



MONARCH JOINT VENTURE

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

www.monarchjointventure.org

Monarch Joint Venture

The Monarch Joint Venture (MJV) is a partnership of federal and state agencies, non-governmental organizations, businesses and academic programs working together to protect the monarch migration across the United States.

Monarch Joint Venture's mission is to protect monarchs and their migration by collaborating with partners to deliver habitat conservation, education, and science across the United States.

Monarch Joint Venture's vision is thriving monarch populations that sustain the monarch migration into perpetuity and serve as a flagship for the conservation of other plants and animals.

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Rearing Monarchs: Why or Why Not?

Rearing and Conservation

In the face of monarch population declines, a network of researchers, organizations, and the public is accomplishing crucial conservation work. Motivation is high to save monarch populations, but informally rearing monarchs at home is not the way to do it. While captive rearing has been successful in laboratory settings for other at-risk species, this approach is not yet warranted for monarchs, and recent research illustrates that informal captive rearing by individuals may pose significant risks to monarchs, including disease and lower migration success. Rearing a few monarchs for education or enjoyment is not known to threaten monarch populations, but the Monarch Joint Venture joins many other entities in emphasizing high-quality habitat creation and protection as the most important conservation strategy.

Legal Concerns

As a result of drastic declines in migratory monarchs in the West, the California Department of Fish and Wildlife now requires a scientific collection permit to handle any monarch, including collection for rearing, scientific research, and teaching. In California, it's unlawful to take possession of live monarchs, breed and rear them in captivity, and conduct other interventions including covering eggs, larvae, and adult butterflies with nets, and transporting monarchs to different locations. Canada and Mexico also restrict monarch handling. There may be rules not presented here that apply to you, so please check your local regulations.

Disease Concerns

Of particular concern to conservation organizations is the practice of raising monarchs in groups without proper sanitizing procedures. Monarchs did not evolve under high density conditions, so larvae reared

in close proximity are highly susceptible to disease. In monarchs, viral and bacterial pathogens spread quickly and are often fatal. Additionally, the debilitating protozoan parasite *Ophryocystis elektroscirrha* (OE) can be problematic in captive rearing environments. If the parasite goes undetected, an infected adult can easily transmit OE spores to its offspring or other larvae in the same container. Keeping adults and larvae together can lead to very high infection rates; inadequate sanitizing can result in OE spore transmission long after infected individuals are gone. While OE is a naturally occurring monarch parasite, captive rearing may inadvertently increase its spread.

Natural Distribution Concerns

Effective conservation requires a clear understanding of population distributions. If wild monarchs are seen in unusual places or times, we can learn about their movement patterns and habitat use. However, if the observer does not know if an unusual sighting involves a captive-reared monarch, our ability to understand natural population distributions is compromised.

Other Concerns

Research suggests that indoor captive rearing conditions may negatively influence the ability of migratory monarchs to orient properly. Because monarchs rely on a combination of environmental cues to sustain their migration, we discourage interference with natural conditions. We also strongly discourage purchasing monarchs commercially to release in the wild.

For more on the risks involved with rearing and mass release, visit bit.ly/captivebreeding

All Hands On Deck!

Add Your Observations to Community Science



Some community science programs (also known as citizen science) have specific research objectives that involve rearing monarchs. Consider all the observational activities these programs offer, and then, if you choose to participate in community science rearing activities, be sure to follow the procedures provided by each program and report your data to help advance the program's research objectives.

Community science really does make a difference for monarch conservation. Did you know that since 1940, 17% of peer-reviewed publications that focused on monarchs used data from community science projects? Additionally, since 2000, two-thirds of papers on field-based research outside the Mexican Reserve (where scientific permits are required) used community science data (Ries and Oberhauser, 2015). Community science volunteers engage in many actions that have important conservation outcomes, from monitoring monarchs and teaching others to improving and creating habitat. And they have fun doing it together!

Find a Community Science Program That Works for You

Here is a sampling of monarch community science programs that involve either small-scale monarch rearing or handling. Tagging butterflies or responsibly raising a few monarch larvae for community science has not been shown to adversely affect monarch populations. Any of the activities below that require handling monarchs are unlawful in the state of California unless covered by a scientific collection permit.

Monarch Larva Monitoring Project

Volunteers collect long-term data on monarch eggs, larvae, and milkweed habitat. Register monitoring site(s) online, monitor monarch and milkweed density regularly, and estimate survival by collecting and raising eggs and larvae. mlmp.org

Project Monarch Health

Volunteers sample wild monarch butterflies to help track the spread of the debilitating protozoan parasite *Ophryocystis elektroscirrha* across North America. Request a parasite sampling kit from Project Monarch Health or follow their instructions to use materials from home, collect samples from butterflies captured from the wild or reared, submit samples to the program for diagnosis, and receive your results.

monarchparasites.org/monitoring

Monarch Watch

Volunteers tag monarchs east of the Rockies, providing information about migration dynamics as monarchs are observed or recovered at overwintering sites or during migration. Purchase tags with ID numbers from Monarch Watch, place tags as instructed on wings of wild-caught or reared monarchs, and report any already tagged monarchs that you find to the program. monarchwatch.org/tagging

Southwest Monarch Study

Volunteers tag and monitor monarchs to help track populations in the Southwest. Request a tagging and field data kit from the program, tag monarchs captured in the wild or reared during fall migration, and record your observations. swmonarchs.org/calltoaction.php



It is critical that proper rearing procedures are closely followed to prevent the inadvertent spread of disease. If you're rearing a few monarchs for enjoyment or educational purposes, always contribute your observations to an established community science program. For a full list of recommended community science programs, visit bit.ly/mjv_communityscience.