

Southern Lepidopterists'
Society

and

**ASSOCIATION FOR
TROPICAL LEPIDOPTERA**

2016 Annual Meeting



McGuire Center for Lepidoptera and Biodiversity

Florida Museum of Natural History, University of Florida,
Gainesville, Florida
28 – 30 October 2016

Front Cover: The Pitcher Plant Mining Moth, *Exyra semicrocea*, and host *Sarracenia leucophylla*, Baldwin County, Alabama, photos by Deborah Matthews.

**FALL MEETING OF THE SOUTHERN
LEPIDOPTERISTS' SOCIETY AND THE
ASSOCIATION FOR TROPICAL
LEPIDOPTERA
OCTOBER 28-30, 2016**

McGuire Center for Lepidoptera and Biodiversity Conference Room, Florida
Museum of Natural History, University of Florida, Gainesville, Florida

Local Arrangements

Meeting Coordinators:

Jacqueline Y. Miller and Deborah L. Matthews

Organizing Committee: David Auth, Charles V. Covell, John F. Douglass, Christine Eliazar, Peter J. Eliazar, Thomas C. Emmel, Deborah L. Matthews, Jacqueline Y. Miller, James L. Nation, David Plotkin, Lary Reeves

Banquet/Lunch/Breaks:

Ada Neal, Jacqueline Y. Miller, Kristin Rossetti

Field Trip Coordinators:

Charles V. Covell, John F. Douglass, Lary Reeves, Matt Standridge

Group Photograph:

Andrei Sourakov

Collection Access:

Andrew D. Warren and Andrei Sourakov

Program:

Deborah L. Matthews, Jacqueline Y. Miller, and Christine Eliazar

Technical Support:

James B. Schlachta

Evening Program:

John Douglass, Bill Boothe, and Charles V. Covell

Registration:

Stacy Huber, Elena Ortiz, and Kelly Dexter

Meeting Donors:

Charles V. Covell, John F. Douglass, Ada Neal, Jacqueline Y. Miller, and Deborah Matthews



Schedule of Events

Friday, October 28

7:00 am: **Day Field Trip**, Rub elbows and tarsi with fellow lepidopterists while visiting some of Central Florida's most distinctive environments! A day-long outing is planned with SLS members Lary Reeves and John Douglass. We will visit selected lepidopteran habitats in the Ocala National Forest. Participants will meet at 7:00am in the parking lot of the DPI building, directly across the street from the UF Hilton. Remember to pack water, sunscreen and mosquito repellent along with your regular field equipment. This trip is open to everyone on a drop-in basis. Please join us for a fun day of entomological exploration! Contact: John Douglass, jfdouglass7@gmail.com.

2:00 – 5:00 pm: **Registration**, Powell Hall Classroom (watch for signs in lobby), Florida Museum of Natural History, UF Cultural Plaza, University of Florida.

7:00pm – 12:00am: **Night Collecting**, Charles V. Covell will be leading the evening moth trip and has made arrangements with

the rangers at Paynes Prairie. Members attending should be prepared to pick up a quick dinner (neither food nor drinks will be provided) and drive out to Paynes Prairie Preserve State Park located 10 miles south of Gainesville, in Micanopy, on the east side of US 441. You may meet Charlie in the North Hilton Hotel parking lot at 6:15pm if you wish to caravan or carpool to the Park or meet at the Park visitor center parking lot at 7:00pm. We plan to be out of the park by midnight. Please contact Charlie if you would like to participate (352-273-2023; ccovell@flmnh.ufl.edu). Please remember to bring your mosquito repellent along with flashlight/headlamp and other collecting gear. All field trip participants must sign a release form.

Saturday, October 29

Please follow the signs and enter the McGuire Center through the north staircase entrance or side door volunteer entrance before 10am. Main entrance doors may be used after 10am.

8:00 – 8:45: **Registration** and reception.

MORNING SESSION

Moderator: James L. Nation

8:50 **Opening remarks:** Thomas C. Emmel, John Douglass

9:00 – 9:20: **John V. Calhoun**

“Legendary amateur lepidopterists of the past”

9:25 – 9:45: **Sandy Koi and Craig van der Heiden**

“Butterfly diversity in a south Florida military base located within an urban matrix”

9:50 – 10:10: **John Pickering**

“Findings from Discover Life’s Mothing Project”

10:15 – 10:35: BREAK

10:40 – 11:00: **Andy Warren (et al.)**

“A new species of *Oeneis* from Alaska, United States, with notes on the *Oeneis chryxus* complex (Lepidoptera: Nymphalidae: Satyrinae)”

11:05 – 11:25: **Joe Martinez**

“Do owl moth species composition (Lepidoptera: Noctuidae) predict the quality of habitats? Exploring ecological indicator species”

11:30 – 11:50: **Leroy Koehn**

“*Colias eurytheme* vs. *Colias philodice* and other interesting things”

11:55 – 12:15: **Jaeson Clayborn and Suzanne Koptur**

“Mortal combat between ants and caterpillars in Biscayne National Park”

12:20: **Group Photo**, McGuire Center north stairs - outside.

12:25 – 1:25: **Lunch** at McGuire Center (Subway courtesy of Ada Neal).

AFTERNOON SESSION

Moderator: David Auth

1:30 – 2:15: **John Hyatt, Lance Durden, James Adams, and Brian Scholtens**

“The Lepidoptera of Sapelo Island, Georgia”

2:20 – 2:40: **Ryan St Laurent**

“Revisions of the genera *Lurama* and *Ulmara* (Mimallonoidea, Mimallonidae), with the descriptions of three new *Ulmara* species and a new genus”

2:45 – 3:05: **Marc Minno and Douglas M. Fernández Hernandez**

“New Cuban butterfly discoveries”

3:10 - 3:30: BREAK

3:35 - 3:55: **David Plotkin**

“Phylogenomic analysis reveals the evolutionary history of chaetosemata in emerald moths (Geometridae: Geometrinae)”

4:00 – 4:20: **Charlie Covell**

“Remarks and photos from the 65th Annual Meeting of the Lepidopterists Society at The Nature Place, Florissant, CO, and associated field trips, July 2016”

4:25 – 4:45: **John Heppner**

“Expeditions of discovery: Finding new Lepidoptera in biodiverse habitats of the world”

5:00 – 5:30: **Business Meeting**, Southern Lepidopterists’ Society

EVENING EVENTS

5:45 – 6:15: **Social Hour**, Central Gallery, Powell Hall, Florida Museum of Natural History.

6:15 – 8:30: **Banquet**, Central Gallery, Powell Hall, Florida Museum of Natural History.

John Douglass – Introductions

*Keynote Speaker – Bill Boothe**

“Carnivorous Plants and Their Natural History”

Door Prizes – Charles V. Covell

*Bill Boothe is a Botanist, Invertebrate Zoologist, Professional Naturalist, and an award winning Nature Photographer who has undergraduate and graduate degrees in Biology. Over the last 40 years he has worked for various private, state and federal agencies including the Smithsonian Institution. Presently he has been devoting his time to nature photography--in documenting the Fauna and Flora of Florida and the Southeastern United States and in giving Nature Photo Workshops. His interests include the Lepidoptera of Florida (primarily the Butterflies), Spiders, Wildflowers, Gardening For Pollinators--especially Bees and Butterflies, and Carnivorous Plants. He was past President and Founder of the Florida Hairstreak Chapter of the North American Butterfly Association; and has been a member and contributor of the Southern Lepidopterists’ Society since 2009.

Sunday, October 30

8:00 – 8:40: **Morning reception**, McGuire Center Conference Room

MORNING SESSION

Moderator: David Plotkin

8:45 – 9:05: **Marc Minno and Douglas M. Fernández**

Hernandez

“Moths of Cuba”

9:10 – 9:30: **Sourakov, Andrei, Evgeny V. Zakharov and**

Vladimir. A. Lukhtanov

“Utility of DNA barcodes for taxonomy from the perspective of examining three unrelated groups of Lepidoptera”

9:35 – 9:55: **Dale A. Halbritter**

“Ecological evidence for an evolutionary transition from dwarf mistletoe to pine as larval hosts for *Neophasia* (Lepidoptera: Pieridae)”

10:00 – 10:20: BREAK

10:25 – 10:45: **Hannah L. Owens (et al.)**

“Biodiversity patterns in New World Swallowtail butterflies: Rethinking tropicality”

10:50 – 11:10: **Chris Hamilton**

“Phylogenetic relationships, wing shape, and the evolution of tails across the Arsenurinae (Lepidoptera, Bombycoidea, Saturniidae)”

11:15 – 11:35: **Rick Cech**

“Butterflies in Southern Amazonia”

11:40 – 12:05: **Thomas C. Emmel**

“The extraordinary contributions that monarch migration discoveries are making to biology, ecology, and natural history”

12:10 – 12:20: BREAK

12:25 – 12:55: **Business Meeting**, Association for Tropical Lepidoptera.

1:00: **John Pickering**

Discover Life training workshop: "New moon discovery -- join us and efficiently document moths at a site near you."

Abstracts – Posters

Berthet, William L., Certified Gemologist Appraiser AGS, AGS jewelry store owner, Retired. Volunteer surveyor for N.E. Florida butterflies compiling data for FNAI and FFS. 12885 Julington Road, Jacksonville, Fl. 32258 (bergems@comcast.net).

“Collage featuring 81 butterfly images photographed in 9 countries, including the United States, Mexico, Colombia, Ecuador, Peru, Brazil, Bolivia, Sichuan and Yunnan Provinces in China, Sikkim, W. Bengal, Assam, and Arunachal Pradesh in N.E. India”

Many regions around the world, including the tropical Andes are renowned for their high biodiversity and endemism, and remain poorly studied for butterflies. On hard core butterfly holidays I work with a cadre of other photographers organized by Kim Garwood who is presently working on building a database of Andean species from VZ to Bolivia, concentrating on Colombia, Ecuador and Peru where we go the most, hoping to produce pdf's by families to share w/folks, and allowing Kim to update them as we get additional photos. We have contributed to a photographic checklist of butterflies in 6 books coauthored by Kim, with 4 of those books now available in pdf form. Presently, 13 pdf's of various butterfly hot spots in Colombia can be viewed, linked to neotropicalbutterflies.com

While in India, I have worked with Adrian Hoskins (allaboutbutterflies.com) and Arjan Basu Roy (naturemates.org)

photographing butterflies in the field to help increase the species list in Manas & Buxa Tiger Reserves, Namdapha N.P., Chilapata Wildlife Sanctuary, and Ultapani Reserve Forest.

Hill, Geena M., Stacey L. Huber, Andrei Sourakov, Deborah Matthews, Chris A. Hamilton, Hannah L. Owens, Jacqueline Miller, Andrew Warren, Jaret C. Daniels, & Akito Y. Kawahara, McGuire Center for Lepidoptera & Biodiversity, Florida Museum of Natural History, Gainesville, FL, USA

“Digitization at the McGuire Center for Lepidoptera and Biodiversity”

The McGuire Center for Lepidoptera and Biodiversity serves as both a research facility and a center for education and outreach. Since opening in 2004, the facility has accumulated several million moth and butterfly specimens. Here we present the digitization pipeline for one of the largest collections of Lepidoptera in the world. The current digitization efforts at the Center are part of several NSF-funded projects, including LepNet (Lepidoptera of North America Network, <http://lep-net.org/>), ButterflyNet (<http://www.flmnh.ufl.edu/mcguire/kawahara/butterflynet/>), among others. We discuss mass digitization of specimens, label transcription, and data ingestion.

Abstracts – Oral Presentations

Boothe, Bill, The PhotoNaturalist, Natural Encounters, P. O. Box 715 Bristol, FL 32321 (PhotoNaturalist@NatureInFocus.com).

“Carnivorous plants and their natural history”

There are 47 species + subspecies of Carnivorous Plants in the United States and a majority of these live in the Southeast (Florida is home to 32 + subspecies). These plants not only trap arthropod species, but will also cause their demise, and will absorb the breakdown products from their decomposing bodies. Numerous faunal associates live within or on parts of these plants, including various moth species. Comparisons of all species with respect to capturing their prey, ecological habitats, and animal associates will be shown and discussed.

Calhoun, John V., 977 Wicks Drive, Palm Harbor, FL 34684 (bretcall@verizon.net).

“Legendary amateur lepidopterists of the past”

Many notable lepidopterists were not formally trained entomologists, nor did they make a living studying insects. Although their pursuits were considered leisurely, these amateurs have greatly influenced our understanding of Lepidoptera. Several extraordinary individuals, who lived between the late 18th and early 20th centuries, exemplify the spirit of these citizen scientists.

Cech, Rick, 315 West 23rd Street, Suite MA, New York, NY 10011 (rcech@nyc.rr.com).

“Butterflies in Southern Amazonia”

Would-be voyagers to southern Amazonia often cast their imaginations on this vast expanse of neotropical habitat with fantasy-like zeal. As if one could parachute into the region and immediately begin experiencing its exotic attractions. And this

despite the fact that the surface area of Brazil (3.3 million mi²) is slightly larger than that of the lower 48 United States (3.1 million mi²), with much of it badly degraded. There are wonders to be had in this vast area, even in unlikely spots, but as with all real estate ventures it pays to know something about location. Here is a brief introductory tour of Cristalino, where 350 butterfly species were seen in a bit more than a week.

Clayborn, Jaeson and Suzanne Koptur, 11200 SW 8th Street, Miami, FL 33199 (jclay010@fiu.edu).

“Mortal combat between ants and caterpillars in Biscayne National Park”

The federally endangered Schaus swallowtail butterfly has reached critically low numbers in the Florida Keys. Exotic ants such as *Solenopsis invicta*, *Pseudomyrmex gracilis*, and *Wasmannia auropunctata* are potential threats against the recovery of the Schaus swallowtail butterfly. Ant surveys were conducted on Schaus swallowtail host plants in Biscayne National Park. An ant-caterpillar interaction study was performed with giant swallowtail caterpillars (Schaus swallowtail surrogate) and common arboreal ants. The three most common arboreal ant species were *Camponotus floridanus*, *Pseudomyrmex gracilis* and *Camponotus planatus*. The ant-caterpillar interaction study revealed *C. floridanus* and *P. gracilis* were aggressive towards caterpillars compared to other ant species; however, *P. gracilis* was more abundant, discovered caterpillars faster, and killed more early instar caterpillars.

Covell, Charles V., McGuire Center for Lepidoptera and Biodiversity, Florida Museum of Natural History, University of Florida, Gainesville, FL, 32611-2710 (ccovell@flmnh.ufl.edu).

“Remarks and photos from the 65th Annual Meeting of the Lepidopterists Society at The Nature Place, Florissant, CO, and associated field trips, July 2016”

The 65th annual meeting of the Lepidopterists Society was held at The Nature Place, Florissant, CO on July 6 - 10, 2016, with

field trips to surrounding areas on the three days following the meeting. I report on the activities of the meeting and subsequent field trips to Horseshoe Mountain, Cottonwood Pass, the Cripple Creek Shelf Road, Royal Gorge, and the May Insect Museum. Images of meeting, field trips and some Lepidoptera we encountered are presented.

Emmel, Thomas C., McGuire Center for Lepidoptera and Biodiversity, Florida Museum of Natural History, Gainesville, Florida 32611 (tcommel@ufl.edu).

“The extraordinary contributions that monarch migration discoveries are making to biology, ecology, and natural history”

The long-term investment of professional and citizen-scientist research on the biology and migrations of the North American populations of the Monarch butterfly is now contributing exceptionally detailed information on such fascinating attributes as genetic and enzymatic control of longevity, extraordinarily complex navigational mechanisms, biological time clocks, pesticides and genetically modified crops, and even ecological impact of logging and global climate change on the Monarch. This present brief review of historic and current discoveries will attempt to synthesize a summary of the fascinating internal and external factors controlling these genetic mechanisms and morphological, physiological, and behavioral outputs that result in the extraordinarily complicated migratory insect that we call *Danaus plexippus*.

Halbritter, Dale A., Denis S. Willett, Johnalyn M. Gordon, Lukasz L. Stelinski, and Jaret C. Daniels, Department of Entomology and Nematology, 1881 Natural Area Drive, Steinmetz Hall, Gainesville, FL 32611 (dhalb001@ufl.edu).

“Ecological evidence for an evolutionary transition from dwarf mistletoe to pine as larval hosts for *Neophasia* (Lepidoptera: Pieridae)”

We investigated the role of a pine tree parasite, dwarf mistletoe, in mediating interactions between *Neophasia* butterflies and pine

trees, the butterflies' larval hosts. Butterfly interactions with tree stands harboring varying levels of mistletoe infection were quantified. Volatile compounds were collected from trees and analyzed using gas chromatography-mass spectroscopy. Both butterfly species interacted more with tree stands harboring higher levels of mistletoe infection. Differences in tree volatiles resulting from mistletoe infection may influence *Neophasia* behavior through chemoreception. Volatile profiles were significantly different between infected and uninfected trees. The butterflies' affinity for mistletoe-infected trees may reflect the late stages of a host plant transition from mistletoe to pine. The interactions between *Neophasia*, pines, and mistletoes informs discussion about multitrophic interactions in ponderosa pine ecosystems.

Hamilton, Chris, McGuire Center for Lepidoptera and Biodiversity, Florida Museum of Natural History, University of Florida, 3215 Hull Rd., UF Cultural Plaza, PO Box 112710, Gainesville, Florida, 32611-2710 (chamilton@flmnh.ufl.edu).

“Phylogenetic relationships, wing shape, and the evolution of tails across the Arsenurinae (Lepidoptera, Bombycoidea, Saturniidae)”

Understanding how evolutionary pattern and process produced Earth's diversity is one of the key objectives in biological research. Wild silk moths (Saturniidae) are large, charismatic moths with a diverse array of wing shape and body size variation, yet few studies have investigated the drivers of this spectacular morphological diversity. Between 50-60 million years ago, major echolocating bat lineages originated, along with one of the largest lepidopteran radiations – the Macroheterocera, a group of moth species that includes saturniids. One intriguing but untested hypothesis is the possibility that differences in wing shape are associated with clade diversity and their primary nocturnal predators – bats, an idea that challenges the conventional hypothesis that angiosperm evolution directly led to moth diversification. Anti-bat traits are thought to be related to competitive interactions, therefore significant increases in diversification rate or trait evolution would indicate support for

an ongoing evolutionary arms race between bats and moths. Our research investigates the evolution of wing shape across the subfamily Arsenurinae and asks whether particular traits (i.e. body size, forewing shape, hindwing tails) are correlated with extant diversity. To quantify wing shape of these large moths, distributed across the Neotropical region of the Americas, we imaged >500 specimens across the ten genera and applied Fourier shape analysis to quantify wing shape. To infer the phylogeny, we utilized Anchored Hybrid Enrichment phylogenomics to produce a robust phylogeny of the subfamily and establish the foundation upon which trait evolution and diversification rates could be evaluated.

Heppner, John B., McGuire Center for Lepidoptera and Biodiversity, Florida Museum of Natural History, University of Florida, 3215 Hull Rd., UF Cultural Plaza, PO Box 112710, Gainesville, Florida, 32611-2710 (jheppner@flmnh.ufl.edu).

“Expeditions of discovery: Finding new Lepidoptera in biodiverse habitats of the world”

Biodiverse regions of the world recently sampled are discussed and various new species are shown, including from Cambodia, Taiwan, Thailand, Vietnam, French Guiana, Guatemala, Martinique, Panama, and Peru.

Hyatt, John A.¹, Lance Durden², James K. Adams³, and Brian Scholtens⁴, ¹Kingsport, TN (jkshyatt@centurylink.net); ²Georgia Southern Univ., Statesboro, GA (ldurden@georgiasouthern.edu); ³Dalton State College, Dalton, GA (jadams@daltonstate.edu); ⁴College of Charleston, Charleston, SC (scholtensb@cofc.edu).

“The Lepidoptera of Sapelo Island, Georgia”

Only sporadic reports of short-term Lepidoptera sampling on the SE US coastal barrier islands have been published. In 2011 the first author obtained the permission and assistance of the Georgia Dept. of Natural Resources and the Sapelo Island National Estuarine Research Reserve to conduct a multi-year

study of the moth fauna of Sapelo Island, a relatively undeveloped 26 mi² island midway between Savannah, GA and Jacksonville, FL. The island has a wide variety of low-elevation habitats including beach and dune biotopes, low and high salt marshes and brackish marshes, open fields, and pine and hardwood forests. The authors will have completed 5 years of monthly sampling in December, 2016. To date, approximately 1010 Lepidoptera species have been identified from the island, of which about 70 appear to be new records for the state of Georgia. At least one noctuid moth new to science has been discovered on Sapelo. In this presentation, the four authors will discuss in turn the island geography, climate, habitats, project history and sampling protocols; the butterfly fauna; the macromoth fauna; and the micromoths of Sapelo Island.

Koehn, Leroy C., 3000 Fairway Court, Georgetown, KY 40324 (LepTraps@aol.com).

“*Colias eurytheme* vs. *Colias philodice* and other interesting things”

Colias eurytheme and *Colias philodice* occur over much of Eastern North America. They do not cross-breed. Host plants, rearing, and life history are not well known.

Koi, Sandy and Craig van der Heiden, 100 E Linton Blvd., Delray Beach, Suite 302B, Delray Beach, FL USA 33483 (sandykoi2009@gmail.com).

“Butterfly diversity in a south Florida military base located within an urban matrix”

South Florida is a renowned ‘hotspot’ for rare, threatened and endangered taxa, including indigenous insects and plants found in no other ecosystems. Florida biota are subject to drought, flooding, hurricanes, salt-water intrusion and high-wind tropical storms, as well as the urban and agricultural threats such as pesticide use and fragmented remnant habitats. Lepidoptera are indicator species that help document changes in species richness, abundance and diversity. The ability of native butterfly species

to adapt to changing ecological factors is one of the dynamics that impacts their fitness, driving survival, extirpation or extinction. Ongoing butterfly surveys conducted on a military base, located within a dense mix of urban, commercial and agricultural matrices in southeast Florida, showed surprising butterfly diversity. Thirty-eight species, including eighteen migratory butterflies, were documented utilizing the disturbed remnant native ecosystems and micro-habitats within the 1,953 acres.

Martinez, Jose I. McGuire Center for Lepidoptera and Biodiversity, Florida Museum of Natural History, University of Florida, 3215 Hull Road, Gainesville, FL, USA, 32611(joemartinez@ufl.edu).

“Do owlet moths species composition (Lepidoptera: Noctuidae) predict the quality of habitats? Exploring ecological indicator species”

One of the groups of insects most affected by land-use change are the Lepidoptera (butterflies and moths) due to their sensitivity to ecological change. The Noctuidae (owlet moths) are a clear example of this, due to the broad range of specialized requirements. The aim of this work was to estimate the species diversity, richness and abundance in four different habitats at the Lagunas de Yalahau State Park in Yucatan, Mexico and determine the indicator species associated with disturbance and those that require conservation management. The results showed that best-preserved habitats had the greatest species diversity present and we also obtained 35 indicator species. The results also suggest that the composition of the Noctuidae are an important indicator of habitat quality.

Minno, Marc C.* and Douglas M. Fernández Hernandez,
*600 NW 35th Terrace, Gainesville, FL 32607 (marcminno@gmail.com).

“New Cuban butterfly discoveries”

In November 2015 we searched for butterflies in northeastern Cuba from Holguín to Humbolt National Park east of Moa. Butterflies were abundant at most localities. We discovered a last instar larva of *Astraptes xagua* on *Senna atomaria* (Fabaceae) at Holguín and a pupa on *Senna alata* at Humbolt National Park. At Guardalavaca we found larvae of *Chioides marmorosa* on *Hebestigma cubense* (Fabaceae) and a colony of *Cyclargus thomasi* in coastal tropical forest. At La Mensura National Park we discovered an undescribed species of *Calisto* and one adult male *Oarisma brunneri* in a pine scrub forest on serpentine soil. Also, at Humbolt National Park, we found one male of *Dianesia c. carteri* along a trail late in the afternoon. *C. marmorosa* and *O. brunneri* are among the rarest endemic butterflies in Cuba.

Minno, Marc C.* and Douglas M. Fernández Hernandez,
*600 NW 35th Terrace, Gainesville, FL 32607 (marcminno@gmail.com).

“Moths of Cuba”

At least 1,400 species of moths have been reported from Cuba, but many others are likely to be present. About 20% of the known moth species are thought to be endemic. Groups with the greatest species richness include Noctuoidea (554), Pyraloidea (353), and Geometroidea (151). Nearly 60 species of sphingids and two species of *Urania* (both endemic) are present. In comparison to Florida (65,755 sq. miles), Cuba is about 35% smaller in land area (42,426 sq. miles). Although Cuba has about twice as many plant species (more than 8,000), Florida has at least twice the number of moth species as Cuba.

Owens, Hannah L., Fabien Condamine, Anne-Laure Clamens, Julian Dupuis, Delano Lewis, Felix Sperling, Akito Kawahara, Robert Guralnick, Florida Museum of Natural History, Gainesville FL 32611 (howens@flmnh.ufl.edu).

“Biodiversity patterns in New World Swallowtail butterflies: Rethinking tropicality”

The latitudinal diversity gradient (LDG) has been observed in many taxonomic groups, and has been investigated from a variety of evolutionary and ecological perspectives. There are three abiotic mechanisms invoked to explain the LDG: evolutionary rates, ecological opportunity, and biogeographic history. Using a new phylogeny of New World Swallowtail butterflies (*Papilio: Alexanoria, Pterourus, Chilasa* and *Heraclides*), environmental data, and species' locality information, we investigate these hypothetical mechanisms for the LDG as observed in this clade. We do not recover strong evidence for latitude as an explanatory variable for evolutionary rates across the clade or available abiotic ecological opportunity. However, we uncover a previously-underappreciated mechanism of niche conservatism and temperate-to-tropical dispersal in addition to more commonly-invoked tropical-to-temperate dispersal.

Plotkin, David, McGuire Center for Lepidoptera and Biodiversity, Florida Museum of Natural History, University of Florida, 3215 Hull Rd., UF Cultural Plaza, PO Box 112710, Gainesville, Florida, 32611-2710 (dplotkin@ufl.edu).

“Phylogenomic analysis reveals the evolutionary history of chaetosemata in emerald moths (Geometridae: Geometrinae)”

The emerald moths (Geometrinae) are a cosmopolitan subfamily with over 225 genera. Like many other Lepidoptera, emerald moths possess a pair of chaetosemata (elevated patches with elongate sensory setae). Chaetosemata have been speculated to be associated with sound perception in some Lepidoptera, though their precise sensory function is unknown. A survey of chaetosemata morphology in Geometrinae reveals noticeable variation in the number of setae, and slight variation in overall shape. These data are mapped onto a Geometrinae phylogeny generated from genomic data, which thus far contains 12 of the 20 geometrine tribes. Chaetosemata appear overall to be most setose in the clade of ‘hemitheine’ tribes, though there are multiple instances of convergence across the subfamily. General tribal-level classification of Geometrinae will also be discussed.

Pickering, John, Discover Life and the University of Georgia
http://www.discoverlife.org/who/Pickering,_John.html.

“Findings from Discover Life's Mothing Project”

Discover Life's Mothing project aims to understand how weather, geography, and other factors affect moth communities. Since 2010, participants have photographed over 600,000 insects at 23 sites in the United States and Costa Rica, documenting nightly activity of over 3,000 moth species. My talk will focus on (1) the accumulation of 1,283 species over time at a site in Clarke County, Georgia, (2) resampling this site's nightly observations to measure the impact of the lunar cycle on flight activity, (3) bomb-pulse isotope data that show some saturniids have multi-year pupa banks, and (4) an analysis of when taxonomists described 30,000 African and North American species with respect to higher taxa and geography.

Sourakov, Andrei, Evgeny V. Zakharov and Vladimir. A. Lukhtanov, McGuire Center for Lepidoptera and Biodiversity, Florida Museum of Natural History, University of Florida, Gainesville, FL 32611-2710 (asourakov@flmnh.ufl.edu).

“Utility of DNA barcodes for taxonomy from the perspective of examining three unrelated groups of Lepidoptera”

Butterflies and moths have served as a model group for developing DNA barcoding methodology, thanks to the efforts of Paul Hebert, Daniel Janzen and others. The method has now become a routine tool in taxonomy, and many Lepidoptera have been barcoded at least once, which may be sufficient for identification of these species. In our presentation, using three unrelated groups of Lepidoptera: genus *Calisto* (Nymphalidae), genus *Parnassius* (Palilionidae), and sister genera *Terastia* and *Agathodes* (Crambidae), I will illustrate how directing more resources towards DNA barcoding can help in resolving taxonomic conundrums and in revealing cryptic species.

St Laurent, Ryan A., McGuire Center for Lepidoptera and Biodiversity, 3215 Hull Road, Gainesville, FL 32611 (rslaurant@flmnh.ufl.edu).

“Revisions of the genera *Lurama* and *Ulmara* (Mimallonoidea, Mimallonidae), with the descriptions of three new *Ulmara* species and a new genus”

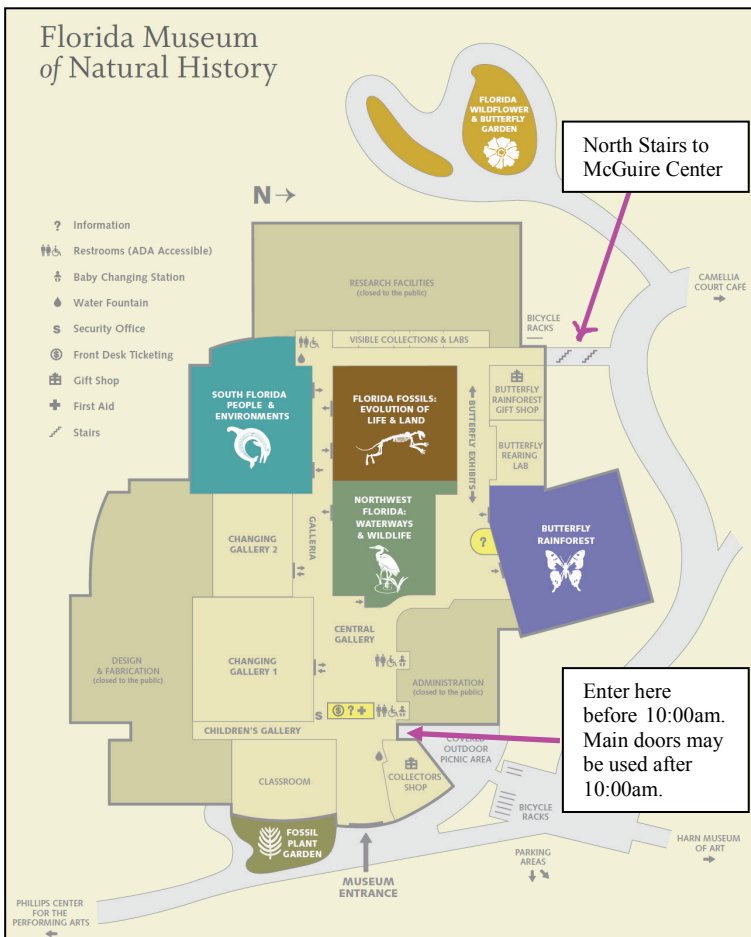
The Andean genera *Lurama* Schaus, 1928 and *Ulmara* Schaus, 1928 are revised. *Lurama* poses difficulty for revision due to lost male genitalia of the types of both described species. *Ulmara conjuncta* sp. n., *U. azurula* sp. n., and *U. dombroskiei* sp. n. are described as new in the genus *Ulmara*. A lectotype is designated for *Lurama quindiuana* Schaus, 1928 and *Ulmara rotunda* (Dognin, 1916). A new monotypic genus, *Cunicumara* gen. n., which is externally similar to *Ulmara*, is described to include the new species *Cunicumara anae* sp. n. from low elevations of Bolivia and Paraguay. Male genital morphology does not support a close association of *Cunicumara* with *Lurama* or *Ulmara*. The latter two genera, however, are closely related based on similarities of male genitalia and biogeography.

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“A new species of *Oeneis* from Alaska, United States, with notes on the *Oeneis chryxus* complex (Lepidoptera: Nymphalidae: Satyrinae)”

Oeneis tanana A. Warren & Nakahara was recently described from the Tanana River Basin in southeastern Alaska, USA. This new taxon belongs to the core group of *Oeneis* and is apparently closest to *O. chryxus* by morphology, including its larger size and similarity of the female genitalia. In wing patterns and COI mitochondrial DNA barcode sequences, it is reminiscent of *O. bore*. A review of *O. chryxus* subspecies suggest that some may be better treated as species-level taxa, including *O. c. altacordillera*, found mainly in Colorado, near and above treeline. Evolutionary scenarios within the *chryxus* complex of taxa will be discussed.



Payne's Prairie State Park

