The Monarch Butterfly Fund’s (MBF) ongoing collaboration with Alternare and CIGA (UNAM’s Center for Research in Environmental Geography) continues to strengthen our relationships with local communities, and consolidate the success of our yearly reforestation activities. Supervised by Dr. Isabel Ramírez, and with the help of field assistant Rufina Rosas, during July and August, Dr. Pablo Jaramillo, coordinated the planting of 37,730 pines, 1,000 oyamels, and 1,280 oaks on 35 hectares. The trees were planted in 9 different areas within the Monarch Butterfly Biosphere Reserve (MBBR). Five local communities participated in the tree planting.

As in previous years, the Francisco Serrato and Crescencio Morales communities contributed eagerly, and pointed out degraded areas that needed to be reforested. Thanks to Alternare’s continuous engagement with these two communities we have established a solid team and each year their enthusiasm grows. Men, women, and children work together and have fun getting seedlings, digging, and planting.

Good results speak for themselves, and the word is spreading among local communities, so this year three new communities joined us: Nicolás Romero, San Felipe los Alzati and San Juan Zitácuaro. With funding provided by MBF, San Juan Zitácuaro planted 18,000 pine seedlings in an area that was previously burned and covered with bushes and a few oak trees. This ejido has managed its forest resources since the early 1970’s and received a national award for sustainable forestry.

San Juan Zitácuaro was the only community that received funding; the rest received in-kind support such as fuel to transport seedlings to the reforestation sites, shade cloth and materials for their tree nurseries, and barbed wire to protect newly reforested sites.

We are delighted to have new communities on board and want to thank all our donors. As our main conservation partners you have made it possible for MBF to provide new trees for México every summer.
Alternare’s Community Building Activities Continue

The first semester of 2013 was a busy one for Alternare’s training team. With financial support from MBF, HSBC (Hong Kong and Shanghai Banking Corporation) and other sources, Alternare held 50 workshops in 34 different localities in Michoacán and one in the State of the México. A total of 833 women and 480 men learned to produce organic fertilizer and vegetables, forest and fruit trees, and adobe. They also built dry latrines, cisterns, and fuel-efficient stoves. Other workshop topics included solid waste management, sustainable agriculture, water and soil conservation, and participatory community diagnostics, evaluation and planning. Their results were impressive; 15 cisterns, 61 fuel-efficient stoves, 14 dry latrines were completed along with 76 family vegetable gardens and one school tree nursery where 22,696 fruit and forest trees were retained for future reforestation.

Alternare trains individuals as community instructors sharing recovery, conservation and sustainable development techniques to conserve natural resources. This year the ninth generation of community instructors graduated in May and will lead the workshops scheduled for the rest of the year. Training for the tenth generation will begin in September, 2013. Additionally, Alternare facilitated several meetings that culminated in six communities signing an agreement to work in projects to promote and implement the conservation of water resources, particularly around the Río San Juan Zitácuaro river basin within the Monarch Butterfly Biosphere Reserve.

Communities working with Alternare also participated in our reforestation project as described on the front page. MBF’s partnership with Alternare has enabled us to establish a solid, collaborative and trustworthy working relationship with the local people.

Eco-tourism Workshops

In our spring 2013 newsletter we told you about Eneida Montesino’s success with her eco-tourism workshops during the last trimester of 2012. Collaborating with personnel from the Monarch Butterfly Biosphere Reserve (MBBR) and World Wildlife Fund (WWF) México, Eneida strengthened MBF’s partnerships with local organizations, communities and schools.

The MBBR began to support economic activities among the communities including a Temporary Employment Program which offers job opportunities, particularly during the overwintering season. Under this program, the MBBR has established that monitoring overwintering monarchs is mandatory for the Cerro Prieto community and Eneida was able to help the Reserve achieve this goal by including monitoring techniques in the workshop for them. MBF will promote monitoring among other communities to increase awareness of the importance of conserving natural resources. Other activities included in Eneida’s workshops were handicrafts, presentations, games and even washing dishes—a living lesson in cooperation, organization and gender equality!

The largest group of workshop participants were young, under 20 years old, followed by 21-30 years olds. The youngest participant was 14 and a few were older than 51. The majority were male but women also participated. Ejido Asoleadero was the only one represented exclusively by women, since the main leaders are young widows or divorcees with young children.

In June, 2013 Eneida conducted an evaluation of last year’s workshops asking participants for their feedback and we are happy to report that the results were very positive. Participants rated her workshops highly and said they learned a lot of information that they will be able to share with tourists and other members of their communities. Participants’ favorite activities were the games, learning about monarchs, and interacting with their classmates; we see the same choices in workshops in the U.S! Most participants said that they want to come back for more in 2013.
Summer 2013 Monarch Population

Reports by monarch enthusiasts all across the eastern U.S. and southern Canada reflect the past overwintering season’s all time low overwintering numbers in México and point to a very poor recovery of the breeding populations over the spring and summer. In the western breeding range, general monarch numbers are showing a decline as well except for reports from the Columbia River in the state of Washington and the breeding grounds in Arizona where the monarch populations appear higher than recent years. As board member Lincoln Brower notes, late summer reports indicate a general but small uptick in numbers. Board member, Karen Oberhauser, reflects on this season’s low numbers based on her Monarch Larva Monitoring Project (MLMP).

Not seeing many monarchs? Unfortunately you’re not alone

Let’s face it, it has not been a lot of fun to monitor monarch eggs and larvae in 2013. In fact, just sitting down to write this article made me a little depressed, so I’m going to walk into my yard (it’s August 24, 2013) and see if I can cheer myself up by seeing some monarchs……….. I’m back, and I saw two, one on blazing star and one on ironweed. So, they’re out there, and I have the pictures to prove it (see green panel on the right).

Just what do the numbers show? While we wait until the end of the season when everyone has entered all of their data to do careful analyses, I pulled up the data from Minnesota, where 33 sites are being monitored this summer. The data from other northern states look pretty much the same. These sites range from the Gunflint Trail way up in northeastern MN, where David MacLean has been monitoring a patch of swamp milkweed since 2010 (David saw no eggs or larvae at all in 2013), to New London-Spicer in west-central MN where Laura Molenaar and many students have been monitoring milkweed patches since 2004 (they saw a few monarchs this year), to many sites in the Minneapolis-St Paul metro area (my daughters and I have monitored our yard since 2002, and on my best day this year I found 20 eggs on about 135 plants).

The graph below shows egg densities (as eggs per milkweed plant monitored, so a value of 0.20 means that there were 20 eggs on 100 plants, and 0.02 means there were 2 eggs on 100 plants).

2011 was a “normal” year (see the blue line on the graph). The monarchs came back in late May, had a May peak of about 0.27 eggs per milkweed, and a July peak of about 0.16 eggs per milkweed (about 16 per 100 plants).

2012 was unusual (see the red line on the graph). Remember our early spring? The monarchs came back about a month early in very high numbers. Note the peak of about 0.60 eggs per milkweed in early May. But then the population crashed, and our early July peak was only about 0.10 eggs per milkweed. The crash was probably due to a combination of the heat and lack of rain, which was hard on the milkweed and the monarchs, and high numbers of predators.

2013 has been terrible from the start (see the green line on the graph). After the lowest overwintering population ever, the monarchs came back late, and the numbers have stayed low. Our peak this summer was during the week of July 22, when the egg density was 0.028; that means people are seeing fewer than 3 eggs for every 100 plants they observe. The graph doesn’t show caterpillar data (you can see these numbers online), but out of 14,313 times that MN MLMP observers have looked at a milkweed plant this summer, they have only seen 96 caterpillars, and only 14 5th instars.
Summer 2013 Monarch Population cont.

What does this mean for monarchs? It means they need all the help they can get. There are really 4 categories of things you can do to help these amazing insects flourish.

* First, plant milkweed and nectar sources. If you have an Monarch Larva Monitoring Project - MLMP site (http://www.mlmp.org/), you’re probably already doing this, but consider adding more plants if possible. Monarchs have lost a lot of habitat with the advent of herbicide-tolerant crops and expanding human habitation.

* Second, educate others and advocate for monarch conservation. For example, you can register your site as a monarch Waystation, and put up a sign that recognizes that registration (see http://monarchwatch.org/waystations/ for more info). You can talk to friends and neighbors, ask local or county land managers to do things like avoid mowing ditches when monarch larvae might be present, or advocate limiting insecticide spraying at the local, state or national level.

* Third, get involved in a monarch citizen science program and contribute data that will help us manage monarchs more effectively. The MLMP (http://www.mlmp.org/), Journey North (http://www.learner.org/jnorth/), and Project Monarch Health (http://www.monarchparasites.org/) are all good possibilities, and all have websites with clear directions. You can tag monarchs to help study their fall migration, either through Monarch Watch in eastern North America. (http://www.monarchwatch.org), or the Southwest Monarch Study (http://swmonarchs.com/) in the west.

* Finally, donate money to conservation organizations like ours (www.monarchbutterflyfund.org) or others that work on monarch conservation in México and the U.S.

Studying, monitoring and documenting monarch populations is helping us understand the best ways to help monarchs survive in a changing world. I hope this knowledge energizes people to do what they can to make this happen.

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**Monarchs and Global Warming**

Monarchs, like all organisms, face the challenges of a changing climate, and we’re working to figure out how they’ll cope with altered temperature and precipitation patterns. We know that extended periods of hot summer temperatures lead to lower female fecundity, and prolonged exposure of larvae to temperatures over 36° C (97° F) results in decreased adult size, increased development time, and increased mortality. Modeling studies based on records from the Mexican overwintering sites and data from the Monarch Larva Monitoring Project suggest that the Mexican sites may not have a suitable climate for overwintering monarchs by about 2050, and that successive generations of monarchs may need to move farther and farther north in the summer to avoid lethally hot temperatures. In addition, a changing climate could alter the ranges of the plants on which monarchs depend: milkweed, nectaring plants, and the oyamel fir trees in their overwintering sites. Recent research has also shown that climate can serve as a cue to induce behavioral and physiological changes in monarchs, including diapause induction, alteration of flight direction, and rapid cold hardening. Thus, we know that climate is very important to monarchs.

Could the scenario described in Barbara Kingsolver’s book “Flight Behavior” where monarchs migrate to the Appalachia, really happen? We can’t answer that question with certainty. However, while monarchs may not start overwintering in the mountains of Appalachia, it is very likely that they will respond in some way to a changing climate, and that this response will include an altered migration.

**Barbara Kingsolver** visited Sweet Briar College on 21-22 March 2013 and talked about her recent book, "Flight Behavior", which weaves a wonderful tale of the possible effect of global warming on the monarch butterfly. Jennifer McNamary, a staff writer at the College, captured the essence of Kingsolver’s novel in an essay published in the Summer 2013 Sweet Briar College Magazine. Lincoln Brower edited the story for republication in our MBF Newsletter, with the College’s permission. The full account is on the next page.
Barbara Kingsolver Visits Sweet Briar Lab as Part of her Research for her Book “Flight Behavior”

Barbara Kingsolver likes to joke about the limited reach of her writing when she was a graduate student in evolutionary biology. “I thought there must be a better way to make writing about science more useful to more people than the ten or twelve who would read my dissertation,” says the now popular and critically acclaimed author of 14 books. “This is my sedition,” she says. “I put [science] in novels.”

To be true to this aim, the story can be made up, but the science must be real. That’s how Sweet Briar College and research professor of biology Lincoln Brower came to make a cameo appearance in Kingsolver’s latest best-seller, “Flight Behavior.” She sought Brower as one of the world’s foremost experts on monarch butterflies because she needed to know if and how her book’s premise could happen — even though it hasn’t.

As part of her meticulous research, Kingsolver visited Brower and his wife, Duberg Professor of Ecology Linda Fink, at their Sweet Briar lab. She also asked them to review the finished manuscript. The friendship that evolved from their work together brought Kingsolver back to the College in March, 2013 for its annual Julia B. Waxter Environmental Forum. Kingsolver read from and spoke about “Flight Behavior”.

The novel opens with a dramatic effect of climate change: Millions of the migratory monarchs appear on a southern Appalachian mountainside. The butterflies are supposed to be thousands of miles away, in their protective overwintering grounds in Mexico.

The book’s narrative grows from how her characters respond to the monarchs’ presence — from the scientists who investigate it as an ecological disaster to town folk who see the hand of God, and those who fall somewhere between. Kingsolver said she wanted to write a novel about why people think about climate change or why they don’t, and how they draw different conclusions from the same set of facts. Kingsolver says her books don’t try to take sides.

“A novel is more like a conversation that asks the reader to think about things in a new way,” she says. “[Flight Behavior] is about people, family, about telling the truth, modes of denial, the divide between rural and urban cultures, between science and religion, faith and objectivity, and the media.”

Brower and Fink counted on that. “We knew she was going to be objective about [climate change] and she was going to spin an interesting yarn around it,” Brower says. “I have no problem with that, in fact using literature to explore complex issues is important.”

The author was relieved by the couple’s response, as she had approached them with some trepidation. Would they think her central premise was nonsense, despite her own preliminary research concluding it was not? They didn’t disagree. “It turns out they are literary people, they read fiction, they understand the symbolic nature of fiction. They understand that fiction is about real things even though they haven’t happened,” Kingsolver says. “I was so gratified by the generosity of their imaginations.”

Addressing students studying science and creative writing during the Waxter Forum, she noted the “combination of those interests is something very valuable in the world at this moment, when we have big environmental questions to think about and decisions that can no longer be postponed. Talking across those divides is the most useful thing we can possibly do,” she said, adding that listening is equally important.

Kingsolver’s online biography lists numerous accolades including the National Humanities Medal and finalist consideration for a Pulitzer. She also established the Bellwether Prize for first unpublished novels, which has helped launch careers.

Reprinted after brief editing by Brower with permission from Sweet Briar College Magazine, Sum
News From the Board

Board Member Isabel Ramirez stepped down temporarily to take a sabbatical but plans to be back with us next year. In May, 2013 we welcomed Dr. Ernest Williams to our board.

Ernest Williams is Professor of Biology at Hamilton College in Clinton, NY. As a butterfly ecologist for more than 30 years, he has studied the population biology and conservation of several different butterfly species, including monarchs at their Mexican overwintering sites. He teaches undergraduate courses on ecology, evolution, and New York’s Adirondack Park. In addition to scientific articles, he writes about nature. One example is his book *The Nature Handbook*, which describes observable patterns in plants and animals. His Ph.D. in Ecology is from Princeton University, and his favorite thing to do is to be out in nature looking at butterflies, plants, and other living organisms. Welcome Ernest! 🦋

Don Davis in the Media

The significant decline of monarchs in Canada generated numerous media reports, mainly in eastern Canada. Board Chair Don Davis was interviewed by Canadian media to outline the reasons for this decline. His interview with the Toronto Globe & Mail is at: [http://tinyurl.com/kl7xrd](http://tinyurl.com/kl7xrd) and a clip from the CBC TV program where he is featured at: [http://tinyurl.com/kkotdpcz](http://tinyurl.com/kkotdpcz). Don discussed monarch issues with Ontario Premiere Kathleen Wynne and guests during a special screening of SK Film’s “Flight of the Butterflies” on April 3rd at the Ontario Science Centre where he also spent four 3-hour sessions, describing monarch biology and the work of MBF to visitors.

Gail Morris Raises Awareness of the Southwest Population

Gail Morris led workshops raising awareness about monarch butterflies and creating Monarch Waystations around Arizona over the summer. The Desert Botanical Garden in Phoenix, the White Mountain Wildlife Center in Pinetop, Cochise County Master Gardeners in Sierra Vista and the Arboretum in Flagstaff as well as many garden clubs hosted her talks. She also spent time in the field with ethnobotanist, Dr. Gary Nabhan, founder of the Forgotten Pollinators Campaign and the Migratory Pollinators Conservation Initiative, identifying common and rare native milkweeds.

Gail was invited again by the National Park Service to lead a workshop for the Interpretive Rangers at the Grand Canyon and collaborated with them to create a monarch reporting system on the Rim and Inner Canyon. Gail will partner with the Grand Canyon School to create a butterfly garden and incorporate monarch and milkweed monitoring to the school’s new Climate Change curriculum. She will present a talk, “Chasing the Monarch Migration through the Grand Canyon” as part of the Grand Canyon Evening Program at Shrine of the Ages on September 25th.

Karen Oberhauser Receives Citizen Science Champion of Change Award

On June 25, 2013, Board Member, Dr. Karen Oberhauser went to the White House to receive the Citizen Science Champion of Change award for her work promoting and facilitating monarch citizen science. As founder and coordinator of the Monarch Larva Monitoring Project, Karen supports citizen scientist volunteers, monarch researchers and many others to monitor monarch egg and larval distribution and abundance throughout the monarch breeding range. She is also involved in efforts to synthesize data from different monarch and butterfly citizen science projects.

Karen gave an inspiring speech where she explained how citizen science contributes to science, education and conservation. The entire ceremony, including her talk, can be found at: [http://www.youtube.com/watch?v=PLau1ZFA8z8](http://www.youtube.com/watch?v=PLau1ZFA8z8)

More information about the award is at [http://www.whitehouse.gov/champions](http://www.whitehouse.gov/champions) where you can also read Karen’s blog ([http://www.whitehouse.gov/blog/2013/06/25/citizen-scientists-and-monarch-butterflies](http://www.whitehouse.gov/blog/2013/06/25/citizen-scientists-and-monarch-butterflies)).

After receiving the award, Karen was invited to participate in a public affairs radio program called “Access Minnesota” to discuss the recent data collected by citizen science on her larva monitoring project. The complete interview is at: [http://www.accessminnesotaonline.com/2013/08/07/citizen-scientists-and-the-fight-to-save-monarch-butterflies/](http://www.accessminnesotaonline.com/2013/08/07/citizen-scientists-and-the-fight-to-save-monarch-butterflies/). Karen was also interviewed by the Minnesota Star Tribune. To read the full article and learn more about Karen’s remarkable career and her contributions to monarch conservation go to: [http://www.startribune.com/lifestyle/218717721.html](http://www.startribune.com/lifestyle/218717721.html).

CONGRATULATIONS KAREN!!! It is truly an honor for all of us at MBF to have such a talented, accomplished and dedicated colleague on our board. 🦋
News From the Board cont.

Ernest William Spreads the Word
This summer Ernest Williams gave several talks on monarchs. On July 19, he was at the WILD Center, which is the Natural History Museum of the Adirondacks, in Tupper Lake, New York to give a talk as part of their summer-long focus on monarchs. Previous to joining our Board Ernest gave a similar talk on March 3 at VIEW, the Old Forge Art Center in Old Forge, NY.

International Symposium on Monarch Butterfly Research
In coordination with the governments of the State of México and Michoacán, and the World Wildlife Fund-Telcel Alliance, the National Commission for Natural Protected Areas (CONANP) is organizing an International Symposium on Monarch Butterfly Research from October 3-5, 2013.
The symposium will provide a forum for academics, civil society and the three levels of government (municipal, state and federal) to discuss monarch conservation challenges and the impact of climate change. The main goal is to assess the current state of monarch conservation, identify priority actions and develop a plan that includes a national monitoring strategy and strengthens collaborations among all stakeholders.
Board members Alfonso Alonso, Lincoln Brower and Karen Oberhauser will attend the symposium to present the population data from the 2013 spring migration. The low numbers observed during summer underscore the urgency to implement effective conservation measures to protect the migratory phenomenon.

GlobalGiving’s June Bonus Day was a Great Success!
During the month of June, we featured Alternare community instructor Gerardo Segundo Sanchez, a campesino from El Oro in the State of Mexico, on our Facebook page. Gerardo shared photos of the cisterns, fuel-efficient stoves and tree nurseries that resulted from the workshops with communities in the Monarch Butterfly Biosphere Reserve. MBF supports Gerardo’s workshops with funds from GlobalGiving, a site that allows our donors to make contributions online. In June 12th, GlobalGiving had a ‘Bonus Day’ whereby they allocated $90,000 to match all donations received on that day by 40%. On that day, 20 of our generous supporters contributed $2,440 which were matched by $780 adding a total of $3,220 to our community conservation project! Thanks to all of you for making the June Bonus Day a success!
At the closing of this edition we were $1,050 short of our $15,000 goal so please consider giving a donation through GlobalGiving. You can opt for an individual donation or choose to give a gift card, set up a registry or hold a fundraising event. We have 5 donors who have set up monthly recurring donations which are gradually helping us reach our goal. Our project is found at: http://www.globalgiving.org/projects/reforestation-monarch-butterfly-conservation-mexico/
GlobalGiving is a charity fundraising web site that gives social entrepreneurs and non-profits from anywhere in the world a chance to raise the money that they need to improve their communities. Since 2002, GlobalGiving has raised $78,240,434 from 308,829 donors who have supported 7,212 projects.
Our online community is growing! Please continue rallying your readers, fans or followers to support MBF.

Join us Online
@ mbfmonarchs
www.facebook.com/monarchbutterflyfund
Check our recently revamped web site: www.monarchconservation.org
**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 Mexico.

**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 economic development activities in Mexico. Please consider donating today through our secure on-line site:

[www.monarchconservation.org](http://www.monarchconservation.org)

or by sending a check to the following address:

Monarch Butterfly Fund  
c/o Karen Oberhauser  
2078 Skillman Ave. W.  
Roseville MN 55113

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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$50: Supports the attendance of two guides at environmental education workshops. These guides will lead eco-tourists into the delicate wonders of the Butterfly Reserve. Our goal for next year is to train at least 200 new resident-guides, providing them with the requisite skills and an understanding of the biology and environmental needs of monarchs.

$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 overwinter 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.