



McGuire Center

Florida Museum of Natural History

April, 2007

Issue 1

UF University of Florida

News

McGuire Center Becomes Mecca for Lepidopterists, hosts three international meetings in 2006

The combined meetings of the Lepidopterists' Society (57th), Southern Lepidopterists' Society, and the Association for Tropical Lepidoptera were held at the Hilton Hotel Convention Center and the McGuire Center for Lepidoptera and Biodiversity, Florida Museum of Natural History, University of Florida, on June 14-18, 2006.

There were 202 registrants from 13 countries in attendance, the most diverse representation at any meeting of the three societies.

Prior to the normally scheduled events, there was a one-day Educational Workshop for teachers, amateurs, and interested naturalists, sponsored by the Education Committee of the Lepidopterists' Society. Speakers included Susan Weller (Univ. of Minnesota), William Conner (Wake Forest Univ.), Orley Taylor (Univ. of Kansas), Robert Pyle (author and naturalist), Betty Dunckel, Marilyn Martin, Kathy Malone, Nikole Kadel, Jaret Daniels (all Florida Museum of Natural History), Martha Weiss (Georgetown Univ.), and Suzette Slocomb (Center School District #58, Kansas City). This workshop concluded with round table discussions on the topics of special concern such as attracting students to natural history and science in general.

On June 14th, there were field trips for observers and photographers to Kanapha

Botanical Gardens and Goethe Forest while collectors headed north to the Osceola National Forest.

The museum's collections were made available for researchers, students, and amateur lepidopterists at the McGuire Center. Other special meetings included a Noctuoidea Workshop that took place at the Department of Entomology and Nematology, during the morning of June 14th, and continued more informally throughout the meetings. This was followed by a National Science Foundation Tree of Life Project Workshop in the McGuire Center's Conference Room.

Later that afternoon, there was a Welcome Reception and Mixer at FLMNH's Powell Hall and the McGuire Center sponsored by the Alachua County Tourist Development Council, BioQuip Products, Florida Museum of Natural History, and the University of Florida Foundation, Inc. A tour of the Butterfly Rainforest was followed by a slidefest with Lepidoptera being, of course, the main subject.

The formal meeting sessions were opened on June 15th at the Hilton Hotel Convention Center by Thomas Emmel, Director of the McGuire Center, followed by Douglas Jones, Director of the Florida Museum of Natural History, and by presidents of *continues on page 4*

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Our Faculty, Staff, and Students

Jacqueline and Lee Miller served as the curatorial staff of the Allyn Museum of Entomology in Sarasota and moved along with the collections. Jackie and Lee have been on the staff of FLMNH since 1981.



John Heppner of the Division of Plant Industry relocated to the McGuire Center from DPI together with the vast moth collections of the FSCA.



Paul Goldstein was hired as Assistant Curator. Paul previously worked as a curator at the Field Museum in Chicago.



Charles Covell joined us as a curator of moths, moving from Kentucky. His expertise is moths of the family Geometridae.



Jaret Daniels became Assistant Professor of Entomology and Nematology, hired jointly by this department and the FLMNH. He has an office and many research projects based at the Center.



Keith Willmott was hired for the position of Assistant Curator. He was previously a postdoctoral fellow at the Natural History Museum in London.



Mirian Medina Hay-Roe continues her term as a postdoc at the Center. She is also teaching a course on Lepidoptera Biology.



Thomas Emmel has been Center's Director since before its construction. He retired from the UF Zoology Department in 2003.



Christine Eliazar is McGuire Center's administrative assistant. She has been working for Tom Emmel for 25 years and, in reality, runs the place. She is the person you will talk to if you call the Center's main number.



Graduate Students

Recent graduates: **Emily Saارين** (M.S., 2005) worked on butterfly - ant interactions; **Christian Salcedo** (M.S., 2006) studied roosting behavior in *Heliconius*; **Akers Pence** (Ph.D., 2006) researched conservation of Sweadner's hairstreak; **Matthew Lehnert** (M.S., 2005) worked on the Homerus Swallowtail in Jamaica; **Delano Lewis** (M.S., 2006) dealt with systematics of *Cyllopoda* (Geometridae); **Michael Perry** (M.S., 2006)



Emily Saارين

worked on developmental biology of butterfly wing patterns; **Debra Mathews** (Ph. D., 2006) has been studying Pterophoridae for many years; she currently works at the Center curating moths; **Varsovia Cevallos** (Ph. D., 2007), studied butterfly biodiversity and ecology in Ecuador; and **Charlotte Skov** (Ph.D., 2007) worked on ecology of orchid bees. Students who graduated with the M.S. are mostly continuing on working on their Ph.D. Additionally, **Mathew Trager**, **Court Whelan**, **James Dunford**, **Bret Boyd**, **Jennifer Zaspel**, and many other students are associated with the McGuire Center.



Debra Mathews

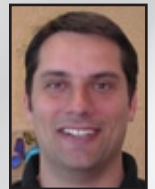
George Austin, the collections manager and **Andrei Sourakov**, the coordinator of collections, handle most of the day-to-day collection-related issues. George came from the Nevada State Museum where he served as Curator of Natural History. Andrei had postdoc experience at CalAcademy, USDA and FLMNH, and was involved in the Center's construction planning and exhibits design and production.



Andrew Warren moved to the Center in July 2006 as a postdoc. He is curating the skipper collection and continuing with his research on skipper classification and Mexican butterfly diversity. He came from Oregon State University.



James Schlachta was hired as Assistant Director for Operations. Previously, Jim worked as the Center's construction manager. He is also the acting manager of the Butterfly Rainforest facility and its staff.



Lorraine Duerden is our full-time preparator and oversees four part-time preparators working at the display window facing the public exhibits.



A Few Facts about the McGuire Center:

Dec. 2000 - initial gift of \$4.2 million was made by McGuire Family Foundation of Wayzata, Minn., matched by the state of Fla. with \$4.2 million in April 2001.

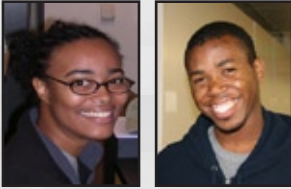
In 2002, additional \$3 million was given by William and Nadine McGuire.

Construction began March 2003 and finished July 2004.

Center has 50,000 sq. feet of collection, office and exhibit space located on 3 floors.

The Collection's safety and security: though we moved away from the use of pesticides, we have now successfully fumigated the collections twice. This will be done as a precaution every year. The rest of the year, the collection rooms are kept at 60°F. All incoming material is frozen for one week at -36°F in our 1600 ft³ walk-in freezer .

The library has grown almost as fast as our collections. A second full set of compactors was just installed in the library to accommodate new acquisitions. **Daidria and Delano Lewis** are working as part time librarians.



Volunteers

UF students, **Sam Landrian, Shelly Flanagin, Kevin Carty, and Lyndall Brezina** are assisting in curating and databasing collections. High school students, such as **Ian Segebarth** and **Patrick McCaffrey** also work as volunteers.

Mark J. Simon, a physician, who has had a life long-interest in Lepidoptera, is currently recurating the neotropical Charaxinae. **Isis Jaimez** is visiting from Venezuela, where she studied satyrines. She will be volunteering in the collections while studying English at UF. **Dale Habeck**, retired from Entomology Dept. and curates moths and immatures.



Isis Jaimez



Bob Eisele

Anthony Darrell, a retired USDA taxonomist has been working in the library for the last two years. **Bob Eisele** works on Argentine butterflies that he donated to the McGuire Center. **Gary Ross**, of Baton Rouge, donated his butterfly collection and loaned his Zapotec Indian tapestries and paintings for exhibiting at the McGuire Center; he made presentations at the 2006 Florida Butterfly Festival.



Gary Ross

Collections and Acquisitions

All of the diverse collections at the McGuire Center have been merged now into a single collection. This was not a small task. There were more than 100 separate collections in the building when we moved in; two of these (Allyn Museum and DPI) were in excess of 1.5 million specimens each. Some private new donations were also very large, such as Austin's collection of 350,000 specimens. With 10,000 new CalAcademy-type drawers that were purchased prior to the opening of the Center, we were able to organize the collections of Riodinidae, Lycaenidae and Hesperidae as well as a large portion of the moth collection. These now are located in the new compactors on the 1st and 2nd floors.

The larger butterflies and moths are housed in Cornell drawers in compactors on the lower level. The curation of these groups is in progress.

Meanwhile, we have recently received several major collections. Fortunately, the space in the compactors will not be an issue for many years to come as there is room for 70,000 drawers (50,000 CalAcademy and 20,000 Cornell). Purchases of unit trays have been made, totalling 60,000 trays.



One of the problems that has haunted most insect collections is the expense of the insect drawers. Though the McGuire Center is a unique facility in many respects, here too the growth of collections is ahead of our ability to buy new drawers. We hope that with the help of grants and private gifts, we will overcome this in the near future.

Recent Donors of Specimens

Allen T.	Hart W.	Olson E.
Anderson R.	Harvey D.	Platt A.
Austin G.	Heppner J.	Preston F.&J.
Bailowitz R.	Hesterberg R.	Rings R.
Bowe J.	Hollister R.	Ross G.
Boyd B.	Khanal B.	Rozycki R.
Brock J.	Klein T.	Savage P.
Bryne	Leigh A.	Seitz J.
Covell C.	MacPherson B.	Simon M.
Cox J.	Marcus J.	Samford Un.
Deroller C.	McGuire W.	Sourakov A.
Eisele R.	Miller G.	Turner J.
Eitschberger U.	Miller H.	Turner T.
Emmel T.	Miller J.&L.	Tuttle J.
Finkelstein I.	Minno M.	Watkinson I.
Gilbert L.	Nordin J.	Whelan C.
Gorelick G.	Noss A.	Willmott K.
Goldstein P.	O'Hara B.	
Harjes G.	Odor J.	

Phenology of a Moth Community in North-Central Florida:

George Austin and Andrei Sourakov have been analyzing richness and phenology of the moth fauna in North-Central Florida since January 2005.



Apanthesis Tiger moths

In only the first year of the study, over 1100 species were collected from a single locality (George's backyard) adjacent to Paynes Prairie near Gainesville. Sampling, databasing, and analyzing nearly 14,000 specimens collected in 2005 has allowed determination of seasonal fluctuations in species richness and relative abundance.

Other Gifts:

Bioacoustics Laboratory
John Moran's Photography Prints
Monarch Society
Joseph Sheer Lepidoptera Scans
(See next issue for details)



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each of the societies. Presentations of scientific papers followed for four days, with three special symposia devoted to Southern Lepidoptera, Neotropical Lepidoptera, and a student symposium on the Behavior of Lepidoptera. In all, there were 13 posters and 76 oral presentations over the four day meetings, and of these, 19 were by student, our future generation of lepidopterists.

During the Annual Banquet, William McGuire, a lepidopterist whose donations helped build the Center, delivered an address to the participants on "The Significance of Museum Collections in the Future," and their use in world biodiversity and conservation studies. This was followed by Felix Sperling, on "Collectors, Collections, and Collegial Connections." Rebecca Simmons announced the winners of Lepidopterists' Society awards. The William D. Winter Service Award was given to Julian P. Donahue, formerly of the Los Angeles County Museum, for his continued service to the Society. The Alexander B. Klots Award for the best student poster was



An eminent writer Robert M. Pyle and a noted lepidopterist Jonathan Pelham at the BBQ on Friday night of the meeting

awarded to Sangmi Lee, Mississippi Entomological Museum, Mississippi State University. There were so many excellent student oral presentations that the judges' deliberations resulted in a three-way tie between Jennifer Zaspel (Dept. of Entomology, University of Florida), Todd Gilligan, (Dept. of Entomology, Ohio State University), and Sarah Garrett (Dept. of Biology, Wake Forest University). Charles V. Covell, Jr., ably assisted by Annie Lott and Susan Weller, presided over the evening's door prizes.

The Lepidopterists' Society held its Executive Board Meeting, while the Association for Tropical Lepidoptera and the Southern Lepidopterists' Society held their business meetings during the meeting period.

For more information about the Lepidopterists' Society, visit:
<http://facweb.furman.edu/~snyderjohn/lepsoc/>

On Sunday, June 18th, after the final scientific presentations, the Lepidopterists' Society business meeting took place, with Felix Sperling presiding. Students from a number of institutions sang the meeting resolutions to a version of Dr. Suess' "Oh, The Places You'll Go." In-coming President William Conner received the honorary symbols of the office and concluded the official meetings at 11:45 a.m.



Thomas Emmel (left), William McGuire (right), and Sabine Zoller (middle) in the Butterfly Rainforest at the McGuire Center

57th Meeting of the Lepidopterists' Society, June 14-18, 2006, Gainesville.



"The great diversity of topics being discussed at these meetings is fascinating to behold. And because they are considering the earth's biodiversity, and especially Lepidoptera, I thought it particularly appropriate to note that there may be no other area of interest or study that relates to living things in which contributions drawn from both advocacy and vocation are so integrally entwined and important. The fact that so many people from various walks of life who are collecting and studying butterflies and moths can be also interested in writing and talking about them – coupled with researchers, scientists and teachers who do this as a profession – offers hope at a time when the environment is deteriorating and the great institutional reference and study resources of the past are gravely threatened."

William W. McGuire

From Banquet Address on June 17, 2006

Meeting of the Andean Butterfly Project

The first international planning meeting of the Tropical Andean Butterfly Diversity Project (TABDP) was held at the McGuire Center between 20-30 April 2006, with representatives of the principal organizations and institutions involved in the project.

The first three days of the meeting involved a practice run through the lectures and practicals that were designed to form part of a one-week training course for South American students in tropical Andean butterflies. The logistics of running the student courses were discussed, including dates, potential locations, equipment available, advertising, criteria for

Ciencias Naturales, Quito; **Patricio Ponce**, Ecuador Field Director of the McGuire Center, Quito.

VENEZUELA

José Clavijo, Museo de Zoología del Instituto Agrícola Francisco Fernández Y, Maracay; **Ángel Viloría**, Instituto Venezolano de Investigac. Científicas, Caracas.

COLOMBIA

Gonzalo Andrade, Instituto de Ciencias Naturales, Universidad Nacional, Bogotá; **Jean Francois LeCrom**, Editor Mariposas de Colombia, Bogotá; **Mauricio Linares**, Universidad de los Andes, Bogotá.



student evaluation, and potential course instructors.

Subsequent days involved discussions of other project activities, including specimen databasing methods and protocols, data ownership, methods of data analysis and planned publications. The database developed for project members to use was demonstrated, and each member country received a digital camera for photography of specimens in their collections.

Participants:

PERÚ

Gerardo Lamas, Universidad Nacional Mayor de San Marcos, Lima.

ECUADOR

Marco Altamirano, Museo Ecuatoriano de Ciencias Naturales, Quito; **Varsovia Cevallos**, Museo Ecuatoriano de

LUIS-MARTNEZ A., J.E. LLORENTE, I. F.VARGAS, A. D. WARREN. 2003. BIODIVERSITY AND BIOGEOGRAPHY OF MEXICAN BUTTERFLIES (LEPIDOPTERA: PAPILIONOIDEA AND HESPERIOIDEA). Proceedings of the Entomological Society of Washington: Vol. 105, No. 1, pp. 209–224.

Mexican Database Project

Since September 2004, Jackie Miller, Carmen Pozo (ECOSUR, Mexico), Armando Luis Martinez and Jorge Llorente (UNAM, Mexico), and their associates have worked on databasing Mexican Lepidoptera at the McGuire Center. These include specimens from older collections (e.g., of Tarsicio Escalante) and from more recent biological surveys completed by Robert Wind, Eduardo Welling, and Lee and Jackie Miller, which provide timelines for biodiversity studies. Thus far, more than 42,000 specimens have been databased.

There are more than 800 separate localities recorded from 30 of the 32 states that comprise Mexico. The oldest specimens were collected in 1904, but more than 50% of the butterflies were collected by the Millers in the 1960s and 70s, mostly across the Transvolcanic Belt in central Mexico and points south. This information, taken in conjunction with the larger database at UNAM, will enable researchers to track the geographic distribution of species over time, to assess their current distribution, and to help identify those species that may be in peril. In conjunction with geospatial data as well as ecological and climatic observations, these data will be invaluable in planning future reserves in Mexico.



Armando Luis Martinez at the McGuire Center

For more information, visit:
<http://www.andeanbutterflies.org/>

Grants and Awards (in part)



The McGuire Center's Genetics Lab

Research projects at the McGuire Center:

Conservation:

- Conservation biology of the Homerus Swallowtail in Jamaica
- Conservation of the Miami Blue
- Conservation of the Schaus Swallowtail
- Swadner's Hairstreak and Coastal Development

Ecology and Evolution:

- Butterfly-Ant Symbiosis
- Chemical Ecology of *Heliconius*
- Mimicry Diversiry, Evolution and Ecology of Ithomiine Communities
- Sound Production in *Heliconius*
- Night Roosting in *Heliconius*
- Speciation in *Heliconius*

Surveys and Inventories:

- Butterfly Diversity of Rondônia, Brazil
- Richness and Phenology of a Moth Community in North-central Florida
- Butterflies of Ecuador
- Butterflies of Bahamas and West Indies
- Mexican Butterflies
- Tropical Andean Butterfly Diversity Project
- Butterflies of California
- Butterflies of Nevada



Bungalotis midas
Rondônia, Brazil

Taxonomy and Systematics:

- Higher Classification of HesperIIDae
- Higher Classification of Noctuidae
- Systematics and Evolution of Apameini (Noctuidae)
- Systematics of Genus *Speyeria*
- Systematics of Ithomiinae
- Taxonomy of Monarch Butterflies
- Taxonomy and Systematics of Cyllopodini (Geometridae: Sterrhinae)
- Phylogeny and Classification of the Blood-feeding and Fruit-feeding Moths (Calpini: Noctuidae)
- Nearctic Pterophoridae: Life Histories, Morphology, and Taxonomy

For more information, visit our web site:
<http://www.flmnh.ufl.edu/mcguire/>

Jaret Daniels, Assistant Professor:

- 2006-2007 PI – Elizabeth Ordway Dunn Foundation. “Restoration of the State-Endangered Miami Blue Butterfly.” \$15,000.
- 2006-2007 PI – AZA Conservation Endowment Fund. “Expansion of the Florida Butterfly Monitoring Network.” \$14,425.
- 2006-2007 PI - Disney Wildlife Conservation Fund. “Florida Butterfly Monitoring Network.” \$18,400.
- 2006-2007 PI - Florida Fish and Wildlife Conservation Commission. “Florida Butterfly Publications.” \$15,687.
- 2005-2007 PI - National Fish and Wildlife Foundation. “Conservation of the Endangered Miami Blue Butterfly.”, \$35,000.
- 2005-2006 Co-PI - Disney Wildlife Conservation Fund. “Miami Blue Butterfly Conservation.” \$19,700.
- 2005-2006 Co-PI – Florida Fish and Wildlife Conservation Commission/Wildlife Foundation of Florida. “Continued Captive Propagation and Reintroduction of the Endangered Miami Blue Butterfly.” \$42,000.
- 2005-2007 Co-PI – Florida Fish and Wildlife Conservation Commission. “Molecular Diversity of the State-Endangered Miami Blue Butterfly.” \$57,230.
- 2005-2006 Co-PI – Florida Wildflower Advisory Council. “Educating the Public about Florida’s Wildflowers and Butterflies.” \$94,409.
- 2005-2006 Co-PI - Florida Fish and Wildlife Conservation Commission. “Florida Butterfly Monitoring Network.” \$27,589.
- Co-PI – AZA Conservation Endowment Fund. “Florida Butterfly Monitoring Network.” 2004-2006, \$27,730.
- 2005-2006 Co-PI – Elizabeth Ordway Dunn Foundation. “Conservation of the State-Endangered Miami Blue Butterfly.” \$10,000.

Mirian Medina Hay-Roe, postdoc:

- 2004 Delores A. Auzenne Graduate Scholars Fellowship, UF.
- 2004 Florida Entomological Society Scholarship.

Many UF undergraduates work part time as preparators, lab technicians, and research assistants thanks to these grants.

Keith Willmott, Assistant Curator

- 2006 PI: Collaborative Research – The Butterflies of Ecuador (Lepidoptera: Papilionoidea): A Comprehensive Survey of a Megadiverse Fauna; National Science Foundation (USA), Systematic Biology and Biodiversity Inventories, \$400,000 (UF: \$118,000)
- 2005 Florida Museum of Natural History Museum Associates Fund, \$6,180.
- 2005 Co-Leader (with J. Mallet): Tropical Andean Butterfly Diversity Project; Darwin Initiative, DEFRA (UK), \$277,000.
- 2004 Co-PI (with C. Jiggins): Adaptive speciation and niche divergence in mimetic tropical butterflies; Leverhulme Trust (UK), \$282,000.

Jennifer Zaspel, graduate research associate:

- 2006 Graduate Student Scholarship, Florida Entomological Society (\$500).
- 2006 Harry K. Clench Award for Best Student Paper, Lepidopterists’ Society (\$250).
- 2006 The Exploration Fund of The Explorers Club, NY, for field research in Vladivostok, Russia (\$1,200).
- 2006 Van York Scholarship for Women in the Agricultural Sciences, University of Florida (\$500).
- 2005 President’s Prize for Best Student Paper, Entomological Society of America (\$70).
- 2005 Lewis and Clark Fund for Research and Exploration, American Philosophical Society, for field research in Godavari, Nepal (\$3,500).

Emily Saarinen, graduate student:

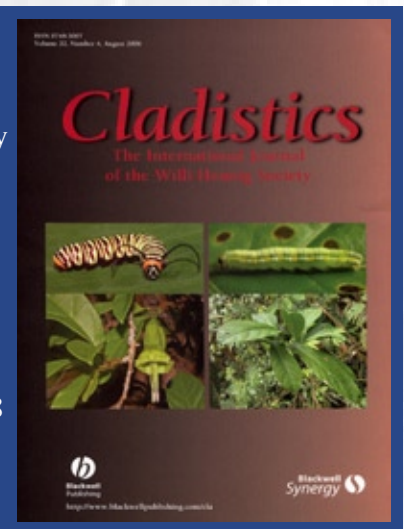
- 2006-2009 Canon National Parks Science Scholars Fellow.
- 2004-2008 UF Alumni Fellowship.
- 2005 Florida Federation of Garden Clubs, Butterfly Scholarship.
- 2005 Klots Award from the Lepidopterists’ Society for Best Student Poster.
- 2005 University of Florida Graduate Student Council Grant for Research.
- 2002-2003 Fulbright Fellowship.

Recent Publications

2003-04:

- Attum, O., **C. Covell** & P. Eason. 2004. The comparative diet of three Saharan sand dune skinks. *African Journal of Herpetology*, 53 (1): 91-94.
- Austin G. T.**, D. D. Murphy, J. F. Baughman, A. E. Launer, and E. Fleishman. 2003. Hybridization of checkerspot butterflies in the Great Basin. *Journal of the Lepidopterists' Society*, 57(3):176-192.
- Balcázar-Lara, M., and **K.R. Willmott**. 2004. A new subspecies of *Adelpha erymanthis* from Mexico, with a key to identification of similar taxa (Lepidoptera: Nymphalidae: Biblidinae). *Tropical Lepidoptera*, 12(1-2)("2001"): 25-38.
- Daniels, J. C.** 2004. BUTTERFLIES OF THE CAROLINAS: FIELD GUIDE. Adventure Publications: Cambridge, MN. 414 pp.
- Daniels, J. C.** 2004. BUTTERFLIES OF GEORGIA: FIELD GUIDE. Adventure Publications: Cambridge, MN. 408 pp.
- Daniels, J. C.** 2004. BUTTERFLIES OF OHIO: FIELD GUIDE. Adventure Publications: Cambridge, MN. 344 pp.
- Debrot, A. O., and **J. Y. Miller**. 2004. Butterflies and moths of Curacao, Aruba and Bonaire. Caribbean Research and Management of Biodiversity (CARMABI), Curacao, Netherlands Antilles. 100 pp.
- Dunford, J. C.**, and D. K. Young. 2004. Annotated checklist of Wisconsin darkling beetles (Coleoptera: Tenebrionidae). *Transactions of the American Entomological Society*, 130(1): 57-76.
- Emmel, T. C.**, and **A. Sourakov**. 2004. Monarchs. Pp. 1452-1456 in J. L. Capinera, ed. *ENCYCLOPEDIA OF INSECTS*. Kluwer Academic Press, New York.
- Hay-Roe, M. M.**, and R. Mankin. 2004. Wing-Click sounds of *Heliconius cydno alithea* (Nymphalidae: Heliconiinae) butterflies. *Journal of Insect Behavior*, 17 (3): 329-335. (RESEARCH FEATURE ON **DISCOVERY NEWS, BBC, ANIMAL PLANET**, AND VARIOUS MEDIA.)
- Hay-Roe, M. M.**, S. Shapiro, J. Becnel, and D. Boucias. 2003. A newly discovered baculovirus induces reflex bleeding in the butterfly *Heliconius himera* (Nymphalidae: Heliconiinae). *Journal of Invertebrate Pathology*, 84: 59-62.
- Heppner, J. B.** 2004. Mexican Lepidoptera biodiversity. *Insecta Mundi* (Gainesville), 16(4): 171-190 (2002).
- Heppner, J. B.** 2004. Orange tortrix, "*Argyrotaenia citrana*": a western species not in Florida (Lepidoptera: Tortricidae). *Florida Entomologist*, Gainesville, FL, 87(2): 235-236.
- Heppner, J. B.** 2004. Butterflies (Lepidoptera: Rhopalocera). Pp. 384-387 in J. L. Capinera, ed. *ENCYCLOPEDIA OF INSECTS*. Kluwer Academic Press, New York. 2580 pp. (3 vol.).
- Heppner, J. B.** 2004. Butterflies and moths (Lepidoptera). Pp. 387-428 in J. L. Capinera, ed. *ENCYCLOPEDIA OF INSECTS*. Kluwer Academic Press, New York. 2580 pp. (3 vol.).
- Heppner, J. B.** 2004. Moths (Lepidoptera: Heterocera). Pp. 1477-1480 in J. L. Capinera, ed. *ENCYCLOPEDIA OF INSECTS*. Kluwer Academic Press, New York. 2580 pp. (3 vol.).
- Heppner, J. B.** 2004. Family treatments for 118 different families of Lepidoptera (throughout the Encyclopedia). in J. L. Capinera, ed. *ENCYCLOPEDIA OF INSECTS*. Kluwer Academic Press, New York. 2580 pp. (3 vol.).
- Heppner, J. B.** 2004. *ATLAS OF NEOTROPICAL LEPIDOPTERA*. Checklist: Part 4A. Hesperioidea - Papilionoidea. Gainesville: Assoc. Tropical Lepidoptera, 36 + 439 pp.
- Heppner, J. B.** 2004. Notes on *Euchlaena 'pectinaria'* in the United States (Lepidoptera: Geometridae: Ennominae), *Lepidoptera News*, 2002(3-4): 6-7.
- Goldstein, P. Z.** 2004. Systematic collection data in North American invertebrate conservation and monitoring programs. *Applied Ecology*, 41: 175-180.
- Goldstein, P. Z.**, Y. Wyner, P. Doukakis, M. Egan, H. Rosenbaum, and R. DeSalle. 2004. Theory and methods for diagnosing species and populations in conservation. *Annals of the Missouri Botanical Gardens*, 92:12-27.
- Goldstein, P. Z.**, S. Hall, B. Hart, S. Roble, and J. Shuey. 2004. Evaluation of Relationships and Conservation Status within the *Neonympha mitchellii* Complex (Lepidoptera: Nymphalidae). Report to U.S.F.W.S., Raleigh, NC.
- Matthews, D.L.** & Gielis, C. 2004. *Leptodeutero copus neales*: a new record for Florida and the United States (Lepidoptera: Pterophoridae: Deutero copinae). *Florida Entomologist* 87(4), 621-622.
- Landry, B., Roque-Albelo, L. & **Matthews, D.L.** 2004. Supplemental additions to the Pterophoridae (Lepidoptera) of the Galápagos Islands (Ecuador) with description of a new species of *Adaina* Tutt. *Mitteilungen der Schweizerischen Entomologischen Gesellschaft* 77: 289-310.
- Sourakov, A.** 2004. Night blooming plants and their insect pollinators. Pp. 1556-1558 in J. L. Capinera, ed. *ENCYCLOPEDIA OF INSECTS*. Kluwer Academic Press, New York. 2580 pp. (3 vol.).
- Sourakov, A.** 2004. Pyrrolizidine alkaloids and Tiger Moths (Lepidoptera: Arctiidae). Pp. 1857-1858 in J. L. Capinera, ed.

Willmott, K. R., and A. V. L. Freitas. 2006. Higher-level phylogeny of the Ithomiinae (Lepidoptera: Nymphalidae): classification, patterns of larval hostplant colonisation and diversification. *Cladistics*, 22: 297-368 (August).



Recent Publications continued

- ENCYCLOPEDIA OF INSECTS. Kluwer Academic Press, New York. 2580 pp. (3 vol.).
- Sourakov, A., and T. C. Emmel.** 2004. Insect conservation. pp. 595-604 in J. L. Capinera, ed. ENCYCLOPEDIA OF INSECTS. Kluwer Academic Press, New York. 2580 pp. (3 vol.).
- Willmott, K. R., and J. P. W. Hall.** 2004. Taxonomic notes on the genus *Zaretis*, with the description of a new species (Lepidoptera: Nymphalidae: Charaxinae). *Tropical Lepidoptera*, 12(1-2) ("2001"): 29-34.
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<http://www.butterfliesofecuador.com/>

<http://www.mariposasmexicanas.com/>

<http://www.andeanbutterflies.org/>

Immatures of ithomiinae:

http://www.flmnh.ufl.edu/butterflies/neotropica/ith_imm.html

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Please, visit our on-line Lepidoptera photo database:

<http://www.flmnh.ufl.edu/butterflygallery/>

Contact asourakov@flmnh.ufl.edu if you would like to contribute your photos.



Dubi Benyamini and Bob Eisele at the seminar

Visiting Speakers

The McGuire Center is visited by many research scientists from all over the world. Below are some of the visitors and topics of their presentations:

- Akito V. Kawahara** (University of Maryland)-Cultural Entomology;
Carmen Pozo (Mexico)-Mexican survey projects;
Christopher Wheat (University of Helsinki)-Metapopulations;
Daniel Janzen (University of Pennsylvania and Costa Rica)-Barcoding of Lepidoptera in Guanacaste;
Dubi Benyamini (Israel)-Biology of Nabokov's Blues (*Pseudolucia*).
Gerardo Lamas (Lima, Peru)-Cultural Lepidopterology;
Jack H. Cox (N. Carolina)-Crocodile Conservation in PNG;
Jack Schuster (Guatemala)-Passalid Beetles;
James K. Adams (Dalton State University, Georgia)-Noctuid moths;
James Mallet (University College, London)-Evolution of *Heliconius*;
Jeffrey S. Glassberg (New Jersey)-NABA;
Jose Luis Salinas Gutierrez (Mexico)-Mexican Biodiversity;
K. T. Park (Chuncheon, Korea)-Moths of Korea;
Lincoln P. Brower (Sweetbriar College)-Conservation of Monarchs;
Marcus R. Kronforst (University of Texas and Rice University)-Butterfly Genetics;
Mauricio Linares (Colombia)-Evolution of *Heliconius*;
Susan Weller (University Minnesota)-Arctiid Evolution;
Varsovia Cevallos (Ecuador)-Butterflies of Cotopaxi NP;
Vazrick Nazari (University of Alberta)-Evolution of Papilionidae;
Vladimir Lukhtanov (St. Petersburg, Russia)-Evolution of Blues.

Seminars and Lectures

The seminar series at the McGuire Center started practically from the first days of operation. Usually, seminars take place in informal atmosphere, with lunch served in the conference room and announcements concerning daily operations of the Center. The seminars are scheduled every other week, with visiting scientists filling in the available spots.

Spring 2007 Seminar Schedule:

- Tuesday, Jan. 23:
 Carmen Pozo
 ECOSUR, Mexico
 "Lepidoptera larvae as environmental indicators in Yucatan: Goals and Problems"
- Tuesday, Feb. 6:
 Varsovia E. Cevallos
 Quito, Ecuador
 "Community Ecology of butterflies in Cotopaxi National Park, Ecuador"
- Tuesday, Feb. 20:
 Andrew Warren
 McGuire Center
 "Higher classification of the HesperIIDae"
- Tuesday, March 6:
 James K. Adams
 Dalton, GA
 "The genus *Papaipema*: What's all the fuss about?"
- Tuesday, March 13
 Dr. Gerardo Lamas
 Museo de Historia Natural
 Univ. Nacional Mayor de San Marcos,
 Lima, Peru
 "Cultural Lepidopterology"
- Tuesday, March 20:
 Dr. Deborah M. Lott
 McGuire Center
 "Larvae and pupae of Nearctic Pterophoridae"
- Thursday, March 29, 2007
 Dubi Benyamini
 Israel
 "Highlights on the Biology of the Andean Polyommata Blues in the Genus *Pseudolucia*"

Tuesday, April 3:
 Jennifer Zaspel
 Dept. of Entomology, UF
 "Examples from the fruit-piercing and blood-feeding moth *Calyptra thalictri* (Noctuidae, Calpinae)"

Tuesday, April 17:
 Christian Salcedo
 McGuire Center
 "Spatial Dynamics of *Heliconius* night roosting"



The McGuire Center's Conference room

University Courses recently taught by the staff of the McGuire Center:
Biology of the Lepidoptera (Paul Goldstein)
Lepidoptera Biology (Mirian Medina Hay-Roe)
Aquatic Entomology (Charles Covell)
Insect Conservation and Ecotourism (Jaret Daniels)
Techniques in Lepidoptera Systematics (Andrei Sourakov)
Immature Insects (James Dunford)
Insect Biogeography (Keith Willmott)
 Graduate students also frequently work as Teaching Assistants in a variety of courses in Zoology, Entomology and Nematology, Wildlife Ecology and Conservation, and Biological Sciences Departments.

If you would like to receive current information via e-mail about lectures and seminars at the McGuire Center, please contact: celiazar@flmnh.ufl.edu

Natural History Tours Guided by Staff and Students

The Florida Museum of Natural History and Expedition Travel are now working together to organize and lead educational trips around the world for all those interested in unique cultural and natural history experiences. Destinations include the Galápagos Islands, Madagascar,

at UF) receive hands-on experience by co-leading expeditions and tours, planning itineraries, and preparing trip arrangements. The most recent trips to Mexico in January and March 2007 allowed participants to witness the stunning Monarch Butterfly overwintering sites. Participants were



Monarchs in the colony, Michiochan, Mexico

French Guiana, Costa Rica and many others. Staff of the McGuire Center have years of experience in foreign travel around the world. Additionally, the majors in Ecotourism (a new major in the Department of Entomology



Madagascar houses 40 species of lemurs, 62 species of chameleons, and many endemic birds and insects. Tom Emmel is planning to lead an educational tour to this biological treasurehouse in October-November, 2007.

in the middle of two of the largest Monarch colonies, numbering roughly 200 million, with some of the highest levels of flight activity seen in over 25 years of visiting Mexico.

A December 2006 educational trip took a group of 13 on a 83-foot yacht to the Galápagos Islands. McGuire Center staff and local guides led daily terrestrial explorations. Diving among the underwater life was led by experienced dive-masters.

Information about the trips can be obtained by contacting Court Whelan expeditiontravel@gmail.com or calling (352) 871-2710.



Court Whelan



Monarchs in the colony, Michiochan, Mexico

Upcoming Trips

Education and Professional Development:

Madagascar - October-November, 2007

Alaska: Brooks Falls and Arctic Ecology - June 28 - July 6, 2008

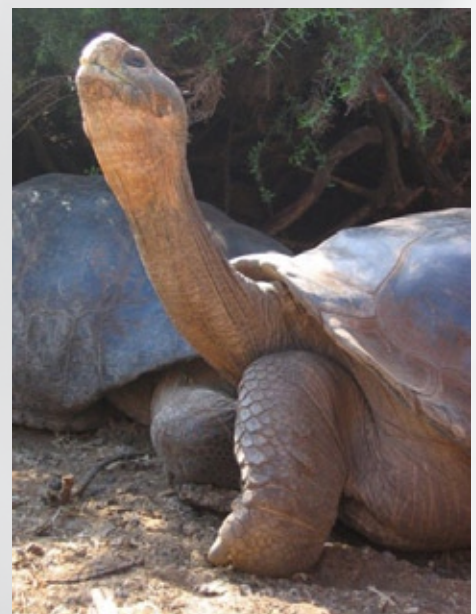
Grand Canyon Rafting - July 20-27, 2008

Exploration:

Ecuador - June 9-21, 2007

Panama - August 4-18, 2007

Galápagos - December 1-10, 2007



Giant tortoise, Galápagos

The Rainforest



Butterfly release in the Rainforest exhibit at the McGuire Center.

The McGuire Center Butterfly Rainforest is a 6,400 square foot, 65-foot tall, steel and screen living exhibit. Its walkway meanders through lush tropical foliage and encounters five waterfalls. The 430 species of nectar-producing tropical and subtropical plants support 1,500-2000 butterflies of over 110 species. It is the largest living exhibit of its kind in the world. During the dry, hot conditions of early summer, there is a high pressure fog system to supplement the waterfalls in humidifying and cooling the vivarium. Butterflies in the exhibit come as pupae from butterfly farms in the Philippines, Malaysia, Costa Rica, El Salvador, Surinam, Ecuador, Belize and Florida.



A Philippine nymphalid butterfly, *Parthenos sylvia*, and Malaysian silk moth, *Attacus atlas*, in the Butterfly Rainforest of the McGuire Center

Research Expeditions

Staff of the McGuire Center participate in and lead research expeditions to remote parts of the world. Recently, members of staff and students travelled to Russia, Ecuador, Guatemala, Brazil, Venezuela, Bahamas, Costa Rica, Malaysia, Colombia, and Nepal. A number of international collaborations are ongoing. Among these are a Lepidoptera faunal survey of the Hunstein Mountain range in Papua New Guinea and projects on Lepidoptera of the West Indies, Ecuador and Mexico.

In 2006, Paul Goldstein participated in a Russian-American expedition to the Far East; Keith Willmott spent three months in the cloud forests of Ecuador and traversed Andean countries with a series of lectures and workshops. Andy Warren was awarded a fellowship from the Mexican government to spend part of the year working in the field in that country.

The Rainforest is a favorite field trip destination for school groups around Florida. Teachers usually develop a curriculum segment around their visit. It also serves as a living laboratory for many university students and visiting scientists. University classes study animal behavior, ecosystems, photography, botany, horticulture, landscape architecture, and plant medicine. Graduate student Christian Salcedo spent evenings for three months in the Rainforest observing Zebra Longwing roosting behavior, and Matthew Lehnert studied *Papilio garamas* there. In the adjacent Rearing Laboratory, artificial diets as well as host plant and nectar source nutritional components are explored.



The Rainforest employs eight full and part-time employees. Attendance was highest during the first year of operations (130,000), with numbers of visitors subsequently stabilizing to average 100,000 annually. It houses over 430 species of plants, 1500-2000 individual butterflies of over 100 species, tropical fish, and birds.



J.D. Turner, a research associate of the McGuire Center, on a field trip in Brazil

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