



MONARCH JOINT VENTURE

Partnering across the U.S. to conserve the monarch migration

www.monarchjointventure.org

The Monarch Joint Venture is a partnership of federal and state agencies, non-governmental organizations, and academic programs that are working together to protect the monarch migration across the lower 48 United States.

MISSION

Recognizing that North American monarch (*Danaus plexippus*) conservation is a responsibility of Mexico, Canada and the U.S., as identified in the North American Monarch Conservation Plan, this Joint Venture will coordinate efforts throughout the U.S. to conserve and protect monarch populations and their migratory phenomena by developing and implementing science-based habitat conservation and restoration measures in collaboration with multiple stakeholders.

Our mission will be achieved by coordinating and facilitating partnerships and communications in the U.S. and North America to deliver a combination of habitat conservation, education, and research and monitoring.

VISION

The vision of this Joint Venture is abundant monarch populations to sustain the monarch migratory phenomena into perpetuity, and more broadly to promote monarchs as a flagship species whose conservation will sustain habitats for pollinators and other plants and animals.

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Monarch Conservation: How to Get Involved

The monarch butterfly is an iconic species in North America, known for its international migration spanning four to five generations. Monarchs are in serious decline and an all-hands-on-deck approach is needed to protect their amazing migratory phenomenon. Everyone can contribute to monarch conservation through habitat creation, educating others, participating in research, or financial contributions to conservation groups.

Monarch life cycle

Monarchs go through complete metamorphosis, meaning they have four distinct life stages: egg, caterpillar, chrysalis, adult. It takes approximately one month for eggs to become adult butterflies. During the caterpillar stage, monarchs will only eat milkweed plants; there are about 100 species of milkweed native to North America. Toxins in milkweed are stored by monarchs, making them distasteful to predators. Spring and summer breeding adults live 2-6 weeks and the fall migratory generation lives up to 9 months.

Intergenerational migration

There are two migratory populations in North America. Monarchs east of the Rocky Mountains migrate to central Mexico to overwinter and those west of the mountains typically migrate to the California coast. Starting in the late summer, environmental cues trigger migratory behavior. Monarchs delay reproductive development and begin to travel away from their breeding grounds toward their overwintering sites. After traveling vast distances, these monarchs spend the winter clustered in the Mexican oyamel fir forests or Californian eucalyptus and native pine or cypress trees; these sites provide the perfect microclimate that allows them to survive until the following spring. Beginning in late winter to early spring, breeding resumes and the same monarchs start the northward migration. Unlike the single fall migratory generation, it can take multiple generations to fulfill the northbound migration.

Monarch Breeding Habitat

As the sole food source for monarch caterpillars, milkweed is an essential habitat component. In addition to its importance to monarchs, milkweed (pollen, nectar, and foliage) is a food source for a variety of other insects. Adult monarch butterflies feed on the nectar of many plants, so access to diverse native flowering plants that bloom throughout

the growing season is important for fueling their breeding and migration.

Population Decline

Unfortunately, the North American monarch population has severely declined. Habitat loss, pesticides, disease, climate change, predators, extreme weather, and other anthropogenic factors all threaten monarchs. Since the late 1990s both the eastern and western overwintering populations have declined by over 70%, as documented by WWF Mexico in collaboration with SEMARNAT, CONANP and the MBBR. Recent research suggests that the population will not be viable unless appropriate measures are taken to build the population to a more sustainable level. (Semmens et. al 2016).



Why is Monarch Conservation Important?

Monarchs make an excellent flagship species for pollinator conservation. Creating habitat for monarchs by planting diverse, native nectar plants and milkweed also creates habitat for other pollinators which we rely on for pollination services in agricultural and natural settings. Conserving pollinators and their habitat has positive cascading effects leading to conservation of other animals like song birds and mammals. This pays dividends towards the health of our natural and managed habitats, paving a future for our own species.

What Can I Do to Help?

More details on each of these actions can be found under the *Get Involved* and *Resources* tabs on the Monarch Joint Venture website.

Create Habitat

The most important action you can take to benefit monarchs and other pollinators is to create or improve habitat that contains native milkweeds and nectar plants. First, protect and improve existing habitat areas with appropriately timed management, like mowing, burning, or grazing, to promote native plant growth. In addition, you might consider adding native plant plugs or re-seeding a smaller area to help improve the diversity and improve the site for monarchs and other pollinators. You may also identify areas that could be transformed into new habitats, like lawns, edges, or other corridors on your property. Once a site is prepared for planting by eradicating the existing weedy vegetation, planting plugs or diverse seed mixes can be used to install the habitat in either the spring or the fall. Native plantings are not only good for monarchs, but have low long-term maintenance costs and provide other environmental benefits like water filtration and erosion control.

Visit www.plantmilkweed.org for recommendations on finding the appropriate plants for your project.

Report your observations

Participating in citizen science monitoring programs is an excellent way to track monarch use of the habitat you create and contribute to national scientific efforts to monitor monarch population trends. **Journey North** is a simple, online way to report sightings to track monarch migration and milkweed phenology. Observations are compiled into time lapse maps which show spring and fall migration/phenology real-time. **Monarch Watch** (east of Rocky Mountains), **Monarch Alert** (California), and the **Southwest Monarch Study** (southwest region) operate tagging programs where volunteers put a small, unique tag, or sticker, on butterflies to better understand migration. **Project Monarch Health** utilizes volunteers to track the prevalence of the protozoan parasite *Ophryocystis elektroscirrha* in monarchs by taking a sticker peel of the butterfly's abdomen – this does not hurt the monarch! **Monarch Larva Monitoring Project** volunteers establish a milkweed monitoring site and observe it weekly for monarch eggs and caterpillars and do an annual assessment of the milkweed density (additional, optional activities available for this project).

Educate others

There are many opportunities for you to educate others about monarchs and advocate for monarch conservation. Provide your community with information about what they can do to help monarchs by giving presentations to local youth groups, garden clubs, or other organizations. If you participate in a citizen science monitoring project, get others involved by training others to collect data at their own site(s). Another way to educate others is to draw attention to your monarch habitat(s) by displaying educational signs or structures in your garden or habitat. Displays may inspire passers-by to take part in monarch monitoring or conservation activities of their own.

Contribute financially

Your financial contribution to monarch conservation will help implement a rigorous conservation plan bringing varied strengths, tools, and land management opportunities to the table through the MJV partnership. We are able to make careful and strategic decisions about which next-steps would best advance monarch conservation in the U.S., and allocate our energies and funds accordingly.

Community Level Engagement

In addition to individual actions listed here, engaging broader communities is powerful to conservation in many ways. First, demonstrating the installation and maintenance of high quality monarch and pollinator habitat in a community can spread interest rapidly. Host events, like a monarch festival, to share excitement about monarchs and pollinators and educate community members about actions they can take. These established sites serve as great locations for organized groups to conduct monitoring or other citizen science activities, like weekly observations for the Monarch Larva Monitoring Project or a fall tagging event. In addition, it is important for sites with high public visibility to contain interpretive displays for greater reach within your community. Providing connections to monarch habitat sites in their community is a good way to encourage individuals to invest value in monarch and pollinator conservation more broadly.

Community partnerships are essential. Bringing in educational facilities like museums, zoos, schools, libraries or other educational facilities can help broaden the reach of this type of initiative. Engage entities that own or manage a high percentage of land within the community, like businesses, utility companies, transportation departments, or parks and recreation departments to discuss ways that they can contribute to a larger effort. To be organized and highly effective, form a committee of passionate individuals representing different sectors of the community to maintain forward momentum by establishing priorities and securing necessary resources.

Lastly, encourage your mayor to sign the National Wildlife Federation's Mayors' Monarch Pledge. Communities that commit to taking conservation actions (e.g. adding habitat, changing mowing practices, reducing pesticide use, etc.) can sign on to the pledge.



Sources

North American Monarch Conservation Plan. Commission for Environmental Cooperation. N.p., June 2008. Web. 14 Nov. 2016.

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Quasi-extinction risk and population targets for the Eastern, migratory population of monarch butterflies (*Danaus plexippus*). *Sci. Rep.* 6, 23265; doi: 10.1038/srep23265.

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