

Monarch Butterfly Fund
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MONARCH BUTTERFLY FUND
 Conserving the Migration

monarchconservation.org

Issue XX – Reduced edition

Spring 2020

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Spring Reflections - Message from MBF

Spring is here and monarchs are on their way back to the United States and Canada! Nature goes on as usual, the sun shines every morning, birds chirp, flowers bloom and milkweed waits for the monarchs while all of us stay at home. The COVID-19 pandemic has thrown our lives into turmoil, but it is comforting that the rest of the natural world has escaped our human chaos.

Technology has become our savior, enabling us to work from home and communicate with our loved ones. More now than ever we see the importance of all staying connected with each other and with nature. We can be as resilient as the monarchs! Those of us who have yards can still go out and care for milkweed and nectar plant patches, and be inspired by their long journey and beauty. As Vincent Van Gogh wrote, “Great things are done by a series of small things brought together” and now is the time for all of us to rise to the challenge and do great things.



Overwintering monarchs in Sierra Chincua

Data on Overwintering Monarch Population

By now you have probably heard that the forest area occupied by monarchs in Mexico this winter was only 2.83 hectares. This area represents a 53% decrease from last year.

To put this in historical perspective, we’ve created a graph (shown below) that provides the mean values for three decades (with only 7 years included in the first “decade”, due to a lack of earlier data). Large year to year fluctuations probably result from annual weather fluctuations during the breeding, migratory, and wintering phases of the annual cycle. Simply saying that the population decreased 53% from last year does not tell the entire story. The long-term average since the colonies were first measured is 5.62 hectares. The mean for the past decade is 2.82 ha, almost exactly what was measured this year. Thus, 2019 was an average year for monarchs over the past decade. But this decade represents a big drop from previous decades—with means of 5.84 ha from 2000-2009, and 9.31 ha for the first 7 years that the colonies were measured.

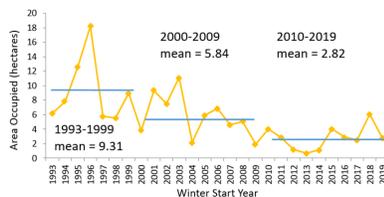


Figure legend: 1994-2003 data collected by personnel of the Monarch Butterfly Biosphere Reserve (MBBR) of the National Commission of Protected Natural Areas (CONANP). 2004-2020 data collected by the WWF-Telcel Alliance, in coordination with the Directorate of the MBBR. 2000-2001 population numbers as reported by Garcia-Serrano et. al (in Oberhauser and Solensky, 2004. The Monarch Butterfly: Biology and Conservation).

Data from this year are a stark reminder that a single high year does not mean that the population has recovered, and that monarch numbers reflect habitat availability and weather conditions throughout the annual cycle. While their numbers were high in much of the breeding range last summer, monarchs produced in the summer also need to migrate successfully and survive the winter as well. Data from this year, combined with those from past years, may help us better understand what drives the population.

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Monarchs in the Northeast

Nature watchers in the Northeast were thrilled by the large numbers of monarchs seen during the summer and fall of 2019, reporting more than have been seen in many years. It was a surprise to hear that World Wildlife-Mexico reported a significant decrease in the total abundance of overwintering monarchs this past winter. Why the disconnect? First of all, there are regional differences in abundance, and monarchs in 2019 were not as abundant in all other regions as they were in the Northeast. Additionally, tagging results recorded by Monarch Watch show that monarchs from the Northeast survive the journey to Mexico at a lower rate than do monarchs from the Midwest. The abundance of monarchs in the northeast this past year serves as a reminder of the goals of MBF and Monarch Joint Venture: the provision of habitat sufficient to support monarch population growth and sustain the monarch's magnificent migratory phenomenon. 🦋

Climate Change Workshop in Zitácuaro, Mexico

The second workshop "Ecological Restoration Adaptable to Climate Change in the Monarch Butterfly Biosphere Reserve (MBBR)" was held on February 27 with the participation of 101 stakeholders that included representatives from agrarian authorities, civil society organizations, academics, and governments. MBF Advisors, **Dr. Cuauhtémoc Sáenz** and **Dr. Diego Perez Salicrup**, and MBF board member **Dr. Isabel Ramírez**, were presenters.

The workshop allowed property owners, forest technicians and government institutions to share results on the research that has been carried out in the MBBR and improve the capacities of key stakeholders working in forest management, protection, and restoration. The objective was to develop a forest restoration proposal that will be linked to the MBBR's Management Plan, the Comprehensive Fire Management Plan, the 2014-2018 Monarch Conservation in Mexico Action Plan, and the Monarch Butterfly Adaptation to Climate Change Plan. 🦋

Monarch Network Launches Video in Mexico City

On February 18, the Monarch Network released the video "**Biodiversity: Beyond the Monarch**" which highlights the amazing variety of species living in the MBBR. The video included the wildlife videos and acoustics recorded during 2016 as part of a project funded by MBF. During the event, the media and the public watched the video after listening to a tribute to Dr. Lincoln Brower given by **Mónica Missrie** from MBF. Presentations followed from several members of the Monarch Network including MBF Board member **Dr. Isabel Ramírez** discussing monarchs and climate change. The video is subtitled in English and was streamed in the U.S. and Canada. MBF is proud to be a member of the Monarch Network and to support the development of this video which you can enjoy at the following link: <https://tinyurl.com/u65nwge>. 🦋

Alternare Update

At the end of 2019 and early 2020, 37 men and 197 women from the MBBR's indigenous communities participated in 29 workshops on several diverse topics: 1) Managing solid waste properly, 2) Community savings & loans; 3) Care & management of backyard animals; 4) Fuel-efficient stove construction; 5) Organic vegetable production; 6) Limestone & soil floor construction. These workshops led to the construction of four stoves and two limestone floors.

Additionally, 448 children in 18 schools participated in work sessions about the importance of water, soil, and the forest. Furthermore, five community regulations about water usage were drafted.

Alternare continues to do great work and MBF is proud to support it with your generous donations! 🦋

Assisted Migration

Dr. Cuauhtémoc Sáenz-Romero and his colleagues continue their experiments in assisted migration at Ejido La Mesa. Unusually warm and dry temperatures at the beginning of the year resulted in seedling mortalities in the altitudinal reciprocal transplants of *Abies religiosa* provenances tested at contrasting elevations. Oyamels planted last July 2019 at an elevation of 3400 m and placed under a mesh shade (imitating the effect of nurse plants), had a high survival rate (around 95%). However, when planted at a site chosen to imitate a climate about 2 °C warmer than the usual to mimic what is forecast under climatic change (2600 m elevation), the rate was only about 80%. In other words, when seed sources are transferred to warmer sites than those in which they were collected, mortality is higher. The figures at the left show the results. 🦋



Workshop participants



Dr. Sáenz giving his presentation during the workshop

Photos: Eigo García Serrano



Schoolchildren working on their tree nursery at Donaciano Ojeda indigenous community

Photo: Mónica Missrie



3400 m



2600 m

Common garden provenance tests at different altitudes showing brownish seedlings at lower altitudes due to warm weather

Photos: Dr. Sáenz Laboratory

MBF Supports Environmental Alliance with Book Project

This year MBF is supporting the **Environmental Education Alliance of Georgia** in a project titled "Beyond the Mexico Book Project". This project is an extension of Monarchs Across Georgia (MAG), a literacy program which began in 2003. Grade-level appropriate science and nature-based books written in Spanish will be purchased and delivered to thirty schools (~60 classrooms and 1,400 students) near the monarch sanctuaries of El Rosario, Sierra Chincua, and Cerro Pelón during the 2020-21 school year. Along with those books, a monarch-related environmental lesson will be presented by **Estela Romero**, a resident of Anganguero and **Journey North** collaborator. Students will learn about the monarch life cycle, the importance of the overwintering forest, their declining population and their relationship with other animals and plants, emphasizing the importance of forest conservation. We are happy to support this environmental education project that will help develop reading skills and increase both nature and science awareness.



Monarch Joint Venture - MJV

MBF continues to support **MJV's** general operations for their mission-centered work. In the midst of dropping numbers for both the eastern and western monarch populations, the work of the MJV and its partners to increase and restore habitat is crucial. 2019 goals included restoring habitat, educating to inspire conservation action, and advancing science efforts.

Throughout 2019, the MJV partnered to provide professional development for 78 educators, reached more than 2,000 people at outreach events, and offered multiple webinars to hundreds of participants. Additionally, 180 people collected milkweed, nectar plant, and monarch data from sites in more than 23 states through the MJV's Integrated Monarch Monitoring Program. These data are vital to shaping our understanding of how monarchs interact with their environment. In collaboration with partners, the MJV also developed tools to aid roadside managers in assessing and prioritizing pollinator habitats on transportation lands. The impact of monarch conservation is strengthened by the MJV's focus on building partnerships and promoting collaborations. Working with more than 90 partners across the United States, the MJV prepares the annual Monarch Conservation Implementation Plan to inform collaborative conservation.



Monarch Butterfly Flight Challenge

With support from the Monarch Butterfly Fund, Dr. David Blaauw and his lab group at the Univ. of Michigan have continued developing a system to track the flight of individual monarchs. This winter they visited one of the overwintering colonies to tag a few butterflies and test their sensors. They continue to develop their system despite constraints imposed by the current pandemic. We are encouraged that their research will be able to reveal so much more about the flight paths of migrating monarchs.



Lincoln P. Brower Award

Brower Award recipient and graduate student **Cody Prouty** from the University of Georgia has concluded his experiments to determine how exposure to neonicotinoids affects monarch behavior and population size. Three studies examined how monarch caterpillars and adults respond to increasing doses of two different neonicotinoid insecticides. Cody concluded that monarchs are more susceptible when exposed to neonicotinoids as larvae than adults, and the milkweed species they were reared on can also affect their response to the insecticides. Monarchs exposed as adults experience lethal and sub-lethal effects at concentrations much higher than what could be found in wild nectar. Thanks to your donations to the Brower Award, MBF was able to support this important research that contributes to our understanding of monarch behavior and physiology.

Another Brower Award recipient, **Anna Skye Harnsberger**, a graduate student from the University of Wisconsin-Madison, is working on identifying ways to optimize breeding habitat restoration for monarchs by looking at how surrounding landscape, patch size, and local patch characteristics influence monarch abundance at a milkweed patch. Her findings will inform the strategic implementation of monarch breeding habitat restoration.

We have received several applications for this competitive grant, and we will be announcing the winners in May so stay tuned!



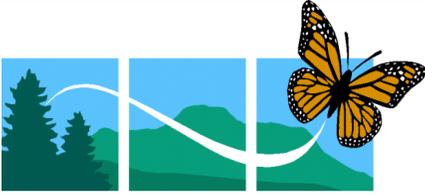
Journey North



View of monarch experiments at the University of Georgia's laboratory

Photo: Cody Prouty

Healthy Ecosystems and Sustainable Communities to Preserve the Monarch Butterfly Migration



MONARCH BUTTERFLY FUND
Conserving the Migration

Thank you!!

Over 160 individuals, schools and organizations donated funds to MBF in 2019 allowing us to continue making a difference for monarchs. Every single contribution counts, and we are deeply grateful. Just as monarchs depend on milkweed, flowers with nectar, and trees we depend on our generous donors. A special thanks to those who have contributed \$100 or more in 2019!

Our gratitude also to those who donated to the "Lincoln P. Bower Award" in 2019.

You can also contribute towards the conservation of the monarch butterfly through the GlobalGiving platform

<https://tinyurl.com/d6s58wb>

\$50: Buys 350 seedlings for a community/school-run tree nursery.

\$100: Plants 100 new trees in the monarchs' threatened forest areas, which includes seed collection, raising the young seedlings, and the distribution and planting of the seedlings. Our goal is to plant high quality seedlings in a community-led process to help restore critical over-winter habitats for monarch butterflies.

\$750: Pays for one month of professional staff services of trained personnel who ensure that relevant expertise is available to community and private landowners working to restore their property to viable monarch locations.

* Donation(s) given through GlobalGiving

** Recurring GlobalGiving donations

*** Donation for Lincoln Brower Award

MBF Mission: To foster the conservation of North American monarch butterflies and their migration through habitat restoration, research, monitoring, education and support for sustainable community development in and near the monarch overwintering areas in México.

MBF Vision: Healthy ecosystems and sustainable communities that preserve North American monarch butterflies and their spectacular migration in perpetuity.

Thank you for considering a gift to MBF

MBF is a 501(c)(3) tax exempt organization and all donations are tax deductible to the full extent of the law

Donations to MBF support reforestation, research that is directly related to monarch and monarch habitat conservation, and sustainable economic development activities in México. Please consider donating today through our secure on-line site:

<https://monarchconservation.org/donate-donar/>

or by sending a check to the following address:

Monarch Butterfly Fund
c/o Karen Oberhauser
4038 Cherokee Drive
Madison WI 53711

All donations will be acknowledged with a letter, and donations over \$50 will be acknowledged with a certificate, if requested.

We also list donations larger than \$100 in our newsletter. If you wish to remain anonymous please put a check mark here: _____

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