



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.

Monarch Joint Venture
University of Minnesota
monarchs@monarchjointventure.org

Monarch and Milkweed Misconceptions

When it comes to monarch conservation, one thing is certain – without milkweed (plant species in the genus *Asclepias*) there would be no monarchs. Milkweed is not always recognized for its important connection to monarchs, in fact, historically it has come with some very negative connotations. In this document, the Monarch Task Force of the North American Pollinator Protection Campaign aims to de-mystify some common monarch and milkweed misconceptions.

Misconception: Milkweed is only useful to monarchs

Despite their natural toxicity, milkweeds are utilized by a variety of insect species. Butterflies, moths, bees, and wasps and more visit milkweeds for pollen and/or nectar. Regional studies examining milkweed pollination found over two dozen insect species using milkweeds; and results indicate that honey bees, bumble bees, other large bees, large wasps, and larger butterflies were the most important milkweed pollinators (Borders, Shepherd 2011). Likewise, there are species that consume milkweed leaves or seeds, like milkweed beetles (*Tetraopes tetraphthalmus*), large milkweed bugs (*Oncopeltus fasciatus*), and tussock moths (family *Lymantriidae*). Predators, such as crab spiders (family *Thomisidae*) and mantises (order *Mantodea*), prey on the many insect species that frequent and depend upon milkweed. These multi-species relationships are all part of the milkweed ecosystem. The Milkweed, Monarchs and More field guide has more information on inhabitants of the milkweed patch (Rea, Oberhauser, Quinn 2003). For these reasons, milkweeds are an important component in any pollinator mix for restoration projects.

Misconception: Milkweed is an invasive weed

There are many species of milkweed native to North America and while “weed” is part of their name, these milkweeds are native, beneficial wildflowers. In the U.S., neither the federal government nor any states list milkweeds as noxious weeds. In fact at least five species are listed as state or federal endangered species (Borders, LeeMäder 2014). According to the North American Invasive Species Network, an invasive species is “a non-native species...whose introduction causes or is likely to cause economic harm, environmental harm, or harm to human health.” The invasiveness of any plant depends on the characteristics of the species and where it is

planted. Some species of milkweed, like common milkweed (*Asclepias syriaca*), have a tendency to be more aggressive in garden settings or disturbed areas, and thus have a reputation of being “weedy”. If you are concerned about milkweed spreading too much, choose species that are native to your area, and avoid species that are particularly good at vegetative, clonal reproduction or are prolific seed producers. Local garden centers, Master Gardeners or Master Naturalists, and other conservation authorities can help you choose the most appropriate native milkweed species to plant in your setting.

Misconception: Monarch caterpillars will eat more than milkweed

Milkweed (genus *Asclepias*) is the main host plant for monarch caterpillars, but there are a few non-*Asclepias* species that monarchs also use. Female monarch butterflies know that their offspring can only eat milkweed, and thus are drawn to milkweed species to lay their eggs. Egg-laying in the wild has been documented on plants like non-native, invasive swallow-worts, but monarch caterpillars cannot survive on these plants and ultimately starve to death. Captive reared monarchs show some ability to adapt to non-milkweed food resources in more mature caterpillars (cucurbit fruits such as pumpkin, squash or cucumber) (Maeckle 2014), however, these plants/fruits are not viable substitutes for milkweed. In addition, other species of butterfly whose caterpillars look similar to monarchs but feed on plants other than milkweed can cause confusion upon casual observation.



Misconception: You should not grow milkweed plants because they are dangerous to livestock, pets, or children

Although milkweed contains toxins, it rarely poses any significant threat to people or animals. The name milkweed derives from the milky sap contained in the stems and leaves of the plant. The sap contains toxins called cardiac glycosides or cardenolides, which are known to be toxic to animals if consumed in large quantities. The amount of toxin in the plant varies by milkweed species. A small taste of milkweed is typically not fatal to animals, but can be dangerous if large quantities are consumed. Medicinal uses of milkweed have been documented, but outside of such traditional practices any part of the milkweed plant should not be consumed by humans. Milkweed has a foul taste, and it is not likely that children would consume the plant. Take steps to prevent accidental ingestion, such as instructing children that the plant is poisonous and to avoid any contact with their eyes after touching the plant. Remember to always wash your hands thoroughly after handling milkweed. Milkweeds are generally not sought after by grazing livestock or other animals when sufficient forage is available. According to the USDA, poisoning typically occurs when animals are concentrated in areas of poor forage and abundant milkweed stands. Prepared feeds and hay should not contain high concentrations of milkweed. Pets may encounter milkweed growing in naturalized areas or in pollinator gardens, but consumption is rarely reported. While rare, if human or animal milkweed poisoning is suspected, seek medical attention.

Misconception: Tropical milkweed is bad for monarchs and must be removed completely

While non-native tropical milkweed (*Asclepias curassavica*) is not inherently bad for monarchs if managed appropriately, it is recommended that, when possible, native milkweeds be used in plantings. Tropical milkweed may persist beyond the season of most native milkweeds, and in some places (that do not experience hard frost), year-round. The availability of out-of-season milkweed allows monarchs to remain in those areas and be reproductive during times they otherwise would not be. Milkweed that does not die back can result in the buildup of the protozoan parasite *Ophryocystis elektroscirrha* (O.E.) on those milkweed plants and the subsequent infection of caterpillars that consume the spores of the parasite along with the milkweed leaves they are eating. O.E. is a debilitating parasite that is not necessarily fatal to monarchs, but affects their overall fitness and migratory success. All milkweeds have the potential to host O.E. parasite spores, but the year-round nature of tropical milkweed growing along the southern Gulf Coast and along the Pacific Coast are of concern because researchers

are documenting higher parasite infection rates in those areas (Satterfield, Maerz, Altizer 2015). As geographically important locations for the monarch migration, it is important to continually assess and control non-native milkweeds due to the interactions they have with migratory monarch generations and the potential to increase infection rates among the North American population at large. Measures to control tropical milkweed by cutting it back in the fall and winter, to mimic what native milkweeds are doing, can prevent winter breeding in monarchs and reduce O.E. transmission. See *Potential risks of growing exotic (non-native) milkweeds for monarchs* (listed in references section) for further information on this topic.



References

- Altizer, S., Satterfield, D., Oberhauser, K., Brower, L., Caldwell, W., & Nail, K. (2016). Potential risks of growing exotic (non-native) milkweeds for monarchs [PDF]. Monarch Joint Venture. Retrieved September 19, 2016, from http://monarchjointventure.org/images/uploads/documents/Oe_fact_sheet.pdf
- Borders, B., & Lee-Mader, E. (2014). Milkweeds: A Conservation Practitioner's Guide (Publication). Portland, OR. Retrieved September 19, 2016, from http://www.xerces.org/wp-content/uploads/2014/06/Milkweeds_XerSoc_june2014.pdf
- Borders, B., & Shepherd, M. (2011). Milkweeds: Not Just for Monarchs. Wings: Essays on Invertebrate Conservation, 14-18. Retrieved September 19, 2016, from http://www.xerces.org/wp-content/uploads/2008/06/Wings_sp11_milkweed.pdf
- Fulton, D.H. (1972). Poisonous Plant Groups. Technical Note: Range No. 1. USDA SCS: Boise, ID.
- General Invasive Species Information - North American Invasive Species Network. (2016). Retrieved September 19, 2016, from <http://www.naisn.org/information/>
- Maeckle, M. (2014). Milkweed Shortage Sparks "Alternative Fuels" for Hungry Monarch Caterpillars. Retrieved September 19, 2016, from <http://texasbutterflyranch.com/2014/04/11/milkweed-shortage-sparks-alternative-fuels-for-hungry-monarch-caterpillars/>
- Milkweed (*Asclepias* spp.). (2016). Retrieved September 19, 2016, from <https://www.ars.usda.gov/pacific-west-area/logan-ut/poisonous-plant-research/docs/milkweedasclepias-spp/>
- Pfister, J.A., F.D. Provenza, K.E. Panter, B.L. Stegelmeier, and K.L. Launchbaugh. (2002) Risk management to reduce livestock losses from toxic plants. *Journal of Range Management* 55:291-300.
- Rea, B., Oberhauser, K., & Quinn, M. A. (2003). Milkweed, monarchs and more: A field guide to the invertebrate community in the milkweed patch. Glenshaw, PA: Bas Relief Pub. Group.
- Satterfield, D. A., Maerz, J. C., & Altizer, S. (2015). Loss of migratory behaviour increases infection risk for a butterfly host. *Proceedings of the Royal Society B: Biological Sciences*, 282(1801). doi:10.1098/rspb.2014.1734
- USDA NRCS National Plant Data Center. (2006). Plant Guide: Common Milkweed. *Asclepias syriaca* L. United States Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS).



**MONARCH
JOINT VENTURE**



Photo credits: Candy Sarikonda, Wendy Caldwell, and USDA
This document created by the 2015-16 Monarch Task Force of the
North American Pollinator Protection Campaign.