

Creating Healthy Pollinator Populations through Healthy Landscapes

Corine Peugh and Shana Byrd, Restoration Ecology & Dr. Jenise Bauman, Conservation Science Training at *the Wilds*

Butterflies rely on specific host plants and diverse ecosystems to flourish. Unfortunately, due to habitat loss and degradation, butterfly populations are declining throughout the world. The widespread use of pesticides and herbicides, along with the invasion of non-native species and poor land-management practices have resulted in decreased floral resources necessary for pollinator populations to thrive. Pollinators play a critical role in most ecosystems, therefore it is essential that these habitats are preserved and restored. Scientists at *the Wilds* are working to restore the landscape and provide diverse habitats, rich in floral resources for Ohio's native pollinators, including the endangered Karner Blue and Mitchell's Satyr butterflies.

The Wilds is located on 3,700 hectares of reclaimed strip-mined land in southeastern Ohio. Our unique land base and conservation efforts, provide a living laboratory that allows visitors to experience local flora and fauna (Figure 1). This unique facility also allows our visitors to develop a better understanding of the ways degraded habitats can be restored, while advancing conservation efforts and local wildlife preservation. Creating public interest and involvement in habitat restoration is critical to preserving ecosystems and biodiversity. Open access trails allow visitors to connect with nature



*Figure 1. A Viceroy and Red-spotted Purple nectaring on common boneset (*Eupatorium perfoliatum*) along the walking trail in the wetland at the Wilds.*

and immerse themselves in various habitats by observing wildlife first-hand, while learning about the importance of restoring ecosystems to increase biodiversity (Figure 2).



Figure 2. A view of the 13-acre prairie habitat established in 2003 at the Wilds adjacent to a remnant hardwood forest and existing wetland. Photo credit: Ian Adams.

BUTTERFLY CONSERVATION INITIATIVE

McGuire Center for Lepidoptera and Biodiversity, Florida Museum of Natural History,
UF Cultural Plaza, 308 Hull Road, P.O. Box 112710, Gainesville, FL 32611-2710

Funded by the BFCI, our 2011 butterfly survey compared butterfly community composition, species richness, and diversity in four distinct habitat types. These included 1) a low diversity grassland that is comprised of invasive species, 2) high diversity meadow that has been seeded in 2003 with common milkweed, swamp, orange, and sullivant's milkweed, brown and black-eyed Susan, wild bergamot, New England and frost asters, purple coneflower and stiff goldenrod, 3) reforestation creating a savanna ecosystem using pitch-loblolly and oak species and seeded with wild lupine, and 4) our wetland complex comprised of various sedges and native woody riparian plants. Four transects, in each of these different habitats were monitored for Lepidoptera during the 2011 season. Monitoring took place over 21 weeks in accordance with methodology used by The Ohio Lepidoptera Society Long-term Monitoring Program. Important to our conservation mission, this study provided advanced science training for our undergraduate student interns (Figure 3).



Figure 3. Wilds scholar, Becky Fehn, recording butterfly data along a monitoring transect. Species and abundance data are recorded along with weather information to determine pollinator and landscape health.



*Figure 4. A Pearl Crescent nectaring on butterflyweed (*Asclepias tuberosa*), a member of the milkweed family.*

Thirty different species of butterflies were recorded over the course of the monitoring period. Of these, three generalists were most abundant: cabbage white (31%), eastern tailed blue (20%), and the pearl crescent (15%; Figure 4). The number of species recorded in the wetland and prairie habitats were much greater than those of the oak-savanna and control sites. Results indicate that in the course of one year of recovery following restoration, the wetland showed equivalent increases in butterfly diversity and abundance to that of the nine-year-old restored prairie. This can be largely attributed to the number of floral resources available; the floral diversity was much higher in the wetland and prairie habitats than in the control and oak-savanna habitats, as well as the proximity to existing, higher quality habitats such remnant hardwood forests.

Our data illustrated that it is important to include a wide variety of host and nectar resources when restoring habitats for butterflies. Any restored habitat, large or small, is important for the conservation of these significant pollinators. Even a small backyard habitat can make a difference while bringing nature to your doorstep! Despite our habitat enchantments, the most imperiled Ohio

butterfly species were not detected during our survey. For species such as the Karner Blue and Mitchell's Satyr butterflies, their populations will have to be managed by species reintroductions. However, these programs will have to be coupled with habitat restoration that can provide stable floral resources to such species (Figure 5).



Figure 5. Wild lupine (*Lupinus perennis*) cultivated on our rooftop garden at the Wilds Conservation Science Training Center. This plant provides essential habitat for the endangered Karner Blue Butterfly.

BFCI Awards Two Grants for 2012

BFCI is proud to award \$2,500 grants to two deserving recipients this year. Among the many excellent proposals submitted, projects supporting two threatened butterflies were selected based on the BFCI Steering Committee's grant proposal rankings. BFCI grants are made possible by our generous members and contributors.

Investigating the Presence and Impacts of *Wolbachia*, a Bacterial Symbiont, on a Threatened Butterfly

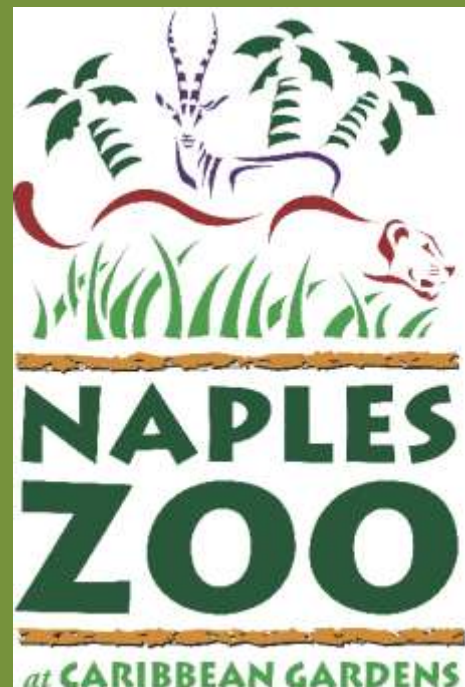
Portland State University's Environmental Science and Management Program will continue genetic research assessing the effects of *Wolbachia* on the Oregon silverspot (*Speyeria zerene hippolyta*). *Wolbachia* may be a contributing factor to the taxon's declining numbers.

Measuring Habitat Characteristics at Forest Sites Occupied by Pawnee Montane Skipper (*Hesperia leonardus montana*)

The Colorado Natural Heritage Program at Colorado State University will sample vegetation where Pawnee montane skippers are observed at control and thinned treatments. The United States Forest Service will use this information to determine appropriate thinning prescriptions for the skipper.

Congratulations to this year's grant recipients!

**BFCI would like to thank
Naples Zoo for its generous
supplemental donations:**





Seneca Park Zoo's Butterfly Beltway Project Update

**Tina Crandall-Gommel,
Conservation Education Coordinator,
Seneca Park Zoo**



2011 marked the 10th year of the Daisy Marquis Jones Butterfly Beltway Project at Seneca Park Zoo. The Butterfly Beltway Project, which started in 2002, is a unique outreach program. With more than 100 gardens in nine counties, the Butterfly Beltway Project aims to inspire people in and around the Greater Rochester area to act on behalf of Monarchs and other butterflies that call Western New York home.

A first-year visit to a site includes the planting of a 100-square-foot garden full of native perennials to attract butterflies and supply them with the food and shelter they will need. Of course, we supply plenty



of milkweeds to support the complete life cycle of the Monarch butterfly. After the planting is complete, a sign is installed which details the sites participation and partnership with Seneca Park Zoo.



We then do a 30 to 45 minute presentation about the butterfly life cycle, Monarch migration, conservation concerns and what people can do to help butterflies. We wrap up the visit with a meet and greet with our butterflies and a release. In the following years we visit each of our sites to do a garden check-up and a presentation with any updates and release.



Continued support by the Daisy Marquis Jones Foundation allows us to bring this program to senior residences and at-risk youth. This year we had the unique opportunity to partner with the Genesee



Land Trust in the development of the El Camino Trail. The trail starts at lower Seneca Park, goes through the city and ends at the Genesee River. It cuts through many neighborhoods where nature is not easily accessible. Buena Vista Manor, a low-income apartment complex for seniors, became our first butterfly garden site along the trail. A predominantly Spanish-speaking community, the presentation given included an interpreter to help Zoo staff educate residents about mariposas (Spanish for butterflies). Additional sites along the trail are planned for two city school district elementary schools and a community garden which will be maintained by a developmentally disabled organization.



The (2011) grant we received from Butterfly Conservation Initiative allowed us to do a few things. First, we were able to establish a greenhouse on Zoo grounds for the purpose of butterfly rearing. This helps us ensure a consistent supply of butterflies for our release programs. We also learned so much about butterflies and were able to share in more detail with our audiences. We were even able to bring caterpillars and chrysalides to show our audiences. We were also able to purchase some needed tools like new shovels, work gloves and a rototiller.

What is so unique about the Butterfly Beltway is the variety of audiences we can reach. Garden sites are at schools, libraries, churches, businesses, universities, senior residences, adult and child day care facilities, special needs facilities and even private residences. The story of the Monarch butterfly, its life cycle and amazing migration to Mexico, make it a favorite across diverse audiences.



If you are interested in learning more about this project, contact Tina Crandall-Gommel at (585) 295-7394 or tcrandall@senecazoo.org. You can also visit www.senecaparkzoo.org.





BFCI to Moderate Pollinator Conservation Session at 2012 AZA National Conference

The Latest Buzz: Using Pollinators to Enhance Your Conservation Impact

The Basics of Pollinator Conservation

Understanding the basic ecological requirements of pollinators is essential in order to develop appropriate conservation strategies. Basic background information on pollinator biology, their nesting and food resource needs, threats, selection of plants for enhancing pollinator habitat, and proper landscape management will be presented.

Jaret Daniels

Associate Professor of Entomology/Assistant

Curator of Lepidoptera

University of Florida/Florida Museum of Natural History

The St. Louis Zoo's WildCare Institute Center for Native Pollinator Conservation

The Saint Louis Zoo's WildCare Institute Center for Native Pollinator Conservation (CNPC) was initiated to focus on the importance and diversity of native pollinators, especially native bees, for the maintenance and survival of wildlife, ecosystems and agriculture. The CNPC works to develop and support local, national and international pollinator conservation, education, and research programs. This presentation will illustrate the variety of ways the CNPC works from backyards to the far corners of the world.

Edward Spevak

Curator of Invertebrates/Director: Center for Native Pollinator Conservation

St. Louis Zoo

Butterfly Conservation – It's Not One Size Fits All

The Toledo Zoo has been involved with in-situ and ex-situ butterfly conservation for several years. Our captive breeding programs with the Karner blue and the Mitchell's satyr are extensive and resource intensive. However, there are many different layers of participation available for those interested in butterfly conservation, enabling even those institutions with a modest budget to be involved and effective. This presentation will examine several ways that institutions can effectively contribute to butterfly conservation.

Mitchell Magdich

Curator of Education

The Toledo Zoo

The Greater Atlanta Pollinator Partnership: A Model for Community Collaboration and Pollinator Conservation

The Greater Atlanta Pollinator Partnership (GAPP) is a coalition of private and public partners engaged with communities around downtown Atlanta to develop pollinator-friendly habitats for butterflies, bees and other beneficial pollinators. GAPP's goal is to create and restore habitats throughout Atlanta, connecting private and publicly owned lands through habitat corridors. This project involves tens of thousands of participants in the Atlanta community and serves as a national model for community engagement and citizen science.

Jennifer Cruse-Sanders

Director of Research and Conservation

Atlanta Botanical Garden

Session date and time:

Tuesday, September 11, 2012

2:00 pm – 3:30 pm

Please welcome

Erik Runquist, Ph.D.

**Butterfly Conservation
Biologist**

Minnesota Zoo

to the BFCI Steering
Committee

Palos Verdes Blue Update

**Jana Johnson, Ph.D.,
Lead Biologist, The Butterfly Project
Moorpark College**

Captive rearing of the Palos Verdes blue butterfly continues to be successful for The Urban Wildlands Group, the butterfly, the Moorpark College (California) undergraduate students who work on the project, and for scientific inquiry. UCLA has confirmed that our population is not as inbred as we had feared (we maintain complex family trees to maximize heterogeneity, as we rarely have the opportunity to bring in wild caught genes for this species that still teeters on the brink of extirpation in the wild). A cooperative effort with the University of Florida found gender specific pheromones we hope to explore further.

Our novel approach to working with undergraduate students at Moorpark College has resulted in annual Palos Verdes blue production in the thousands with

ample stock for releases to several spots within the historic range. The partnership has also benefited the students. Adam Clause, the very first undergraduate student to work on the Palos Verdes blue butterfly is starting on his Ph.D. this Fall 2012 at the University of Georgia as the Presidential grantee. Several other former butterfly interns are now progressing on to graduate school.

The most touching moment in my decade of involvement on this recovery came this spring. Will Lucas, as part of his Make-A-Wish trip, his sister Darcy and parents Sara & Tom Lucas joined us in the field. As the sun set, Will, steadied by his father and wearing his “Will Power” t-shirt had a male Palos Verdes blue imago crawl out of its holding container and onto his hand. It sunned itself and then lifted off for freedom. With Will Power, we can all help make this Earth a better place.



Will Lucas participates in the release of a Palos Verdes blue as part of his “Make-A-Wish” program experience.



BUTTERFLY CONSERVATION INITIATIVE

Current Members

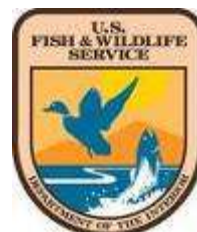
** Founding Member

- ** Binder Park Zoo
- ** Fresno Chaffee Zoo
- ** Cheyenne Mountain Zoo
- ** The Living Desert
- Chicago Zoological Society –
Brookfield Zoo
- Museum of Science
- ** Cleveland Metroparks Zoo –
Cleveland Zoological Society
- Naples Zoo
- ** The Dallas World Aquarium
- ** Roger Williams Park Zoo
- ** Detroit Zoological Society
- ** Seneca Park Zoo
- ** Disney's Animal Kingdom
- ** The Toledo Zoo
- ** Fort Wayne Children's Zoo
- ** Toronto Zoo
- Utah's Hogle Zoo
- ** Woodland Park Zoo

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and Aquarium
- Brookgreen Gardens
- Steinhart Aquarium
- The Butterfly House

Partners



Announce your butterfly efforts and activities in the *BFCI News* by contacting BFCI Program Coordinator Stephanie Sanchez at: ssanchez@flmnh.ufl.edu