Summer 2017

How to ensure you are finding all monarch life stages on milkweed plants

Accurately discovering all monarchs on the milkweed plants you monitor is very important to having good data! Here are our tips for finding them all. First of all, make sure that if you need to refresh your knowledge about monarch biology and instar identification you refer to our training video.

Make sure that you are checking plants carefully, and thoroughly. Glance at the whole plant first to see if there are any caterpillars that you might knock off before taking a closer look. Middle and late instars tend to avoid predators by curling up in a ball and rolling/falling off the plant, and early instars, if disturbed, often fall from the plant and hang suspended on a small thread. While the different larval instars are often all around at the same time, you should be able to use your knowledge of monarch biology to deduce what you might see on a given date. We recommend checking out the stacked bar graphs on the MLMP results page for your state. For example, egg-laying monarchs typically arrive in Minnesota between mid-May and early-June, so we are on close lookout for eggs during that time. As soon as we’ve found eggs, we know that in subsequent weeks of monitoring we could be finding caterpillars. Think about what you observed the week before, and use that to determine what you might find this week. Keep in mind that you may have missed some, and new eggs could be laid at any time! Do not record the stages of monarchs you think you SHOULD be seeing if you do not actually see them.

We keep an eye out for reports that don’t quite match up. For example, if you are seeing late instar caterpillars, but never reported seeing any eggs, that is a cue to us that you might be missing eggs or that you were not monitoring when those caterpillars would have been eggs. If you find yourself finding larger caterpillars but never eggs or tiny first instar caterpillars, you’ll need to practice looking more closely for those eggs and early instars. Try a magnifying glass or small hand lens to magnify small dots on the milkweed plant that you aren’t sure about. Make sure you’re looking in all of the plant’s natural hiding places, like buds and flowers, and the top set of leaves that come together. While less obvious, small caterpillars also leave clues on the plant. Look for small semi-circles on the leaves (usually not on the outside of the leaves for early instars) where caterpillars have been chewing. If you’re only seeing eggs and early instars and are finding very few later instar caterpillars, you probably aren’t missing anything! It is typical to find fewer later instars, as many of them don’t survive long enough to get very large. Researchers estimate that less than 10% of the eggs that are laid make it to adulthood.

This is one of many ‘Helpful How-To Scenarios’ on the MLMP website! Check them out, and if you have ideas for others, let us know! info@mlmp.org
MLMP Citizen Science Reports Lead to New Discoveries!

Thanks to volunteers like you, we now know more than ever about the flies that attack monarch butterfly caterpillars. Over the last 18 years, Monarch Larva Monitoring Project volunteers have collected and raised more than 20,000 monarch eggs and caterpillars, and monitored them for incidents of parasitism by tachinid flies. A recent paper published in the Annals of the Entomological Society of America uses data collected by citizen scientists to delve into monarch-parasitoid associations and help discern between natural and human-driven impacts on monarchs and their population size.

“Contributing to a project like this is not only fun and interesting, but it also is deeply satisfying to contribute to our understanding of the natural world and hopefully make a difference in conservation of that world,” says Ilse Gebhard, a MLMP volunteer and co-author of the study.

A summary of results is provided below:

- Overall, 9.8 percent of monitored monarchs were parasitized, though frequency increased through larval stages, with a maximum of 17 percent among fifth-stage larvae.
- By far, the most abundant parasitoid species (75 percent of tachinid fly specimens collected) was Lespesia archippivora, currently known as a generalist parasitoid of several moth and butterfly species. However, the researchers suspect the species may represent a “complex” of multiple, closely related subspecies, one of which specializes in parasitizing monarchs. This will be a focus of future research, Oberhauser says.
- Three of the tachinid species identified had not been previously reported as monarch parasitoids, one of which appears to be a new, previously unknown species.
- The third most abundant parasitoid species collected (10 percent) was Compsilura concinnata, a species that was introduced to North America in the 20th century to control gypsy moth. Specimens sent in by volunteers in Texas represent the first recording of C. concinnata in that state.
- The researchers found a small number of cases of multiparasitism, in which more than one tachinid species emerged from a monarch host, which had previously never been reported.


Summer 2017 MLMP Data

This year 278 MLMP sites have been monitored by 203 volunteers! The two highest reporting states this year so far are Texas with 59 sites monitored and Minnesota with 47 sites monitored. If there’s still milkweed at your site, there’s still time to be contributing your data!

The data this summer suggests that citizen scientists are seeing about 2-3 times more eggs and larvae than last year! This is good news, but we are not seeing quite as many as in the summer of 2015. You may recall that the eastern winter population of 2015-2016 was 4 hectares, the largest eastern winter population recorded since 2010-2011.

Keep reporting on your MLMP site until the milkweed is gone, not only to keep your state on the map, but so we can record an accurate picture of the breeding population for the rest of this season. Thank you all for your dedication and monitoring!
MLMP Trainers Wanted!

Being an MLMP trainer is an exciting opportunity to share your knowledge and enthusiasm for monarchs, their habitats, and the MLMP. Our trainers make it possible to better engage project volunteers across the country. Your contributions as a trainer will help us gain a better understanding of monarch breeding populations in your area. Please review the trainer requirements and advice below to see if becoming an MLMP trainer is a good fit for you. We are grateful for your interest and are happy to help in any way that we can!

To be listed as an MLMP trainer, you should feel comfortable with the following activities:

- Regular participation and reporting in at least one MLMP activity. (required)
- Identifying monarch eggs and larvae at all instar stages
- Identifying milkweed species native to your area
- Discussing the different activities that MLMP offers (you don't have to participate in all of them, but you should be familiar with every activity)
- Using the MLMP website, including both the resources offered and the online data entry portal
- Speaking with or instructing small groups by phone, email, or in-person

If you feel that you are comfortable with the above activities and would like to be listed as a Local Trainer on our website, feel free to reach out to us by emailing Wendy at info@mlmp.org.

Right: Trainer Cathy Downs running a Monarch Larva Monitoring Project and monarch conservation workshop at the Cibolo Nature Center in Texas. Photo by Kip Kiphart.

International Monarch Monitoring Blitz a Resounding Success

Because monarchs are widespread throughout North America, it is difficult to accurately capture the size of the breeding population (before they migrate). We partnered with organizations across Canada, the US and Mexico to engage citizen scientists in gathering data about monarch late summer breeding for one week (July 29th – August 5th). By crowdsourcing data from across the entire range during one small time window, citizen scientists from all three countries helped capture a snapshot of monarch breeding activity prior to peak migration.

We were thrilled with the participation and interest the Monarch Monitoring Blitz received. Approximately 300 observations were submitted through the Monarch Larva Monitoring Project ‘Milkweed and Monarch Observations’ during the Monarch Monitoring Blitz! About 400 reports were received by Mission Monarch in Canada as well, and additional reports were collected by Naturalista in Mexico. Researchers that are part of the Monarch Conservation Science Partnership will use this data in their conservation research. Thank you to everyone who participated in improving our understanding of monarchs through this effort!

Did you miss the blitz, or want to continue to help? Your regular monitoring data through MLMP activities are vital to monarch conservation research. Keep up the good work! And anytime you see milkweed or monarchs outside your regular MLMP site, you can submit your observations as a ‘Milkweed or Monarch Observation’.

Reader Feedback: Please email us at info@mlmp.org if you have any questions or comments about the newsletter, or if you would like to contribute something in a future issue.