MLMP Updates

An e-newsletter of the Monarch Larva Monitoring Project

Winter 2024

This winter's newsletter includes an article about conservation efforts in the Monarch Butterfly Biosphere Reserve, a media feature about monarchs, upcoming 2024 virtual training workshop information, 2023 data and volunteer summaries, and updates about MLMP activities and people. Read on!

Conservation Across Borders: Forest Reforestation in and near the Monarch Butterfly Biosphere Reserve

by Karen Oberhauser, January 2024

Monarchs have now made their way to their wintering grounds in the mountains of central Mexico or coastal California. Many of us living in monarch breeding and migrating grounds work to conserve and restore the plants that these incredible insects need during the months that they're here. The same is true of our colleagues near the wintering sites, but instead of protecting and restoring grasslands rich in milkweed and nectar plants, overwintering habitat conservation involves forest protection and restoration.

Most monarchs from the Eastern Migratory Population spend the winter in Mexico, in approximately 56,000 hectares (about 139,000 acres) of protected area called the Monarch Butterfly Biosphere Reserve (MBBR). There, in the States of Michoacán and Mexico, forest quality is important to monarch survival from November through mid-March, when they are neither migrating nor breeding.

Alternare A.C., a Mexican non-profit organization, supports conservation in monarchs' wintering sites in central Mexico. Working closely with the rural communities and ejidos in the region, their work centers on the joint goals of improving their quality of life and environmental conservation. Through many partners and funders, including the US-based Monarch Butterfly Fund, Alternare carries out reforestation in degraded areas in and near the MBBR, where land use change for agricultural purposes, illegal logging, and overgrazing leads to the degradation of forest ecosystems.

Since 2010, Alternare has reforested more than 300 hectares in the MBBR and surrounding areas. Reforestation begins with the production of plants in community nurseries and schools. These trees become part of intact forests that will support monarchs, and in some cases provide environmentally friendly sources of income for these communities, for whom forestry products are an important source of income. All trees are native to the region and are grown from seed sourced in the local area: smooth-bark Mexican pine (Pinus pseudostrobus, known in Spanish as chamite or pacingo), Oak (Quercus sp.), Ash (Fraxinus sp.), Oyamel (Abies religiosa) and alder (Alnus acuminata).

An Alternare team assesses these reforestation efforts by surveying planted sites. Surveys conducted in 2015, 2018, and 2019 assessed plantings carried out before 2019. In 2023, the team surveyed sites planted in 2019-2021 (when 66,660 trees in 66 hectares were planted), working with with Indigenous Communities (Crescencio Morales, Francisco Serrato and El Asoleadero) and ejidos (San Juan Zitácuaro and Manzanillos). They measured tree survival, the height of living trees, and factors that might have affected survival, like grazing activity, fencing, and care by the local community.

Sampling tree survival along a transect
Photo: Alternare

Conservation Across Borders: Forest Reforestation in and near the MBBR (continued)

On average, 68% of the planted trees had survived, a result that is considered good by reforestation specialists. However, at individual sites, survival ranged from 0% to 100%. In general, sites that were planted by communities who are committed to the land because they can use it, that are far from populated areas, and where grazing is not permitted had higher survival. Sites with low survival had often undergone a change in land use; trees had been displaced by crops such as corn, avocados, and peaches. One low survival site had high rates of grazing and thus trampling, and another close to an urban area was full of debris and evidence of garbage burning.

In addition to factors that affected post-planting success, Alternare has learned that sites and planting protocols with specific characteristics affect success. Sites with less than 30% canopy coverage and fewer herbaceous plants to compete with the newly-planted trees tend to have higher success. In some cases, this means that site cleaning is called for. In addition, sites that were forested in the past are more likely to have high survival. The quality of trees being planted is important too; trees produced close to the reforestation sites are less stressed because they don't need to be transported as far, and trees planted in the morning when the temperature is lower are more likely to survive. Alternare staff provide help to the communities before reforestation work begins, including advice on how trees should be handled as they are extracted from the bags or trays used for transport and how closely together they should be planted.

A successful reforestation site
Photo: Alternare

Because conservation almost always involves decisions about how to allocate scarce resources, Alternare's surveys and their use of what they learn is a wonderful example of informed and successful conservation.

Monarchs in the Media
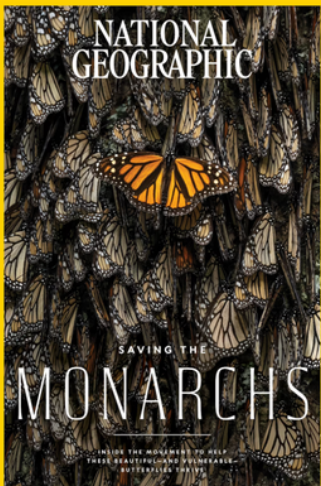
If you haven't already seen the January 2024 issue of *National Geographic*, find a friend or library who can share this amazing issue with a cover story called "Saving the Monarchs." Many MLMP volunteers and coordinators helped photographer Jaime Rojo and author Michelle Nijhuis during their multiple year project to document monarchs and the people who care about them.

The issue webpage links to the article in the print magazine, which requires a subscription, but also to several accompanying articles that only require you to provide your email address to see the content. We particularly recommend the article titled "Can Monarchs Adapt to a Rapidly Changing World?" which features the MLMP.

2024 MLMP Training Workshops

The MLMP team from the Monarch Joint Venture and the UW-Madison Arboretum again will co-lead virtual one-day workshops about collecting data in your own backyard, a nearby park, or in virtually any green space with milkweed. The data collected by citizen science volunteers is critical to informing and inspiring monarch conservation.

Training participants learn about monarch biology, monitoring procedures, and data entry protocols and are able to ask monarch biologists their questions about monarchs and monitoring. The sessions will be relevant for both newcomers and individuals who are already participating in the MLMP or another monarch citizen science project. The four-hour training will be conducted in two parts with a one-hour break between them. Registration costs $50, which supports our work at MLMP and MJV. If cost is a barrier to your participation and you would like to request financial support, please email learn@monarchjointventure.org

Specific workshop details are:

Western States registration — **Wednesday, January 31, 2024**
- 9:00 am – 2:00 pm PST (1 hour break at 11 am for lunch)
- For states west of the Rocky Mountains (WA, OR, CA, ID, NV, AZ, MT, WY, UT, Western CO, Western NM)

Southern States registration — **Saturday, February 24, 2024**
- 10:00 am – 3:00 pm CST (1 hour break at 12 pm for lunch)
- For states east of the Rocky Mountains AND south of approximately 40°N including TX, LA, MS, AL, FL, GA, OK, AR, KS, MO, TN, SC, NC, VA, WV, KY, MD, Southern OH, Southern IN, Southern IL, Eastern NM, Eastern CO, all states in Mexico

Northern States — TBD in April — *Date and registration coming soon!*
- 10:00 am – 3:00 pm CST (1 hour break at 12 pm for lunch)
- For states east of the Rocky Mountains and north of approximately 40°N including ME, VT, NH, DE, MA, RI, CT, NY, NJ, PA, MI, WI, MN, ND, SD, NE, IA, Northern IL, Northern IN, Northern OH, all Canadian provinces

To register, head to the links above or the workshop links on MLMP's homepage at mlmp.org. You can also follow MLMP on social media to stay up-to-date with program events and announcements.

Our 2023 Monitoring Season by the Numbers

Thanks for a great season of monarch monitoring! During 3075 separate monitoring events in 2023, MLMP volunteers observed thousands of eggs and hundreds of each larval instar (see Figure below).

Our very first monitoring event of 2023 took place on January 3 in Contra Costa CA, where an MLMP volunteer searched 33 *Asclepias fascicularis* and *A. speciosa* plants in a garden. The last event of the year took place on December 28 in Naranjito, Puerto Rico, where 36 *A. curassavica* and *A. nivea* plants hosted 19 eggs and at least one of every larval instar. Thanks to Julie S. and Lisa J. for being our first and last volunteers of the year and to the hundreds of volunteers who filled in the rest of the dates.
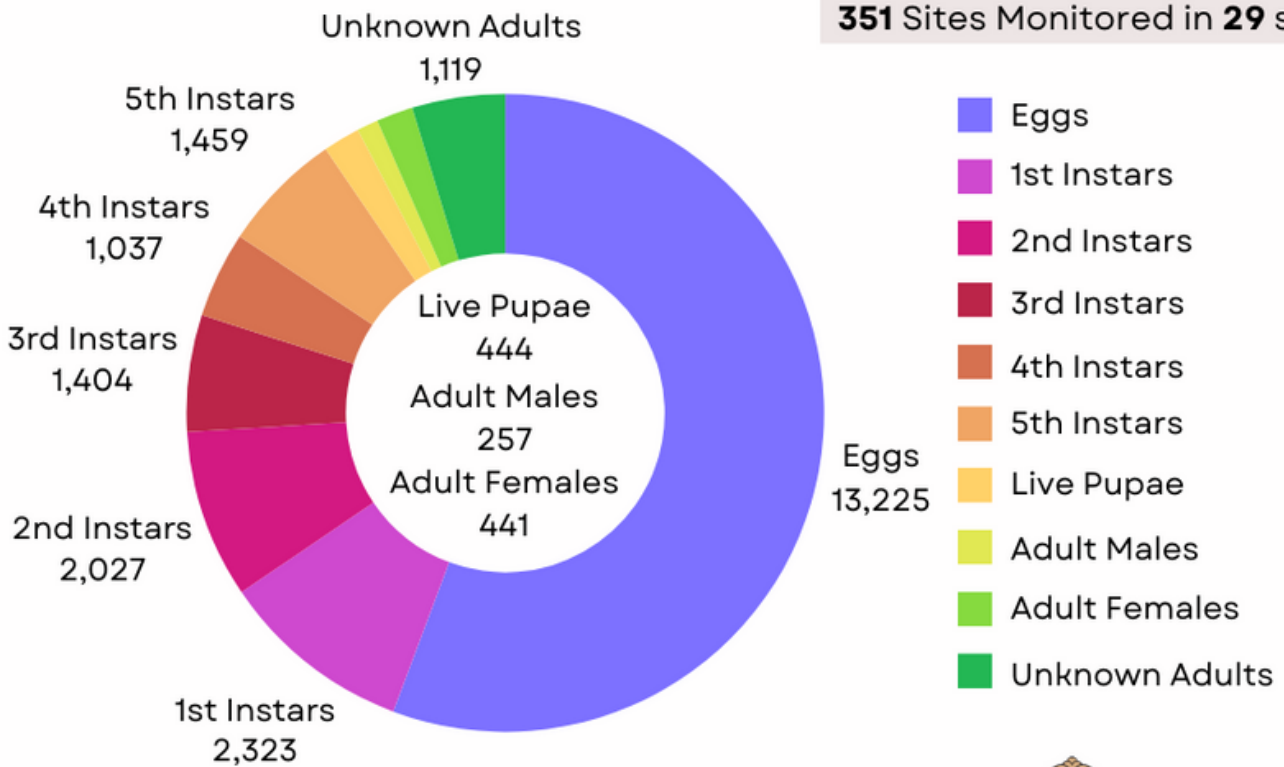
We're still awaiting numbers from Mexico, but MLMP data in most states were fairly similar to what we've seen in the last few years, with the exception of a banner year for Colorado. The drought in the southern US made the migration a hard one, so wintering numbers may be lower than anticipated based on what we saw during the 2023 breeding season.

MLMP Activity 1 Data: 2023 Summary

as of 12/05/23

213,042 Milkweed Plants Monitored

351 Sites Monitored in **29** states

Unknown Adults 1,119
5th Instars 1,459
4th Instars 1,037
3rd Instars 1,404
2nd Instars 2,027
1st Instars 2,323

Live Pupae 444
Adult Males 257
Adult Females 441

Eggs 13,225

Legend:
- Eggs
- 1st Instars
- 2nd Instars
- 3rd Instars
- 4th Instars
- 5th Instars
- Live Pupae
- Adult Males
- Adult Females
- Unknown Adults

Monarch Larva Monitoring Project

Arboretum
UNIVERSITY OF WISCONSIN–MADISON

Volunteer Spotlight

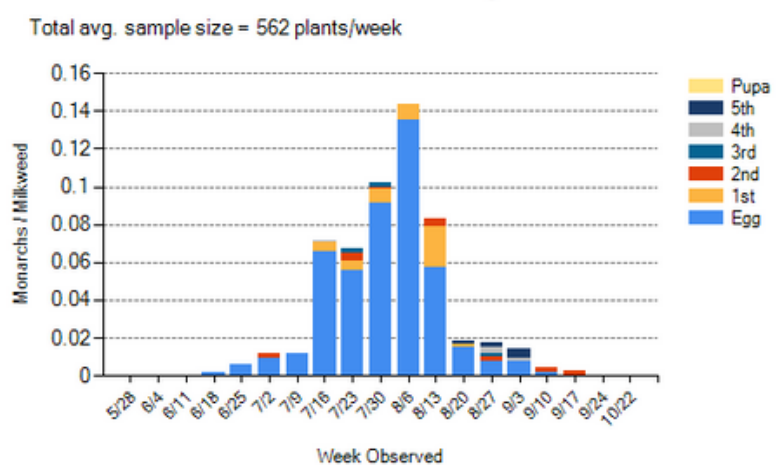## Colorado Monarch Ambassadors Celebrate Monarchs Along the Front Range
by Liz Goehring, December 2023

Thanks to a dedicated and growing group of volunteers in Colorado, we are beginning to better understand the eastern monarch population's use of habitat in this far western edge of its range. At the end of each season, volunteers gather at the Butterfly Pavilion in Westminster to review their collective data and share what they observed, discussing what may have contributed to the patterns they saw. This year, that gathering grew to include almost 40 monarch lovers of all ages celebrating an exceptional year for monarchs along Colorado's Front Range.

Colorado experienced abundant precipitation in May this El Niño year, resulting in lush habitat throughout the region. Compared with drought conditions further east of us, Colorado's monarch habitat was welcoming well into the summer. All told, eighteen MLMP sites were monitored, from Fort Collins to Colorado Springs, from late May through September.

The data revealed a strong breeding season with two peaks, mid-July and early August, and decent larval survival, confirming what many on our Facebook group reported—more monarchs this year than most could remember! After the dismal breeding season of 2022, this year's numbers renewed our hope. Given the monarch's ability to disperse widely, perhaps our habitat was critical this year when other regions were less hospitable.

2023 MLMP Monarch Density for Colorado

Total avg. sample size = 562 plants/week

Legend: Pupa, 5th, 4th, 3rd, 2nd, 1st, Egg

Y-axis: Monarchs / Milkweed

X-axis: Week Observed (5/28, 6/4, 6/11, 6/18, 6/25, 7/2, 7/9, 7/16, 7/23, 7/30, 8/6, 8/13, 8/20, 8/27, 9/3, 9/10, 9/17, 9/24, 10/22)

# of sites monitored = 18

© Monarch Larva Monitoring Project

Thank you, Colorado Monarch Ambassadors, for all you do to protect monarchs and their habitat.

Your work is inspiring!

The End of Season Review included a visit to the monarchs in the Butterfly Pavilion's conservatory, a presentation on volunteer-led habitat restoration efforts, and an awards ceremony. For her exceptional skill in finding monarch eggs/larvae, Sheridan Samano received the Monarch Whisperer Award. For his commitment to mapping and restoring milkweed habitat in his city of Broomfield, Mike Artmann received the Habitat Hero Award. For her diligence, commitment, and contributions documenting blooming plants for three seasons with the Integrated Monarch Monitoring Project, Cathi Schramm received the Most Dedicated Monitor Award. For her skill, passion, and care for monarchs and other insects, Sagan received the Little Larva Award. Finally, for her commitment to sharing the wonder of monarchs, Anna Hoover, Director of Majestic View Nature Center, was named this year's Colorado Monarch Ambassador.

2023 Volunteer Honor Roll

Thank you to the following MLMP volunteers who have volunteered for five or more years! We appreciate the hundreds of hours you've contributed to our understanding of monarch biology. Volunteers with a * after their name were active in 2023. We'd like to send a special shout-out to volunteers of 25 or more years. Sue Jamison and a team of volunteers have monitored two sites every year since 1997: Small Site and Large Site on Peninsula Point in the Upper Peninsula of Michigan's Hiawatha National Forest. Their efforts are part of a strong monarch monitoring program that includes counts during the fall migration. Pete and Sanny Oberhauser (Karen's parents) also began monitoring in 1997 at sites named Haleakala and Eagle Survey at their home along the Embarrass River near Pella, Wisconsin. After Pete's death in 2014, Sanny and Karen continued monitoring this site. Gayle Steffy has monitored several Pennsylvania sites, in Neffsville, Manheim, Drumore, Lancaster, and Millersville. She has monitored an astounding total of 879 times! And John and Marlene Weber are relative newcomers to the long-term group, having begun in 1998. They monitor several sites near their home in Akeley Township, in northern Minnesota.

5-9 Years

Albrecht, Jacquelynn
Aliotto, Joe *
Anastas, Christine *
Anderson, Nicholas
Annen, Candice *
Baker, Terry
Baldwin, Tyler *
Bartoli, Beth *
Bell, Laura
Bell, Melinda
Benham, Carrie
Binning, Adele
Bishop, Stephen *
Bogusch, McKena
Booth, Marie
Borland, Jane
Bradtmiller, Dani *
Brown, Walter
Bryer, Loree
Cameron, Charles
Chipley-Trudeau, Jess*
Clayton, Dick
Conservation, S
Cullar, Carol
Cutshall, Julia
Dalton, Sarah
Dandekar, Rebecca*
DeGroff, Susan
Dozier, Krystin *
Dunn, Aimee *
Farmer, Connie
Fastuca, Meagan *
Faubert, Jill
Feinberg, Greg
Fitzloff, Gerri

Flynn, Duane
Fox - Patterson, Audrey
Frey, Julie
Gebben, Sally*
Glander, Kay
Goldman, Peg L.,
Gould, Sandee *
Gray, Eric
Gwynn, Leslie *
Hagedorn, Michael
Haider, Marlene
Hanners, Grace *
Havilar, Sass
Hebel, Susan
Helie, Christine
Henninger, Trudi *
Hotaling, Kaley
Huffman, Cheryl and Angelica
Hunter, Jan
Ingham, Laird *
Jaeger Mountain, Claire*
Johnson, Kathy
Karis, Karen
Keith, Brenda
Kemp, Donna
Kiphart, Kip
Kirts, Lee
Koomen, Michele
Lambright, Mary
Letaw, Anna
Levesque, Diane *
Levinthal, Sarah
Lovell, Denis *
Luce, Don
Manning, Gail

Mast, Julia
McBride, Linda *
McConnell, Megan *
Meyer, Darrell*
Meyers, Susan
Moeller, Doris
Montgomery, Becky & Zuri
Morris, Gail
Mukai, Janet
Murphy, Linda
Olson, Jill*
Orr, Hope
Peterson, Joan*
Phelps, Kathy
Przypek, Joseph
Quincy, Susan
Richardson, Martha
Roderus, Sue
Romero, Liz *
Sarikonda, Candy
Schik, Karen *
Schweinfurter, Molly
Sciamanda, Marianne *
Shields, Candace *
Skipper-Spurgeon, Sherry
Smith, Carolyn *
Snyder, Jen
St. Sauver, Jason *
Stiefel, John
Straight, Ron and Linda
Tanner, Linda
Taylor, Donna *
Thornton, Mary Anna
Trefny, Karla
Vanderford, Mary

VA Master Naturalists, Pocahontas State Park *
Vollrath, Ruth
Waggener, Graci *
Walter, Gail
Warden, Mary
Warren, Mobi
Weiss, Yae *
Wilson, Billy & Priscilla *
Wilson, Claudia
Wilson, Ross
Yarnold, Pam & Roy

10-14 Years

Berkowitz, Henry *
Blassey, Michael*
Boardman, Rheda *
Dicks, Deb
Duke, Lisa *
Evanson, Valerie
Forster, Lauren
Fox, Sondra
Geving, Pat
Gilliland, Gail
Goellner, Karen
Greeley, Jea *
Hughes, Gabi *
Ingianni, Elizabeth
Johnson, Eric
La Belle, Vi
Langford, Myrna
MacLean, David
Marcinski, Deb
Newton, Anna
Paulsen, Sara *

2023 Volunteer Honor Roll (continued)

10-14 Years (cont.)

Pearsall, Joyce
Pinchot, Darlene
Pleasants, John*
Rock, Diane
Steinmetz, Kristin
Strom, Annette
Sullivan, Ray
Tsaouse/Takamura, Bess/Kuma *
Tuttle, Gillian
Unkles, Jennifer
Walters, Betty
Wick, Janice *
Yankowiak, Betsy *
Yarger, Amy *

15-19 Years

Alstad, Amy
Brooks, Denny *
Brupbacher, Judy
de Wolf, Virginia *
Eurs, Albert *
Goodwin, Chris
James, Sandy*
Kelley, Fred
Kennedy, Mary Bishop
King, Tim; Jan and Colin
Lipman, Paul
McMillan, Shana *
Nitka, Debi *
Pauli, Karl *
Five Rivers EEC*
Tucker, Elaine
Vargo, Tim *

20-24 Years

Bockhahn, Brian *
Bogle, Susan *
Cabell, Sondra *
Clark, Maureen *
Duerkop, Sharon *
Gebhard, Ilse *
Goforth, Chris *
Miller, Jessica *
Molenaar, Laura *
Payant, Susan
Petersen, Cindy
Powers, Barbara
Sharp, Jan and Dexter

25-28 Years

Jamison, Susan *
Oberhauser, Karen *
Oberhauser, Pete & Sanny*
Steffy, Gayle *
Weber, John & Marlene*

MLMP Updates

Changes to Activity 1 Datasheets

To provide more clarity to our volunteers, we've updated the data sheets for Activity #1 Measuring Monarch Density. **Datasheet #1 Summary** is now the place to record your weekly observations for monarch density (formerly called Activity 1A) if you are not keeping track of the distribution of monarchs on individual plants. **Datasheet #1 Detail** is for recording weekly observations for monarch density at your site when you are keeping track of the distribution of monarchs on individual plants (formerly called Activity 1C).

If you've attended a training in the last few years, you will have learned the more detailed method, but if you've been monitoring for a long time and haven't changed methods, you've probably been collecting summary data (if you just keep track of the number of plants you look at and the number of eggs and larvae you see). While the detailed datasheet gives us more information about how monarchs are distributed among milkweed plants, either method provides valuable data! In both cases, you monitor in exactly the same way, just recording and entering your data a bit differently.

You can find the updated activity descriptions and datasheets on the [MLMP Activities and Datasheet page](#) of the MLMP website, under the 'Resources' tab. Please let us know if you have any questions about what you've been doing.

No More Flies for Activity 3

As a reminder, for Activity #3, Estimating Monarch Survival, we will no longer be accepting or processing tachinid flies (photo below), though the Activity continues.

The samples previously sent to us revealed the diversity and distribution of tachinid parasitoid species we were researching.

Thank you to all the volunteers that sent us samples in the past. Your contributions have helped us better understand monarch parasitoids.

Tachinid fly
Photo: University of Minnesota Monarch Lab

More MLMP Updates

A New Chapter for Karen Oberhauser

After just over six years as the Director of the UW-Madison Arboretum, I've retired from my career in midwestern Big Ten Universities to devote more time to monarch conservation and monitoring. I'll join the Arboretum and the Monarch Joint Venture to oversee the MLMP, focusing on training and data analysis. As we move toward the end of the third decade of this project, it's exciting to see the partnerships between volunteers, project coordinators, and scientists who use our data flourish.

Introducing Annie Isenbarger

Greetings, MLMP volunteers! I'm the new Citizen Science Coordinator at the University of Wisconsin-Madison Arboretum. In addition to my role coordinating the MLMP, I also coordinate other Arboretum citizen science projects that focus on dragonflies, birds, fungal diversity, and water quality monitoring. I am thrilled and honored to be working with monarchs, the MLMP, and all of you.

I first became enamored with migratory species as a young child growing up near the Horicon National Wildlife Refuge in Wisconsin, one of the largest freshwater marshes in the United States and a critical rest stop for migratory birds and waterfowl. Later, my interest in biology and biodiversity was further piqued by my time spent in the Department of Organismic and Evolutionary Biology at Harvard, where I worked while completing my graduate studies in the field of education. Upon migrating back to Wisconsin and spending two+ decades in the education and public outreach arenas, I joined the UW Arboretum staff in 2021. My work at the Arboretum began with Journey North, an international participatory science program that tracks seasonal changes and migration patterns across North America. I'm very excited to continue working with monarchs and phenology in my new role with the MLMP.

I am inspired by the passion and dedication of the volunteers I have met working in this field over the past two-and-a-half years, and I look forward to continuing to learn about this fascinating species alongside you. Thank you for all that you do to help deepen our understanding of monarchs!

You can support MLMP in many ways!

Please consider supporting our collective conservation efforts with a donation that supports training, materials, and maintenance of the data you collect.
You can make a financial contribution today here.

Have a story from your site or art to share? We'd love to hear from you!
info@mlmp.org | mlmp.org
MLMP | UW-Madison Arboretum | 1207 Seminole Hwy | Madison, WI 53711

The Monarch Larva Monitoring Project is jointly coordinated by the Monarch Joint Venture and the University of Wisconsin-Madison Arboretum.