

WESTERN MONARCHS ARE IN TROUBLE

This Is How You Can Help



From the overwintering groves of coastal California to milkweed in the open sagebrush of eastern Washington, protection and management of habitats is urgently needed chance to save the western monarch migratory phenomenon. (Photos: Xerces Society / Candace Fallon.)

Western Monarchs are in Jeopardy

Imagine that the city of Los Angeles had shrunk to the size of the town of Monterey. You'd be shocked. Basically, that is what has happened to the monarch butterflies that overwinter in California. At Thanksgiving 2018, the population of western monarchs hit a record low of less than 29,000 butterflies, a decline of 99.4% since the 1980s, when the number of monarchs flying to California for the winter is estimated to have been 4.5 million. For every 160 monarchs there were 30 years ago, there is only one left flying today.

The significant problems afflicting western monarchs are habitat loss (overwintering and breeding areas), pesticide use (herbicides and insecticides), and climate change (including increased drought severity and frequency). Research into monarch losses is active and ongoing, but the depth and abruptness of the recent declines means that we need to act now based on the available evidence. The western monarch population may collapse completely if we wait until all of the answers are fully in focus.

Western monarchs are in trouble, but there are concrete actions that we can all take to help them recover. The Xerces Society is taking action for monarchs in California. Working with farmers, natural area managers, California cities, and others we are planting and restoring habitat across the Central Valley—a key breeding and migration area for monarchs. In the last 18 months, we have restored 20 miles of hedgerows on farms, and in the coming year, we will be adding another 10 miles to further re-connect habitats. These hedgerows provide essential nectar sources, milkweed for breeding, and unsprayed refuge.

Xerces is also pushing for protection for overwintering sites and working with partners to restore overwintering habitat.

Will you help us in this task?

The actions listed below are based on our current understanding of stressors that impact the monarch specifically, as well as butterflies more generally, and also on the precautionary principle in which we take measures to reduce risks to the monarch population while we are working to better understand these risks.

As alarming as these numbers are for the population of monarchs that overwinters in California, it should be noted that the situation is not so dire for monarchs in the eastern United States, the population that migrates to Mexico. The eastern population has declined by more than 80% in the last two decades, and needs protection. But it hasn't experienced the abrupt fall seen in the western population this year.

Restore and Protect Habitat

Plant native milkweed and nectar plants

Plant native milkweed species in regions where they naturally occur.

- ⇒ Consult the **interactive map** at <https://arcg.is/1bC4bb> to determine if you live in a no-milkweed zone. (In California, milkweeds typically did not grow within 5 miles of the coast.)

If you live in California, plant early emerging species such as heartleaf milkweed (*Asclepias cordifolia*), California milkweed (*A. californica*), and woollypod (*A. eriocarpa*) milkweeds.

- ⇒ Check out Xerces' Milkweed Seed Finder (xerces.org/milkweed-seed-finder) to locate native milkweed plant materials (seeds, plugs, plants) in your area, and Xerces' Western Monarch Milkweed Mapper (monarchmilkweedmapper.org) to see which species of milkweed grows in your area.



Woollypod milkweed (*Asclepias eriocarpa*), growing in southern California, provides food for a hungry monarch caterpillar. (Photo: Xerces Society / Scott Hoffman Black.)

Plant flowers to provide nectar for adult monarchs and other butterflies. Ideally, these would be native species which benefit other insects as well, but monarchs can use a wide range of flowering plants. Particular emphasis should be placed on planting species which bloom in the later winter or early spring (blooming February–April) to support monarchs leaving overwintering sites.

- ⇒ Check out Xerces' monarch native nectar plant guides (xerces.org/monarch-nectar-plants) for regional plant guidance that include bloom time, flower color, and water requirements. In addition to the monarch nectar guides, the table to the right includes a more general list of native plant genera that monarchs use.

Climate change is altering when plants bloom and where they can be planted: Choose nectar plants and design planting projects that will be resilient to climate change, such as those with low water requirements, e.g., goldenrod (*Solidago* sp.), milkweed (*Asclepias* sp.), coyote brush or mule fat (*Baccharis* sp.), and rabbitbrush (*Ericameria* sp. and *Chrysothamnus* sp.).

Protect existing habitat

Identify existing monarch habitat—which may include milkweed, nectar plants, water sources, or roosting trees—and protect it!

Protect existing milkweed plants from mowing, burning, grazing, pesticides, and other actions that could be harmful to monarchs during the breeding season. Check out Xerces' "Timing Management in Monarch Breeding Habitat" fact sheet (xerces.org/managing-monarchs-in-the-west) to learn when it is safe to manage milkweed habitat in your area.

Genus	Common Name
<i>Abronia</i>	Sand verbena
<i>Agastache</i>	Giant hyssop
<i>Asclepias</i>	milkweed
<i>Baccharis</i>	coyote brush; mule fat
<i>Bidens</i>	beggarticks
<i>Cephalanthus</i>	buttonbush
<i>Cirsium</i>	thistle
<i>Cleome</i>	Bee plant
<i>Ericameria</i>	rabbitbrush
<i>Erigeron</i>	fleabane
<i>Euthamia</i>	goldentop
<i>Helianthus</i>	sunflower
<i>Rosa</i>	rose
<i>Solidago</i>	goldenrod
<i>Symphotrichum</i>	aster

Become an advocate for your local overwintering site(s)

If you live on the California coast near an overwintering site, become a steward of one or more sites.

Each year, overwintering sites are destroyed or damaged by human actions such as development or inappropriate tree trimming, sometimes leading to total abandonment of the site by the butterflies.

- ⇒ Participate in community science projects such as the **Western Monarch Thanksgiving Count** (westernmonarchcount.org) and track whether sites become slated for development or face other pressures.
- ⇒ Contact your local elected officials and encourage them to protect these sites.
- ⇒ Work with local landowners to protect overwintering habitat.
- ⇒ Organize your neighbors to plant native fall-, winter-, and spring-blooming wildflowers and shrubs that provide nectar to monarchs. (See below for information on pesticides and tropical milkweed.)



It is essential to protect and manage the groves in California where monarchs overwinter. (Photo: Xerces Society / Carly Voight.)

Reduce or eliminate pesticide use, particularly insecticide use

Don't use pesticides on your lawn, garden, or farm. Protect existing monarch habitat (milkweed and nectar plants) from pesticides.

Avoid purchasing plants that have been treated with systemic insecticides

Check out pesticide resources on Xerces' website (xerces.org/pesticides-in-your-garden) to learn more.

If you are able, support farmers who minimize pesticide use and provide wildlife habitat. Many insecticides and herbicides can be harmful to monarchs and their habitat

Contribute to Science and Research

Western Monarch Milkweed Mapper (WMMM)

Look for and take photos of milkweeds and monarchs, and report them on the WMMM (monarchmilkweedmapper.org). Sightings in California during the period monarchs leave the overwintering sites (February–April) are particularly important, as this is a stage of the migratory cycle we know the least about. Other high priority areas where data is needed include New Mexico, Colorado, Utah, Wyoming, and Montana. Report all monarch adult, caterpillar, egg, nectaring, and milkweed sightings to the Western Monarch Milkweed Mapper. Adult nectaring observations are especially needed during the spring and fall migrations.

The Xerces Society's Western Monarch Thanksgiving Count

If you live near an overwintering site and can make at least a 2-year commitment, consider joining the dedicated group of volunteers that



Valuable information can be gathered with little more than a pair of binoculars and a few hours of time. (Photo: Xerces Society / Emma Pelton.)

monitor these groves each year, gathering information on habitat conditions and estimating population numbers. Find information at westernmonarchcount.org.

Additional recommended citizen science opportunities include:

- ⇒ Journey North – Monarchs (journeynorth.org/monarch).
- ⇒ Monarch Alert (monarchalert.calpoly.edu)
- ⇒ Monarch Butterflies in the Pacific Northwest (facebook.com/MonarchButterfliesinThePacificNorthwest)
- ⇒ Southwest Monarch Study (swmonarchs.org)
- ⇒ Monarch Larva Monitoring Program (monarchlab.org/mlmp)
- ⇒ Project Monarch Health (monarchparasites.org)

Things to Avoid

Tropical milkweed

Don't plant nonnative tropical milkweed and do properly manage tropical milkweed that is already planted! This includes tropical milkweed (*Asclepias curassavica*) and balloon plant (*Gomphocarpus* spp.).

- ⇒ Tropical milkweed interferes with monarch migration, natural behavior during the winter, and can lead to a build-up of disease, especially near the coast in California. Ideally, replace tropical milkweed with native species. If not, cut it to the ground in the fall (Oct/Nov) and repeatedly through the winter, if it re-sprouts. It is important to break the all-year growing cycle.
- ⇒ To find out more, read “Tropical Milkweed – a No Grow?” on the Xerces’ blog (xerces.org/2018/04/19/tropical-milkweed-a-no-grow).

Pesticides, especially neonicotinoids

Don't use pesticides and don't buy plants treated with neonicotinoids. Neonicotinoid treated plants can kill or harm monarchs. Ask your local nursery if they use these chemicals on their plants.

- ⇒ Check out pesticide resources on Xerces’ website (xerces.org/pesticides-in-your-garden) to learn more.

Rearing of monarchs

Don't rear monarchs as a conservation strategy. Rearing monarchs does not address core issues of the butterfly's declines and comes with risks such as introducing disease into the wild population. Limit rearing to small numbers (ca. 10 per year) for personal education or enjoyment. Never buy, ship, or move monarchs over long distances.

- ⇒ Read “Keep Monarchs Wild! Why captive rearing isn't the way to help monarchs” on Xerces’ blog to find out why (xerces.org/2018/09/11/keep-monarchs-wild).

For more information and resources, visit
savewesternmonarchs.org