

Imperiled Butterfly Conservation and Management Training 2010

The Imperiled Butterfly Conservation and Management (IBCM) program, funded by the Institute of Museum and Library Service's 21st Century Museum Professionals grant program, completed year two of its three year run. IBCM is a broad partnership which includes the University of Florida, Butterfly Conservation Initiative (BFCI), Association of Zoos and Aquariums, Toledo Zoo, Fairchild Tropical Botanic Garden, Oregon Zoo, and Chicago Academy of Sciences' Peggy Notebaert Nature Museum.

Designed as an intensive cross-training program, IBCM's primary goal is to strengthen the capacity of institutions and their staff to play a strategic role in the emergent and increasingly important field of insect conservation biology, with a targeted focus on imperiled butterfly recovery.



Fairchild Botanic Gardens staff demonstrates plant propagation techniques Photo: BFCI

IBCM participants learn the latest techniques, resources and tools available during a series of six rotating, multiple day, hands-on workshops hosted by various partner institutions, most with established butterfly conservation programs.



Attendees practicing larval identification on plant material Photo: BFCI

In 2010, IBCM workshops were held at Fairchild Tropical Botanical Gardens in Coral Gables, Florida and the Oregon Zoo in Portland, Oregon. In March, the Fairchild workshop focused on the importance of plants in butterfly conservation. Participants toured the Garden grounds where they were able to observe many South Florida butterfly taxa. Classroom instruction included an overview of Fairchild Tropical Botanic Gardens; South Florida butterflies and habitats; the conservation story of the Atala butterfly; *Croton linearis*, Bartram's hairstreak, the Florida Leafwing and Fire Management in Everglades National Park; horticultural issues for butterfly conservation: plant propagation/integrated pest management/general care; disease issues in captive populations including

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

the bacterial endosymbiont Wolbachia; developing successful grants; education programming at the gardens; and butterfly population management.

A large part of the IBCM program involves actual *in situ* experiences. Participants traveled to Bahia Honda State Park in the Florida Keys where they learned about the state endangered Miami Blue butterfly (*Cyclargus thomasi bethunebakeri*) and coastal strand habitat. Park staff provided an overview of various management strategies.

Participants also visited the National Key Deer Refuge to tour one of the most extensive remaining examples of tropical pine rockland habitat in Florida. They met with refuge staff and were provided with an overview of their management strategies, especially the use of prescribed fire. The Refuge harbors critical populations of the imperiled Bartram's Scrub-Hairstreak (*Strymon acis bartrami*), Florida Leafwing (*Anaea floridalis*), and Florida Duskywing (*Euphyriades brunnea floridensis*), as well as many other unique south Florida butterflies and plants.



Chad Anderson, Biologist, National Key Deer Refuge, shares important habitat information Photo: BFCI

IBCM moved to the Pacific Northwest in June and its host institution, the Oregon Zoo. Dr. David Shepherdson, Mary Jo Andersen and Zoo staff are currently involved with the captive propagation and reintroduction of the federally endangered Oregon silverspot (*Speyeria zerene hippolyta*) and the federal candidate Taylor's checkerspot (*Euphydryas editha talyori*) butterflies.

Presentations covered aspects of research and recovery. Oregon Silverspot topics included field research – foraging and host plant density, genetics and rearing. Woodland Park Zoo staff covered quality control protocols and larval handling techniques. Taylor's Checkerspot topics included research trials, genetics and an overview of captive techniques. Utilizing undergraduate students in cooperative research and Moorpark College's work with the Palos Verdes Blue (*Glaucophysche lygdamus palosverdesensis*), Lange's metalmark (*Apodemia mormo langei*) and the Laguna Mountain skipper (*Pyrgus ruralis lagunae*) in California rounded out the classroom portion.



Participants try their hand at cutting leaves of *Viola adunca* at the Oregon Zoo. Hundreds of leaves are required daily to support developing larvae of the federally endangered Oregon Silverspot butterfly Photo: BFCI

Zoo staff provided in-depth tours of their captive breeding and plant propagation facilities where participants were involved in hands-on activities.

Workshop field experiences were many. Scott Hoffman Black of the Xerces Society for Invertebrate Conservation discussed land management issues while providing a tour of key Taylor's Checkerspot habitat.



Xerces Society's Scott Hoffman Black shares critical land management strategies Photo: BFCI

Participants next traveled to the Oregon coast where they assisted with the release of captive-bred Oregon Silverspot larvae originating from colonies at the Oregon Zoo and Woodland Park Zoo.

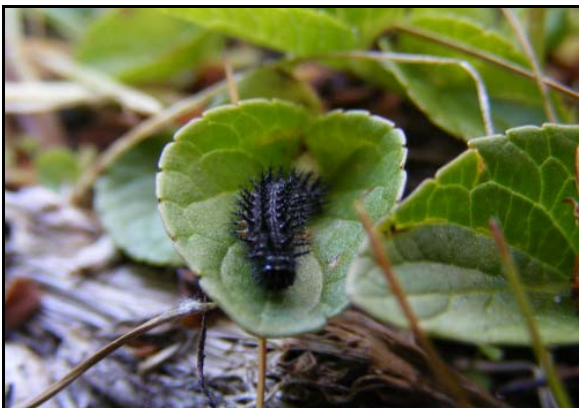


US Fish and Wildlife Service’s Anne Walker and the USDA Forest Service’s Melissa Shelley brief participants on habitat enhancement and larval release techniques Photo: BFCI



Participants release larvae

Photo: BFCI



*A newly released Oregon Silverspot larva (Speyeria zerene hippolyta) on its host plant (Viola adunca)
Photo courtesy of IBCM sharepoint*

Regular habitat restoration and management is a commonplace activity at the release site. Participants got a chance to get their hands dirty and assist with the planting of native plants.



*Helping to restore habitat on the Oregon coast
Photo: BFCI*

The Oregon Coast Aquarium was the venue for dinner and evening presentations by the Xerces Society’s Scott Hoffman Black and the Nature Conservancy’s Debbie Pickering.

A visit to the Natural Resources Conservation Service’s (NRCS) Plant Materials Center in Corvallis provided an overview of native plant research and propagation practices utilized in large scale habitat restoration efforts.

Rounding out the field portion of the workshop was a visit to Baskett Slough National Wildlife Refuge near Rickreall, Oregon. Here participants had the



Amy Bartow of the Natural Resources Conservation Service explains efforts required for large scale host plant propagation Photo: BFCI

opportunity to learn about and discuss important aspects of land management with Refuge staff. Basket Slough supports important habitat for the federally endangered Fender’s Blue (*Icaricia icarioides fenderi*).

A highlight of the Oregon workshop was an evening with renowned lepidopterist and author Robert Michael Pyle. Bob shared tales of his many adventures, read from his most recent novel, “Mariposa Road: The First Butterfly Big Year,” and generously provided time for individual book signings.

2011 is shaping up to be an exciting finale to the program. In addition to June’s training at the Chicago Academy of Sciences, an additional workshop has been recently developed for Southern California in late March. This workshop will be hosted by the Irvine Ranch Conservancy, the San Diego Zoo and Moorpark College. It will give IBCM participants an important glimpse into the complex conservation strategies of a state that is home to 11 of the 22 federally listed endangered butterfly species.

The IBCM program hopes to provide a new, innovative model for professional training that can help improve existing imperiled butterfly programs, facilitate the development of new programs, and advance overall species conservation efforts.

Successful conservation programs and an informed staff further improve institutional capacity to deliver accurate and relevant environmental education programs and foster increased public interest and community engagement. A dedicated IBCM web portal (www.imperiledbutterflies.org) is online to facilitate program coordination, information sharing, and participant networking.

BFCI is currently working on another proposal that, if funded, will build on the overall success of this unique collaborative training initiative.

Upcoming workshop dates for the final year of the 3-year project are as follows:

Irvine, CA: March 20-24, 2011

Chicago Academy of Sciences: June 20-23, 2011

IBCM scholarship participants are:

- Museum of Science (MA)
- Omaha’s Henry Doorly Zoo (NE)
- Woodland Park Zoo (WA)
- Atlanta Botanical Garden (GA)
- Cleveland Museum of Natural History (OH)
- Carnegie Butterfly Conservatory (Canada)
- Washington Department of Fish and Wildlife (WA)
- Oklahoma City Zoological Park and Botanical Garden (OK)
- The Butterfly Project (The Urban Wildlands Group, Inc. & America’s Teaching Zoo of Moorpark College) (CA)
- Mass Audubon’s Drumlin Farm Sanctuary (MA)
- Brookgreen Gardens (SC)
- University of South Carolina, Longleaf Environmental Learning Center - School of the Environment (SC)
- Reiman Gardens, Iowa State University (IA)
- Chihuahuan Desert Nature Center and Botanical Gardens (TX)
- Kalamazoo Nature Center (MI)
- The Niagara Parks Commission (Canada)
- Jacksonville Zoo and Gardens (FL)
- Milwaukee Public Museum (WI)
- Brevard Zoo (FL)
- Cheyenne Mountain Zoo (CO)
- San Diego Zoo (CA)
- Knoxville Zoo (TN)

Although not eligible for scholarship funding, Fort Bragg (NC) and the Irvine Ranch Conservancy (CA) are also participating.



IBCM partners and participants

Photo: BFCI

Front row L to R: Jennifer Cruse-Sanders (Atlanta Botanical Gardens), Jaret Daniels (BFCI and the McGuire Center for Lepidoptera and Biodiversity), Jana Johnson and son (Moorpark College), Amy Weinmeister (Longleaf Environmental Learning Center – School of the Environment, University of South Carolina), David Shephardson (Oregon Zoo), Mary Jo Anderson (Oregon Zoo), Steve McGaffin (Knoxville Zoo), Lea Morgan (Museum of Science)

Middle row L to R: Jutta Burger (Irvine Ranch Conservancy), Shelly Grow (BFCI and the Association of Zoos and Aquariums), Sue Andersen (Woodland Park Zoo), Lorre Meyers (Woodland Park Zoo,) Cathryn Hoyt (Chihuahuan Desert Research Institute), Stacey Sekscienski (Oklahoma City Zoo), Doug Taron (Chicago Academy of Sciences), Deanna Lindblad (Niagara Parks Commission), Mitch Magdich (Toledo Zoo), Peter Tolsen (Toledo Zoo), Adrienne Brewster (Cambridge Butterfly Conservatory), Nathan Brockman (Reiman Gardens), Paige Howorth (San Diego Zoo), Andrea DeMuth (Brookgreen Gardens)

Back row L to R: Mary Linders (Washington Department of Fish and Wildlife), Stephanie Sanchez (BFCI), Ruth Allard (BFCI and the Phoenix Zoo), Amanda Stangeland (Moorpark College), Tony Palmer (Omaha’s Henry Doorly Zoo), Susan Borkin (Milwaukee Public Museum), Betty Duncel (McGuire Center for Lepidoptera and Biodiversity), Heidi Genter (Cheyenne Mountain Zoo), Vincent Olivares (Chicago Academy of Sciences), Brian Ball (Fort Bragg), Cathi Lehn (Cleveland Museum of Natural History), Matt Lemons, (Jacksonville Zoo), Karen Wilson (Kalamazoo Nature Center), Mark Buma (Niagara Parks Commission)

Not pictured: Michelle Smurl (Brevard Zoo), Tia Pinney (Mass Audubon’s Drumlin Farm Wildlife Sanctuary) and Robin Stuart (Mass Audubon’s Drumlin Farm Wildlife Sanctuary)

For more information, please visit the IBCM sharepoint at www.imperiledbutterflies.org or contact the program’s director Dr. Jaret Daniels jdaniels@flmnh.ufl.edu.

**Please Welcome Our
Newest Contributor:**



Located between Murrells Inlet and Pawleys Island, South Carolina, Brookgreen Gardens is a National Historic Landmark with the most significant collection of figurative sculpture in an outdoor setting by American artists in the world and is the only zoo accredited by the Association of Zoos and Aquariums on the coast of the Carolinas.

The thousands of acres in Brookgreen's Lowcountry History and Wildlife Preserve are rich with evidence of the native plants and animals of the South Carolina Lowcountry as well as the great rice plantations of the 1800's.

Brookgreen is also home to a seasonal butterfly exhibit, *Whispering Wings Butterfly Experience*. The exhibit features a lush garden filled with tropical plants where hundreds of butterflies soar through the air. Monarch, Zebra Longwing, Polydamas Swallowtails, Pipevine Swallowtails, Spicebush Swallowtails, Julias, Buckeyes, Queens, Painted Lady, and American Lady are just a few of the species that call *Whispering Wings* home.

BFCI is proud to add Brookgreen Gardens to its conservation family!

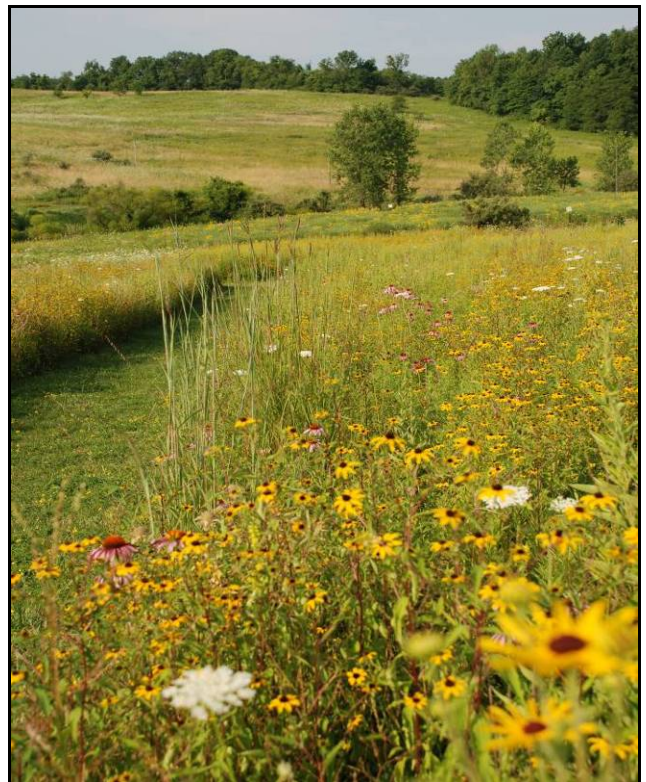
www.brookgreen.org

**MEMBER/CONTRIBUTOR
NEWS**

**The Wilds/The Columbus Zoo
and Aquarium**

Our most recent news is the development of an educational kiosk located at the entrance of our ever-expanding Butterfly Habitat. The structure currently has a roof and a small bench for seating, which has attracted more guests to visit the plantings.

Next season, we will install a case to display a map of the habitat and information about pollinator conservation. The display will also include practical information on how to build backyard habitat to support butterflies and other pollinators, a summary of our long-term monitoring transects, noticeable trends and research...all geared toward inspiring our visitors to recognize the plight of pollinators and take personal action in their conservation.



Butterfly habitat at the Wilds Photo courtesy of Shana Byrd



Each year, we've added several acres to the habitat and with the addition of more prairie plantings this fall, the expansion will exceed our original goal of 200 acres! This will be a notable accomplishment. We're continually looking for more opportunities to expand the area and promote pollinator conservation among our visitors, so the area will continue to grow and improve over the coming years.

Shana Byrd
Restoration Ecology Program Coordinator
www.thewilds.org

Seneca Park Zoo

We have been continuing to expand the beltway program here in the Rochester area. In the last two summers we have planted 26 new gardens, bringing our total number of sites to 99! This year we offered the program to businesses, and it is definitely gaining momentum. We are looking at other promotional ideas for next year to continue the growth. I am also looking at raising butterflies on a larger scale here at the zoo next year to help with the numbers required to sustain our programs. We continue our butterfly releases here on zoo grounds and the attendance figures definitely indicate that people are interested in butterflies!

Tina Crandall
Conservation Education Coordinator
Seneca Park Zoo Society
www.senecaparkzoo.org

Toledo Zoo

Transect counts for Karner blues at Moseley Barrens were outstanding this year. We did not do a release at this site in 2010 so all of the animals were progeny from previous releases.

The habitat looks fantastic, with plenty of host and nectar plants for all generations. Also, both male and female Karner blues showed up at another outstanding piece of habitat in the Kitty Todd Preserve complex (of which Moseley is a part). These animals migrated to this site on their own. We anticipate that we will see KBBs present at this site in 2011.



Male Karner Blue on ceanothis americanus
Photo: Mitch Magdich

It was also the first year of releases at a new site in a state game area managed by the Ohio Department of Natural Resources Division of Wildlife. The site of the original release in 1998 at the main unit of Kitty Todd Preserve had no KBBs observed. There are a number of factors that have contributed to the loss of this population including a hard freeze that occurred in late May 2006 at a time when many of the first generation adults were eclosing. The population never fully recovered after this event. We have not released at this site since 2003.

Several Mitchell's satyr larvae are currently "napping" in the zoo's Butterfly Conservation Center. At the recommendation of the MS federal recovery team, the zoo is ramping up production of this imperiled species over the next few years for population augmentation and reintroductions to sites in Michigan.

Mitch Magdich
Curator of Education
www.toledozoo.org



Cleveland Metroparks Zoo and Cleveland Zoological Society

Don Krock, Zoo Horticulture Manager, organized the Bird's Eye Zoo photo event on the Zoo's Plant Conservation Day. We highlighted the endangered Karner Blue Butterfly and raised over \$1,300.00 for plant conservation.

<http://www.clemetzoo.com/zblog/default.asp?Display=313>



Photo: Casey Batule

Gayle Albers, Conservation Coordinator, completed survey season #8 of long-term ecological monitoring of butterflies at the Brookside Reservation transect (April - October), using the Ohio Lepidopterists' (statewide) monitoring protocol. Zoo Crew Teens and interns participated in the surveys.



Zoo Crew Teens in the field Photo courtesy of Gayle Albers

Flutter! A seasonal Zoo exhibit of butterflies in our greenhouse draws visitors to these amazing pollinators: <http://www.clemetzoo.com/zblog/default.asp?Display=319>

Thank you to Gayle Albers
Conservation Coordinator
www.clemetzoo.com

In addition to its wonderful members and contributors, BFCI would like to thank the following for their generous supplemental donations in 2010:



The Oklahoma City Zoo - \$1,000.00



The Phoenix Zoo - \$500.00

BFCI Co-Founds the Western Imperiled Butterfly Joint Venture

Immediately following the Portland IBCM workshop, BFCI joined forces with its partners, the Xerces Society for Invertebrate Conservation and the McGuire Center for Lepidoptera and Biodiversity, as well as California's Moorpark College to host an initial meeting of what we hope will soon become the Western Imperiled Butterfly Joint Venture. The meeting, designed as an interest gathering session, brought together many of the leading individuals, groups, institutions and agencies involved in butterfly conservation across California, Washington, and Oregon. Although very early in the overall process, our goal is to cultivate participation and develop a new regional conservation collaborative initiative to focus much needed attention on the many critically imperiled butterfly and macro-moth taxa in this region.

2010 BFCI Grant Enables Population Assessment for Imperiled Swamp Metalmark

*By Doug Taron, Ph.D.
Curator of Biology and
Vice President of Research and Conservation
Chicago Academy of Sciences*

In June, a joint effort by the Chicago Academy of Sciences and the Milwaukee Public Museum obtained funding for a habitat assessment project involving the swamp metalmark. This species is imperiled over much of its range. The two Midwestern Museums have been collaborating on a project to monitor the size and genetic diversity of Wisconsin populations of this butterfly, and to develop a captive breeding program for the species.

The Wisconsin metalmarks exist in small, isolated populations and appear to have suffered genetic loss due to inbreeding.

During our collaborations, we have been aware of reports of a very large population in southern Indiana. We have hypothesized this large population might have suffered from less inbreeding than the populations with which we are familiar. A \$2,500 grant from the BFCI allowed us to visit the site in June. Our goal was to verify the existence



*Swamp metalmark (Calephelis muticum)
Photo courtesy of Doug Taron*

and size of this population, and to obtain information about the habitat that this more southerly population occupies. We also planned to harvest small fragments of metalmark wings to be used for additional genetic analysis.



Swamp metalmark habitat Photo courtesy of Doug Taron



Our visit revealed few metalmarks. We found two very small populations and were only able to collect wing samples from 13 individuals. Although these observations raised concerns about this supposedly large population, we were able to gather quite a bit of habitat data. We wondered if the second generation of this population might be larger, thus accounting for the discrepancy in the reported population size.

In August, the Wisconsin office of the US Fish and Wildlife Service contacted us. They were aware of our work, and wanted to **support additional research via a \$13,000 grant** that would support a return trip to Clover Lick and genetic analysis of the Indiana population. We hastily arranged a second visit. Our observations indicated a much more robust second generation at both of the sites that we had visited in June. There was some indication of metapopulation distribution at both sites, and we obtained over 40 additional wing fragments for analysis.

We are very grateful to BFCI for the opportunity to further the knowledge of the state of this imperiled species, and for the unexpected bonus of being the catalyst for additional opportunities.

2011 BFCI Grant Request for Proposals

The Butterfly Conservation Initiative (BFCI) is pleased to announce the following Request for Proposals (RFP) for research, recovery, and education projects through the 2011 Butterfly Conservation Grant Program.

The Butterfly Conservation Initiative will provide a competitive \$2,500 grant to help support a program related to the core mission of BFCI. Funds may be used for scientific research, conservation or restoration activities, and education programs focused on butterflies. Priority will be given to efforts targeting rare or imperiled species.

Grants are limited to non-profit conservation organizations with approved IRS 501(c)3 status for projects in the 50 U.S. states. BFCI is unable to make grants to individuals or for-profit corporations.

The proposal is limited to a total of 5 pages. All proposals should provide the following:

1. A cover page with the following information:

- Institution Name
- Title of Project
- Name of project director, job title, email address, phone
- Physical mailing address
- Other principal individuals involved (include name, title, institution, email, phone for each)
- Brief summary of request (no more than 2 lines)

2. Proposal Narrative: 2-4 pages of explanatory text that addresses the following components:

- Project Background including a statement of overall need
- Project objectives
- Scope of work
- Timeline
- Proposed Budget (including how funds will enhance existing program support)
- Biographical Sketches
- References

All proposals received by BFCI will be reviewed to determine that all of the submission requirements described in the RFP have been met. The BFCI Steering Committee will evaluate and rate all proposals under consideration. Decisions will be made by March 29, 2011. All submitters will be notified of their final submission status.

Proposals must be submitted electronically and need to be received by 5:00 pm (EST) on March 1, 2011. Please email a PDF copy of your proposal to ssanchez@flmnh.ufl.edu with the SUBJECT heading: "**BFCI Proposal Submission.**" An email confirmation of receipt will be sent when the proposal has been downloaded by the BFCI office.



Propagation Handbook for the Karner Blue Available Online

The first edition of the Propagation Handbook for the Karner Blue Butterfly, *Lycaeides melissa samuelis*, is now available through the US Fish and Wildlife Service's website:

<http://www.fws.gov/midwest/endangered/insects/kbb/KBBPropagationManual.html>

The manual provides a comprehensive guide to the various techniques that are successfully being used in captive rearing programs for the Karner blue butterfly (KBB) by various organizations in Indiana, Michigan, New York, New Hampshire, and Ohio.



Karner Blue

Photo: Candee Ellsworth

Developed by the Karner Blue Butterfly Captive Rearing Subteam, part of the larger Karner Blue Butterfly Recovery Team, the manual synthesizes information on captive rearing techniques and lessons learned from a variety of ongoing recovery efforts across the Midwest and Northeast. The team was led by Lindsay Webb of the New Hampshire Fish and Game Department and consisted of The Nature Conservancy, Southern Lake Michigan Rim

Project; Albany Pine Bush Preserve Commission; Detroit Zoo; Toledo Zoo's Department of Conservation and Research; New Hampshire Fish and Game's Nongame and Endangered Wildlife Program and U.S. Fish and Wildlife Service's Green Bay Field Office.

The manual is a must-have resource for those involved with or developing captive breeding programs with KBBs or other imperiled butterflies. It provides a wealth of valuable information on basic breeding and handling techniques, disease prevention, release techniques as well as help in determining which techniques will work best based on the location and size of the captive rearing facility, funds, and staff time.

2011 Call for Nominations

BFCI requests your help in identifying candidates to serve on the BFCI Steering Committee.

BFCI owes its success to the active participation of its members and contributors. Nominees must represent current BFCI member or contributor institutions and be willing to dedicate their time and resources for the benefit of BFCI's mission.

We are asking BFCI members and contributors to nominate one person from their institution who has the interest, can meet the responsibilities, and has the appropriate institutional support.

Please send by email your name, contact information and a short personal statement about your background and why you would like to serve on the Steering Committee to Stephanie Sanchez, BFCI Program Coordinator, ssanchez@flmnh.ufl.edu.

The deadline for nominations is May 2, 2011.

Steering Committee terms are three years and the new term will begin July 1, 2011.



BFCI Presents at the American Public Gardens Association's Annual Conference

BFCI was proud to be a participant in this year's American Public Gardens Association's Annual Conference "The Garden Canvas: Colors of Success" held June 1 – June 5 in Atlanta, Georgia.

The Conference session: "Pollinators in the Garden: Forging Partnerships for Native Insect Conservation" featured the following four presentations:

BFCI partner, the Xerces Society for Invertebrate Conservation's Executive Director Scott Hoffman Black covered "Pollinator Conservation: Opportunities for Public Gardens."

<http://www.slideshare.net/APGA/pollinators-black>

BFCI's host institution, the McGuire Center for Lepidoptera and Biodiversity's Jaret Daniels shared "Conservation Through Compound Eyes: Needs, Priorities and Opportunities with Butterflies."

<http://www.slideshare.net/APGA/pollinators-daniels>

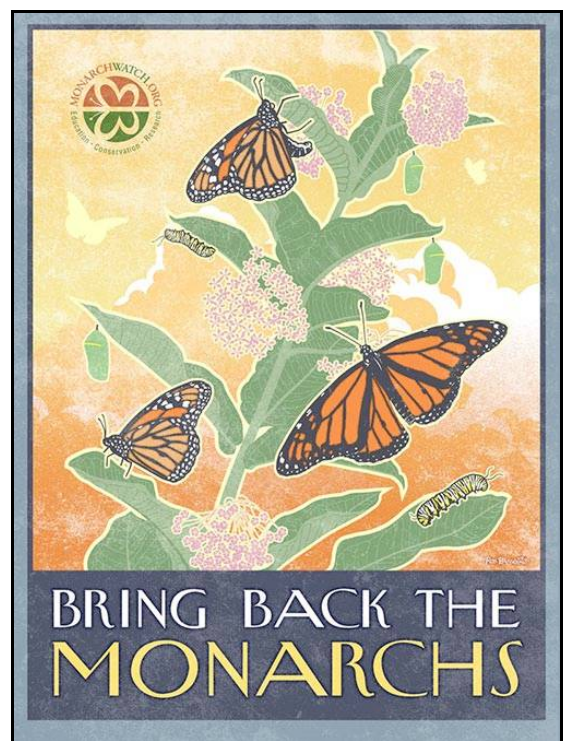
BFCI member Woodland Park Zoo's horticulturalist Linda Richardson presented "Plants for Pollinators."

<http://www.slideshare.net/APGA/pollinators-richardson>

The session's final presentation was BFCI Program Coordinator Stephanie Sanchez's "Developing Partnerships for Cooperative Conservation."
<http://www.slideshare.net/APGA/pollinators-sanchez>

Jennifer Cruse-Sanders, Director of Research and Conservation at the Atlanta Botanical Garden and a participant in the Imperiled Butterfly Conservation and Management training program, served as moderator.

BFCI looks forward to strengthening its collaboration with APGA and its member gardens in 2011.



MONARCH WATCH ANNOUNCES *BRING BACK THE MONARCHS* CAMPAIGN

"In real estate it's location, location, location and for monarchs and other wildlife it's habitat, habitat, habitat", said Chip Taylor, Director of Monarch Watch. Monarch Watch, started in 1992 as an

outreach program dedicated to engaging the public in studies of monarchs, is now concentrating its efforts on monarch conservation.

“We have a lot of habitat in this country but we are losing it at a rapid pace. Development is consuming 6,000 acres a day, a loss of 2.2 million acres per year. Further, the overuse of herbicides along roadsides and elsewhere is turning diverse areas that support monarchs, pollinators, and other wildlife into grass-filled landscapes that support few species. The adoption of genetically modified soybeans and corn have further reduced monarch habitat. If these trends continue, monarchs are certain to decline, threatening the very existence of their magnificent migration”, said Taylor.

To address these changes and restore habitats for monarchs, pollinators, and other wildlife, Monarch Watch is initiating a nationwide landscape restoration program called “Bring Back The Monarchs.” The goals of this program are to restore 19 milkweed species, used by monarch caterpillars as food, to their native ranges throughout the United States and to encourage the planting of nectar-producing native flowers that support adult monarchs and other pollinators.

This program is an outgrowth of the [Monarch Waystation Program](#) started by Monarch Watch in 2005. There are now over 4,000 certified Monarch Waystations – mostly habitats created in home gardens, schoolyards, parks, and commercial landscaping. “While these sites contribute to monarch conservation, it is clear that to save the monarch migration we need to do more,” Taylor said. “ We need to think on a bigger scale and we need to think ahead, to anticipate how things are going to change as a result of population growth, development, changes in agriculture, and most of all, changes in the climate,” said Taylor. According to Taylor we need a comprehensive plan on how to manage the fragmented edges and marginal areas created by development and agriculture since it is these edges that support monarchs, many of our pollinators, and the many forms of wildlife that are sustained by the seeds,

fruits, nuts, berries, and foliage that result from pollination. “In effect,” Taylor argues, “we need a new conservation ethic, one dealing with edges and marginal areas that addresses the changes of the recent past and anticipates those of the future.”



Butterfly Art!



Tony Palmer displays unique works of art Photo: BFCI

Joseph “Tony” Palmer, a butterfly and insect keeper, shows off some of the meconium art created by emerging butterflies in his care at Omaha’s Henry Doorly Zoo. Palmer encourages those who deal with this regular aspect of Lepidoptera care to consider it as a potential fundraising idea.



Current Members

** Founding Member

- | | |
|---|-------------------------------------|
| ** Binder Park Zoo | ** Fresno Chaffee Zoo |
| Birmingham Zoo | ** Friends of the WNC Nature Center |
| The Butterfly House | ** John Ball Park Zoological Garden |
| ** Cheyenne Mountain Zoo | ** The Living Desert |
| Chicago Zoological Society | ** Louisville Zoological Garden |
| - Brookfield Zoo | Museum of Science |
| ** Cleveland Metroparks Zoo – Cleveland | Naples Zoo |
| Zoological Society | ** Potawatomi Zoo |
| ** Columbus Zoo and Aquarium | ** Roger Williams Park Zoo |
| ** The Dallas World Aquarium | ** Seneca Park Zoo |
| ** Detroit Zoological Society | ** The Toledo Zoo |
| ** Disney’s Animal Kingdom | ** Woodland Park Zoo |
| ** Fort Wayne Children’s Zoo | |

Contributors

- Brandywine Zoo
- Brevard Zoo
- Brookgreen Gardens
- Chesapeake Chapter of the American Association of Zoo Keepers – Salisbury Zoo
- ** Oklahoma City Zoo & Botanical Garden
- ** Oregon Zoo
- ** San Antonio Zoological Gardens and Aquarium
- Steinhart Aquarium

Partners

- Association of Zoos and Aquariums (AZA)
- Environmental Defense
- McGuire Center for Lepidoptera and Biodiversity
- National Wildlife Federation
- North American Pollinator Protection Campaign (NAPPC)
- USDA Forest Service
- U.S. Fish and Wildlife Service
- Xerces Society for Invertebrate Conservation

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

To learn more about BFCI, please visit our website: www.butterflyrecovery.org