

Monarch Ecology

The monarch butterfly is well-known for its long-distance seasonal migration and its spectacular winter gatherings. While many monarchs migrate to central Mexico, monarchs in western states also migrate to the California coast, which is the only place in the United States that regularly hosts the awe-inspiring sight of thousands of monarchs gathered for the winter. These days, most of California's monarchs cluster in groves of nonnative eucalyptus, although they prefer native trees such as Monterey pine, Monterey cypress, and redwood. Many of these native trees are now less common on California's coast, which may explain why monarchs tend to be seen on eucalyptus.

In the spring, monarchs disperse across California and the West, searching for milkweed plants on which to lay their eggs. Monarch caterpillars will only eat milkweed to grow and develop into adults. Several generations are produced throughout the spring, summer, and fall, with the last generation migrating to the California coast in the fall. Remarkably, monarchs overwinter in the same groves of trees as prior generations. How they navigate to these groves each year remains a mystery.

Monarch nectaring on narrow-leaved milkweed, a key caterpillar host plant in western states. (USFWS Pacific Region.)



The Xerces Society is a nonprofit organization that protects wildlife through conservation of invertebrates and their habitat. To protect western monarchs, the

Xerces Society is working with multiple partners, to:

- ⇒ Understand where monarchs are breeding in the western United States in order to prioritize restoration and active management efforts,
- ⇒ Increase production of native milkweed seed to help reverse loss of milkweed in important monarch breeding areas,
- ⇒ Protect, manage, and restore coastal California overwintering habitat,
- ⇒ Empower citizen scientists and land managers to track and conserve western monarchs and their habitats, and
- ⇒ Provide technical guidance to public and private agencies and citizens on monarch habitat restoration and enhancement.

www.xerces.org/monarchs



The Monarch Joint Venture is a partnership of federal and state agencies, nongovernmental organizations, and academic programs that are taking a science-based approach to protecting the monarch migration across the Lower 48 U.S. states. The MJV is achieving this goal through a combination of: 1) monarch habitat conservation; 2) education; and 3) research and monitoring to inform monarch conservation efforts.

www.monarchjointventure.org



The Pacific Grove Museum of Natural History inspires discovery, wonder, and stewardship of the natural world. The Museum highlights the miraculous life and endangered migration of monarch butterflies throughout the California Central Coast, and provides education and interpretation at the Monarch Grove Sanctuary in downtown Pacific Grove.

www.pgmuseum.org

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(Front photo: The Xerces Society/Carly Voigt.)

WESTERN MONARCHS IN PERIL



Conserving this iconic species

Hundreds of thousands of monarch butterflies spend the winter in tree groves along the coast of California. They travel from as far north as Canada, but with a 74% decline in the numbers since the late 1990s, the future of this migration is at risk.

Read about how you can help!

Monarchs in Decline

The future of the western monarch migration is at risk. Since 1997, citizen scientists have monitored California's overwintering monarchs, revealing a 74% decline in the population since the late 1990s. This underscores the need to gain a clear understanding of the status of monarchs and their habitat, and to take conservation action.

Scientists suspect monarchs are disappearing because:

- ⇒ **Breeding habitat is being lost and degraded** due to herbicides and insecticides, urban and rural development, and the intensification of agriculture, as well as long-term drought, which may be linked to climate change;
- ⇒ **Overwintering groves are being destroyed** by development; and
- ⇒ **The quality of overwintering habitat is declining** as trees in the monarch groves age.



Overwintering cluster in Monterey pine. (The Xerces Society/Candace Fallon.)



Monarch caterpillar on showy milkweed. (The Xerces Society/Candace Fallon.)

Six Things YOU Can Do To Help Protect Western Monarchs and Their Habitat

- 1. Plant native milkweed in its historic range.** This can be in your backyard, at your workplace, or at your school. Nonnative tropical milkweed, although widely available, should not be planted because it may interfere with the monarchs' natural breeding and overwintering cycles and increase monarch parasites. We also recommend against planting milkweed within 5–10 miles of an overwintering site, as it may confuse monarchs into breeding out of season. Use our Milkweed Seed Finder to find plant suppliers: <http://www.xerces.org/milkweed-seed-finder/>.
- 2. Plant native flowers.** Monarchs need nectar to provide energy to migrate, breed, and overwinter. Flowers can be planted anywhere, including overwintering sites. See <http://www.xerces.org/monarch-nectar-plants/> for lists of good flowers to use in your area.
- 3. Avoid using insecticides and herbicides.** These may kill or harm butterflies or caterpillars and the plants that monarchs use for nectar or breeding.
- 4. Consult with a monarch expert before cutting or trimming any trees,** if you live near an overwintering site or monarchs roost on your property. Monarchs are very choosy about the overwintering sites they use. Improper tree trimming or removal may result in unsuitable habitat for overwintering monarchs.
- 5. Become a citizen monitor.** The Xerces Society is looking for volunteers to:
 - visit overwintering sites to monitor monarch populations for the Western Monarch Thanksgiving Count, www.westernmonarchcount.org; and
 - report monarch and milkweed observations across the West through the Western Monarch Milkweed Mapper, www.westernmonarchmapper.org.
- 6. Support monarch conservation efforts.** Volunteer for or donate money to projects and nonprofit organizations that protect monarchs.