

Southern Lepidopterists'
Society

and

**ASSOCIATION FOR
TROPICAL LEPIDOPTERA**

2017 Annual Meeting



McGuire Center for Lepidoptera and Biodiversity

Florida Museum of Natural History, University of Florida,
Gainesville, Florida

22 – 24 September 2017

Front Cover: Female Curitiba Firetip, *Sarbia curitiba* (Hesperiidae), Parana, Brazil. Photo by Andrew D. Warren.

**FALL MEETING OF THE SOUTHERN
LEPIDOPTERISTS' SOCIETY AND THE
ASSOCIATION FOR TROPICAL
LEPIDOPTERA
SEPTEMBER 22-24, 2017**

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, Shinichi Nakahara, David Plotkin, Jeffrey Slotten, Jon D. Turner

Banquet/Lunch/Breaks:

Ada Neal, Jacqueline Y. Miller, Kristin Rossetti, Rachel Gott

Field Trip Coordinators:

Charles V. Covell, John F. Douglass, Jeffrey Slotten

Group Photograph:

Andrei Sourakov

Collection Access:

Andrei Sourakov

Program:

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

Technical Support:

James B. Schlachta

Evening Program:

Thomas C. Emmel, Peter Houlihan, and Charles V. Covell

Registration:

Claudia Gaudino, Riley Gott, and Tyler Shaw



Schedule of Events

Friday, September 22

8:00 am: **Day Field Trip**, join your friends and fellow lepidopterists for a day-long outing with Jeff Slotten to various habitats southwest of Gainesville. We will meet for carpooling at **8:00 AM** in the UF Hilton's north parking lot (west & across the street from the McGuire Center). 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: Jeff Slotten, jslotten@bellsouth.net.

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**, Charlie 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. We will meet for carpooling/caravan in the North Hilton Hotel parking lot at **6:15pm**. Alternatively, you may meet us 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, September 23

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: Shinichi Nakahara

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

9:00 – 9:20: **Ryan St Laurent**
“Diurnal behavior in Mimallonoidea”

9:25 – 9:45: Stephen R. Steinhauser, **Jacqueline Y. Miller**, and Nick Grishin
“Review of the West Indian *Astraptus xagua* (Lucas) Complex (Hesperiidae: Eudaminae)”

9:50 – 10:10: **David Fine**
“Introduction to "Keysmoths.com"”

10:15 – 10:35: BREAK

10:40 – 11:00: **James Hayden**

“Florida micro matters”

11:05 – 11:25: **Ana Carvalho**

“A review of the occurrence and diversity of the sphragis in butterflies (Lepidoptera, Papilionoidea)”

11:30 – 11:50: **James Adams**

“*Catocala myristica* in Georgia”

11:55 – 12:15: **Leroy Koehn**

“*Colias eurytheme* - color to be determined?”

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: **Jade Badon**

“The Negros Ark Hypothesis: The Evolution of Rhopalocera (Lepidoptera) in the Philippines”

2:20 – 2:40: **Charles Covell**

“A review of people, activities and contributions to lepidopterology in the 43 years of the Society of Kentucky Lepidopterists”

2:45 – 3:05: **Peter Van Zandt** and Matthew S. Lehnert

“Which Moths Might be Pollinators? Approaches in the Search for the Flower Visiting Needles in the Lepidopteran Haystack”

3:10 - 3:30: BREAK

3:35 - 3:55: **Shinichi Nakahara**, Keith R. Willmott, Denise Tan, Marianne Espeland, and Thamara Zacca

“Bewildering brown butterflies: progress in unravelling the systematics of Euptychiina”

4:00 – 4:20: **Tom Emmel**

“New and Forthcoming Books on Lepidoptera”

4:25 – 4:45: **John Pickering** and Alex Cherkinsky

“Moth pupa banks, adult eclosion triggers, and flight patterns”

4:50 – 5:35: **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.

Tom Emmel – Introductions

*Keynote Speaker – Peter Houlihan**

"Ghosts in the Night: Adventures and advances in pollinating Darwin's orchids"

Door Prizes – Charles V. Covell

***Peter Houlihan** - is a biologist specializing in leading expeditions that fuse science and media to inform global audiences about the natural world. Houlihan received a B.A. in Behavioral Biology from Johns Hopkins University and is completing a PhD in Biology at University of Florida. He has held numerous positions internationally, including co-founding and Directing a community-based conservation NGO in Borneo called BRINCC, working as a research affiliate at the Smithsonian Tropical Research Institute in Panama, and serving on the Society for Conservation Biology's Equity, Inclusion, and Diversity Committee. Peter works on both sides of the camera as on-screen talent, scientific consultant, cinematographer, drone cinematographer, and producer. As a National Geographic Explorer, Houlihan leads and documents expeditions into remote and demanding environments around the world for various National Geographic media outlets. In addition, Peter's work has been supported by numerous grants from the Florida and International Biodiversity Foundations, the International League of Conservation Photographers, and he is sponsored by Patagonia and GoPro. Personal website: www.peter-houlihan.com.

Sunday, September 24

8:15 – 8:55: **Morning reception**, McGuire Center Conference Room

MORNING SESSION

Moderator: David Plotkin

9:00 – 9:20: **Jaret Daniels** and Geena Hill
“Expanding At-Risk Butterfly Conservation Planning in Florida”

9:25 – 9:45: **Marc Minno** and Douglas Fernández Hernández
“Butterflies of the Sierra Maestra Mountains, Cuba”

9:50 – 10:10: **Jose Martinez**
“Crazy trip to Central America becomes a new discovery: The case of *Gerra sevorsa* (Grote) complex”

10:15 – 10:30: BREAK

10:35 – 10:55: **Andrei Sourakov**
“Giving eyespots a shiner: Pharmacologic manipulation of the Io moth wing pattern”

11:00 – 11:20: **Patricio Salazar**
“Tilapia (*Oreochromis* spp.) as a potential standard carrion bait for studies of tropical butterfly communities”

11:25 – 11:45: **Jade Badon**
“The Butterfly Hunters of the Philippines”

11:55 – 12:00: BREAK
title

12:05 – 12:35: **Business Meeting**, Association for Tropical Lepidoptera.

Abstracts

Adams, James K., Dalton State College, Dalton, GA
(jadams@daltonstate.edu).

“*Catocala myristica* in Georgia”

Catocala myristica was described very recently, in 2015, by Kons and Borth. It may have gone unnoticed because of its similarity to *Catocala robinsoni*. However, it also has an extremely close association with its hostplant, Nutmeg Hickory (*Carya myristiciformis*), a widely scattered and extremely local tree in the southeastern U.S., and apparently it does not travel far from its host which may also explain the moth's lack of detection. The discovery of the moth in Georgia is discussed.

Badon, Jade Aster, McGuire Center for Lepidoptera and Biodiversity, Florida Museum of Natural History, University of Florida, Gainesville, FL 32611-2710 (jaabadon@gmail.com).

“The Negros Ark Hypothesis: The Evolution of Rhopalocera (Lepidoptera) in the Philippines”

Current distributional data in Philippine butterflies suggested that colonization and exchange of species between Luzon and Mindanao may have occurred through the Negros Ark Hypothesis event which occurred during the Miocene Epoch (23-5.3 million years ago). Several butterfly species from different families served as representatives to analyze and explain some disjunction of distribution of species in the archipelago. The hypothesis will definitely become an interesting approach in the field of island biogeography and phylogenetic studies in the Philippines.

Badon, Jade Aster, McGuire Center for Lepidoptera and Biodiversity, Florida Museum of Natural History, University of Florida, Gainesville, FL 32611-2710 (jaabadon@gmail.com).

“The Butterfly Hunters of the Philippines”

A documentary presentation and a film which features the people who placed the butterflies of the Philippines on the map. This is part of the author’s dissertation research, where he interviewed some of the butterfly hunters who travelled around the islands to collect and document butterflies despite the dangers and challenges in the jungles of the Philippines.

Carvalho, Ana Paula S., Alabert Orr, and Akito Kawahara, McGuire Center for Lepidoptera and Biodiversity, Florida Museum of Natural History, University of Florida, Gainesville, FL, 32611-2710 (acarvalho@ufl.edu).

“A review of the occurrence and diversity of the sphragis in butterflies (Lepidoptera, Papilionoidea)”

Males of many butterfly species secrete large externalized mating plugs, called a sphragis, to prevent their mates from remating, thus ensuring paternity of the offspring. Neither the incidence nor diversity of the sphragis has been systematically documented. We record a sphragis or related structure in 273 butterfly species, representing 72 species of Papilionidae (13 genera), and 201 species of Nymphalidae (9 genera). These figures represent respectively, 13% of Papilionidae, 3% of Nymphalidae, and 1% of known butterfly species. A well-formed sphragis evolved independently in at least five butterfly subfamilies. The sphragis potentially represents one of the clearest examples of mate conflict. Investigating its biology should yield testable hypotheses to further our understanding of the selective processes at play in an ‘arms race’ between the sexes.

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).

“A review of people, activities and contributions to lepidopterology in the 43 years of the Society of Kentucky Lepidopterists”

Since its founding in 1974 the Society of Kentucky Lepidopterists has been the vehicle of many field activities, an ongoing state Lepidoptera survey, a long-lasting July 4th butterfly count, discoveries of new species, interesting phenomena, major collections, and countless hours of fellowship. Some of this history is reviewed here.

Daniels, Jaret C. and Geena Hill, McGuire Center for Lepidoptera and Biodiversity, Florida Museum of Natural History, University of Florida, Gainesville, FL, 32611-2710 (jdaniels@flmnh.ufl.edu).

“Expanding At-Risk Butterfly Conservation Planning in Florida”

Unfortunately, habitat loss, invasive species, and other stressors have put a significant strain on many butterfly populations in Florida and resulted in alarming declines and even two extinctions over the past few decades. With funding from the Disney Conservation Fund’s Reverse the Decline Initiative, the Florida Museum of Natural History is working with various partners to help promote recovery through detailed conservation planning and on-the-ground project implementation. Highlights of projects and initiative components involving habitat and species restoration, scientific research, and public outreach will be presented along with details of the strategic planning process for this multi-taxa project.

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

“New and Forthcoming Books on Lepidoptera”

A surprising flood of new books on butterflies and moths has been appearing recently and this presentation will highlight a dozen notable examples. The reasons for this plethora of diverse works will be discussed, and a brief summary of how to join the growing crowd of authors will be addressed.

Fine, David, 4110 NW 12th St. Coconut Creek, FL 33066
(david@keysmoths.com).

“Introduction to Keysmoths.com”

Since 2003, we have been surveying the moths of the Florida Keys and have identified more than 580 species thus far. We wish to share some of the exciting findings and update how we are working with USFWS to create public education programs to raise awareness of the unseen diversity of the moths of the Florida Keys.

Koehn, Leroy C., 3000 Fairway Court, Georgetown, KY 40334
(LepTraps@aol.com).

“*Colias eurytheme* - color to be determined?”

Colias eurytheme is a common pierid butterfly of man color? Larval host plant and weather can affect the color of female adults.

Hayden, James, McGuire Center for Lepidoptera and Biodiversity, Florida Museum of Natural History, University of Florida, 3215 Hull Road, Gainesville, FL, USA, 32611
(jehayden63@gmail.com).

“Florida micro matters”

I will highlight some new species, records, and puzzles that have crossed my desk in the past few years. Most are micromoths (Tineoidea, Gelechioidea) with a few pyraloids and noctuids from surveys in Florida.

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).

“Crazy trip to Central America becomes a new discovery: The case of *Gerra sevorsa* (Grote) complex”

Gerra (Noctuidae: Agaristinae) is a genus of owlet moths restricted to the New World, with five known species *Gerra lunata* Köhler, *Gerra radiata* Becker, *Gerra radicalis* Walker, *Gerra sophocles* Dyar, and *Gerra sevorsa* (Grote). However, an extensive revision of this genus based on external characters and morphology of genitalia showed that *G. sevorsa* is a species complex that is comprised of six species. Within this species complex, three species were reassigned to their original name *Gerra aelia* (Druce), *Gerra aedessa* (Druce), and *Gerra meridionalis* (Draudt), while two are new species. Moreover, *Gerra brephos* Draudt syn. n. is synonymized with *G. aedessa*. Finally, it was found that the species, *G. lunata* and *G. radiata*, do not belong *Gerra*, and a new genus, *Pseudogerra*, is proposed.

Minno, Marc C.¹ and Douglas Fernández Hernández, ¹600 NW 35th Terrace, Gainesville, FL 32607 (marcminno@gmail.com).

“Butterflies of the Sierra Maestra Mountains, Cuba”

The highest elevation in Cuba is Pico Turquino, located in the Sierra Maestra Mountains in the southeastern part of the island. This area is part of Turquino National Park. The summit of Pico Turquino is reported to be 6,476 feet (1,974 meters) above sea level. These mountains receive abundant rainfall and are densely vegetated with tropical hardwood trees, shrubs, and ferns. The butterfly fauna includes the endemic *Dismorphia cubana*, *Calisto smintheus*, *Anetia cubana*, *Lycorea halia demeter*, and *Greta cubana*, which are mostly found at higher elevations Cuba. On November 15-18, 2016 we observed 54 species of butterflies (6 species of papilionids, 15 pierids, 16 nymphalids, 4 lycaenids, and 13 hesperiids) in the vicinity of the village of Santo Domingo and along trails in the national park from La Platica to Pico Juaquin on the way to the summit of Pico Turquino.

Nakahara, Shinichi¹, Keith R. Willmott¹, Denise Tan¹, Marianne Espeland², Thamara Zacca³, ¹McGuire Center for Lepidoptera and Biodiversity, Florida Museum of Natural History, University of Florida, Gainesville, FL, USA; ²Zoological Research Museum Alexander Koenig, Adenauer Allee 160, 53113 Bonn, Germany; ³Departamento de Biologia Animal and Museu de Zoologia, Instituto de Biologia, Universidade Estadual de Campinas, Campinas, São Paulo, Brazil.

“Bewildering brown butterflies: progress in unravelling the systematics of Euptychiina”

The predominantly small, brown butterflies of the nymphalid satyrine subtribe Euptychiina range throughout temperate and tropical North and South America, where they inhabit fields, grasslands and savannah, as well as rain forests and cloud forests. Often common, many specimens are nevertheless difficult or impossible to identify. In particular, identification is complicated by wing patterns that may vary substantially within species but minimally between species, morphological homogeneity, a poor understanding of species relationships and generic limits, and, historically, a lack of taxonomic work on the group. The last couple of decades, however, has seen a renaissance in research on euptychiines, with work on the higher-level phylogenetics as well as generic revisions, by researchers in Europe and the Americas. The Lamas (2004) checklist recognized 400 species (described and undescribed) in 40 genera; currently, we estimate the group to contain 539 species in 70 genera, with 76 species and 7 genera described since 2004. An estimated 137 species and 23 genera are still to be described. Focusing mainly on work done over the last four years at the McGuire Center, funded by an NSF grant, we summarize some of our ongoing molecular phylogenetic and taxonomic revisionary research.

Pickering, John^{1,2} and Alex Cherkinsky¹, ¹University of Georgia, Athens; ²Sam Houston State University, Huntsville, Texas, (http://www.discoverlife.org/who/Pickering,_John.html).

"Moth pupa banks, adult eclosion triggers, and flight patterns"

Discover Life's Mothing project aims to understand how weather and other factors affect moth communities. We present (1) nightly flight patterns of selected species at a site in Clarke County, Georgia and (2) ^{14}C bomb-pulse radiocarbon dating measurements of how many years saturniid moths spend as pupae. We suggest that adult eclosion triggers and temperature driven development rates both affect flight patterns. We conclude that it is impossible to understand adult population dynamics of many holometabolous insects without a much better knowledge of the genetic and environmental factors that determine their pupal behavior.

Salazar, Patricio A., McGuire Center for Lepidoptera and Biodiversity/Powell Hall, Florida Museum of Natural History, University of Florida, PO Box 112710, Gainesville FL, 32611-2710 (psalazarc@flmnh.ufl.edu).

“Tilapia (*Oreochromis* spp.) as a potential standard carrion bait for studies of tropical butterfly communities”

Large-scale and long-term studies of butterfly communities require standard sampling techniques to allow for valid comparisons between places and times. In the tropics, butterfly traps baited with fermented banana had become a standard technique for community ecology studies and butterfly monitoring. Carrion baits are also commonly used by lepidopterists, but no one single carrion bait has been adopted as a standard yet. For that reason, we assessed the efficiency of Tilapia (*Oreochromis* spp.), a freshwater fish cultivated across the tropics worldwide, as a potentially good standard carrion bait, by experimentally testing whether Tilapia attracted an equivalent butterfly abundance, diversity and species composition to other commonly used carrion baits (a marine fish and shrimp), and contrasted its sampling spectrum to that of the banana standard.

Sourakov, Andrei, McGuire Center for Lepidoptera and Biodiversity, Florida Museum of Natural History, University of

Florida, Gainesville, FL 32611-2710 (asourakov@flmnh.ufl.edu).

“Giving eyespots a shiner: Pharmacologic manipulation of the Io moth wing pattern”

The eyespot is a prominent feature of Lepidoptera wing pattern, especially in the family Saturniidae. Sulfated polysaccharides injections are known to enhance *wingless* gene signaling and have been previously shown to modify forewing discal spots (DI) across Lepidoptera. Recently, I examined how injections of one of such polysaccharide, heparin, may affect the wing pattern formation of the Io moth, *Automeris io* (Saturniidae), a species with a prominent dorsal hindwing eyespot. Prepupae and pupae of *Automeris io* were subjected to injections of heparin and cold shock. While the cold shock had little to no effect on wing pattern, the aberrations resulting from heparin injections were moderate to profound and depended on the stage at which injection was made and the dose of heparin. The changes consisted of expansion of the black ring around the dorsal hindwing eyespots and distortion of DI on both dorsal and ventral sides of forewings, suggesting a possible link between genetic controls of these three elements.

Steinhauser, Stephen R., Jacqueline Y. Miller¹, and Nick Grishin², ¹McGuire Center for Lepidoptera & Biodiversity, Florida Museum of Natural History, University of Florida, 3251 Hull Rd., UF Cultural Plaza, P. O. Box 112710, Gainesville, FL 32611-2710 (jmillier@flmnh.ufl.edu); ²Howard Hughes Medical Institute and Depts. of Biophysics and Biochemistry, University of Texas Southwestern Medical Center, 5323 Harry Hines Blvd., Dallas, TX 75390-9050.

“Review of the West Indian *Astraptes xagua* (Lucas) Complex (Hesperiidae: Eudaminae)”

The genus *Astraptes* Hubner includes some very showy, robust bodied skippers that are geographically distributed through the southern U. S., Central and South American including the West Indies. This genus is distinguished by the prominent costal fold on the male forewing, the antennae extending along

approximately one half of the forewing length, and the tails on the hindwing absent in the six species present in the West Indies. *Astrartes xagua* (Lucas) is one of the more interesting species known originally with two subspecies. Steinhäuser and Miller (unpublished 2007) reviewed the genus based on the original descriptions, type specimens, and other morphological characters. The advent of molecular phylogenetic analyses provides further insight into the current status of the *Astrartes xagua* complex.

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

“Diurnal behavior in Mimallonoidea”

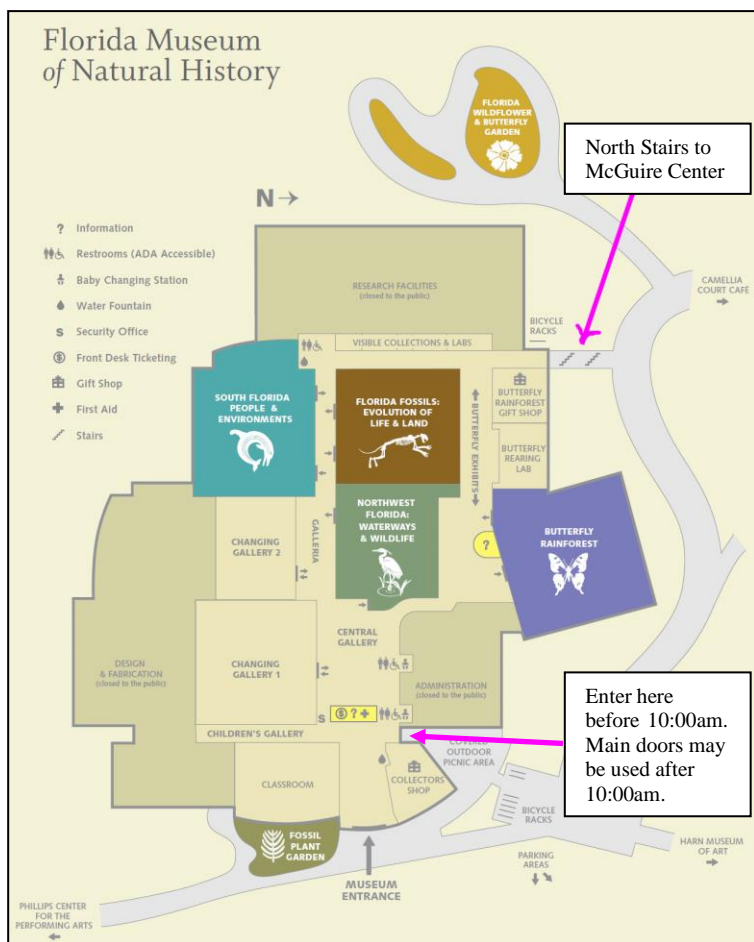
It was recently discovered that the common, and widespread North American mimallonid species *Lacosoma chiridota* Grote, 1864, displays diurnal behavior in both sexes. Female pheromone releasing behavior (“calling”) was recorded in the late afternoon in Gainesville, Florida. Diurnal males were seen responding to calling females on two occasions. We discuss the case of sexual dimorphism exhibited by *L. chiridota*, such that most Mimallonidae generally do not display pronounced sexual dimorphism, and suggest that this may be related to the likewise unique diurnal behavior of this species. We are aware of at least one other diurnal mimallonid species, as well as several undescribed species that may also exhibit diurnal behavior.

VanZandt, Peter A.¹ and Matthew S. Lehnert², ¹Department of Biology, Birmingham-Southern College (pvanzand@bsc.edu), ²Kent State University.

“Which Moths Might be Pollinators? Approaches in the Search for the Flower Visiting Needles in the Lepidopteran Haystack”

The natural history of pollination has been studied for centuries and is well documented for diurnal species, but less so for nocturnal species. There are notable cases of well-known moth pollination systems, but given the enormous diversity of

nocturnal Lepidoptera, the role of moths as flower visitors is poorly known. Based on examples from the literature and our own research, we outline several different approaches that can be employed to search for patterns of flower visitation by moths, along with a brief description of the techniques and examples of each approach. While none of these approaches is without limitations, each may be useful in the search for novel information on the natural history of flower visitation by moths.



Payne's Prairie State Park

