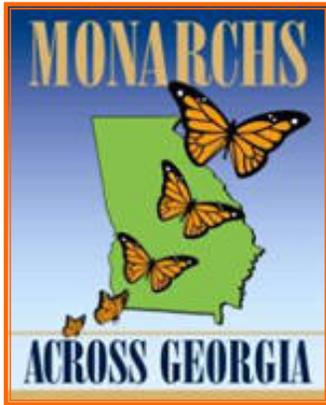


The Chrysalis



Emerging News from Monarchs Across Georgia

A Committee of the Environmental Education Alliance of Georgia



2nd Annual Butterfly Symposium "Celebrating Georgia's Pollinators"

On September 6, 2008, Callaway Gardens will be hosting the 2nd Annual Butterfly Symposium, honoring Georgia's pollinators. Participants will attend a variety of sessions that offer a glimpse into the diverse world of organisms that make plant life possible. Speakers from organizations such as Garden Club of Georgia, University of Georgia Odum School of Ecology, and Fernbank Science Center, as well as Master Beekeepers and Master Gardeners, will share their knowledge and research on pollinator ecology through presentations and hands-on activities. The symposium is a great way to increase your knowledge of Georgia ecology, get information on how to create a pollinator garden, and learn how to share your knowledge with students.

Concurrent sessions with limited seating capabilities will be offered throughout the day, so arrive early to choose your sessions! Lunch will be provided for participants.

Upcoming Events

June 28, 2008

Butterfly Festival
Dunwoody Nature Center
Dunwoody, GA
dunwoodynature.org

July 19, 2008

Winged Wonders
Butterfly Festival
Birdsong Nature Center
Thomasville, GA
birdsongnaturecenter.org

August 22, 2008

MAG Teacher Workshop
Watson-Brown Foundation
Thomson, GA
Monarchsacrossga.org/MAGevents.htm

September 6, 2008

Butterfly Symposium
Callaway Gardens
Pine Mountain, GA
Monarchsacrossga.org/MAGevents.htm

What: Georgia's 2nd Annual Butterfly Symposium
Where: Virginia Hand Callaway Discovery Center
Callaway Gardens, Pine Mountain, Georgia
When: September 6, 2008; 9:00 am—3:30 pm
(Session sign-up begins at 8:00am)
Cost: \$55.00 (\$50.00 for current EEA members)
Contact: Susan Meyers
smmeyers@bellsouth.net or 404.388.8228
To Register: Space is limited! Additional details and a registration form can be found at
www.MonarchsAcrossGA.org/documents/mag1.pdf

Points of Interest

- National Pollinator Week is June 22-28!
- Save the date for our Mexico trips in February 2009! We are offering (3) week long trips to visit overwintering monarch colonies. Visit www.MonarchsAcrossGA.org/MAGevents.htm for more information.



Certify Your Pollinator Habitat With Monarchs Across Georgia!

Is Your Garden MAG Certified?

Do you enjoy watching and studying caterpillars on their host plants; searching for chrysalides hidden from predators; observing butterflies and hummingbirds flitting from flower to flower? Does your schoolyard or backyard have bushes, trees and flowers that provide host plants, nectar and protection for butterflies, bees, hummingbirds and other pollinators? Is there a source of water/puddling areas for thirsty butterflies? Are there places for them to roost at night? Then you might want to look into registering your backyard/schoolyard habitat with *Monarchs Across Georgia's Pollinator Habitat Program*, the first program in the country created to certify pollinator gardens.

What Do You Need to Provide?

Water is essential for life, and your winged friends are no exception. A shallow pan of water or a puddling area is much appreciated. *Food* is critical for the growth and development of the caterpillars and also provides energy for the adult butterfly, bees and hummingbirds. *Shelter* or *cover* to hide from predators, a place to nestle down at night, or a place to regulate their body temperatures is also important. *Earth-friendly gardening* with the avoidance of chemical pesticides, insecticides and herbicides, along with a naturalized habitat will need to be practiced.

Certifying is Easy!

Whether you are limited to a small patio or have an acre of land, *Monarchs Across Georgia* would like to acknowledge your efforts in welcoming not only butterflies, but also other pollinators to your garden. The *Pollinator Habitat Certification Program* was initiated to recognize the hard work of Georgians in meeting the habitat needs of pollinators.



For more information and to download the application, visit www.MonarchsAcrossGA.org.
Receive the certification, certificate and the beautiful metal sign for your garden for \$38.00
or just the certification and certificate for \$10.00

SPOTLIGHT... Plants For Your Pollinator Garden



Purple coneflower is a drought tolerant perennial native to the southeastern U.S. Some coneflower species are used in herbal medicines.

Habitat: Full or partial sun in fertile, well-drained soils

Bloom Time: June—October

Wildlife Uses: Seeds are attractive to birds. Bees and butterflies use it as a nectar plant. It is a larval host plant for the Silvery Checkerspot as well some species of moths, such as the Wavy-Lined Emerald and the Common Eupithecia. It is resistant to deer.

Purple Coneflower (*Echinacea purpurea*)

Monarchs Across Georgia Annual Awards

Presented at the Environmental Education Alliance
of Georgia conference, March 2008

2007 Outstanding Pollinator Habitat Award

High Meadows School

High Meadows School was chosen to receive the Outstanding Pollinator Habitat Award from over fifty other nominations. To be considered for the award, applicants were required to provide both caterpillar food sources and nectar sources for butterflies, moth, bees, wasps or hummingbirds. Because shelter and a water source are necessary components of a good habitat, these elements as well as a variety of conservation practices such as composting and xeriscaping are assessed.

High Meadows School, located in Roswell, Georgia, focuses on the environment. Their pollinator habitat is used for observations and journaling, Junior Master Gardener activities, art, and photography. Math, science and social studies are all taught in the garden. This "pollinator haven" is growing students with a love of nature.



Susan Meyers of MAG (right) presents teacher Chris Robie with the 2007 Outstanding Pollinator Habitat Award

2007 Service Award

Dexter Rhodes

The MAG Service Award is intended for a person or organization whose efforts in the arena of Monarch education, conservation, or habitat restoration have made an impact in Georgia. Our 2007 winner is a person with many talents. As a non-formal educator and an amazing gardener, he has dedicated countless hours to cultivating minds and plants.



Dexter Rhodes accepts the 2007 Service Award for his work at the Watson-Brown Foundation

For the past three years he has worked with the Watson-Brown Foundation to provide the site and partial funding for a MAG teacher workshop, grown and donated scores of milkweed plants to county schools, and provided advice and guidance on gardening for pollinators.

His enthusiasm for Monarchs is best observed when asked to show off the public gardens that he plants and maintains in Thomson, GA for the Watson-Brown Foundation.

Congratulations to Dexter Rhodes, this year's Service Award Winner!

Taking Stock: The Status of Pollinators in North America

Imagine life with no chocolate or honey, no bananas or blueberries, no dates, figs or almonds. Imagine no vanilla in your cookies, no cinnamon on your cinnamon roll and no steaming cup of coffee on a cold winter morning. These and the countless other foods, beverages and spices we enjoy and derive benefit from exist thanks to the relationship between pollinators—insects, birds, bats and other animals—and the plants with which they interact. A wide variety of fibers, fuels, oils and medicines are also the result of such plant-pollinator relationships.

Pollinators are not just vital contributors to our food supply and economy—they are critical to the sustainability of our ecosystems and the biodiversity of our planet. Animal-pollinated trees and plants provide food, nesting places and shelter for a wide variety of species and contribute to many ecosystem functions, including water filtration, flood and erosion control, and the revitalization of deforested areas. Studies indicate that pollinator-plant relationships encompass almost 400,000 species, and that about three-fourths of the more than 240,000 species of the world's flowering plants rely on pollinators for fertilization and reproduction.

The Buzz over Pollinators

The past quarter century has seen increased public awareness and concern by scientists, growers, beekeepers and wildlife enthusiasts that pesticides, pollutants, disease, habitat fragmentation, overhunting and other threats have significantly reduced pollinator numbers and their ability to function. Most recently, alarm over a significant and mysterious decline in the population of pollinating honeybees—known as colony collapse disorder (CCD)—has underscored the importance of pollinators and the need to become more vigilant and knowledgeable about their health and well-being. With documented cases in Michigan and 32 other states and no definitive answer yet as to its cause, CCD has affected an estimated 600,000 of the 2.4 million bee colonies in the United States since its discovery in late 2006.

Apprehension about a potential pollinator crisis prompted the North American Pollinator Protection Campaign to ask the National Research Council (NRC) to commission a study on the situation. In response, the NRC assembled a committee of 15

biologists and other scientists from across the United States, Canada and Mexico to assess the status of pollinators in North America and produce a report on its findings.

“The charge of the committee was to compile population and trend data for both managed (including honeybees, alfalfa leafcutting bees and bumblebees) and wild pollinators (butterflies, bats, hummingbirds, wild bumblebees, etc.) and then determine to what degree, if any, they are experiencing declines,” said committee chairperson May Berenbaum, entomologist from the University of Illinois, Urbana-Champaign. “In places where decline could be established, the group was asked to identify its likely causes and consequences and to make recommendations on the steps needed to prevent, slow or reverse decline.”



Scott Swinton, Michigan Agricultural Experiment Station (MAES) agricultural economist, was selected to serve on the committee to help shape an understanding of the economic implications of pollination. “The NRC decided that it was important to include an economist on the committee,” he said. “In addition to exploring pollinator issues related to population trends,

research, monitoring and conservation efforts, there are big questions about how to determine the value of pollination services, such as the value of having healthy honeybees and the value of having pollination that allows for the reproduction of natural species.”

Committee members spent 18 months examining and analyzing published literature, meeting with experts familiar with the lives of pollinators and interviewing people whose livelihoods depend on pollinator activities. The committee's report, “Status of Pollinators in North America,” offers a snapshot of pollinator status in the United States, Canada and Mexico, and a series of recommendations to best monitor and conserve pollinators.

Dollars and Cents: What's Pollination Worth?

An issue the committee wrestled with while compiling the report was how to determine the appropriate value of services provided by pollinators, particularly for agriculture.

“Pollination provides a wide range of services to a diversity of commodities. For this reason, it is important to develop a reasonable way to assign value that gives pollination its due while, at the same time, takes into consideration other required inputs that add value as well. The biggest difference in the world of pollination is that some studies factor in only the direct value of pollination — the value of agricultural products that would not exist unless they had been pollinated — while others include indirect benefits of pollination in commercial worth.”

The existence of an almond or a peach is a perfect example of a direct benefit of pollination, Swinton pointed out. If a flower wasn't pollinated, there would be no fruit. In other cases, pollination doesn't produce a commodity directly, but other benefits come about through food chain relationships. For example, alfalfa seed, a bee-pollinated crop with an annual value of \$109 million (direct effect) is used to produce hay (for livestock forage) that is valued at \$4.6 billion per year (indirect effect).

“Pollination is not necessary to have alfalfa hay if you already have the plants,” Swinton said. “But to get the plants, you have to have a pollinated seed. Because of this, some include this second-generation effect in their valuation numbers. We even found one study that included third-generation effects. A proportion of the value of all dairy product production in the United States was included because dairy cows eat alfalfa and alfalfa hay requires alfalfa seed that requires a pollinator.”

The Status Quo:

There's A Great Deal We Don't Know

The report found that long-term population data for most North American pollinators are lacking and information about their basic ecology is incomplete, so accurate status assessments are difficult. Still, the committee found sufficient evidence to determine the status of a range of pollinators and to gain an understanding of both the ecological and commercial value that pollinators provide.

Since 1947, the U.S. Department of Agriculture (USDA) National Agricultural Statistics Service (NASS) has tracked honeybee colonies managed by beekeepers in the United States.

“This is a very remarkable and enduring set of

agricultural production and marketing data,” Swinton said. “Very few countries in the world even come close to having comparable information.”

However, changes in the management and use of honeybees by beekeepers and more acreage going into production as a result of market demand for bee-pollinated food crops has greatly diminished the usefulness of traditional honeybee data collection methodologies.

“Until a few years ago, the primary focus of beekeepers was producing honey,” said MAES entomologist Zachary Huang. “Bee rental for pollination activities was a secondary activity. Today, more than half of the nation's honeybees ride on trucks to California every February to pollinate the state's almond crop.”

Pollination services are currently estimated to be 60 to 100 times more valuable than the market price of honey, Huang noted. For these and other reasons, improved information gathering for the beekeeping industry is critical to monitoring the status and well-being of North America's honeybee population, according to the report. Committee recommendations call for collecting annual data on bee abundance, recording pollination services, monitoring winter losses, and collecting commercial honeybee pollination data that



include information on the crops pollinated and leasing fees from beekeepers and crop farmers. In addition, new management practices need to be explored to help increase the use of wild pollinator species for agriculture. The committee called for the development of rapid response tools and the use of discovery surveys to identify the contributions of wild species to agricultural pollination and establish a baseline for future studies.

The idea here is to get better information on native pollinators,” Swinton said. “While we can do a better job of collecting information on honeybees and other managed pollinators, we already have pretty extensive historic data. With native pollinators, the knowledge gaps are massive, and until we know what's out there, we have no way of figuring out what needs to be done.”

Specific recommendations call for an expansion of the USDA's Agricultural Research Service (ARS) and competitive grant programs to encourage innovative

approaches to protecting honeybee health and improving the genetic stocks of honeybees, and for the National Science Foundation and the USDA to work together to integrate research that ranges from the genomics of honeybees and the classification of wild pollinators to the effects of global climate change on pollinator-plant interactions.

As a result of the report, legislation has been introduced in Congress that would provide funding for pollinator research efforts and place a greater emphasis on pollinator conservation programs.

Partnering for Pollinators' Sake

One of the biggest challenges in monitoring pollinators is that there are very few taxonomists trained to recognize and properly classify these creatures. The committee recommended a two-pronged approach: training more taxonomists as well as encouraging private citizens to participate in voluntary pollinator identification campaigns to address this issue.

"The idea here is to cultivate more experts who can begin to identify additional pollinator species and, simultaneously, engage the public in citizen science where people learn to identify certain species of pollinators and then report what they've seen and where through public databases," Swinton said. "There's a vast range of pollinators out there, and until we get more scientists and citizens involved in

studying and monitoring them, we simply won't know what we have."

The process that the Audubon Society uses to conduct its bird counts is a model that Swinton believes can be used for pollinator populations.

"There are thousands of birders around the nation who voluntarily submit data about bird sightings," he said. "Though the data may not be quite as reliable, the volume of data they are able to collect is amazing. We couldn't get that amount if only professional taxonomists were doing this. I believe there will be an explosion of this kind of work in the pollination world."

Pollen Nation: Food for Thought

To close the report's preface, committee chairperson Berenbaum wrote: "That the conclusions reached by the committee and presented in this report will inspire a rash of Hollywood disaster films is extremely unlikely — tidal waves, floods, fires and explosions remain inherently more cinematic than just about anything involving flowers, birds, bees and butterflies — but it is to be hoped that the recommendations will inspire discussion and action nonetheless."

This article was written by Val Osowski and originally appeared in the Fall 2007 issue of Futures, the magazine of the Michigan Agricultural Experiment Station.

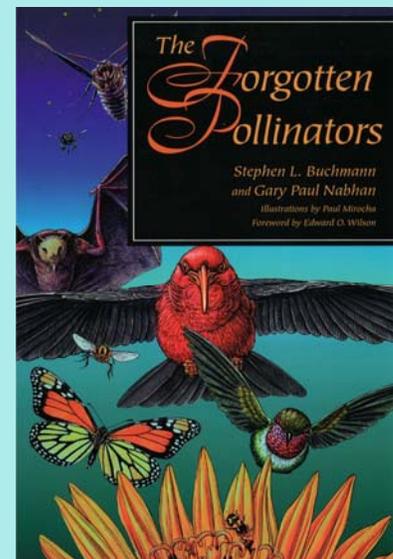
Recommended Reading

The Forgotten Pollinators

by Stephen L. Buchmann & Gary Paul Nabhan

In *The Forgotten Pollinators*, two researchers delve into the little-known and fascinating world of pollination. The authors, an entomologist and an ethnobotanist and nature writer, illustrate in clear yet proficient language the importance of this interaction between insect and plant, which provides the world with one-third of its food source. Using colorful examples—including a moth that rappels down cliffs to pollinate a plant in Hawaii—they also explain how modern developments are threatening this essential process. Published through the Arizona-Sonora Desert Museum, the book is aimed at raising awareness about the potential loss of pollinators and their plants, while showing the larger picture of a fragile ecosystem through the eyes of some of its more unnoticed inhabitants.

— From Amazon.com



MAP: Map Asclepias Project with Monarchs Across Georgia

Suitable habitat is a limiting factor for the success of many species, including the Monarch butterfly. *Asclepias* species, commonly known as milkweeds are the host plant for the Monarch, providing the sole food source of these caterpillars. With the loss of native milkweed patches across our landscape, it is important that existing milkweed stands are protected to ensure Monarchs have adequate food sources. We need to know where and what milkweed species are still available for egg-laying females. We also need to know where cultivated plantings are located. To this end, MAG is asking butterfly and native plant enthusiasts to familiarize themselves with Georgia's milkweeds, search them out in your travels and report your findings. Specifically we would like photo documentation, a description of the site including the latitude and longitude and the number and state of the plants. Using your records, a milkweed distribution database/ map in GIS and a milkweeds of Georgia scrapbook will be created. This data will also help prioritize future milkweed restoration and education efforts.

To find out more about the project and how to report the milkweeds in your garden and those you have seen growing wild, visit our website, www.MonarchsAcrossGA.org/Milkweed_Gone.htm. An online and mail-in version of the reporting form along with our field guide to Georgia's native milkweeds are available at this link.

MAG has set a goal to locate 100 milkweed sites by the end of National Pollinator Week, June 22-28, 2008. Please join us in our data collection efforts by participating in our *MAP: Map Asclepias Project*. We hope to hear from you soon!!

***Asclepias quadrifolia* • Four-leaf Milkweed (Jacquin)**



*Photos by Denise Mockridge
May 25, 2008
Georgia Botanical Society field trip
to Cooper Creek Scenic Area*