bayer Tamayo*: 6. Jeb Bjerke*: 8 (cover). Gordon Leppig & Andrea J. Pickart*: 9. Justin Meissen*: 10 (cover). Keir Morse**: 11, 20. Curtis Clark*: 12. Fritzflohreynolds*: 13. Bruce Newhouse: 14. Jason Hollinger*: 15. Matt Lavin*: 16. Alan English CPA*: 17. Elaine with Grey Cats*: 18. Cliff Hutson*: 19. Bob Peterson*: 21. Stan Shebs*: 22. Miguel Vieira*: 23. Katja Schulz*: 24. *Courtesy of flickr.com/ **Wikimedia Commons/**CalPhotos. Photographs remain under the copyright of the photographer. The Xerces Society is an equal opportunity employer and provider. © 2016 by The Xerces Society for Invertebrate Conservation.

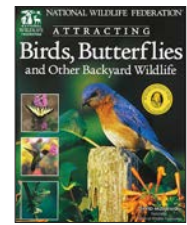
This material is based upon work supported by the Natural Resources Conservation Service, U.S. Department of Agriculture, under number 65-7482-15-118. Any opinions, findings, conclusions, or recommendations expressed in this publication are those of the author(s) and do not necessarily reflect the views of the U.S. Department of Agriculture.

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

Guide to California Native Milkweeds

www.xerces.org/ca-mw-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 California

Xerces Society Western Monarch Thanksgiving Count

www.westernmonarchcount.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