Monarchs in the Classroom
2001 Newsletter
Conservation, Education and Research
for K-12 Teachers and Students

Monarchs in the Classroom Update

We’ve been discussing a “frequently asked questions” section for our website, and I tried to list the monarch questions I’m asked most often. “Why do monarch pupae have gold spots?” is the hands-down favorite, with “How do they get to the same places in Mexico every fall?” a close second. Somewhere near the top of the list is “How did you start Monarchs in the Classroom?” While it’s hard to pinpoint just how this organization was born, my answer is usually that it all started when I sent ten larvae to Mrs. Martineau’s kindergärten class when my daughter Amy was in her class eight years ago. How it grew is a little harder to answer, but some magical combination of an incredibly interesting organism and an equally incredibly interesting (and talented and generous) group of teachers and graduate students have helped to expand MITC from those ten larvae to what it is today. This newsletter is going to over 2300 teachers, naturalists and parents, and while we haven’t met you all in person, we definitely consider you part of the team that has made this growth possible.

A few things have changed; Liz is teaching MS science in VA, Betsy had a baby (you may hear him if you call our office), and we conducted our final NSF-sponsored research workshop for secondary students and teachers (at least in it’s current incarnation). We’re doing workshops all over the country, and distributed a record number of larvae and eggs to MN and WI teachers last fall. The Monarch Larval Monitoring Project expanded into cornfields to help assess risk of genetically-modified corn to monarchs, and we’re developing a new course that moves beyond monarchs to other insects and their environment. Lots of great things continue; we held the fourth annual Monarch Fair and our fourth Eisenhower-sponsored summer course, and continue to distribute monarch-related materials to educators throughout the world.

You can read about these things and more in this newsletter and on our website (www.monarchlab.umn.edu). Have a great year, and stay in touch!

Monarch Population Dynamics Meeting

If you are concerned about monarch conservation or just interested in monarch biology, and would like to hear scientists from Mexico, Canada and the US speak about the current and future status of monarch populations, join us for the first Monarch Population Dynamics Meeting. The meeting will address basic monarch biology, as well as issues posed by the use of Bt and Round Up Ready corn and soybeans, new pesticides, habitat destruction, and climate change.

This meeting will provide a unique opportunity to attend presentations, tour local prairie habitats containing 10-12 milkweed species, and work with scientists and conservationists to identify research objectives and integrate information to make management and policy recommendations.

Jointly organized by Monarchs in the Classroom and Monarch Watch, and hosted by Monarch Watch, the meeting will be held 20-23 May 2001 (Sun.-Wed.) at the University of Kansas, Lawrence, KS. If you’d like to attend, contact Chip Taylor at monarch@ku.edu before 1 May, or check out the meeting website at http://www.monarchwatch.org/about/new/monmeeting.htm. There is a registration fee of $100 (or $50 per day) to cover incidental costs, the field trips, and food.

Inside this issue:

- Especially for Teachers: Courses, Tips from Teachers, Monarch Fair
- Educational Gardening
- 2001 Materials and Order Form
- MITC Workshop Announcement and Application
- Spotlight on a Teacher, Larval distribution 2000 and 2001
- Student and Teacher Tours to the Mexican Overwintering Grounds

Look for answers inside!
ESPECIALLY FOR TEACHERS: www.monarchlab.umn.edu/Teachers/teachers.htm

Ongoing Courses and Workshop Opportunities

MITC continues to offer a variety of professional development opportunities for K-12 teachers and other educators in 2001. Read what's available below, and contact us if you'd like more information!

K-8 Teachers

Teachers, we know your summer days are precious, but time spent in professional development with MITC is loads of fun! Here's what JoAnn Christenson had to say about her two weeks learning about monarchs last summer: "I often look through my photo collection from the workshop and remember what an awesome time it was. Well worth the time in my precious summer!" And Jerry Wenzel wrote: "I want to tell you that this past week was everything I expected and MORE! I had just a wonderful week and just can't wait to return in August.”

Of course, the fun and hard work have a goal—effective classroom learning. This happened for Gertrude Jensen, who wrote after her first month back in school last fall, "I sent the larvae/eggs home to be raised, so whole families got involved. Students and families are still learning, and I’ve had lots of great feedback from parents.” And four years after she first took the course, Cindy Petersen wrote, "I need to say again that what I have learned from the monarch classes has profoundly affected the way I teach science to my middle school students, especially in the area of inquiry and field biology. My 7th grade students are in the midst of presenting their group research projects using monarchs, and I am in awe over their confidence, enthusiasm and knowledge of the subject.”

Join Gertrude, Jerry, JoAnn, Cindy and the growing community of MITC alumnae, and consider taking a summer course that’s so much fun you won’t feel like you’re missing your vacation. You’ll investigate the intriguing world of monarch butterflies, and come away with tried and true lessons, graduate credits, new friends, and renewed excitement for the coming year. Funded by the Eisenhower Professional Development Program, this course will give you the knowledge, materials, and time to plan a unit with monarchs for your own classroom. Check out the course description and application on pages 6-8.

Minnesota teachers have registration priority, but we have some room for teachers from other states; please contact us for details.

District Workshops

Would you like other teachers in your building or district to join you in your monarch studies? Need more information on monarchs, but don’t have time for a whole summer course? School districts and other educational entities throughout the US are sponsoring MITC workshops tailored to meet the specific needs of their teachers. These workshops focus on monarch biology, rearing techniques, and using the MITC curriculum; and include hands-on lessons with living monarchs. They can last anywhere from two hours to three days.

Workshops are facilitated by veteran monarch teachers, and often involve helping grade-level teams plan coherent monarch units or working with teachers at several grades to organize the scope and sequence of monarch learning in an entire school. Says workshop instructor Keri Buisman, "The benefit of having an inservice for a specific grade level is that the content can be directly relevant to all of the teachers involved. Teachers with little knowledge about monarchs and teachers with a lot of knowledge can share information and then organize a unit together.”

District MITC workshops can take place after school, on weekends, in the summer, or on inservice days.

Field Research Workshops for Teachers and Students

For the past three years, Monarchs in the Classroom has worked with the Science Museum of Minnesota to conduct workshops for secondary teachers and students. For a week in Minnesota in the summer, and another week in Texas in the fall, groups of ten teachers, 20 students and seven scientists worked together at what came to be known as “monarch boot camp.”

Students, teachers and scientists hard at work in Texas!

We learned about monarchs, milkweed, milkweed weevils, plant diversity, censusing populations, and conservation; and even branched into studies of vertebrates with group projects on pig behavior and cattle egrets. We learned that middle school students can become experts at chi square and t-tests, and that monarch larvae that don’t eat their chorion may develop more slowly than those that do (read about more research findings on our website at www.monarchlab.umn.edu/Research/sts.html). Our Texas hosts, J. David and Margaret Bamberger, taught us how individuals dedicated to land preservation and restoration can make a big difference in the world.

The NSF grant that funded this project has ended, but we’re making plans now for continuing to facilitate intensive field research experiences for teachers and students.
Tips for Teaching with Monarchs

Back by popular demand, here are some tips for teaching with monarchs:

1. **Milkweed Punch Card.** Encourage your students to collect and bring milkweed into the classroom with the added incentive of “earning a larva”. Create a “Green Punchcard” and every time your kids bring in milkweed give them a bonus punch. When the card is “filled”, perhaps they could earn an extra larva to rear on their own.

2. **Monarch Care Jobs.** Want your students to feel a sense of ownership for the larvae? How about creating very specific “care-cards” to hand out to each student. The job duties vary, each with simple step-by-step instructions (milkweed care, paper towel sprayer, cage cleaner, monarch “garbage” checker, nectar maker, etc.). Laminate the cards and redistribute them daily or weekly.

3. **Gather Extra Milkweed.** Milkweed is like gold when it comes to rearing healthy monarchs and you never know when you will run out. It is easy to freeze the big healthy leaves from midsummer milkweed plants. Make sure to collect extra leaves, wash and dry them thoroughly, and freeze them in zip-lock freezer bags for late fall...just in case!

4. **Display Garden.** Monarchs use many different species of milkweed (plants in the genus *Asclepias*) for feeding. It is educational and fun to create an indoor milkweed garden displaying as many as 18 diverse species of *Asclepias*. Collect the seeds in the wild and/or purchase them from Butterfly Encounters at www.butterflyfarm.com or 925-820-4307. Find great information online regarding how to grow prairie seedlings indoors at: stolaf.edu/depts/biology/mnpps/papers.

5. **Improve Journal Qualities (once again).** Teaching and learning about Monarchs can sometimes be overwhelmingly interesting to students, and reviewing their journals can be difficult if they’re too long. Some of our teachers have found it helpful to create a “journal template” to organize entries into categories corresponding to the different Monarchs in the Classroom curriculum sections (life cycle, migration, conservation, ecology, etc.).

6. **Multimedia Fun.** It’s a “no-brainer”...Students love a multimedia educational experience! Show movies in your classroom, get online, show slides, videotape a butterfly emerging, or have students create powerpoint presentations. All this is easy with so many resources available (check links at monarchlab.umn.edu).

2000 Monarch Fair

Does the amount a monarch caterpillar eats in one day affect its growth? What juice do monarchs prefer? What effects do common garden chemicals have on monarchs and other invertebrates? You could have found out the answers to these questions and 54 more at the 4th Annual MITC Monarch Fair, sponsored by the Medtronic Foundation’s STAR program. The Fair took place on December 2 at the Bell Museum of Natural History in Minneapolis, and included the work of over 100 students from 15 MN and WI schools. The students worked individually, in small groups, or as entire classes to answer a monarch research question of their choosing, then made posters to convey their results to their peers, parents, teachers and museum visitors. Projects were on display through December. In addition to the displays, students wrote abstracts similar to those written for publications in scientific journals; these abstracts are now posted on our website, so you can learn the answers to the above questions and more!

All student researchers received t-shirts and a banquet dinner in recognition of their contributions, and a few received special rewards for their projects (see side bar, page 3). If you missed the “Majestic Monarchs” Monarch Fair this year, it will be back bigger than ever next year! If you’d like information on bringing students to the Fair or conducting research in your classroom, check out our website, or contact Karen.
Educational Gardening

Teachers know the value of getting parents and communities involved in education, and of sparking student interest. How about getting outside and planting a school garden? An urban, rural or suburban garden provides habitat for local monarch populations as it helps your students learn. Read here about examples and resources for effective school gardens!

St. Croix Falls, WI

Karen Hanson, a MS and HS teacher in St. Croix Falls WI, uses her monarch knowledge in two classrooms—indoors and the outdoors! Her students planned and planted gardens that are used to teach lessons of ecology, conservation, biology... and monarchs.

Three years ago Karen’s environmental science class received a grant to restore a 5-acre plot to a native prairie. The land was part of 89 acres donated to the city for a recreational area. The grant also paid for the to creation of two show gardens on school property. The first, planned and planted by HS environmental science students, is located in front of the high school, and displays native prairie species. It was . Fifth grade students planted a butterfly garden in front of the MS that contains various perennial and annual plants, and attracts dozens of local butterfly species.

National Wildlife Federation’s Schoolyard Habitats Program®

The NWF Schoolyard Habitats Program® encourages parents, teachers, students, administrators, and community members to work together to assess the current state of their schoolyard, and then create a plan to attract and support local wildlife. Team members identify the types of food, water, cover, and places to raise young that currently exist on the schoolyard for local species. They then enhance or restore this habitat by planting native species that provide nectar, pollen, and berries; adding water features; providing brush piles and additional types of cover; and adding nest boxes or other places to raise young.

Outdoor gardens provide ideal laboratories for inquiry-based learning. Students begin to think like naturalists, learning to read the landscape and asking questions in response to what they notice. The entire school community enjoys the process of taking concrete action to restore the local environment, and teachers can use their outdoor classrooms to teach interdisciplinary concepts and skills.

The program provides professional development workshops for educators, curriculum, publications, and online resources to support this work. Join 1,100 schools in the national certification program who are actively providing food, water, cover, and places to raise young for local wildlife, and who are using their schoolyard as a teaching tool. For more information, contact NWF at 1-703-438-6000.

Parents Want to be Involved!

Helping with a school garden is great way for parents be involved with their children’s education. Gayle Kall, a Master Gardener in Rochester, MN and parent of three elementary and middle school children, found that this was a great way to “fit in” as a school volunteer. She felt that her children’s education should have an environmental component, and approached the school. While they liked her idea of creating an educational garden, money was an issue. So Gayle contacted members of her community in an effort to involve others, and the whole community pulled together. Landscape artists, businesses, families, Brownie troops, the county commissioner, school grounds crew, teachers, principals, and students donated time to raise funds, plan, and plant a garden for all to learn from and enjoy.

As a parent recognizing the importance of being involved, Gayle volunteered in her unique way to enhance her children’s education. This might be an excellent opportunity for parents in your district to utilize their unique skills, and find a way to “fit in” as school volunteers.
**MONARCHS IN THE CLASSROOM “CATALOG”**
Maximize Monarch Learning with MITC Support Materials! To order, see enclosed order form, or contact us.

| **Larvae** | 5-10/classroom recommended. Instructions for rearing and observing included. We cannot replace larvae that die after leaving our lab or fail to develop into adults. MN/WI only! | Summer/Fall (each): $1.00  
Spring (each): $1.50 |
| --- | --- | --- |
| **Eggs** | Approx. 30 eggs on potted milkweed plant or on milkweed leaves packed in a petri dish. Plants CANNOT be mailed. We cannot replace eggs that fail to hatch or that do not develop into adults. MN/WI only! | 30 on plant: $13.00  
30 on leaves: $5.00 |
| **Overnight shipping and handling for larvae or eggs.** We ship larvae or eggs on milkweed leaves in petri dishes. We no longer ship eggs on potted plants or larvae in plastic cages. Mortality in shipping sometimes occurs and we encourage teachers to pick up larvae from our lab if possible. | $10.00 |
| **Cages.** Translucent plastic cages with a screen top. | $5.00 |
| **Third Edition Curriculum Guides.** 225+ page curriculum with lessons on the life cycle, butterfly systematics, ecology, conservation, experiments, and migration. Separate guides for K-2, 3-6, and Middle School. | $17.00 |
| **Monarch Larval Field Guide.** Spiral bound, plastic-covered field book with descriptions and drawings of larvae for use in identifying instars. | $7.00 |
| **Classroom slide sets.** 23-24 slides per set with script: | Each set $20.00 |
| - *Yearly Life Cycle.* Summary of individual and migratory cycles  
- *Ecology.* Interactions between monarchs and their living and non-living environment  
- *Overwintering Biology and Conservation.* Spring and fall migration, winter in Mexico and CA |
| **Monarch Life Cycle Poster.** Produced by the Midwest Monarch Project, includes photographs of monarch stages from egg to adult. 17x22 inches, laminated. | $9.00 |
| **Monarch Life Board Game.** 22”x28” color, laminated game board. Students trace the life cycle of a monarch through all stages and migration, answering challenge questions as they play. Ages 6-adult. | $17.00 |
| **Butterfly King Video.** 20 minute video on the development of two monarchs during the summer. Story highlights natural and human-caused risks faced by monarch larvae, and has excellent footage of all stages. | $13.00 |
| **Saving the Monarchs Video.** 30 minute video produced by KSTP TV in Minneapolis describes how students, teachers, and scientists are working together to promote monarch conservation. Beautiful footage of the overwintering colonies. | $10.00 |
| **T-shirts** |  
- *Monarch Watch:* Migrating butterflies front and back. Short sleeves only.  
- *Monarchs in the Classroom:* Butterflies flying up the sleeve with logo. Long or short sleeves. |  
Short sleeve: $15.00  
Long sleeve: $18.00 |
| **Classroom Visits.** 45-60 minutes. Travel costs extra. | $60.00 |
| **Teacher Workshops.** Two hours to three days, before or after school, or on inservice days. Travel costs extra; we will provide curriculum guides plus 10 larvae/teacher for $20.00 per teacher if 10 or more teachers attend. Contact us for details! | $100/hour |
2001 COURSE ANNOUNCEMENT

MONARCHS IN THE CLASSROOM
FOR ELEMENTARY & MIDDLE SCHOOL TEACHERS

WHAT: An intensive summer workshop in which you will:

- learn basic biological and ecological principles using monarch butterflies as a focus
- practice transmitting these principles to your students
- learn monarch rearing and observation techniques appropriate to your classroom
- observe and practice scientific inquiry methods
- receive monarchs and other materials to use in your classroom
- become part of a nationwide science partnership between educators, researchers and students

Funds for this project were provided by a grant from the federal Eisenhower Professional Development Program administered by the Minnesota Higher Education Services Offices. All participant costs, including a $200 stipend and 3 graduate credits, are covered.

WHEN: Section A meets July 9-13 and August 6-10. Section B meets July 16-20 and August 6-10. Each section is a single course with two separate weeks of class, with time spent rearing monarchs and preparing materials in the interim. The two sections will meet together for the second week. Interim work requires a time commitment, and participants should not plan to be on vacation for the entire time between the two weeks in class.

WHERE: University of Minnesota, St. Paul Campus.

INSTRUCTORS: Dr. Karen Oberhauser and Michelle Solensky, University of Minnesota; Jane Blumer, Capitol Hill Elementary School, St. Paul; Cindy Peterson, St. Hubert’s Middle School, Chamhassen; Ann Feitl, Sunrise Middle School, White Bear Lake; Ann Hobbie, Brimhall Elementary School, Roseville; Terry Vick, Ericsson Elementary School, Minneapolis; Mark Laven, Southview Middle School, Edina.

PARTICIPANTS: 40 Minnesota K-8 teachers (20 in each section), with some preference given to teachers from districts with a high proportion of low-income students, or who apply in teams. Teams can consist of two teachers from the same school or district, and do not have to teach the same grade. We rarely accept more than two teachers from a single school, and seek a mix of metro-area and out-state, public and private school teachers. Teachers who have applied for this course in the past are encouraged to apply again, and should note on their application that they have applied before.

HOW TO APPLY: Use the application on pages 7-8 of this newsletter, or contact Karen Oberhauser (612 624-8706 or oberh001@tc.umn.edu). Applications must be postmarked by April 13, 2001, and participants will be notified by May 3 whether or not they have been accepted into the class.

COURSE SYNOPSIS: The course consists of three parts: 1) a week of field and laboratory work, lectures, and research projects, 2) an interim period, during which participants raise their own monarchs, and 3) a week in which teachers work in grade-level groups to translate their knowledge of monarch butterflies into classroom activities and projects. Group meetings and regular contact with a mentor/instructor follow the summer program.
Monarchs in the Classroom 2001 Course Application
For Minnesota Teachers

Please fill out both sides of this application and return by April 13 to Dr. Karen Oberhauser at the address on the back. Contact Karen if you have questions about the application or the workshop.

Name ____________________________________________  School name ________________________________

Home Mailing Address  School mailing address

__________________________________________________________

__________________________________________________________

Home Phone ____________________________________________

e-mail ________________________________________________

School Phone __________________________________________

Grade level(s) that you now teach _______

# of years teaching experience _______

Highest degree earned (with year) _______

# of credits beyond highest degree _______

Major of highest degree _________________

# of college science courses completed ___

% of students in your school that qualify for free lunch ______

If you are applying in a team with another teacher from your school or district, please indicate his or her name below, and send your applications together. Each team member must complete a full application.

VERY IMPORTANT - CHECK ONE. For which section are you applying?

Section A meets July 9-13 and Aug. 6-10.
Section B meets July 16-20 and Aug. 6-10.

I can ONLY be in section A ____

I can ONLY be in section B ____

I would prefer section A ____

I would prefer section B ____

It doesn’t matter!!! ____

Please fill out both sides of this application!
Application, page 2.

Please answer the following 4 multiple choice and 5 essay questions. We are asking these questions to allow us to choose participants with a mixture of backgrounds and expertise—there are no “correct” answers! All answers will be confidential.

1. Given a choice, I would be the one to teach science to my students. (circle)
   a) definitely no
   b) probably no
   c) probably yes
   d) definitely yes

2. Compared to the amount of time I should spend teaching science, I spend:
   a) much less
   b) slightly less
   c) the right amount
   d) slightly more
   e) much more

3. My science instruction is spent in:
   a) textbook-based presentation only
   b) mostly textbook-based presentation
   c) equal amounts of textbook- and activity-based instruction
   d) mostly activity-based instruction

4. Please rate your effectiveness as a teacher of elementary or middle school science:
   a) superior: one of the best in my building
   b) above average
   c) average
   d) below average
   e) low: in need of professional improvement

Please use a separate piece of paper to answer the following questions, typing your answers if possible and limiting them to about 1/3 page or less per question (you don’t need a separate page for each question, just don’t answer them on this sheet of paper). Please staple the questions to the rest of your application.

1. Do you ever use living organisms in your classroom? If so, what organisms, and how? If not, why not?
2. How do students best learn science?
3. What makes your own science instruction successful or unsuccessful?
4. Please describe your best science teaching experience.
5. (Optional) Is there anything else you would like us to know?

Completed applications should be postmarked or faxed by April 13 to the address below. If possible, please mail both applications together if you are applying as a team.

Dr. Karen Oberhauser
University of Minnesota
Department of Ecology
1987 Upper Buford Circle
St. Paul MN 55108

612 624-8706
fax: 612 624-6777
oberh001@tc.umn.edu
SPOTLIGHT ON A TEACHER: Zoe´ Rochester from Amery, WI

Monarchs in the Classroom currently reaches over 2000 educators worldwide. In K-12 classrooms, nature centers, universities and natural history centers, you’re all teaching about the majestic monarch butterfly in unique and exciting ways. Here, we spotlight one of our newer teachers. Zoe´ Rochester is a middle school teacher in Amery, WI who began using monarchs in her classroom in 1999.

After my 1999 Monarchs in the Classroom summer workshop, the entire seventh grade student body, fellow teachers, and administration were fired up with monarch activities.

In the classroom, my seventh grade science students learned a great deal about ecology, conservation, the monarch butterfly, and scientific research. Students began the year by rearing monarchs from tiny eggs. Their individual challenge was to provide the developing larvae with the items needed for survival. Once larval development was progressing as expected, we applied our energies into the field where students studied milkweed in our 18-acre school field. Students observed various interactions among invertebrates, which led to interesting discussions and learning opportunities about the vital role each organism plays in its ecosystem. While studying in the field, we had the honor of being filmed by the Wisconsin DNR for an educational television series about the wonders of outdoor exploration, entitled, “Into the Outdoors”.

Once reared to adulthood, the monarchs were the subject of student-designed research projects, studying everything from behavior, size, to eating preferences. I chose some of the best monarch experiments and enrolled four students in the 2000 Monarch Fair at the U of M campus in December. It was a thrill and an honor to see my students light up as they presented their work among all the other young scientists.

Student involvement continued into the summer; several of our students volunteered to help U of M researchers with weekly monitoring of monarchs in a local cornfield and natural habitat near our school.

Monarch interest in Amery has spread beyond my classroom. Three elementary teachers brought their students to our room to learn about monarchs, and a high school biology teacher invited my students to teach his classes about monarchs. My students helped design a great lab/field trip for these students and taught them everything about monarchs from life to death. One of my students also gave a presentation to a local garden club. Finally, I’ve recruited fellow teachers to work with me on a prairie restoration project that will improve the ecosystem of our 18-acre school field.

In the classroom, schoolyard, and community, monarchs have been a great addition to education in Amery!

Contributed by Zoe´ Thouin Rochester

MITC Larval Distribution 2000 and 2001

Teachers keep telling us how great it is to start their school year off with a monarch unit, and last year our larval distribution was the biggest ever! We distributed almost 38,000 monarchs in 2000. About 30% of these were distributed as eggs, and the rest as larvae.

Due to the increasing number of orders, we have made two changes for 2001. Larvae can now be ordered in one size only (~2nd/3rd instars) to avoid problems associated with trying to have large and small larvae available each day and to help ensure a healthy population. All larvae that are shipped will be distributed in petri dishes instead of cages for the overnight trip. This will help to avoid problems associated with transferring larvae to classroom cages.

Larval Mortality in 2000

While some classrooms experience high mortality every fall, this was more common in 2000. Our policy is to do our absolute best to rear healthy larvae, but once the larvae leave our lab, we can’t be responsible for them.

We generally experience 10-20% mortality from the egg to adult stage in our lab, and assume that higher mortality in classrooms is caused by events after the larvae leave our lab: excessive handling or environmental stress (e.g. high temperatures or contaminated milkweed). However, the high mortality rates last fall made us suspect that something was wrong with our larvae, despite our best efforts. We think that the temperature in our greenhouse, where females were laying eggs, got too high. Heat stress is often manifested in mortality a long time after exposure. The larvae seemed fine as we packed them, but they may have been compromised by an earlier stress. In the past, keeping our females outside avoided extremely high temperatures. Another possibility is that we distributed smaller larvae than we had in the past due to the larger number of orders.

We know that larval mortality is disheartening and traumatic, and we do our very best to assure that this doesn’t happen. Next year, we’ll keep the females outside while they’re laying the eggs that will become your larvae, and will do our best to provide larger larvae. We hope that you hang in there as we work on quality control!

Zoe´ studies monarchs during an MITC summer workshop.

“It was a thrill and an honor to see my students light up as they presented their work among all the other young scientists.”

Betsy Chastain, MITC Program Coordinator (and organizer of larval distribution), in Sierra Chincua Reserve, Mexico.
MEXICO

Several MITC teachers have made the unforgettable trip to the overwintering sites and share their experiences in the following articles. Terry Vick teaches first and second grade in Minneapolis MN, Mark Laven is a Science Specialist in Edina MN, De Cansler teaches middle school in Rochester MN and Anne Feitl teaches middle school in White Bear Lake MN.

Minneapolis Teachers Visit The Butterfly Colonies, by Terry Vick

I spent a week in Mexico this past December 2000 visiting the butterfly colonies with a group of Twin Cities area teachers. The trip was organized through the Science Museum of Minnesota, and monarch biologist Bill Calvert was our wonderful guide in Mexico. As much as I had previously heard about the butterfly colonies in Mexico, it just doesn’t compare to witnessing the real thing. The butterflies are truly amazing—it is hard to describe my experience!

We visited the colonies at El Rosario and Sierra Chincua in Michoacan, Mexico. I was surprised at the number of Mexican families that were visiting the colonies. Entire families were climbing the mountain, from the smallest children to their grandparents. Our proud guide at Chincua was an ejidatario, a member of the group of farmers that collectively own the land. He enthusiastically told us about the ecology of the forest, and took us to a gorgeous vista where we could view the entire area. Here he pointed his ejido in the distance—it took him three hours to walk to the colony (45 minutes by truck)! His knowledge was well appreciated, but actually seeing the butterflies was the highlight of the trip.

Traveling with a group of enthusiastic teachers was a great experience. Having school as a common background led to many interesting discussions where we shared ideas about curriculum, and the variety of educational programs in our different schools. This was a trip I will never forget.

De Cansler's "Top Ten Reasons for Taking Kids to Mexico":

10. It's a great way to get away from parent phone calls.
9. Wonderful markets!
8. The Toluca Volcano
7. Seeing some of the local Aztec ruins and pyramids at Teotihuacan
6. Experiencing another culture
5. Sharing what we learned with our home and school communities
4. Visiting a small local middle school in Angangueo
3. The warm and welcoming people of Mexico
2. YOU get to see one of the most amazing wonders of the natural world
1. You get to watch the awe and amazement on the faces of your students as they observe millions of monarchs at their overwintering sites.

“...all because you fell in love with teaching children about one tiny insect.”

Students in the Middle of a Miracle, by Mark Laven

Students and teachers from Southview Middle School traveled to Mexico full of anticipation. We toured 2000-year-old pyramids, ate lunch in caves, took gondola rides at floating gardens of Xochimilco, stayed with Mexican families and experienced life in a city of 25 million people. As amazing and different as all that was, nothing compared to the thrill we experienced once they arrived at the monarch sanctuary.

In Angangueo, an old mining town just below Sierra Cincua, everyone scrambled for cameras as a few dozen monarchs trickled by overhead. These wayward monarchs caused quite an excited stir in the group, as did the bumpy ride on the dirt roads that led up the mountains to the sanctuaries. Finally, the moment we all waited for was at hand. As we pulled into a small clearing in the middle of a tall coniferous forest, many searching eyes focused. We knew where to look but didn’t anticipate the wave of astonishment that was about to occur.

Excited chatter quieted as the students realized that right there in front of them were hundreds of thousands of monarchs. Standing in awe, they realized that they were in the middle of an incredible experience. They saw the full overwhelming beauty of nature in one of its grandest displays. We all watched as thousands of butterflies hanging on a branch released themselves like dry leaves falling out the bottom of a bag. Except these monarchs didn’t hit the ground. Instead, the stream of falling butterflies flew up and filled the air over our heads! The sights and sounds were breathtaking.

These delicate insects had traveled perhaps thousands of miles to one specific area, to roost on one particular type of tree in the middle of a tall volcanic mountain range where the altitude, temperature, and humidity were just perfect for their needs. The students were in the middle of this miracle and they sensed a compassion that they wished they could convey to the world. They realized how important it is to protect the environment and care about the world as a whole. They became citizens of the world and voices for understanding. No lesson taught in school could have been as powerful.
White Bear Lake Students are Heading to Mexico Again!

In 1999, nine students from Sunrise Park Middle School ventured to see the monarch overwintering sites in Mexico. This year, twelve new students left on February 17th for another week of adventure! Besides visiting the Rosario and Chincua colonies, the students climbed Aztec temples, spent time bird watching, visited rural schools, and visited sites in Mexico City.

Dr. Bill Calvert, a biologist who has studied Monarch migration extensively, led both trips for the MN students. Teachers that organized the trip included Ann Feitl, Cec Peterson and Laura Dessin, and six more adult chaperones accompanied the group, including three parents.

The students met monthly to prepare for this trip. In addition to learning Mexican customs and key español phrases, they organized several service projects to benefit the schools they will visit there. They collected school supplies and raised $1100 to purchase ten Brock Magiscopes that use a fiber optic tube as a light source. Such scopes will be an asset for schools with no electricity available to them. White Bear Lake students were excited about visiting the Mexican schools and introducing the children there to the world beneath a microscope lens.

It is a trip of a lifetime as expressed by this quote by a student on the 1999 trip. “I don’t think that this Mexico trip was just about the monarchs. For the first time in my life, I have gotten to how people in another part of the world. Mexico has taught me more than how to save the monarchs, but instead how I shouldn’t take the little things that I have for granted, and to live life to its fullest – we never realize how lucky we are.”

Travel to Mexico with a Monarch Biologist

Dr. Bill Calvert was the first American scientist to document the location of the Mexican overwintering sites, and continues to do research on migration and breeding biology. He has led many tours to the monarch overwintering sites, including several just for teachers and students. Speaking fluent Spanish, and having worked in the areas in and around the butterfly sanctuaries since 1977, he is an ideal host for a trip see the butterflies in their winter home.

Bill’s tours include visits to the monarch overwintering grounds, surrounding forests, historic Aztec villages, museums, traditional restaurants and local artisans. These tours are of special interest to teachers because they include visits to schools. Bill discusses many aspects of monarch research, focusing on the migratory phenomenon. He also emphasizes using the monarch as a teaching tool in the classroom. This is a wonderful opportunity to learn about monarch and conservation biology, as well as have an educational (and fun) time visiting beautiful Mexico and all it has to offer.

2001 tour dates were February 24-March 3, March 3-10, or March 10 – 17. For more information on Bill Calvert’s tours, contact Texas Monarch Watch, 503 E. Mary St. Austin TX 78704 (512 441-0387 or wcalvert@flash.net).

Monarch Butterfly Sanctuary Foundation

Each fall, eastern North American monarch butterflies migrate up to 2,000 miles to the Oyamel fir forests that were also visited by the school groups whose stories you read above. Over 100 million monarchs overwinter in these forests, awaiting the spring arrival of northern milkweed, the only source of food for their offspring. The unique ecosystem of the Oyamel forests is key to monarchs’ winter survival, yet many people believe that these forests are threatened by wood harvesting and other human pressures. The Monarch Butterfly Sanctuary Foundation is dedicated to encouraging protection of the monarchs’ winter home.

This winter, MBSF worked with citizens and both government and non-government organizations to increase the size of the Monarch Butterfly Reserve from 16,100 to 56,259 hectares. This was an important step toward assuring continued availability of suitable winter habitat for monarchs. In addition, MBSF supports research by Mexican scientists studying monarch conservation and projects that provide support for the development of alternative sources of income for local landowners. For more information on this conservation, contact Karen Oberhauser or check out the website (www.mbsf.org).

Answers to the Quiz:
Michoacan, Ejidos, November, Oyamel fir trees
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WE’RE ON THE WEB!
WWW.MONARCHLAB.UMN.EDU

2001 Monarchs in the Classroom Summer Course Application and Ordering Materials Inside!