



McGuire Center

Florida Museum of Natural History

April, 2010

Issue 4



News

Graduate Student Research at the McGuire Center

There are currently thirteen graduate students who are affiliated with the McGuire Center and whose academic advisors work here. Without these students' work as research and teaching assistants and their good humor, the McGuire Center would be a very different place. We have decided to dedicate the pages of this issue to this diverse group of students, joining us from locations as far as Jamaica, Ecuador, Colombia, Kentucky, Arizona, and Florida.

From the editor:

Following last year's issue devoted to field work by the staff, the current issue focuses on graduate students. Their professional development is an essential part of the future of Lepidoptera conservation and exploration.

2009-2010 has been an exciting year for us, with some major collections, grants, and awards received by the center. Also, new faculty and staff came aboard. It was also a sad year, since we lost one of our colleagues.

Graduate Student Profiles

Delano S. Lewis

Academic advisor: Dr. Thomas Emmel

Delano S. Lewis came to the University of Florida from Jamaica in 2004 after meeting McGuire Center Director, Dr. Thomas C. Emmel. The current focus of his research is the taxonomy and systematics of Neotropical swallowtail butterflies.

For his Master's work, Delano looked into the day-flying colorful geometrid moths of the genus *Cyllopoda*. He recently published his M.S. thesis alongside Dr. Charles Covell (his M.S. advisor) and is currently pursuing his Ph.D. Lewis is concentrating on the phylogeny and revision of the genus *Heraclides*: a group of Neotropical citrus-feeding swallowtails. "This work," he says, "seeks to comprehensively assess the known information about this economically important group of butterflies, and investigate the relationships between them. Apart from relatively few members of this butterfly group, little is known of the biology and habits of the majority of these species."

The significance of Lewis's work has much to do with the recent introduction of an Asian Citrus-feeding lime swallowtail to the West Indies, and its spread throughout the Caribbean. "It becomes crucial to understand the effect this butterfly will have on the ecology of native fauna," explains Lewis, who thinks that the lime swallowtail will eventually reach Florida.



Delano Lewis working in the collection at the McGuire Center. His research is on the genus *Heraclides* -- the group of citrus-feeding swallowtail butterflies.



UF McGuire Center for Lepidoptera and Biodiversity

University of Florida
Florida Museum of Natural History
P.O. Box 112710
Gainesville, FL 32611
for general information
phone (352) 392-5894
e-mail: celiazar@flmnh.ufl.edu

McGuire Center News

ISSN # 1938-3029

Editorial Board:

Christine M. Eliazar
Thomas C. Emmel
Andrei Sourakov
Jaret C. Daniels
Jacqueline Y. Miller
Chad T. Douglas

Editor/designer:

Andrei Sourakov
contact: asourakov@flmnh.ufl.edu

Photography:

Andrei Sourakov	Jaret Daniels
Jennifer Duerden	Matthew Trager
Bob Patterson	Matthew Thom
Jessica Johnson	Eric Haley
Keith Willmott	Sebastián Padrón
Deborah Matthews	Geoff Gallice
Court Whelan	Colleen Heath

McGuire Center Staff

Atwater, Montana: Graduate Asst.
Barszczak, Lukasz: Tech. Research Asst.
Bliss, Andrew: Tech. Research Asst.
Checa, Maria Fernanda: Graduate Asst.
Covell, Charles, Ph.D.: Visiting Scientist & Curator
Daniels, Jaret, Ph.D.: Asst. Prof. & Asst. Curator
Douglas, Chad: Editorial Asst.
Eliazar, Christine: Administrative Asst.
Emmel, Thomas, Ph.D.: Center Director
Encabo, Galileo: Tech. Research Asst.
Gallice, Geoff: Graduate Asst.
Heppner, John, Ph.D.: Curator
Lane, Katrina: Tech. Research Asst.
Lehnert, Matthew: Graduate Asst.
Lewis, Delano: Graduate Asst.
Lukhtanov, Vladimir, Ph.D.: Visiting Scientist
Matthews Lott, Deborah, Ph.D.: Research Associate
Maxwell, Megan: Tech. Research Asst.
Miller, Jacqueline, Ph.D.: Curator & Adjunct Prof.
Ortiz, Elena: Graduate Asst.
Padrón Pablo Sebastián: Graduate Asst.
Park, K.T., Ph.D.: Visiting Scientist & Curator
Paris, Thomson: Grad. Research Asst.
Pence, Akers, Ph.D.: Research Associate
Salcedo, Christian: Graduate Asst.
Sanchez, Stephanie: BFCI Program Coordinator
Saunders, Jonathan: Graduate Asst.
Schlachta, James: Constr. Coord. & Asst. Director
Segebarth, Ian: Tech. Research Asst.
Segebarth, Craig: Tech. Research Asst.
Standridge, Matthew: Tech. Research Asst.
Sourakov, Andrei, Ph.D.: Collections Coordinator
Thom, Matthew: Graduate Asst.
Warren, Andrew, Ph.D.: Collection Manager
Whelan, John Court: Graduate Asst.
Willmott, Keith, Ph.D.: Asst. Curator
Wright, Natasha: Tech. Research Asst.
Xiao, Lei, Ph.D.: Research Associate
Zagvazdina, Nina: Tech. Research Asst.

Graduate Student Profiles continued from p.1

Maria Fernanda Checa

Academic advisor: Dr. Keith Willmott

Maria Checa is a research assistant with the "Butterflies of Ecuador" project, headed by Keith Willmott. Her general interests are focused in determining population trends in abundance and diversity of butterfly communities in highly threatened and diverse habitats, such as wet and dry forests of western Ecuador and Amazonia.

According to Checa, the data derived from her studies and "Butterflies of Ecuador" could potentially fill some important gaps in our knowledge of tropical Andean butterflies -- the most diverse fauna worldwide -- helping to preserve them. Such data will be used to determine the IUCN conservation categories of butterflies, predict impacts of global climate change on butterfly populations, and address other important issues.

Currently, Checa is carrying out her Master's thesis: "Temporal and spatial patterns of diversity and abundance in butterfly communities attracted to baits: a study case in an Ecuadorian dry forest." Very few ecological studies of insects have been done in tropical dry forests, a habitat characterized by high levels of endemism and facing tremendous risks of extinction. "The goal of this study," says Checa, "is to provide a better understanding of how seasonal climatic changes affect the

structure and composition of butterfly communities, and how microhabitat alters this relationship."

In addition to her primary work, Checa is researching the relationship between several vegetation variables and butterfly diversity in order to predict the impacts of habitat alteration.



Maria Fernanda Checa surveying a butterfly bait trap in Ecuador.

Matthew Lehnert

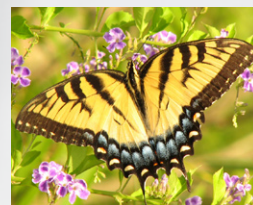
Academic advisor: Dr. Thomas Emmel

Matthew Lehnert is currently a Ph.D. candidate at the Entomology and Nematology Department. When he first came to UF, he worked with the Homerus Swallowtail, *Papilio homerus*, in the Cockpit Country of Jamaica. The focus of this M.S. research was to estimate the size of an under-studied population of this endangered butterfly. "For my Ph.D.," explains Lehnert, "I am currently working with the Eastern Tiger Swallowtail, *Papilio glaucus*. I am trying to determine if two subspecies of tiger swallowtail potentially hybridize in the Northern-Florida Suture Zone (an area where multiple hybrid zones overlap one another)." He has sampled Tiger Swallowtails from Tennessee, Alabama, Mississippi, Georgia, and throughout Florida to compare morphological (morphometrics and color), ecological (oviposition preference, larval survivability) and genetic (microsatellite) characters within and between populations.

According to Lehnert, the southern subspecies has been relatively unstudied,

and this is the first in-depth investigation into its evolutionary biology. In addition, there have been no previously published papers suggesting that these subspecies' population biology may correlate to the formation of the suture zone, which was formed due to changing sea levels during the Pleistocene. When sea levels receded, the populations came into secondary contact, forming hybrid zones. "I have applied a new method in my work to accurately quantify color of butterfly wings," says Lehnert, "and the current research should yield multiple publications that will provide detailed insight of these unique populations in the southeastern US."

Matthew Lehnert, who is planning on graduating this semester, has already published two papers regarding the endangered Homerus Swallowtail. He won the University of Florida Graduate Student Teaching award this year, and ultimately hopes to become a professor.



Eastern Tiger Swallowtail.

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; **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@flmnh.ufl.edu

Valerie C. McManus

Academic advisor: Dr. Jaret Daniels

Valerie McManus graduated from the University of Florida in August 2009, with her Master's Degree of Science.

Valerie's thesis was on the eastern pygmy blue butterfly (*Brephidium pseudofea*) -- a small butterfly (only reaching 8 to 10 mm) that inhabits salt marshes that are periodically inundated by high tides. This hostile environment poses serious challenges for the eggs, caterpillars and pupae of this butterfly, including tidal inundation that might block breathing and creates stress due to salt exposure.

Valerie's studies suggested that the eastern pygmy blue caterpillars were able to survive for long periods of time submerged under salt water, and therefore must have means to respire underwater. Morphological and physiological characteristics, found through McManus's research, suggested strategies of how caterpillars are able to do this.

In August, McManus's career course changed. She completed an internship in the Keys at a marine mammal facility working with dolphins and sea lions. Currently, she is completing an internship at the Miami Seaquarium, working with dolphins and orcas. She hopes to be a dolphin trainer after her internship ends this August.

Visiting Scientists

The McGuire Center receives many visiting scientists. This year, Dr. Jorge Llorente and his wife Jimena Castro (photo on the right) visited from the Museo de Zoología, U.N.A.M., Mexico, and worked for three months in the collections, studying dismorphiine butterflies. While at the Center, they were hosted by Jackie Miller. Also, Dr. Vladimir Lukhtanov visited from the Zoological Institute, St. Petersburg, Russia. He spent one month at the Center curating lycaenid butterflies as part of the NSF-funded project. He was hosted by Andrei Sourakov.



Graduate Student Profiles continued from p.1, 2

Elena Ortíz

Academic advisor: Dr. Keith Willmott

"I am working on the molecular systematics of the butterfly tribe Preponini," says Elena Ortíz. "These colorful butterflies are found only in the neotropics where the highest species-richness occurs in the Amazon basin. Preponine butterflies fly high in the forest canopy and are only seen when they descend to feed on decaying organic matter."



Elena Ortíz in the McGuire collections and (left) one of the subjects of her research, *Agrias narcissus*.

The tribe Preponini has been the subject of much taxonomic research, but more insight into their phylogenetic relationships is needed in order to examine topics such as the origins of bright wing coloration (likely involved in sexual signaling and mimicry) and their global conservation status (currently unknown despite the fact that they are highly sought by collectors).

"My research goals are to clarify the group's taxonomy and hopefully facilitate future conservation studies on the group," Ortíz adds. "I plan to produce the first species-level molecular phylogeny for Preponini, and, using molecular sequence data, unravel certain species complexes and reveal the true potential diversity of the group."

Sebastián Padrón

Academic advisor: Dr. Keith Willmott

Last summer and over Christmas, Sebastián Padrón traveled to Ecuador and spent many days in the field collecting butterflies for his thesis.

The Neotropics are known for their high butterfly diversity, but despite this fact, there remain many genera that have been historically poorly studied. *Atopedaliodes* and *Neopedaliodes* are two Neotropical genera belonging to the subtribe Pronophilina, which fly at the highest altitudes in the Andes. Because these taxa occur in isolated places in high mountains, they are difficult to catch and they are thus poorly represented in most collections. Padrón has three main goals. First is generic revision: according to him, "*Atopedaliodes* has never been thoroughly revised, and molecular sequence data have never been used to assist in the species-level classification of any pronophiline genus." Sebastián therefore intends to use morphological and genetic characters to revise the taxonomy of both genera.

Second, Padrón intends to focus on generic phylogeny. Since there are very

few published evolutionary studies at the species-level of any pronophiline genera to date, he reasons that such studies are needed to clarify the generic classification and species limits. They can also be useful in biogeographic studies. The third objective of Sebastián's research is conservation of the species that he works with. "These two genera inhabit the very narrow ecotone between the high elevation forests and paramo grassland. In addition, a number of species are known from very restricted ranges, some from only a single site," he says. "They therefore have small global distributions, which are likely to be significantly affected by future climate change."



Sebastián Padrón in Ecuador.



The 4th annual ButterflyFest, held October 24th-25th, 2009, was again a great success. The event attracted over 5,500 visitors and generated around \$24,000 in needed museum sales for the weekend. The collective power of faculty and staff from Powell Hall, Dickinson Hall, and the McGuire Center for Lepidoptera facilitated the event with excellent opportunities for fun and learning.

One of the event highlights was keynote speaker and well-known wildlife research biologist Thomas J. Allen. Tom joined Jaret Daniels during the Friday ButterflyFest Field Trip and then shared his experience and knowledge on butterflies, pollinators and gardening with visitors during his Saturday and Sunday presentations.

There was also a wonderful lineup of Florida Museum staff speaking on topics

ranging from butterflies and bees to pollination and gardening. Workshops, behind-the-scenes tours, field trips and activities provided something for everyone, taking the public on a wonderful adventure into the world of pollinators and Florida wildlife. With such a great program last year, next year's festival is sure to impress, especially with the addition of the ButterflyFest Garden Contest.



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 23-24, 2010

Visit:

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



Christian Salcedo

Academic advisor: Dr. Thomas C. Emmel



Christian Salcedo watches butterflies at the Gamboa field station, Smithsonian Tropical Research Institute, Panama.

Christian Salcedo joined the McGuire Center community through Dr. Thomas C. Emmel, who began his application process when Salcedo was still living in his home country, Colombia. Now, as part of his research assistant duties, Christian helps with the curation of

Heliconius butterflies, which are the subject of his research. “I study a group of butterflies that is very diverse and widespread in the tropics, so, in the broad sense, understanding the mechanisms that originated and sustain groups like this is very important,” Salcedo says. He specifically studies the roosting behavior that *Heliconius* butterflies express at night – a behavior which, until now, has gone unexplained. According to Salcedo, this behavior is thought to be important in their success. “Some of the species in the genus roost gregariously at night, so I’m documenting every possible detail about this behavior,” he explains.

For Christian Salcedo, working with the McGuire Center is a dream come true. “I was free to study under any research project I liked. This is my hobby, my passion...and I only hope I can keep doing this.” When asked about his career plans, Salcedo says: “Being in the field for several months has connected me to the forest in a way I can’t explain with words,” evoking the wonder of his research experience. Open to wherever his studies take him, Salcedo envisions himself “...In a University, in a Museum, in a field station in the middle of the Amazon, etc.” It hardly matters, as long as he can be near the butterflies he studies and the scientists who share his fervor.

Court Whelan

Academic advisors: Drs. Thomas C. Emmel and Jaret Daniels

Court Whelan is a doctoral student in the Ecotourism Entomology graduate program. A passion for biodiversity conservation, sustainable ecotourism, and the natural world led Court to initiate this neoteric program with the help of his advisors and a number of faculty and staff from the Florida Museum of Natural History and Department of Entomology and Nematology.

Having completed his M. S. degree at UF in August 2008, he currently pursues his Ph.D. and continues his studies of butterfly farms as biological research stations. Building on his M.S. Thesis, which studied adult butterfly abundance, larval predation rates and egg parasitism at Butterfly Farming operations in Florida and Costa Rica, he is now finalizing the design of a series of experiments aimed at improving butterfly farming efficacy, while also looking at key scientific questions regarding larval feeding preferences, parasitoid behavior and herbivore competition among Lepidoptera.



Court Whelan with the group of locals dressed for a singing ceremony on the trip to Papua New Guinea.

Court is also involved in several side projects with ecological and conservation implications. He is involved in a study on butterfly roadway mortality in Florida in an effort to make comparisons between seasons and form inferences about roadway effects on migratory species that often cross these roadways during their migration. These data will also be used to estimate the implications of expanding roadways on butterflies as urban populations spread into natural areas.

On a more applied side of ecotourism, Court is the General Manager of Expedition Travel, an ecotourism company that leads tours in cooperation with the Florida Museum of Natural History and the McGuire Center. With an ever-increasing interest in ecotourism to places like Costa Rica (for bird and butterfly watching) and Mexico (to witness the overwintering Monarch butterflies), eco-minded travelers are joining tours with the Florida Museum and Expedition Travel in record numbers, with nearly one-hundred having already traveled with him this year alone.

Court is an avid photographer, who also takes video to document his travels. Armed with dozens of hours of rare, high definition footage and thousands of still photos, taken in localities such as Papua New Guinea, the Galapagos Islands and Madagascar, Court is assembling movies and slide shows for display in the Florida Museum of Natural History and McGuire Center as a means to portray the world’s magnificent biodiversity and to highlight areas of conservation priority to the public.

Recognizing our volunteers

Volunteers daily contribute to research and collections-related activities 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; **Julia Robinson Willmott**: worked in the field in Ecuador; **Ian Segebarth**: databased Ecuadorian butterflies; **Lei Xiao**: assisted in molecular systematics projects on Ecuadorian butterflies; **Michael McCowan**: curated Papua-New Guinea moths; **Fabiola Martínez**, **Pat Bowen**, **Larry**



Michael McCowan sorted 34,000 field-pinned moths from Papua New Guinea to a species level without any prior knowledge of Lepidoptera.

Reeves, **Alexandra Sourakov**, **Emily Miller**, **Cassandra Romero**, **Chris Simeur**, **Andrew Bliss**, **Kang Li**, **Laura DiGruttolo**, **Lindsey Anderson**, **Lesleyanne Drake**, **Sonal Dholakia**, **Marsha Belgrade**, **Charissa Faire**, **Amy Stafford**, **Sandra Lessl**, **Hava Stephens**, **Vassi Papastavros**, **Katrina Lane**, **Sarah Lindenblad**, **Rachel Grainer** and **Ying Liu**: labeled, accessioned and prepared specimens; **Kristin Rossetti**, **Darrel Anthony**: volunteered in the library; **Bob Eisele**: worked on Argentinian butterflies; **Mark Simon**: curated nymphalid butterflies; **David Auth**: curated and databased moths. **Thanks!!!**

Graduate Student Profiles

continued from p.1-3, 5

Matthew Trager, Ph.D.

Academic advisor: Dr. Jaret Daniels

Matthew Trager, a recently graduated student, has spent many hours studying the mutualistic relationship between Miami Blue butterflies and ants.

In the system Trager was studying, ants of several species tend the butterfly larvae. In order to attract and retain their ant guards, the larvae elicit ant attention with chemical signals and secrete a sugar-rich solution from a specialized gland that the ants eat. "I found that at least 19 ant species will tend Miami Blue larvae and no ants regularly attacked the caterpillars," says Trager. "I focused my study on several aspects of the relationship between the most common ant species in this system, *Camponotus floridanus*, and multiple life stages of Miami Blue butterflies." In order to examine the effects of ant-tending on larval growth and the subsequent effects for adult butterfly reproductive performance, Trager conducted a series of experiments. With a related ant-lycaenid system, he evaluated the effects of experimental nutrient limitation on the probability that ants would tend nectar-secreting larvae. He also studied the signaling system by which lycaenid larvae attract ant protectors, particularly the responses of larvae and ants to simulated predator attack. Finally, he studied the effects of ant presence on

oviposition preference of female Miami Blue butterflies.

Matthew Trager successfully defended his dissertation in fall 2009 and graduated with his Ph.D. He already published the first chapter of his dissertation.

Matthew Trager kept colonies of ants and butterflies in the lab as part of his Miami Blue research. On the right, ants tending Miami Blue larvae.

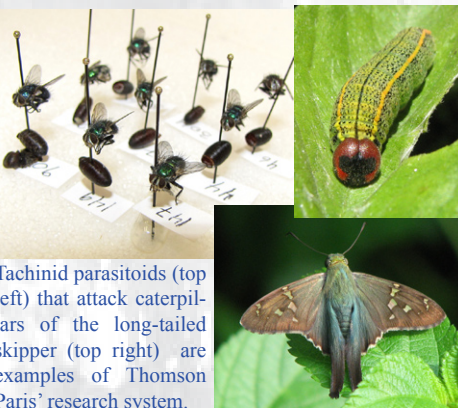


Thomson Paris

Academic advisor: Dr. Andrei Sourakov

Much of Thomson's research is rooted in comparing Lepidoptera populations and their predators in an urban-to-rural gradient. "Butterflies in south Florida are declining, even in the natural areas" says Thomson. "The areas that are yielding higher butterfly diversity are, surprisingly, in urban landscapes." Thomson set out to explore a possible cause for this disparity, which, some think, could be exotic predators or parasitoids: Urban areas might have fewer of these predators.

The decline of south Florida's butterflies has raised a number of questions. "First," says Thomson, "what parasitoids and predators might be attacking butterfly larvae in the region? Which of them are native, and hence part of the natural balance of life, and which are exotic? Second, what are the effects of urbanization on butterflies and their predators? Last, what is the



Tachinid parasitoids (top left) that attack caterpillars of the long-tailed skipper (top right) are examples of Thomson Paris' research system.

biodiversity of ecologically deficient areas compared to that of managed state parks and wildlife refuges?"

The goal of Thomson's research is to answer these questions. Thomson Paris is currently pursuing his M.S. degree and is hoping to eventually enroll into the Ph.D. program at UF. During his Ph.D. program, he also hopes to be involved in teaching, and research in the Third World.

UF Teaching Performed by the McGuire Center's Staff in 2009-10

Biology of Lepidoptera (ENY), Instructors:

Keith Willmott and Andrei Sourakov

Research Planning and Experimental Design (ENY), Instructor: Matthew Trager

Insect Biogeography (ENY), Instructor: Keith Willmott

Lepidoptera Biology - honors (IDH), taught at the McGuire Center by James Nation and visiting speakers (e.g., Jackie Miller, Andrei Sourakov)

Grant Writing (ALS), Instructor: Jaret Daniels
Scientific Illustration (IDS, individual studies), Instructor: Andrei Sourakov

Advanced Research (ENY, individual studies), Instructors: Jaret Daniels, Thomas Emmel,

Keith Willmott, Jackie Miller, Andrei Sourakov
Ecological Genetics (ENY, individual studies), Instructors: Thomas Emmel, Keith Willmott

Select conferences, field work and other news in 2009-2010

Deborah Matthews, Jackie Miller and

Christian Salcedo presented at Lepidopterists' Society annual meeting in Chetumal, Mexico; they also conducted field work in Honduras; Christian spent summer working in Panama.

Goeff Gallice conducted field work at Shuar Indian village in Morona Santiago, Ecuador.

John Heppner conducted field work in Vietnam, Thailand, and Peru.

Maria Checa received an award for her poster at the Conference of Conservation Science, Cambridge, UK; she also was awarded a Sigma Xi research grant.

Keith Willmott conducted field work in Ecuador and visited the British Museum; he received the Jack Wessel Excellence Award for Assistant Professors; he was awarded NSF-REU grant.

Andrei Sourakov conducted a research project in Misiones, Argentina.

Andrew Warren conducted field work in South Dakota, Wyoming, and Mexico, and started working in his new capacity of a collections manager at the McGuire Center.

Jackie Miller was elected Honorary Life Member of the Lepidopterists' Society; she also conducted field work on Cat Island, Bahamas.

Charlie Covell conducted field work in Panama and Ecuador, and presented at the meeting of Ohio Lepidopterists' Society.

K. T. Park was nominated as a vice president of the Korean Academy of Science and Technology.

Jaret Daniels and Thomas Emmel received many grants and awards, including an NSF grant jointly with Betty Dunckel from the Florida Museum Center for Informal Science Education.

Jackie Miller, Charlie Covell, Andrew Warren, and Andrei Sourakov received grants for their work from the Museum's Associates.

Keith Willmott and Andrei Sourakov were awarded an NSF-BRC grant for collections.

Recent Publications (2009-2010)

- Austin G. T.** and **A. D. Warren**. 2009. New looks at and for *Onespa*, *Buzyges*, and *Librita* (Lepidoptera: Hesperidae: Hesperinae), with new combinations and descriptions of a new genus and six new species. *Insecta Mundi* 0089: 1-55.
- Briscoe, A. D., S. M. Bybee, G. D. Bernard, F. Yuan, M. P. Sison-Mangus, R. D. Reed, A. D. Warren, J. Llorente-Bousquets & C.-C. Chiao**. 2010. Positive selection of a duplicated UV-sensitive visual pigment coincides with wing pigment evolution in *Heliconius* butterflies. *Proceedings of the National Academy of Sciences* doi:10.1073/pnas.0910085107
- Bruna, E. M., I. J. Fiske and M. D. Trager**. 2009. Evaluating the effect of habitat fragmentation on plant populations: is what we know demographically irrelevant? *Journal of Vegetation Science* 20: 569-576.
- Checa, M. F., A. Barragán, J. Rodríguez and M. Christman**. 2009. Temporal abundance patterns of butterfly communities (Lepidoptera: Nymphalidae) in the Ecuadorian Amazonia and their relationship with climate. *Annales de la Société Entomologique de France* 45(4): 470-486.
- Covell, C.V. Jr.** 2009. Book review: Moth Catcher: An Evolutionist's Journey through Canyon and Pass. By Michael M. Collins. *J. Lepid. Soc.* 63 (1): 58.
- Covell, C.V. Jr., J. M. Marcus and B. D. Marcus** 2009. KY Butterfly Net: An interactive web database to facilitate Lepidoptera research and education in Kentucky. *J. Lepid. Soc.* 63 (4): 209 - 213.
- Elias, M., M. Joron, K. R. Willmott, V. Kaiser, K. L. Silva-Brandão, A. V. L. Freitas., C. F. Arias, L. M. Gomez Piñeres, S. Uribe, C. Jiggins**. 2009. Out of the Andes: patterns of diversification in clearwing butterflies. *Molecular Ecology* 18: 1716-1729.
- Elias, M., Z. Gompert, C. Jiggins, and K. R. Willmott**. 2009. Phylogenetic community ecology needs to take positive interactions into account: Insights from colourful butterflies. *Communicative & Integrative Biology* 2(2): 113-116.
- Greeney, H. F. & A. D. Warren**. 2009. The immature stages and shelter building behavior of *Falga jeconia* Evans, 1955 in eastern Ecuador (Lepidoptera, Hesperidae, Hesperinae). *Journal of Insect Science* 9:33, 10pp.
- Greeney, H. F. & A. D. Warren**. 2009. The life history and shelter building behavior of *Vettius coryna coryna* Hewitson, 1866 in Eastern Ecuador (Lepidoptera, Hesperidae, Hesperinae). *Journal of Insect Science* 9:32, 9pp.
- Hall, J. P. W. and K. R. Willmott**. 2009. Two new species of *Euselasia* (Riodinidae: Euselasiinae) from western Ecuador. *Tropical Lepidoptera Research*, 19(1): 52-55.
- Heppner, J.B.** 2009. Notes on Vietnam moths, 6. *Pachynoa thoosalis* in Vietnam (Lepidoptera: Pyralidae: Pyraustinae). *Lepidoptera Novae* (Gainesville) 2(1):24.
- Heppner, J.B.** 2009. Notes on Vietnam moths, 7. *Dudgeonea leucosticta* in Vietnam (Lepidoptera: Dudgeoneidae). *Lepidoptera Novae* (Gainesville) 2(1):25-26.
- Heppner, J.B.** 2009. Notes on Vietnam moths, 8. Genus *Ramadasa* (Lepidoptera: Noctuidae: Bagisariinae). *Lepidoptera Novae* (Gainesville) 2(1):27-28.
- Heppner, J.B.** 2009. Guatemala moth notes, 1. A new *Sericostola* sedge moth (Lepidoptera: Glyphipterigidae). *Lepidoptera Novae* (Gainesville) 2(1):29-30.
- Heppner, J.B.** 2009. Spanish moth, *Xanthopastis timais*, in Florida and the New World (Lepidoptera: Noctuidae: Hadeninae). *Lepidoptera Novae* (Gainesville) 2(1):49-63.
- Heppner, J.B.** 2009. Lepidoptera of Thomas Say's *American Entomology*, 1817-1828. *Lepidoptera Novae* (Gainesville) 2(2):65-99.
- Heppner, J.B.** 2009. A new *Zodia* metalmark moth from Peru (Lepidoptera: Choreutidae). *Lepidoptera Novae* (Gainesville) 2(2):101-103.
- Heppner, J.B.** 2009. A new *Atteva* moth from Peru, with notes on *Atteva numeratrix* from Brazil (Lepidoptera: Attevidae). *Lepidoptera Novae* (Gainesville) 2(2):105-112.
- Heppner, J.B.** 2009. A new *Glyphipterix* moth from Venezuela (Lepidoptera: Glyphipterigidae). *Lepidoptera Novae* (Gainesville) 2(2):113-114.
- Heppner, J.B.** 2009. A new *Glyphipterix* moth from Colombia (Lepidoptera: Glyphipterigidae). *Lepidoptera Novae* (Gainesville) 2(2):115-116.
- Heppner, J.B.** 2009. Florida Lepidoptera notes, 7. *Grapholita fana* in Florida (Lepidoptera: Tortricidae). *Lepidoptera Novae* (Gainesville) 2(2):117-118.
- Heppner, J.B.** 2009. Florida Lepidoptera notes, 8. *Gretchena concitatricana* in Florida (Lepidoptera: Tortricidae). *Lepidoptera Novae* (Gainesville) 2(2):119-120.
- Heppner, J.B.** 2009. A new *Brachodes* moth from Hainan Island, China (Lepidoptera: Brachodidae). *Lepidoptera Novae* (Gainesville) 2(2):121-124.
- Heppner, J.B.** 2009. A new *Atteva* moth from Ecuador, with notes on *Atteva zebra* from Panama (Lepidoptera: Attevidae). *Lepidoptera Novae* (Gainesville) 2(2):125-128.
- Heppner, J.B.** 2009. Lepidoptera Expedition to Malawi - 2009. *Lepidoptera Novae* (Gainesville) 2(3):129-174.
- Heppner, J.B.** 2009. Panama moth notes, 2. Morphological features of *Atteva zebra* (Lepidoptera: Attevidae). *Lepidoptera Novae* (Gainesville) 2(3):175-177.
- Heppner, J.B.** 2009. Viviparity in *Ochyrotica* plume moths from Vietnam (Lepidoptera: Pterophoridae: Ochyroticinae). *Lepidoptera Novae* (Gainesville) 2(3):189-190.
- Heppner, J.B.** 2009. Review of viviparity in Lepidoptera.. *Lepidoptera Novae* (Gainesville) 2(3):191-194.
- Heppner, J.B.** 2009. Synoptic list of Lepidoptera pests in Florida. *Lepidoptera Novae* (Gainesville) 2(4):195-275.
- Heppner, J.B. and D.R. Davis**. 2009. Guatemala moth notes, 2. A new *Neopostega* from Guatemala (Lepidoptera: Opostegidae). *Lepidoptera Novae* (Gainesville) 2(1):31-34.
- Heppner, J.B. and K.T. Park**. 2009. Genus *Thubana* Walker in Indonesia, with descriptions of four new species (Lepidoptera: Lecithoceridae) and a world catalog of the genus. *Entomological Science* (Tokyo) 12(2):314-323.
- Heppner, J.B., Vergara-Cobian, C.E. and M. Narrea-Cango**. 2009. *Cydia tonosticha* in Peru (Lepidoptera: Tortricidae). *Lepidoptera Novae* (Gainesville) 2(1):45-47.
- Janzen, D.J., W. Hallwachs, + ... + J. Y. Miller, + ... + K. R. Willmott, + 42 authors**. 2009. Integration of DNA barcoding into an ongoing inventory of complex tropical biodiversity. *Molecular Ecology Resources* 9 (Suppl. 1), 1-26 (May).
- Kim, M.Y. and K.T. Park**. 2009. A Taxonomic Review of the genus *Coleophora* Hübner (Lepidoptera, Coleophoridae) in Korea. *J. Asia Pacific Entomol.* 12: 183-198.
- Matthews, D.L.** (in press). A new species of *Hellinsia* from the Southeastern United States (Lepidoptera: Pterophoridae). *Bulletin of the Allyn Museum* 161: 1-13.
- Matthews, D.L.** 2009. The sundew plume moth, *Buckleria parvulus* (Barnes & Lindsey). *Southern Lepidopterists' News* 31(2): 74-77.
- Matthews, D.L. and B.V. Maharajh**. 2009. *Adaina primulacea* Meyrick, 1929: a gall-inducing plume moth of Siam Weed from South Florida and the neotropics (Lepidoptera: Pterophoridae). *Tropical Lepidoptera Research* 19(2): 64-70.
- Miller, J. Y.** 2009. Obituary, Lee Denmar Miller, June 1, 1935-April5, 2008. *Southern Lepidopterists' News*, vol. 31 (2): 72-73.
- Miller Y. J. and A. Sourakov**. 2009. Some observations on *Amata cacica procera* (Boisdouval) (Castniidae: Castniinae) in Costa Rica. *Tropical Lepidoptera Research* 19(2): 113-114.
- Opler, P.A. and A.D. Warren**. 2009. *Euphilotes stanfordorum* Paul A. Opler and Andrew D. Warren, new species, pp. 125-126, 132. In: Fisher, M. S. The Butterflies of Colorado. Riodinidae and Lycaenidae – Part 4. The Metalmarks, Coppers, Hairstreaks and Blues. Lepidoptera of North America 7.4. Contributions of the C.P. Gillette Museum of Arthropod Diversity, Colorado State University v + 205pp.
- Park, H.J., I.J. Park, S.Y. Lee, K.S. Han, C.Y. Yang, K.S. Boo, K.T. Park, J.W. Lee, S.W. Cho**. 2008. Molecular identification of *Adoxophyes orana* complex (Lepidoptera: Tortricidae) in Korea and Japan. *J. Asia-Pacific Entomol.* 11: 49-52.
- Park, K.T.** 2009. Two new species of the genus *Tisis* Walker and *Synersaga* Gozmany (Lepidoptera, Lecithoceridae) from Thailand. *Tropical Lepidoptera Research* 19(1): 1-3.
- Park, K.T. and E.M. Ji**. 2009. A revision of the genus *Coproptilia* Snellen (Lepidoptera, Lecithoceridae), with description of a new species. *Entomol. Res.* 39: 239-242.
- Park, K.T.** 2009. First record of *Thubana* species in the Philippines (Lepidoptera, Lecithoceridae), with description of two new species. *J. Asia-Pacific Entomol.* 12: 199-201.
- Park, K.T. and J.B. Heppner**. 2009. Genus *Thubana* Walker in Java and Sumatra, with four new species (Lepidoptera, Lecithoceridae) and a world catalog of the genus. *Entomol. Sciences* 12: 314-323.
- Park, K.T.** 2009. Genus *Lecithocera* of Thailand (IV): Description of three new species and a little known species (Lepidoptera, Lecithoceridae). *Zootaxa* 2208: 58-64.
- Park, K.T. and C. Wu**. 2009. Notes on five little known genera of Lecithoceridae (Lepidoptera), with descriptions of three new species. *J. Asia-Pacific Entomol.* 12: 261-267.
- Reid, M. and A.D. Warren**. 2009. A new grass skipper for Texas and the United States: *Mnasilus allubita* (Hesperidae: Hesperinae: Moncini). *News of the Lepidopterists' Society* 51(4):115-117.

Recent Publications continued from p. 7.



Sohn, J.C. and K.T. Park. 2009. Description of the second species of *Wockia* (Lepidoptera: Urodidae) in the Oriental Region. *Tropical Lepidoptera Research* 19(2): 62-63.

Sohn, J.C., K.T. Park, S.K. Lee, and S.W. Cho. 2009. A taxonomic review of the genus *Batrachedra* (Lepidoptera, Gelechioidea, Batrachedridae) in Korea. *J. Asia-Pacific Entomol.* 12: 101-105.

Sourakov, A. 2009. On the immature stages of citrus-feeding butterflies of Hispaniola. *Tropical Lepidoptera Research* 19(2): 115-117.

Sourakov, A. 2009. Notes on the biology of the Gulf Fritillary *Agraulis vanillae* (Lepidoptera: Nymphalidae) in north-central Florida. *J. Lepidopterists' Society* 63(2) 127.

Sourakov, A. 2009. Direct competition for nectar in some Patagonian butterflies. *News of Lepidopterists' Society* 51(1): 14-15.



Sourakov, A. 2009. Extraordinarily quick visual startle reflexes of skipper butterflies (Lepidoptera: Hesperidae) are among the fastest in the animal kingdom. *Florida Entomologist* 92(4): 653-655.

Sourakov, A. 2009. On polyphenism of *Eurema daira* in Florida. *News of Lepidopterists' Society* 51(1): 38-40.

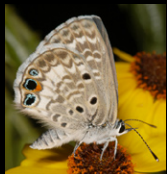
Sourakov, A. 2009. Book Review: *Butterflies of the Cayman Islands* (2008). Aslew R. R. and P.A. van B. Safford. *Tropical Lepidoptera Research* 19(1): 59.

Sourakov, A. 2009. Viceroy butterfly, *Limnitis archippus* (Lepidoptera: Nymphalidae). *Featured Creatures Website*, University of Florida. Publication Number: EENY-458

Tarter, D.C., D.L. Chaffee, C.V. Covell Jr. and S.T. O'Keefe. 2010. New distribution records of *Corydalis cornutus* (Linnaeus) (Megaloptera: Corydalidae) in Kentucky, U.S.A. *J. Ky. Acad. Sci.* 120 (4): 427 - 431.

Tennent W. J., J. Y. Miller, and A. Rawlins. 2009. Distribution of *Acroptalmia chione* Felder & Felder, 1867, with descriptions of two new subspecies from eastern Indonesia (Lepidoptera: Nymphalidae: Satyrinae). *Bulletin of the Allyn Museum* 162:1-7.

Trager, M. D., B. M. Boyd, J. C. Daniels and J. A. Pence. 2009. Host plant selection, larval survival and reproductive phenology in *Megathymus yuccae* (Lepidoptera: Hesperidae). *Environmental Entomology* 38:1211-1218.



Trager, M.D. and J.C. Daniels. 2009. Ant tending of Miami blue butterfly larvae (Lepidoptera: Lycaenidae): Partner diversity and effects on larval performance. *Florida Entomologist* 92: 474-482.

Wahlberg, N., E. Weingartner, A.D. Warren and S. Nylin. 2009. Timing major conflict between mitochondrial and nuclear genes in species relationships of *Polygonia* butterflies (Nymphalidae: Nymphalini). *BMC Evolutionary Biology* 2009 9:92 doi:10.1186/1471-2148-9-92

Warren, A.D. 2009. Getting to know George Austin: Rondonia, Brazil, August, 1993. *Association for Tropical Lepidoptera Notes*, December, 2009: 1-2.

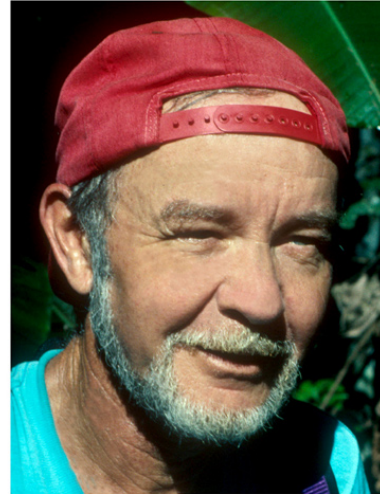
Warren, A. D. and G. T. Austin. 2009. Variation of *Stinga* Evans, 1955, with description of a new species from Mexico (Lepidoptera: Hesperidae: Hesperinae: Hesperini). *Zootaxa* 2197:1-19.



Warren, A. D., A.V. Z. Brower and J. R. Ogawa. 2009. Revised classification of the family Hesperidae (Lepidoptera: Hesperioidea) based on combined molecular and morphological data. *Systematic Entomology* 34:467-523.

George T. Austin, the McGuire Center's former Senior Collections Manager, passed away on June 30, 2009, at his home in Gainesville. George was a close friend of many of his coworkers at the McGuire Center, and his loss continues to be felt in the museum, over eight months after his passing. A formal obituary detailing all of George's contributions to science is under preparation and will appear elsewhere, but a brief summary is presented here. For additional information and images, please see George's memorial webpage at: <http://butterfliesofamerica.com/GTA.htm>

Since early childhood, George had been interested in butterflies, but he began his career as a research biologist focused on birds of the American Southwest. He authored or coauthored about 35 papers on this subject between 1965 and 1982, and his Masters Thesis was on the avifauna of southern Nevada's Spring Mountains (University of Nevada, Las Vegas,



George T. Austin, the McGuire Center's former Senior Collections Manager, passed away on June 30, 2009.

1967). After about 1978, the majority of George's publications concern butterflies, including faunal surveys and systematic revisions of a variety of species and genera. To date, George has authored or coauthored over 145 publications on butterflies, and has described many new genera, species and subspecies. In addition, a number of projects George was developing in collaboration with other researchers have yet to be completed and published.

George was deeply interested in the biogeography of the Great Basin, and this was evident in his publications on butterflies. His earliest revisionary papers were on butterfly species complexes in Nevada that display complicated patterns of geographic variation. George described dozens of new subspecies of butterflies from Nevada, from all families, and was a major contributor to a massive 1998 volume on the Systematics of Western North American Butterflies. George was also keenly interested in the Neotropical butterfly fauna, especially that of Guatemala, Costa Rica, and Rondônia, Brazil; he spent extensive periods of time sampling butterflies in each of these regions, and developed massive research collections from these areas, as well as a vast collection of worldwide butterfly species.

From a taxonomic viewpoint, George was an internationally recognized expert on the family Hesperidae (skipper butterflies), as well as the authority on the metalmark genus *Calephelis*, yet he was comfortable working with all families of butterflies. George also maintained an interest in moths, which became more intense once he arrived in Florida. He conducted an informal survey of the moths of Nevada, which is still unpublished, and he surveyed moths in Gainesville, documenting more than 1300 species in his yard, while simultaneously conducting a survey of the moth fauna of Paynes Prairie State Park.

Most Lepidopterists, including his colleagues at the museum, regarded George as a walking encyclopedia to butterflies of all families, especially those inhabiting the American Southwest. This, and his inexhaustible sense of humor, are just two of George's many qualities that can never be replaced.

Graduate Student Profiles continued from p.1-3, 5-6

Geoff Gallice

Academic Advisor: Dr. Keith Willmott

Taking a pioneering step in the realm of macroecology and conservation of Neotropical butterflies, Geoff Gallice is currently constructing predicted range maps for butterflies of eastern Ecuador. Geoff's newly begun project is grounded in one of the general rules of ecology: a positive relationship exists between abundance and geographic range-size. This rule has been documented in a wide variety of species and across many biogeographic regions. Geoff notes, "In particular, the majority of studies have focused on vertebrates of temperate regions, whereas global biodiversity is concentrated among tropical invertebrates." He is planning a field trip to Ecuador later this year in order to collect abundance and other ecological data. "My goal," he explains, "is to examine the abundance-distribution relationship for the first time in Neotropical butterflies."



Geoff Gallice conducts field work in Yasuni, Ecuador.

To date, according to Geoff, no studies of the abundance-distribution relationship have involved Neotropical arthropods, where most of the world's biodiversity is found. Additionally, 6,000 of the world's 17,000 butterfly species can be found in the tropical Andes, an area facing extreme pressure from habitat loss. A rapid assessment of the species and areas in need of protection is urgently needed, but the necessary data are unavailable for most species. Geoff Gallice, currently a student, is seeking to conduct research professionally.

Matthew Thom

Academic advisor: Dr. Jaret Daniels

Matthew Thom, a teaching assistant for the Entomology Department at the University of Florida, has a keen interest in the threatened and endangered Frosted Elfin Butterfly. According to Matthew, whose research pays special attention to this species, little is known about Florida's Frosted Elfin population, despite the species' broad range (populations occur as far as the Midwest and Northeast in the United States).

The Frosted Elfin Butterfly has evolved in Floridian habitats – notoriously prone to wildfires – but not much is documented on how management practices such as prescribed fires affect the rare, specialized Frosted Elfin. "There are many questions



Matthew Thom during prescribed burning of Florida habitat.

on how fire frequency, intensity, seasonality, and homogeneity affect the Frosted elfin during all life stages," says Thom. "This butterfly overwinters as a pupa in the leaf litter, is ant-associated as a larva. It feeds on only two plant species throughout its range, both of which are highly dependent upon fire as they are early successional species."

Thom's research is concerned with characterizing the resources and habitat for the Frosted Elfin. "I am particularly interested in how habitat restoration techniques such as prescribed fire affect this butterfly and habitat suitability for all life stages," explains Thom. "My goals are to illuminate habitat that could be considered critical for the persistence of this rare butterfly." Through his research with the Frosted Elfin, Thom ultimately hopes to better understand the ecology of rare butterfly distributions.



Frosted Elfin Butterfly

Recent Seminars at the McGuire Center

Fall 2009

Aug. 25: Jorge Llorente and Jimena Castro, Museo de Zoología, U.N.A.M., Mexico: "In search of other character systems in the Dismorphiinae (Pieridae): eggs and antennal clubs."

Sept. 8: Jacqueline Y. Miller and Debbie Matthews Lott: "Bienvenidas a Honduras! –Perspectives on Investigations of the Lepidoptera."

Sept. 22: "What I did last summer." Short accounts by Keith Willmott, Sebastian Padron, Andy Warren, and Court Whelan.

Oct. 6: James P. Cuda, UF/IFAS, Dept. of Entomology & Nematology: "Episimus unguiculus Clarke (Lepidoptera: Tortricidae), a Candidate for Biological Control of Brazilian Peppertree in Florida: Biology, Host Range, and Impact Studies."

Oct. 20: Dr. Thomas Dykstra, Dykstra Laboratories, Inc.: "Can Lepidopterans smell odors like scientists claim?"

Nov. 3: Andy Warren, Kim Davis, Nick Grishin, Jon Pelham and Mike Stangeland: "The McGuire Center: The World's Biggest Butterfly Website: A Closer Look at www.butterfliesofamerica.com."

Nov. 24: Christian Salcedo, The McGuire Center: "The secret life of the sleeping *Heliconius*: behavior and chemical ecology."

Dec. 1: Teresa Cooper, Department of Entomology and Nematology: "Classical Biological Control of the Mexican Bromeliad Weevil in Florida."



Brief meal before one of the McGuire Center's biweekly seminars; L.P.Brower and T.C. Emmel on the foreground.

Spring Semester 2010

Jan. 12: Charles V. Covell Jr., The McGuire Center: "Irian Jaya, New Guinea: Butterflies and Moths in a Stone Age World."

Jan. 26: Thomson Paris: Research Proposal: "Parasitoid abundance in Lepidoptera over an urban/rural gradient."

Feb. 1: Akito Kawahara, University of Maryland: "Evolution of the mega-diverse insect order Lepidoptera."

Feb. 4: Jadranka Rota, National Museum of Natural History, Smithsonian Institution: "Metamark moths (Lepidoptera: Choreutidae): Systematics, jumping spider mimicry, and caterpillar security systems."

Feb. 9: Kathy Malone: "Community ButterflyScaping and Florida-friendly Landscaping: Going beyond butterfly gardening."

Feb. 15: James Miller, American Museum of Natural History: "Evolution of the diurnal moth group Diptinae (Lepidoptera: Notodontidae)."

Feb. 23: Stewart B. Peck, Dept. of Biology, Carleton Univ., Ottawa: "A Research Project on the Biodiversity of the Beetles of the Lesser Antilles."

March 16: Dr. Terry Arbogast, USDA: "The Small bee hive beetle: ecological specialist or generalist?"

March 23: Dr. Nipam H. Patel, University of California at Berkeley: "The Formation and Maintenance of Lineage Compartments During Lepidopteran Wing Development."

March 30: Dr. John Heppner, Fla. State Coll. of Arthropods & McGuire Center: "Research sites in Peru and new Lepidoptera."

April 6: Geoff Gallice, McGuire Center: "Neotropical Butterfly Macroecology: Abundance, Distribution, and Implications for Conservation."

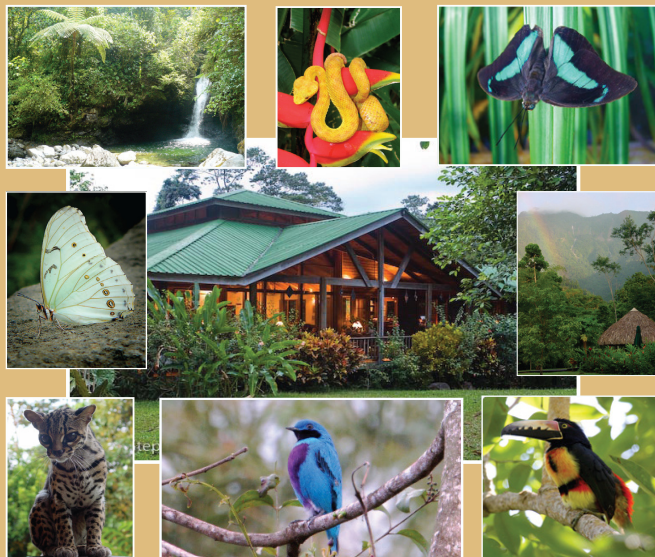
April 13: J. Andrei Sourakov, Court Whelan, Christian Salcedo, Matthew Trager, and Thomas C. Emmel, The McGuire Center: "The Role of Video in Lepidoptera Research and Biodiversity Education."

Museum Travel Led and Students

Four Lepidopterists' Expeditions Planned To Honduras in Pico Bonito National Park

May 8 - 16: Accepting Registrations
June 12 - 20: *Fully Booked*
June 24 - July 2: Accepting Registrations
August 7 - 15: Accepting Registrations

Honduras is certainly on the road less traveled, both in terms of visitors to Central America as well as Lepidoptera research in the tropics. However, it is home to some of the most pristine national parks, towering peaks and lush tropical lowland and montane rainforest left in Central America, making this a highly desirable place to explore. Our work in Honduras will focus on Pico Bonito National Park, **an area of unspoiled primary forest that covers over 1000 square kilometers** of lowland and montane rainforest with an elevation range of 81m - 2369m. Located near the northern coastline, this national park has an equally outstanding lodge and research station that provides exclusive access into the rich jungle of the interior. A variety of trails traverse throughout the lowland and mid-montane forests and offer many fantastic exploratory opportunities.



Trip Schedule:

Upon arriving at San Pedro Sula International Airport on the first day of the trip, we will depart as a group for the Pico Bonito Research Station, having time for immediate exploration and time to set up night collecting gear. The lodge has excellent access to the forest, making it ideal for photographing and collecting. Having a **large private forest, as well as direct trails into the park**, this is an extraordinary base of operations. Days will be yours to explore, photograph or collect. Also, your expedition leaders will brief you on optional day trips for natural history activities, such as snorkeling at Roatan, wildlife watching in mangrove estuaries, and extended guided hikes to even more remote areas of the park. Birders will also be in for a treat as species often regarded as rare elsewhere are found immediately around the lodge. This expedition is a tremendous opportunity to join in our collaboration with the Honduran government and national universities to document the extraordinary biodiversity found in Pico Bonito National Park. Whether you would prefer to simply relax, photograph wildlife and the beautiful scenery around the lodge, or participate in our biodiversity survey, this is an ideal trip for anyone interested in nature!

Accommodations:

The Lodge at Pico Bonito is keenly interested in initiating scientific research and education through expeditions and teaching programs like this one, which will afford us **an unprecedented look at the deep interior of Pico Bonito National Park**. Lodging during the expedition will be modestly comfortable and meals will be basic but similar to that found at other research stations in Central America. However, the main dining room of the lodge offers a wide assortment of epicurean delights, and arrangements can be made ahead of time if you wish to order from the menu.

How to Join the Expedition:

Please send your mailing address to ExpeditionTravel@gmail.com or call (352) 871-2710 to receive the full brochure and registration form.

Cost: \$1195.00 per person in double occupancy (All-inclusive except for int'l airfare).

Estimated Int'l Airfare (from Miami):

\$260.00 Round-trip



www.flmnh.ufl.edu/butterflies/expeditions.htm

by Faculty, Staff

KENYA

AUGUST 5 - 20, 2010

The Quintessential African Safari



The mere mention of the word *safari* is enough to invigorate the adventurous spirit in all of us. With visions of **towering giraffes, massive elephants, elegant cheetahs and powerful lions** across endless savannas, and **tropical jungle trails lined with hundreds of species of puddling butterflies** it is hard not to become instantly enthusiastic.

If the **thought** of a two-week safari can do these things to you, imagine the feeling each morning of waking up to the **sights and sounds of African wildlife** as you embrace a new day of constantly exciting adventure.

We will fully immerse ourselves in the safari experience, as we stay in some of the **most spectacular wildlife lodges in the world**, where watering holes and salt-



licks teeming with African mammals will be viewed from our rooms and **exotic African Lepidoptera** can be marveled at and photographed only steps from your door. McGuire Center leaders will lead discussions during the trip, which are open to all interested persons.



With a combination of **morning, afternoon and nighttime game drives**, as well as jungle hikes throughout the safari, you will experience the best that Kenya has to offer.

Visit www.flmnh.ufl.edu/butterflies/expeditions.htm or www.ExpeditionTravelOnline.com for more information. Please send inquiries to ExpeditionTravel@gmail.com or phone (352) 871-2710.



These trips are designed for the Florida Museum of Natural History Travel Program

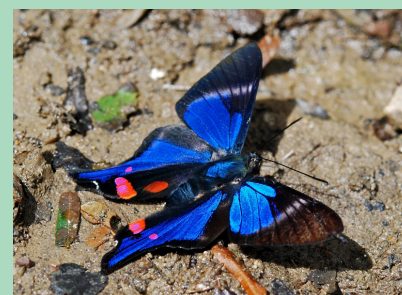
Content and logistics of this adventure are solely the responsibility of Expedition Travel, which organizes trips for the Florida Museum of Natural History Travel Program. Expedition Travel, Inc. is located in Gainesville, Florida and registered with the State of Florida as a Seller of Travel, Registration No. ST-23652.

NEWS OF THE MCGUIRE CENTER is available on-line at <http://www.flmnh.ufl.edu/mcguire/mcguireNews.htm>

Survey of Lepidopteran Biodiversity in Honduras



A metalmark butterfly, *Juditha molpe* (Riodinidae) in Honduras: adult (left); right - larva of the same species tended by *Dolichoderus bispinosus* ants on Cacao leaf.



Rhetus periander metalmark, Yaupi, Ecuador

Honduras is of particular interest for our research and education programs not only because it is located in the Neotropics -- the most diverse biogeographical region -- but also because it has links to Caribbean biogeography. The country encompasses a wide range of elevations and vegetation zones, and has a complex geological history. Due to historical and political reasons, its Lepidoptera remain relatively unstudied when compared to Guatemala and Belize to its north, or Nicaragua and Costa Rica to its south.

This year, McGuire Center's staff and students participated in initial surveys of the biodiversity of Lepidoptera in Honduras. Three trips have been made in the past year with several more scheduled this year. Field studies and ecotourism programs are currently based in northern Honduras at Pico Bonito Lodge, La Ceiba. **Jacqueline Y. Miller, Thomas C. Emmel, Deborah Matthews Lott, and Court**

Whelan are also working in cooperation with the Biodiversity Center of Escuela Agricultura Panamerica en Zamorano near Tegucigalpa. Additional field sites are being investigated along with opportunities for graduate studies and the development of a program in parataxonomy, which would involve the local people in training and research.

Butterfly groups of current focus include the Riodinidae, Lycaenidae, Hesperidae, and Satyrinae, and all moth taxa are being sampled. We are particularly interested in describing new life histories and collecting taxa that are underrepresented in museum collections, as well as those associated with hostplants of cultural and economic significance. Use of butterflies as environmental indicators has also been investigated.

Graduate Student Profile

Jonathan Saunders

Academic advisors: Drs. Charles Baer and Thomas C. Emmel

Jonathan has completed his M.S. in the Department of Biology and is graduating this May. As part of his Masters thesis, he constructed a DNA-based phylogeny of Metalmark butterflies (Riodinidae) using 78 different species in 69 genera. He used specimens from the McGuire Center's collection, donated for this purpose by one of the Museum's associates, Dr. J. D. Turner. The phylogeny, created by Saunders, determined evolutionary relationships in some riodinid groups that were unresolved by the previous studies. It also shed light on the evolutionary history of myrmecophily (association of riodinid caterpillars and ants). Jonathan Saunders is now planning to teach for a while in California or Hawaii before he starts his Ph.D. program at another university.