



# McGuire Center

Florida Museum of Natural History

April, 2009

Issue 3

UF | University of Florida

## News

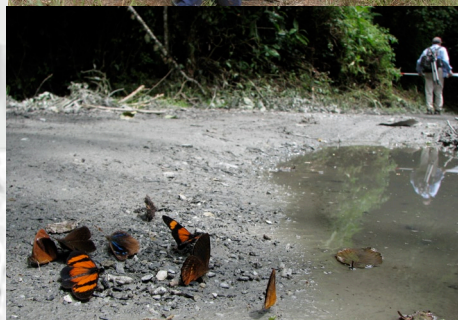
### McGuire Expeditions Exploring the World of Lepidoptera

Staff of the McGuire Center routinely conduct field research all over the world. The studies range from simple collecting of select groups of Lepidoptera by specialists, to surveys of whole countries, their parks, or specific sites proposed for conservation, and to conducting studies in the fields of community ecology, behavioral sciences, genetics, or biogeography.

**Keith Willmott** conducted a 3-week collecting trip to Ecuador. To date, he has visited 51 localities in the provinces of Loja, Zamora-Chinchipe, El Oro, Cañar, Guayas, Manabí and Pichincha, concentrating on the dry to moist forests of the “Tumbesian” region of endemism. He made the following discoveries on this short trip:

The restricted-range species resembling *Diaethria ceryx* was recorded for the first time in coastal mountains in Manabí, representing a probable new subspecies. A record of *Epiphile adrasta calixta* in Manabí represents a significant range extension. The southwest Ecuadorian endemic *Perisama aldasi* was recorded at only the second known site. Capture of *Selenophanes josephus* in El Oro province is a significant range extension for a species formerly known only from extreme northwestern Ecuador. The west Ecuadorian/Peruvian endemic swallowtail species *Protesilaus earis* and *Heraclides epenetus* were recorded at 9 localities in 4 provinces and 11 localities in 3 provinces, respectively, information that will be essential in assessing the species' IUCN conservation status. The very rare riodinid *Archaeonympha urichi* was collected in western Ecuador for the first time, very significantly extending its known range. Collection of two supposed subspecies of *Eurema elathea* in broad sympatry suggests they are distinct species, one of which is endemic to southwestern Ecuador and northwestern Peru. Specimens of *Leodonta tellane* from Loja province appear to represent an undescribed subspecies. A significant number of other records of species in

Loja and Manabí represented either north or south range extensions, and distribution data gathered will be essential in modeling species ranges for biogeographic studies.



Photos: Collecting at Fundación Jocotoco's Reserva Jorupe, Loja; *Scada zemira* (Ithomiinae), a species endemic to the Tumbesian region; Showing butterfly specimens to Ecuadorian children; Puddling *Actinote* species.

Visit <http://www.butterfliesofecuador.com/> for more information about the project

#### From the editor:

The first two issues (2007 & 2008) of the McGuire Center News were dedicated to **research and collections**, and to **exhibits and outreach**, respectively. Though the above activities always continue at the Center, the current issue is dedicated almost entirely to **the work that McGuire staff and students conduct in the field**. This is in keeping with the overall mission of the McGuire Center and of the Florida Museum as a whole to **explore, interpret, and preserve the global biodiversity**.

#### In the current issue:

**Expeditions**  
**New collections**  
**ButterflyFest**  
**Grants & Awards**  
**Student research**  
**Publications**  
**Local outreach**  
**and more**



Read more about field research on pages 2, 3 and 8, 9, 10.



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## **McGuire Expeditions** continued from p.1

Several lepidopterological expeditions were led by **John Heppner** during 2008 and in February 2009. Resulting samples provided nearly 50,000 moths and butterflies, plus many thousands of smaller insects, for the FSCA/McGuire Center collections. Samples will be shared with host nations in each case as the specimens are processed and identified. Many new records, new species, and notes are already published or in publication manuscripts resulting from

entire nation of Vietnam. Even this first trip has resulted in numerous new records and new species of moths for Vietnam.

Following the Vietnam expedition, John visited Panama and Guatemala also to sample Lepidoptera. Sites visited in Panama included Sierra Llorona Reserve (Colon Prov.), Cerro La Vieja and El Valle (Cocle Prov.), and Finca Suiza Reserve (Chiriqui Prov.). In Guatemala, John visited Finca Tarrales, on the slopes of Volcán Atitlán



Ninh Binh is an area in northern Vietnam, near Cuc Phuong National Park

these expeditions.

In June 2008, John visited Vietnam. This trip concentrated on northern Vietnam (the former Tonkin), with local logistics arranged by Dr. Vuong Pham, Vice-Director of the Plant Protection Research Institute, in Hanoi. Sites visited included Tam Dao National Park (75km north of Hanoi), Ba Be National Park (a natural lake area towards the Chinese border), Cuc Phuong National Park (a rainforest area south of Hanoi), and Ba Vi National Park (45km west of Hanoi). About 10,900 Lepidoptera were obtained. Continued expeditions are planned each year to eventually survey the

(Dept. Suchitapéquez), Fuentes Georginas by Volcán Zunil (Dept. Quetzaltenango), the Reserva Quetzal (Dept. Baja Verapaz), Green Bay in the Reserva Sierra del Mico, near Puerto Barrios (Dept. Izabal), and San Lorenzo in the Reserva Sierra de las Minas (Dept. Zacapa). Almost 20,000 moths were obtained from these two expeditions.

In February 2009, John led the first American lepidopterological expedition to the southcentral African nation of Malawi. Malawi is the former Nyasaland and is at the southern end of the East African Rift Valley system, south of Tanzania, bordered by Zambia in the northwest and



Court Whelan led a research and education trip to southern Ecuador. He and **Tom Emmel** also made scouting trips to Honduras and Papua New Guinea and co-led two trips to the monarch butterfly overwintering sites in Michoacán, Mexico.





Malawi, at base of Mt. Mulanje, southern Malawi

Mozambique in the south, with most of its eastern border on Lake Nyasa (Lake Malawi). Local arrangements were made by long-time resident lepidopterist, Ray Murphy. Sites visited included several in the southern half of Malawi: Ntchisi Forest Reserve (Ntchisi Dist.), Senga Bay Forest Reserve (by Lake Nyasa, Salima Dist.), Chinguni Hills in Liwonde National Park (Machinga Dist.), Zomba Plateau (Zomba Dist.), Mt. Mulanje (Mulanje Dist.), and Chongoni Forest Reserve (Dedza Dist.). Most of the sites are semi-evergreen brachystegia or mopane woodlands, with some areas of montane rainforest. About 9,700 Lepidoptera were obtained on this expedition.

*Read more about field research on page 8.*

### Support the McGuire Center

The McGuire Center for Lepidoptera and Biodiversity relies upon the generosity of private donors to build and enhance its collections, educational outreach efforts and international research programs. Every gift is important and contributes to our success.

**Private Gifts** are accepted and are tax-deductible. Private donations support student and faculty research, endowed chairs for curators, collections maintenance, exhibits and education programs. Named endowments may be established at \$30,000 and may be eligible for state matching at \$100,000 and above.

**The Monarch Society:** Donors who commit \$10,000 to this fund receive permanent recognition in the McGuire Center and are invited to participate in special events.

For additional information about donation opportunities within the McGuire Center and the Florida Museum of Natural History, please contact Joshua McCoy, Director of Development, at (352) 273-2087 or [jmccoy@flmn.h.ufl.edu](mailto:jmccoy@flmn.h.ufl.edu)

## Keeping Up with Kentucky Lepidoptera

When **Charlie Covell** left the University of Louisville, KY, in July 2004 to join the staff of the McGuire Center, he was afraid that he could no longer work on surveying and monitoring the moths and butterflies of the state in which he had been working for forty-five years. However, thanks to the dedication and enthusiasm of friends still in the Bluegrass State, the Society of Kentucky Lepidopterists continued its program of several field trips each year to various parts of the state, and holding an annual meeting at the University of Kentucky each November. It is in the Entomology Department there that the former University of Louisville Insect Collection now resides, combined with that of UKy to form one large collection of about 500,000 specimens. Further, Dr. Jeffrey Marcus at Western Kentucky University not only served the past four years as President of the Kentucky Lepidopterists, but he with the expertise of his brother Ben in New York set up the online, interactive database “*kybutterfly.net*” where over 60,000 datapoints on the nearly 2,500 Lepidoptera species known from Kentucky can be accessed.

Another long-term project still continued is the “July 4<sup>th</sup> Butterfly Counts.” Charlie has been able to visit Louisville and lead these Saturday field trips, inviting the public to participate. Usually over 30 people attend.

Over the years a total of 70 butterfly species have been identified, and 26,616 individuals counted. Numbers of species

have ranged from 23 in 1988 to 46 in 1992. Total individuals have ranged from 109 in 1979 to 4,316 in 1993. The most recent count yielded 36 species and 2,041 individuals. Actual numbers of butterflies present cannot be precisely extrapolated from the results of any given count, as there are several factors that affect the results. Some of these factors are: weather patterns during the months before the count, weather conditions on the day of the count, and number of experienced lepidopterists leading groups of counters in the study area. The last-mentioned factor determines how much area can be covered during the period of 10:00 AM to 3:00 PM – the time-frame of each count. Some butterflies have appeared each year, and a few have been found only once. One can see interesting trends, such as the disappearance of the Northern Metalmark, *Calephelis borealis*, a few years ago, and the first of continuing observations of the Gemmed Satyr, *Cyllopsis gemma*, and the Carolina Satyr, *Hermeuptychia sosybius*, in 1999 and 2001, respectively. Also, “southern” pierids such as the Cloudless Sulfur, *Phoebis sennae*, and the Sleepy Orange, *Eurema nicippe*, are appearing more regularly and abundantly at this time of year (they are normally scarce until late summer in that area). These trends may be a sign of global climate change.

So from afar, Charlie has been able to stay involved with the study of Kentucky Lepidoptera, which has been a major interest of his for nearly 45 years.



Charlie Covell (second from left) and other participants of the 4th of July Butterfly Count in Kentucky.





## ButterflyFest soars to New Heights in 2008



The 3<sup>rd</sup> annual ButterflyFest, held October 18<sup>th</sup>-19<sup>th</sup>, 2008, was an immense success, attracting over 5,200 visitors. The collective power of faculty and staff from Powell Hall, Dickinson Hall, and the McGuire Center for Lepidoptera facilitated a smooth running event with excellent opportunities for fun and discovery. Workshops, guest lectures, tours, and activities presented a ‘something for everyone’ feel, and helped engage the public in fresh and exciting science research topics.

The keynote speaker of this year’s festival was renowned lepidopterist and writer, Robert Michael Pyle, who made ButterflyFest a stop on his 2008 Butterfly-a-thon. The project was a year-long trek across the U.S. and Canada, where Pyle identified as many of the 800+ species of butterflies as possible. Festival visitors had a unique opportunity to talk with Pyle about his journey, while still en route. His passion and enthusiasm for butterflies and nature is a shared interest with many of our own faculty, staff, and volunteers.

**Thomas Emmel**, director and curator of the McGuire center, shared valuable information on butterflies worldwide, while describing many of the characteristics that make them unique. His talk, titled “Biodiversity and Butterflies”, ties together the main elements of the ButterflyFest mission, creating connections between butterflies and the natural world. **Jaret Daniels**, assistant curator, helped tie science to everyday life by disclosing clues to “who’s eating what” concerning native caterpillars and plants. His “Caterpillars and Butterfly Gardening” discussion was a must for local gardeners.

This year ButterflyFest offered several tours and workshops for nature enthusiasts. The

event kicked off with an off-site field trip to Morningside Nature Center, featuring guides Jaret Daniels and Robert Pyle. The 250+ acre nature park remains one of the largest intact longleaf pine woodlands in Gainesville, boasting over six miles of hiking trails through sandhills, flatwoods, and cypress domes. Participants were encouraged to bring binoculars, cameras, and a sense of adventure as they set off to identify fall butterflies and wildflowers.

At the Florida Museum, **Andrei Sourakov** and **Jacqueline Miller** led behind-the-scenes tours of the McGuire Center’s collections and



laboratory facilities. Together with staff and students of the center, they tended displays of Lepidoptera and other insect drawers from the Museum’s collections. These were very popular with the kids, many of whom discovered for the first time the variety of shapes, sizes, and colors that tropical insects can have.

### The Annual ButterflyFest

- field trips
- garden and nature tours
- activities for children
- lectures by world renowned scientists
- butterfly gardening tips
- monarch butterfly tagging
- gift shops
- VIP tours of collections
- Butterfly Rainforest tours
- 

Experts available both days to answer your questions

Next ButterflyFest will be held  
October 24-25, 2009

Visit:

<http://www.flmnh.ufl.edu>  
for future updates.

These tours provided a scientist’s view of the butterfly world to enthusiasts and collectors. **Jeff Hansen** and the Butterfly Rainforest staff offered a unique and exciting opportunity to use photography equipment not normally permitted in the rainforest. “Picture Perfect Rainforest Photography” attracted photographers from across the region, and produced breathtaking results.

ButterflyFest continues to increase awareness of Florida’s butterflies as fun, fascinating ambassadors to the natural world. The activities of this year’s sensational event captured the attention of all ages in the quest to promote inquiry and provide a call to action for the conservation and preservation of pollinators, backyard wildlife, and habitats. The community can expect to see new and exciting opportunities arise as the event continues to grow in the years to come.





# Kaleidophotos exhibit at the Florida Museum of Natural History:

## *Learning by Photographing Butterflies*



Students from the Caring and Sharing Charter School on their visit to the Butterfly Rainforest.

The Butterfly Rainforest at the McGuire Center for Lepidoptera and Biodiversity, located at the Florida Museum of Natural History, has been discovered, especially during October. In that month, thousands have appeared at two-day celebrations at annual ButterflyFests, during the past three years. Among them are photographers who find beautiful landscapes in the Rainforest. Several waterfalls, ponds, and ornate bridges are adorned by tropical plants within a unique two-story metal structure. Bright orange koi fish and non-predatory birds join two thousand butterflies. The setting is ideal for taking pictures.

To encourage interest in butterflies and photography among young people, community activists Peter Johnson and Gabriel Hillel last year collaborated with Museum personnel to invite and prepare students from a local public charter elementary school to make a single visit to the Rainforest. The venture was sponsored by several local and campus organizations.

Each child was given a disposable single use film camera. After the film was processed, each selected a single shot and used a computer to start the process to transform one negative image into a "kaleidophoto" print of mirror views and reflections.

The local Flair Photo Labs produced 8x12 inch final compositions which were exhibited in the Museum's



Below: Exhibit of students' work in the Discovery Room (now closed due to budget cuts) at the Florida Museum of Natural History.



Discovery Room for several months. Frames were donated for the displays created by more than 50 students. The exhibit received many favorable comments from the visiting public, according to the Public Programs Coordinator, Kendra Lanza-Kaduce.

The project and the exhibit that followed played an important role in repeatedly bringing students and their families to the Museum, and in developing the realization that the facility is first and foremost a community resource, according to the exhibit's director Darcie MacMahon.



# Grants, Awards, and other News

## SELECT GRANTS

**Jackie Miller:** Educational Outreach and Accessibility of Type Specimens, FLMNH, Museum Associates, \$2,000

**Jaret Daniels and Betty Dunckel:** Florida Fish and Wildlife Conservation Commission, \$13,500; Brevard Zoo Conservation Fund, \$1,245

**Keith Willmott:** Florida Museum of Natural History Museum Associates Fund, \$4,800; The Nature Conservancy, \$2,500

**Christian Salcedo:** Graduate Student Council Travel Grant, \$250; IFAS-Entomology Department Travel Grant, \$400; Davidson Travel Grant, \$650; Organization for Tropical Studies Fellowship, \$3,200; Smithsonian Tropical Research Institute short-term Fellowship, \$3,500; Journal of Experimental Biology Research Grant \$2,700; American Museum of Natural History Research Grant, \$750; Explorer's Club Field Research Grant, \$1,000

### Jaret Daniels and Betty Dunckel received Institute of Museum and Library Sciences \$365,299 grant.

Florida Museum/McGuire Center and the Butterfly Conservation Initiative (BFCI) received funding from an Institute of Museum and Library Service's (21st Century Museum Professionals grant) to develop and provide scholarships for a new professional training program in the emergent field of insect conservation biology.

Imperiled Butterfly Conservation and Management (IBCM) is designed for professionals from natural history museums, zoos, aquariums, botanical gardens, arboretums, nature centers, science/technology centers or similar conservation-based institutions. As a result of this funding, there will be intensive four-day laboratory and field training workshops held over three years. Workshops and on-going mentoring will provide skills training, opportunities to share information, learn best practices, and foster new collaborations, as well as the resources necessary to launch or enhance important butterfly-focused conservation programs. The new initiative will enhance existing imperiled butterfly programs and facilitate the development of new programs.

IBCM is a partnership involving the Florida Museum of Natural History, Chicago Academy of Sciences' Peggy Notebaert Nature Museum, Oregon, Toledo and Cincinnati Zoos, Fairchild Tropical Botanic Garden, and the Association of Zoos and Aquariums (AZA). All partner institutions have established butterfly conservation and recovery programs or offer particular expertise in a key area such as plant propagation or program coordination.

## SELECT AWARDS

**Jackie Miller** received UF Foundation, Inc. Research Professorship Award 2008-2010 and was elected Fellow, Entomological Society of America. She also was elected Emeritus Judge, American Orchid Society.

**Andrei Sourakov** won "Elegance of Science" art contest organized by UF Marston Science Library (see all entries at <http://www.uflib.ufl.edu/msl/art/>).

**Charlie Covell** was elected a Life Member of the Lepidopterists' Society of America.

## SELECT PRESENTATIONS

**Jackie Miller** presented at the annual meeting of the Entomological Society of America, at the Lepidopterist's Society, and attended the SE Brunch ESA meetings.

**Debbie Matthews Lott** presented at the Meeting of the Lepidopterists Society in Mississippi, where **Tom Emmel** also gave a talk on Diversity of Butterflies of Madagascar, and where **Charlie Covell** spoke on 30 years of butterfly counts in Kentucky. Charlie also addressed the annual meeting of Kentucky Academy of Science.

**Keith Willmott** was a conference instigator, co-organizer and presenter at the presentation First International Conference on Andean Butterflies in Cuzco, Peru. He also conducted a workshop following the conference ([www.mariposasandinas.org](http://www.mariposasandinas.org), [www.andeanbutterflies.org](http://www.andeanbutterflies.org)) Keith also has a new research project on Molecular Phylogeny of *Adelpha*, in collaboration with Sean Mullen, Lehigh University, who visited the Center in March. Keith also taught the Insect Biogeography course at the Entomology and Nematology Department.

The McGuire Center staff conducted many public presentations, including **Charlie Covell's** three presentations at nurseries, butterfly festivals, and national butterfly association meetings entitled "The Wonderful World of Butterflies and Moths." **Jackie Miller** organized public displays during Darwin's Day at the Florida Museum. **Andrei Sourakov** gave a *Science Sunday* lecture at the Museum on reproduction in Lepidoptera.

The UF Honors course **Lepidoptera Biology** was taught once again at the McGuire Center, with **James Nation** as main instructor and with participation of several of the McGuire Center's staff as guest lecturers.

## STUDENT RESEARCH

**Emily Saarinen** defended her Ph. D. dissertation "Population genetics of the endangered Miami blue butterfly (*Cyclargus thomasi bethunebakeri*): implications for conservation."

**Fernanda Checa**, a new graduate student working with Keith Willmott, is conducting the projects on temporal and spatial patterns of butterfly communities in Ecuador. Fernanda presented a poster in the Tenth Student Conference



**Neil Rosser** visited the McGuire Center for 3 months from the University College London, where he is working on his Ph.D. under supervision of James Mallet. Neil works on *Heliconius*, and while studying and databasing the McGuire collections, he also curated it, providing valuable service to the museum. He plans to return to the Center next year.

on Conservation Science in University of Cambridge, UK.

Another new graduate student of Keith Willmott, **Pablo Sebastián Padrón**, is conducting research on systematics and biogeography of high altitude Neotropical satyrine butterflies.

**Delano Lewis** Presented his MS thesis work on systematics of *Cylopoda* inchworm moths at the Forum Herbulot in Munich, Germany.

**Valerie McManus** conducted a research project entitled "Caterpillars at the beach! Biology of *Brephidium pseudofoea* and physiological adaptations of larvae to tidal inundation" for her M. S. thesis, and presented it at the Entomological Society of America meeting.

**Jennifer Zaspel** graduated in the Fall 2008 with a Ph.D. in Entomology (her dissertation was on fruit-piercing and blood-feeding moths). She since accepted a post-doctoral position at the University of Minnesota.

**Oren Sharabi** of East Side High School, Gainesville, conducted a research project at the Butterfly Rainforest this summer, which resulted in a term paper entitled "Relative Importance of Vision and Olfactory Senses of Butterflies When Seeking Food." He was advised by Andrei Sourakov.

**Matthew Trager**, a Ph.D. candidate advised by Dr. Jaret Daniels, studies the mutualistic relationships between ants and lycaenid butterflies. He presented some of his work at the 2008 Entomological Society of America meeting.

**Montana Atwater** is working with George Austin and Andy Warren, examining phenotypic variation in the skipper, *Atalopedes campestris*.

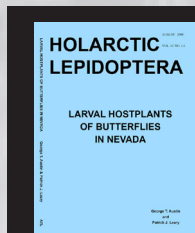


Fernanda Checa, a new McGuire Center Ph.D. student, working on Ecuadorian butterflies



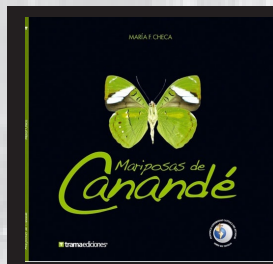
# Recent Publications (2008-2009)

- Austin, G. T.** 2008. Hesperidae of Rondônia, Brazil: comments on *Propertius* Evans, with description of a new species (Lepidoptera: Hesperidae: Hesperinae). *Bulletin of the Allyn Museum*, 154:1-11.
- Austin, G. T.** 2008. Hesperidae of Rondônia, Brazil: a new genus and species of Pyrginae. *Journal of the Lepidopterists' Society*, 62:36-39.
- Austin, G. T.** 2008. Hesperidae of Rondônia, Brazil: a new genus and species of Carcharodini (Pyrginae). *Bulletin of the Allyn Museum*, 158:1-7.
- Austin, G. T.** 2008. Riodinidae of Rondônia, Brazil: *Calephelis*, with descriptions of new species (Lepidoptera: Riodinidae). *Tropical Lepidoptera Research*, 18:116-126.
- Austin, G. T. and A. D. Warren.** 2008. An aberrant *Urbanus telex* (Hübner, 1821) (Hesperidae: Eudaminae). *News of the Lepidopterists' Soc.*, 50:40-41.
- Austin, G. T. and O. H. H. Mielke.** 2008. Hesperidae of Rondônia, Brazil: *Porphyrogenes* Watson (Lepidoptera: Pyrginae: Eudamini), with descriptions of new species from Central and South America. *Insecta Mundi*, 44:1-56.



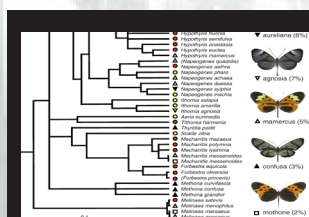
- Austin, G. T. and P. J. Leary.** 2008. Larval hostplants of butterflies in Nevada. *Holarctic Lepidoptera*, 12:1-134 (14 plates).

- Austin, G. T., A. D. Warren and O. H. H. Mielke.** 2008. Variation of *Copaodes minima* (W. H. Edwards, 1870) and the status of *Copaodes rayata* Barnes and McDunnough, 1913 (Lepidoptera: Hesperidae: Hesperinae). *Florida Entomologist*, 91(4):636-642.
- Austin, G. T., B. M. Boyd and D. D. Murphy.** 2008. *Euphilotes ancilla* (Lycaenidae) in the Spring Mountains, Nevada: more than one species? *Journal of the Lepidopterists' Society*, 62:148-160.



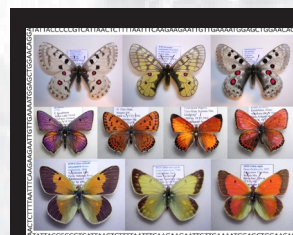
- Checa M. F. V.** 2008. Mariposas de Canandé: sus amenazas, potencial y futuro. TRAMA (Quito). 72 pp.

- Covell, Charles V. Jr. and Loran D. Gibson.** 2009. More new moth records (Lepidoptera) from Kentucky. *Journal of the Kentucky Academy of Science*, 69(2): 102-105.
- Daniels, J.C.** 2008. "Florida Butterfly Encounters." IFAS Communication Services. [Represents a series of 4 booklets: 50 Common Butterflies of Florida (55 pp.); Butterfly Watching Basics (20 pp.); Florida Butterfly Gardening (16 pp.); and Checklist of Florida Butterflies (20 pp.)]
- Daniels, J.C.** 2008. "The amazing life of butterflies." *Florida Wildlife*, July/August: 35-38.
- Daniels, J.C.** 2009. Cooperative conservation efforts to help recover an endangered south Florida butterfly. *Insect Conservation and Diversity*, 2: 62-64.
- Daniels, J.C., E. Rodriguez, and J. C. Whelan.** 2008. The biology and immature stages of *Panacea procilla lysimache* (Lepidoptera: Nymphalidae) from Costa Rica, with the report of a new locality record. *Tropical Lepidoptera Research*, 18(2): 80-83.
- Daniels, J.C., J. Schaefer, C. N. Huegel, and F. J. Mazzotti.** 2008. Butterfly gardening in Florida. Publication #WEC 22 (25 pp.) [EDIS Publication]
- DeVries, P. J., G. T. Austin and N. M. Martin.** 2008. Diel activity and reproductive isolation in a diverse assemblage of Neotropical skippers (Lepidoptera: Hesperidae). *Biological Journal of the Linnean Society*, 94:723-736.



- Elias, M., Z. Gompert, C. Jiggins, K. R. Willmott.** 2009. Mutualistic interactions drive ecological niche convergence in a diverse butterfly community. *PLoS Biology*, 6(12): 2642-2649.

- Emmel, J. F., T. C. Emmel, and K. Davenport.** 2008. A new subspecies of *Cercyonis pegala* Fabricius (Lepidoptera: Satyridae) from the southern Sierra Nevada of California. *Bulletin of the Allyn Museum*, 157: 1-5.
- Emmel, J. F., T. C. Emmel, and S. O. Mattoon.** 2008. An extraordinary new subspecies of *Anthocharis sara* (Lepidoptera: Pieridae) from Redwoods National Park, northern California. *Bulletin of the Allyn Museum*, 155: 1-6.
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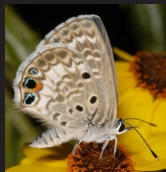
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**Willmott, K. R. and F. Vitale**. 2009. Taxonomic notes on *Napeogenes* (Lepidoptera: Ithomiinae) from Ecuador and Colombia, with the description of ten new subspecies. *Genus*, 19(3): 585-609 (October).

## Lime Swallowtail heading for Florida

"Two strange looking black-and-white butterflies found themselves swept up in nets one warm morning in March this year in the eastern Dominican Republic, far from chilly Cambridge. Dominican entomologist Kelvin Guerrero acted quickly, e-mailing digital photos of the butterflies to colleague Andrei Sourakov in Florida. Within hours of the butterflies' capture, a reply was received by cell phone: a snap identification of these specimens as lime swallowtails. That first cell phone call to Guerrero rang in a gas station parking lot as we all waited while the field vehicles fueled up for the day's foray into the National Park, Parque del Este. Excited conversation led to formulation of the first report (to be published in the *American Entomologist* December 2004 issue)."

From *ReVista* (Harvard Review of Latin America – Winter 2005)



Jackie Miller later observed *P. demoleus* on N. Andros island and reported it to USDA in 2006.

In the Summer of 2008 (August), *Delano Lewis* conducted field work in Jamaica. He was investigating the impact that the recently arrived invasive Lime Swallowtail butterfly, *Papilio demoleus*, has had on the citrus industry there. This was being conducted as preliminary studies to further fine-tune his PhD project design. He also secured DNA material from Jamaican *P. demoleus* for genetic analysis. Since the introduction of this citrus pest to the island in 2006, it has spread across the island. This invasive butterfly first showed up in the Dominican Republic in 2004 and then reached Puerto Rico and Jamaica. It is a Southeast Asian butterfly known to be a significant pest of citrus there, and its possible arrival to Florida makes this butterfly an important object of research.

Learn more at: [http://edis.ifas.ufl.edu/document\\_in786](http://edis.ifas.ufl.edu/document_in786)

## Miami Blue in Key West

The McGuire Center is working with the Butterfly Conservation Initiative, Florida Fish & Wildlife Conservation Commission and U.S. Fish and Wildlife Service to survey identified sites within the Key West National Wildlife Refuge reported to have populations of the imperiled Miami blue butterfly (*Cyclargus thomasi bethunebakeri*). Results from the field research are intended to help verify the presence of the butterfly, provide information on the abundance and stability of existing populations, enhance our understanding of the butterfly's general ecology, habitat characteristics, phenology and conservation genetics.

Learn more at <http://www.butterflyrecovery.org>



Jaret Daniels and his crew working at the coastal habitat of the Florida Keys.





# Exploring Mexico for Lepidoptera

During his second year at the McGuire Center as a postdoc, **Andy Warren** conducted fieldwork in a number of regions in central and southern Mexico. Some of these trips were made jointly with members of the Zoology Museum of the Universidad Nacional Autónoma de México, as a part of long-term faunistic survey. Zoology Museum currently is running two extended expeditions to the state of Oaxaca. Andy made other trips on his own in search of specific butterfly taxa, usually HesperIIDae.

As a result, a number of undescribed species of HesperIIDae were collected in Oaxaca, Queretaro, Mexico State, and Tlaxcala, some of which were previously known and were being sought, while others were complete surprises. While its original description was already submitted for publication in a scientific journal in 2008, immature stages of a new species, *Celotes spurcus*, were encountered, and details of its complete life history were obtained.

Andy also conducted studies on a rare species, *Speyeria nokomis melanea*, in the state of Aguascalientes. This taxon, formerly known only from its (subsequently destroyed) holotype specimen, was rediscovered near its type locality. In addition Andy worked at the Estación Biológica Agua Zarca in the foothills of the Sierra Fria of Aguascalientes State, in conjunction with researchers from the Universidad Autónoma de Aguascalientes. This locality promises to be a great site for future research.

Living in Mexico City intermittently provided Andy the opportunity to study the butterfly fauna of Distrito Federal, throughout the seasons. A surprising diversity of Lepidoptera exists in and around the city, including a number of poorly known (and even undescribed) skipper species. Some butterflies, like *Papilio multicaudata*, are essentially a daily sight, throughout the year.



Andy Warren (left) with station director, Jaime Escoto, at the entrance of the Azua Zarca Biological Station.



Andy Warren (left) and Claudia Hernández-Mejía (right) head up the hill east of San Martín Tuchiuitlapilco, Mexico State, Mexico, on 14 June, 2008. This site combines oak forests (composed of many *Quercus* species) with short-grass prairie (dominated by *Bouteloua*) at 2700-2900 m elevation, to make for a unique and diverse skipper fauna. Several skippers endemic to central Mexico are found here.



*Mimoides thymbraeus aconophos*, Oaxaca, Mexico.



Juniper habitat on hill west of Tecomaluçan and Atotonilco, northern Tlaxcala, Mexico, 20 February 2009. This habitat hosts a number of skippers that are endemic to central Mexico, including at least one undescribed species.



*Eurytides e. epidaus*, Oaxaca, Mexico

## Recent Seminars at the McGuire Center

### Fall 2008

- Sept. 9:** Student and staff reports: "What I did last summer." Short talks by Jackie Miller, Emily Saarinen, Delano Lewis, Keith Wilmott and Debbie Lott
- Sept. 23:** Dr. Krushnamegh Kunte, Harvard University: "The ecology and evolution of sex-limited mimicry."
- Oct. 7:** Dr. Jackie Miller: "Some significant collections in the Allyn Museum collection."
- Oct. 21:** Dr. Stephen Reppert: "Navigation strategies of migrating monarch butterflies."
- Nov. 4:** Dr. John Heppner: "Images of Taiwan Lepidoptera"
- Nov. 18:** Dr. Man-Yeon Choi, USDA: "Chemical communication of Insects: Sex pheromones and biosynthesis in moths"

### Spring 2009

- Jan. 6:** Dr. Antonia Monteiro, Dept. of Ecology and Evolutionary Biology, Yale University: "Why do butterflies have "eyes" on their wings?"



Dr. Antonia Monteiro

- Jan. 27:** Dr. Charles V. Covell Jr., McGuire Center: "The Oldham County, KY, July 4<sup>th</sup> Butterfly counts, 1976 – 2007: Results, population trends, and the human side."
- 3 Feb.:** Dr. James Nation, Department of Entomology, UF: History Channel film "Charles Darwin - Evolution's Voice" (presented to celebrate the bicentennial of Darwin's birth).
- Feb. 17:** Dr. Thomas C. Emmel and Court Whelan: "The butterfly fauna of Madagascar: Biodiversity, Endemism and Habitats."
- Feb. 19:** Jack Cox: "Survey results and plans for crocodile recovery and livelihood improvement in Savannakhet Province, Lao PDR"
- Feb. 24:** Dr. Jeffrey Marcus, Western Ky. University: "Phylogenomics on the wings of butterflies."
- Mar. 17:** Fernanda Checa: "Butterflies from the Ecuadorian Choco: Will they survive?"
- Mar. 24:** Dr. Keith Wilmott, McGuire Center: "Assessing and increasing the scientific value of our Lepidoptera collections."
- Apr. 7:** Dr. Lincoln Brower, Sweetbriar College: "Coevolutionary interactions among monarch butterflies, milkweeds and birds."
- Apr. 8:** Dr. J. Mark Scriber, Michigan State University: "Ecological origins and evolutionary status of a putative recombinant hybrid species: the mountain swallowtail, *Papilio appalachiensis*."
- Apr. 9:** Kim Garwood, Mission, Texas: "Images of Butterflies of Southern Amazonia (Rondonia and Mato Grosso)."
- Apr. 21:** Dr. Rob Meagher, ARS, USDA: "Migration of a Noctuid Pest: The Fall Armyworm Story."



## Research Highlight: Co-evolution caused by predation

Competition for resources can cause animal species in an ecological community to evolve away from each other, becoming less similar, but sometimes mutual benefit causes just the opposite. A study published by the *PLoS Biology* co-authored by McGuire Center's assistant curator **Keith Willmott**, shows that groups of butterfly species in the subfamily Ithomiinae evolved to share not only color patterns, but also preferences for habitat, including the places they fly, court and rest. Both factors probably reduce the risk of being eaten. For example, if four bad-tasting butterfly species live in one area but they all look different, then theoretically every local insect-eating bird will have to kill an individual from each species before realizing that all four taste bad. If, instead, the butterflies have evolved to share a common wing pattern, each bird may only need to eat a single individual before learning to avoid all four species, thus reducing the likelihood of attack for all individuals. By sharing the same habitat, the butterflies improve their chances of educating predators quickly, because predators tend to forage in specific habitats. The researchers studied a diverse community of ithomiine butterflies in lowland Ecuadorian rainforest, recording the insects' habitat use and behavior. The study broke new ground by using genetic analysis to show that the similarities in appearance and behavior were not just due to common ancestry. Instead, natural selection has driven unrelated species to converge in both their wing patterns and the places that they favor—shady areas or sunny, valleys or ridges, treetops or the forest floor.

More at [http://emr.ifas.ufl.edu/inside\\_ifas/2008/2008\\_93.html](http://emr.ifas.ufl.edu/inside_ifas/2008/2008_93.html)

Photo: Cloud forest at El Limo, Loja.



## Long-term monitoring for butterflies in the Bahamas

**Jackie and Lee Miller** began monitoring the lepidopteran fauna in the Bahamas annually in 1980 and have described seven new taxa and discovered six new records. Within the last five years, they have observed a pronounced delay in the onset of summer rains and a major decrease in available precipitation. There have been some changes in the representative species present on different islands, and they have made observations on how the butterflies have adapted. Despite Lee's departure, in the future, Jackie plans to continue the project. She will revisit a few islands to recheck the current status of certain butterfly species, and then plans to publish a major work on the butterfly fauna of the Bahamas.

There are some interesting distributional patterns for Bahamian butterflies. More than 60 species (N. Andros) have been recorded for the Bahamas with a current total of more than 238 species (563 taxa) in the entire West Indies. As indicated above, there are a number of endemic butterfly species that are shared only with

Cuba, such as the very distinct swallowtail, *Battus devilliers* and the only riordinid in the West Indies, *Dianesia carteri*, with the nominate species in the Bahamas and *D. c. ramsdeni* in eastern Cuba. The skipper, *Burca concolor* is also shared between Cuba and the Bahamas with *B. c. atrata* in the Bahamas.

Other butterflies are more widespread throughout South Florida, Bahamas, and the Greater Antilles. Nominate *Heraclides aristodemus*, originally described from Puerto Rico, has several subspecies present in the northern Caribbean with two (*majasi* and *bjorndalae*) occurring in the Bahamas, *temenes* in Cuba and Little Cayman Island, and *ponceanus* in south Florida. Similarly the hairstreak, *Electrostrymon angelia*, a species

that uses various members of the Anacardiaceae as the larval hostplant, ranges widely in the Bahamas, the Greater Antilles, and the Virgin Islands, with four subspecies recognized. Discovered in south Florida, this species has now extended its range northward to the Crystal River in Central Florida. *Battus polydamus lucayus* is present in the northern Bahamas and south Florida but curiously absent in the southern Bahamas. However, the pierid, *Eurema chamberlaini*, is endemic only to the Bahamas with four subspecies (*chamberlaini*, *clenchi*, *mariguanae*, *inaguae*) currently recognized yet is absent from N. Andros.

Butterfly species distributed on the southern islands (Inaguas, Crooked and Acklins) do not appear to be as strongly influenced by Hispaniolan fauna as opposed to Cuba.



*Battus devilliers*

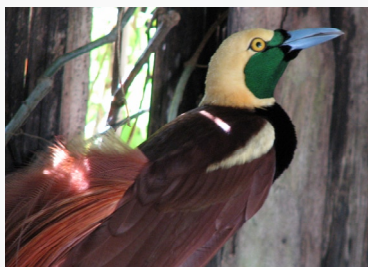


*Dianesia carteri*



# Expedition Travel

**Trips led by faculty, staff, and students of the McGuire Center**



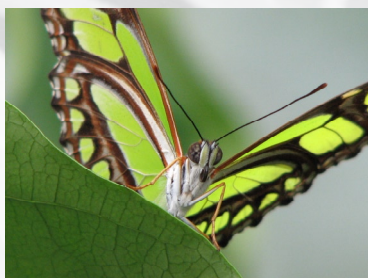
## **Papua New Guinea: July 24<sup>th</sup> - Aug 6<sup>th</sup>, 2009**

Travel to a world that combines biological and cultural diversity in a way few can even imagine. Bird-wing butterflies, Birds-of-Paradise, remote villages, exotic native tribes, and world renowned jungle lodges await the group as we delve into the deep interior of this amazing island nation.



## **Panama: May 23<sup>rd</sup> - June 5<sup>th</sup>, 2009**

This continental corridor boasts an extraordinary biological diversity, and the Lepidoptera are certainly no exception. With iridescent species of morpho butterflies, not to mention other nymphalids, brilliant metalmarks, and satyrids found in areas we visit, the schedule of this trip to Panama is ideal for Lepidopterists and other entomologists.



## **Costa Rica: Sept 13<sup>th</sup> - 19<sup>th</sup>, 2009**

Explore the pristine tropical jungles surrounding the volcano "Rincon de la Vieja" in the northwestern Guanacaste province of Costa Rica. With spectacular butterfly and moth diversity, Lepidopterists and wildlife enthusiasts alike will find this expedition offering a unique look into the lesser-known areas of Costa Rica.



## **Madagascar: Oct 24<sup>th</sup> - Nov 8<sup>th</sup>, 2009**

This biological treasure chest is a must for anyone that is searching for a new and exciting destination that is incomparable to anywhere else in the world. With 80% of its flora and fauna found nowhere else on the planet, you will get chances to observe, learn about and photograph a tremendous number of plants and animals, including lemurs, chameleons, baobab trees, colorful frogs and rare species of butterflies, moths, beetles, and other insects.



## **Mexico: The Overwintering Monarch Butterflies**

**Jan 15<sup>th</sup> - 19<sup>th</sup> or Feb 26<sup>th</sup> - Mar 2<sup>nd</sup>, 2010**

Join Dr. Thomas Emmel, Director of the McGuire Center, on a trip to see hundreds of millions of Monarchs in their overwintering grounds in Mexico. Perched on trees, flying through the air and covering the forest floor, the Monarchs will be all around you, making for an experience you will never forget. Learn the full story of the Monarch as Dr. Thomas C. Emmel leads evening discussions and lectures.

For questions about the trips or how to register, contact Court Whelan, General Manager of Expedition Travel  
352-871-2710, [ExpeditionTravel@gmail.com](mailto:ExpeditionTravel@gmail.com)



## Collections and Acquisitions

As usual, this year we received a large number of new material (43 accession numbers, reflect equal number of separate donations from several specimens to hundreds of thousands). Packing and shipping collections, accessioning new specimens are among the main tasks that McGuire Center's collection managers, technicians and volunteers perform. Curation of specimens from these new incoming collections into the main collection is the task that curators face. In this task, the assistance of students, vol-

unteers, as well as visiting specialists is invaluable.



Robert Hollister visiting the McGuire Center, where his family donated his Lepidoptera collection.



The Gulf Fritillary that migrates up and down the east coast was the truck design of choice when McGuire staff recently transported a Lepidoptera collection from Maryland.

### Recent Donors of Specimens

Anderson E.	Finkelstein I.	Preston F.&J.
Anderson R.	Flowers W.	San Diego Natural
Atkins A.	Hansen J.	History Museum
Austin G.	Heppner J.	Simon M.
Bell L.	Hollister L.	Sladek G.
Boscoe R.	Irving Ranch	Sourakov A.
Buden D.	Conservancy	Stange L.
Cave R.	Klein T.	Steinhauser J.
Chiba H.	Launer A.	Sullivan B.
Covell C.	Leuschner R.	The International
Degrove M.	Lindsley D.	Lepidoptera Survey
Denno B.	McGuire W.	University of
Douglas B.	Mielke C.	California, Davis
Eiler D.	Miller J.	(Bohart Museum)
Eisele R.	Miller R.	Warren A.
Eliazar P.	Milner P.	Whelan C.
Emmel J.	Pfenninger S.	Willmott K.
Emmel T.	Platt A.	Woodruff R.A.

### Recognizing our volunteers

Volunteers (mostly, but not exclusively from the ranks of UF students) make tremendous contribution to research at the McGuire Center: **Jane Blanchard**: curated Neotropical Pieridae; **Stéphanie Borios**: databased specimen records for Dismorphiina; **Jenny Carr**: databased specimen records for Neotropical Pieridae and curated Ithomiinae; **Morgan Edwards**: conducted ecological niche-modelling of Andean butterflies; **Lauren Johnston**: curated and databased Neotropical Papilionidae; **Judi Muscle**: databased Ecuadorian butterflies; **Julia Robinson Willmott**: worked on molecular systematics of *Dismorphia*; **Ian Segebarth**: databased Ecuadorian butterflies, prepared images for butterflies of Ecuador series; **Jackie Tseng**: curated Neotropical Papilionidae; **Ellen Walker**: databased specimen records for Neotropical Pieridae; **Lei Xiao**: molecular systematics of Ecuadorian Euptychiina; **Nina Zagvazdina**: curated *Actinote*; **Michael McCowan**: curated Papua-New Guinea moths; **Jillian Krickovich**, **Pajaree Thongpravati**, **Stephanie Norman**, **Lei Xiao**, and **Fabiola Martinez**: assisted in tissue sampling for DNA research; **Angelica Ramirez**, **Oren Sharabi**, **Andrew Lounsbury**, **Kathleen Ellerie**, **Pat Bowen**, **Hava Stephens**, **Larry Reeves**, **Chase Mason**, and **Alexandra Sourakov**: accessioned and prepared specimens; **Elke Weibelzahl**, **Stéphanie Borios**, and **Julietta Brambila**, as well as many of McGuire Center students helped during the ButterflyFest, **Dale and Phyllis Habeck**: worked on moths and immatures; **Bob Eisele**: worked on Argentinian butterflies, **Bill Berberth** and **Mark Simon**: curated Nymphalid butterflies, **David Auth**: curated moths.

Thanks!!!



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