

Q&A about a study published in Ecology Letters
(Satterfield, Maerz, Hunter, Flockhart, Hobson, Norris, Streit, de Roode, & Altizer, 2018)

Q: Are gardeners harming monarchs?

A: Gardeners are not harming monarchs. In fact, gardeners and citizen scientists have been critical to this work, and many people work hard to provide butterfly gardens – resources that are more important than ever for monarchs because their natural habitat has been degraded.

With the help of citizen scientists, we are continuously learning more about best practices for providing monarch habitat. As a conservation community, we adapt our approaches as we learn. One of the key things emerging from the collaboration between researchers and citizen scientists is the value of native milkweed, to help replace the natural prairie and grassland habitats that have almost disappeared from the American landscape.

Q: Is tropical milkweed “bad”?

A: Tropical milkweed is a beautiful plant that is native to Latin America. Because it is tropical, it can grow year-round in warm areas, in contrast to milkweed species that are adapted for North America and naturally die back each winter. So, tropical milkweed itself is not problematic, and monarchs love this plant. The problem occurs when tropical milkweed is planted in the southern U.S. and it enables out-of-season monarch breeding that contributes to high disease levels from OE parasites. It has also been observed to lead to massive caterpillar die-offs during winter freezes in southern states, and to be associated with overcrowding, to the point where larvae run out of food.

We also want to clarify that OE parasites can be transmitted to monarch caterpillars from any milkweed species. The only reason OE parasitism is more associated with tropical milkweed in the southern U.S. is because of the year-round breeding this plant encourages, and the overcrowding of larvae.

Q: What should I do if I have tropical milkweed in my garden?

A: In the short term, we recommend cutting it back to ~6” each month during fall-winter (unless it dies back on its own, as it does in northern locations). In the long term, we suggest replacing it with a milkweed species native to your area. We think that preserving monarchs’ migratory behaviors will help protect monarch health, and focusing on native milkweeds will support that.

Q: Is disease causing the monarch decline?

A: The severe decline of migratory monarchs in eastern North America is likely driven by multiple factors, including loss of native milkweeds in the breeding grounds, degradation of habitat in overwintering grounds, in addition to threats from car collisions, parasitism, shortage of nectar sources, and other challenges. We are still learning about which factors are the largest causes of decline. Parasite infection could be one factor that lowers monarch population size, but it is not the main driver of their decline.

In our paper here, we found that some migratory monarchs in coastal areas will encounter highly infected resident monarchs on their way to and from Mexico, and that migrants and their offspring could be exposed to higher levels of parasites because of that. They might also be tempted to become reproductive in the fall, whereas most migratory monarchs postpone reproduction until the spring, to conserve energy and to survive the overwintering period. However, we need more research to better understand if migrants are more likely to become reproductive when they encounter resident sites or tropical milkweed.

Q: Are migrants dropping out of the migration when encountering tropical milkweed?

A: More research needs to be conducted to conclusively determine this. However, our capture-mark-recapture study suggested that a handful of migratory monarchs (based on chemical analyses) remained at year-round breeding sites for days or weeks. The vast majority of migrants in our study appeared to continue migrating.

Q: Where can I find native milkweed?

A: We suggest checking local nurseries and requesting native species of milkweed. If you live in the eastern U.S., one relatively easy-to-grow native milkweed species is *Asclepias incarnata* (swamp milkweed). *Asclepias syriaca* (common milkweed) is also native to much of the eastern U.S.

Find out which milkweeds are native to your specific region here: Southeastern U.S., Eastern U.S., Texas, California, Great Basin, Central U.S., Nevada, Oregon, Washington, Desert Southwest.

Check out sources for milkweed seed here: Milkweed Seed Finder

Q: Are monarchs doomed?

A: While the monarch decline is alarming, we know that insects can bounce back if they have healthy habitat. We are hopeful that monarch populations will rebound, and may already be doing so, as habitat restoration and protection efforts increase.

Q: What can I do to help monarchs rebound?

A: Plant native milkweed and nectar plants, and contribute to citizen science:

1. Providing habitat for monarchs is crucial for their conservation. Gardeners can help not only by growing milkweed, required for monarch caterpillars, but also growing native nectar plants, required for monarchs once they become adult butterflies.
2. Scientific research plays a major role in monarch conservation. Much of what we know about monarchs – including about resident monarchs and their high infection levels – is because of citizen scientists' dedication to studying this remarkable species. You can help collect scientific data on monarchs through numerous programs:
 - To report monarch sightings in your area, visit the Journey North website.
 - To help monitor monarchs for parasites, participate in Monarch Health.
 - To tag monarchs and help track their migratory journeys, volunteer for Monarch Watch.
 - To help monitor monarch breeding areas, you can search weekly for caterpillars in a milkweed patch near you and report to Monarch Larva Monitoring Project.
 - Finally, if you cannot participate yourself but you want to support monarch research, you can donate to any of these programs or to Monarch Joint Venture.

