MLMP Updates: Spring 2014

The spring migration is in full swing!

Each spring, typically beginning in March, monarchs at the overwintering sites in Mexico start to stir and begin their return trek to their breeding grounds in the U.S. and Canada. As they reach the southern limits of the U.S., ragged female monarchs search for milkweed leaves on which to deposit their eggs. Over the next few weeks, these eggs will consume the milkweed and become the next generation of adult butterflies that will continue the northward journey.

MLMP volunteers from across the country anxiously await the arrival of both milkweeds and monarchs at their monitoring site(s). Volunteer and trainer, Kip Kiphart, reports his first monarch observations of the monitoring season in Bergheim, TX:

The first milkweed (A. asperula) emerged March 17 in my MLMP milkweed patch, Rocky Flats Too. On April 2, I found 26 milkweeds and 5 eggs, the first of the year. There were 2 eggs on one milkweed. Many of the milkweeds are setting flowers, including stems as short as 6 cm. An old guy’s tale says that the milkweed is telling us that it will be a long, hot, dry summer.

MLMP volunteers in parts of Texas, Florida and California report weekly MLMP monitoring observations year round, if monarchs are present. By looking at the data that have already been reported from Texas in 2014, we can see that the first eggs, likely from spring migrants, began to appear in the state the week of March 30! With only the data that have been reported thus far, the week of 4/27 shows a jump in the number of eggs being found. From a density of less than 0.1 to nearly 1.1, this means that volunteers were finding approximately one monarch per every milkweed plant observed—we hope that this signals a great start to the breeding season!

We like to understand what is happening at your site from year to year, but we hope that you’ll find this information interesting as well. MLMP asks volunteers to keep track of the date that the milkweed first emerges from the ground at their site(s). You can look back at this information to see whether there is a changing trend in the emergence date, or you can use it to predict when your first milkweed will pop up this year! If you haven’t been monitoring your MLMP site long enough to determine any trends for your site, you can follow both milkweed emergence and the spring migration on Journey North’s website. By following their interactive maps, you can see in real time where first milkweeds or monarchs of the season have been reported.

Understanding the impacts of citizen science

Data reported to the MLMP are used in many ways by volunteers and the scientific community. We are also able to use observations of participation in the MLMP to better understand engagement in science and conservation activities in youth and adults. The following are just few examples of how MLMP data have been used:

MLMP sites come in all shapes, sizes, and types. To illustrate this better, MLMP sites are assigned into categories, such as restored/natural area, agricultural area, or garden. Then, based on the milkweed densities reported by volunteers, we gain a better understanding of what the typical milkweed density (number of milkweed plants per size/area of the site) might be for that type of site. Similarly, the weekly egg and larval density that volunteers report for the different types of sites can be used to understand how useful a particular type of site is to monarchs, and why that might be. While monarchs do use milkweeds found in many different types of landscapes, a 2012 publication by Karen Oberhauser and John Pleasants illustrates a correlation between the loss of milkweed in the Midwest agricultural landscape with the declining eastern monarch overwintering population. They used MLMP milkweed and larval data to support their estimate of a 58% decline in milkweeds on the Midwest landscape and an 81% decline in monarch production in the Midwest from 1999 to 2010.

Another way in which MLMP data are useful is through volunteer reporting of parasitism and disease in wild monarchs that they find. MLMP Activity 3: Parasitism encourages volunteers to collect 4th and 5th instar monarch larvae during their weekly observations. In individually marked containers, volunteers rear the individuals they collect to determine the ultimate fate of each - whether they died from a parasitoid fly or wasp, died for another unknown reason, or emerged as a successful adult monarch. In the case of successful adult monarchs, we then encourage volunteers to collect a sample of the scales from each butterfly abdomen to test for a protozoan parasite known as OE, and report those findings to the citizen science program Monarch Health (www.monarchparasites.org).

While the MLMP does not analyze OE data, we do work closely with Project Monarch Health to better understand some of the impacts that this parasite may have on both eastern and western monarch populations. MLMP volunteers in the southern U.S. and California are helping to collect more long-term data on monarchs breeding during the winter months in those areas, and are also collecting samples from butterfly abdomens to determine OE prevalence in those winter breeding monarchs. This research is currently underway, but preliminary results indicate that OE prevalence is drastically increasing in areas where monarchs are able to breed year round. Because native milkweeds die back each fall, this winter breeding is primarily occurring on non-native tropical milkweed. For more information, see this Monarch Joint Venture fact sheet.

This graph (right), from a 2012 paper by Karen Oberhauser, illustrates tachinid fly parasitism in the Upper Midwest. To put this graph into words, MLMP monarch density data and parasitism activity data for the Upper Midwest help to show that the higher the monarch density reported, the higher the rate of tachinid fly parasitism will be the following year.

Lastly the MLMP, among other citizen science programs, can help us to understand the impacts of citizen science participation on engagement in conservation actions due to participating in citizen science. The range of participation runs the gamut from young to old and barely involved to “uber-involvement”. One of the great things about citizen science is that anyone can participate; all you need is a willingness to learn and desire to collect and report observations on a particular topic. For monarchs, there are many topics to choose from! What does one gain from becoming an MLMP volunteer? Many things. To list just a few: a better understanding of monarchs and the natural world; a desire to improve habitat for monarchs and other wildlife, inspiring further conservation actions; becoming part of an international community working to conserve the monarch migration; and, the ability to inspire friends, neighbors, and future generations to protect monarchs and our natural world!
In Memory of MLMP Volunteer Dexter Sharp by Jan Sharp

We are sorry to report the death of long-time MLMP volunteer Dexter Sharp, who began monitoring in 2000. His daughter Jan, who took over one of his multiple sites, provides this tribute to her father.

Dexter Sharp was born in 1919 in Chicago, IL. He was always drawn to science, even as a small child. He had a chemistry set when he was a youngster in the 20's and 30's, and yes, as expected he had a few explosions and bad smells wafting out of the basement from his experiments. He got his degrees in chemistry ultimately, an organic synthesis chemist by training, and made his career in the career in the chemical industry.

Dexter always loved monarchs. When he and his older brother were teenagers, they would collect monarch larvae and place them in a large box with sticky paper around the top edge so they wouldn't crawl out. They would keep them fed and then watch as they formed chrysalises and emerged adult butterflies, which they released. He liked other larvae as well and one year won first prize in the "Most Unusual Pet" contest in school. His pet? A large green moth larva.

After retiring in 1985, he cared for our mother, Peggy, until her death in 1999. Having extra time and needing an outlet for his inner entomologist, he discovered the Monarch Watch tagging program first and shortly after, the MLMP. By this time he was spending his summers at the family lake cabin in Northern Wisconsin. Dexter tagged butterflies in the late summer up north and in Kansas City, his winter home, in the fall for a number of years. One year a butterfly that he had tagged at the Lake Cabin was the fourth longest traveling butterfly to the Rosario refuge. Of the many recoveries of butterflies that he had tagged, he was most proud of that one.

When Dexter started with the MLMP program, he found 3 patches of milkweed to monitor within just a few miles of the cabin, as well as the small meadow in the woods next door. At his peak, he would monitor each of the three plots, one each day. One was a fire lane roadside, the other at an old CCC camp, and the third some plots at the boat landing of Little Clam Lake. He became very frustrated one summer when the Forest Service came down the fire lane mowing the roadside while he was making his weekly observations. He couldn't stop the mower, and could only watch helplessly as his fire lane milkweed and larvae got mowed down right before his eyes.

He replaced that plot with the meadow next door, which has been monitored now continuously since 2002. This plot ended up being my husband and my lakeside "yard" for our summer cabin, which we simply allowed to remain wild. So for much of the 2000s, Dexter provided data on over 1000 plants from observations in these three main areas, the CCC camp, the boat landing, and our "yard".

As he grew older, he reduced his work to one plot, our yard, until in 2008 he no longer had the stamina to physically do the observations. He started the year, but then taught me how to identify and determine instars and record observations, and so I finished the monitoring for that year and myself became an official MLMP volunteer. What started as a plot of 25 or 30 plants had grown to 350 by then. As I continue the tradition of monitoring the plot, it is now over 800 plants and there is a newer plot of poke milkweed in the adjacent woods, which started as a few plants and is now around 45. There would be more if the monarchs didn't absolutely love poke milkweed over common milkweed. Many seasons the plot has been chewed down to leafless stems.

When I was a teenager, and spending summers up at the family cabin with Dexter and Mom, I showed an interest in butterflies and moths. He taught me how to collect and mount them, and how to euthanize them (and since he was a chemist, he also got me the chloroform). And while I learned so much doing that as a teen, it's so much more rewarding now to be watching and monitoring the living Lepidoptera and other arthropods and pollinators. My collection at least has been continuing to educate as, with my permission, Dexter donated it to the Missouri Botanical Gardens back in the mid-1980s. I understand it is still on display educating visitors.

So, I hope to continue monitoring the Clam Lake Meadow and Poke Milkweed plots over the next years as they continue through the forest and meadow succession. When I retire, hopefully in just a few years, perhaps I can go back to some of Dexter's original MLMP plots and pick up where he left off to add even more to the research on monarchs.

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